Frontispiece. Top figure, *Lonchura stygia* (♂, Hoogerwerf no. 514); middle figure, intermediate individual (♀, Hoogerwerf no. 512); bottom figure, *Lonchura nevermanni* (♂, Hoogerwerf no. 498). 3/4 ×. I. van Noortwijk del.

BIRDS FROM THE LOWLANDS OF SOUTHERN NEW GUINEA (MERAUKE AND KOEMBE)

by

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With 5 plates and 9 text-figures

INTRODUCTION

In the periods January 1959-June 1961 and February-September 1962, a total of about three years, the late Mr. A. Hoogerwerf was attached to the experimental rice farm Koembe near Koerik, not far from the mouth of the Koembe River, southern New Guinea, where he was in charge of investigations concerning crop-damage caused by birds and mammals. The results of his work were published in an important report (Hoogerwerf, 1962), in which it was suggested that certain alterations in the pattern of agricultural activities, like changes in the times of flooding and planting of the fields, could reduce damage by water birds without need to resort to the drastic measures so frequently taken against wildlife when man feels only in the slightest economically threatened or harmed. Being, however, the enthusiastic ornithologist he was, Hoogerwerf did not confine his attention to birds of direct economic importance, but made a study of the whole ornithofauna of the region. This included the accumulation of a general collection of bird-skins and of several clutches of eggs, mainly from Koerik and Koembe, and from the larger and better known village of Merauke, some 25 km to the S.E. of Koembe. In addition the beach between Koembe and the mouth of the Bian River was worked, and around the middle of October 1960 the Koembe River was ascended to and beyond the village of Kaisa (= Keiza, Kaisah), in a straight line over eighty kilometres from the coast, and many more by boat over the river.

As early as 1962, when he was still in New Guinea, I was in contact with Mr. Hoogerwerf on the subject of publication of his ornithological work, and we considered the feasability of a joint paper on his collections. For two reasons, however, these plans were infinitely delayed. In the first place I was somewhat doubtful that a paper of the classical faunistic type, consisting of a few odd remarks on zoogeography and systematics combined with field notes, would be a very valuable contribution to ornithological knowledge. As Mayr (1959: 293) had pointed out not long before, papers with titles such as: "On a collection of birds from Timbuctoo" are nowadays considered so old-fashioned that most

journals will not even publish them any longer. I felt no particular urge to contribute another paper of this type even though many are still published annually. The second reason is that soon after his return from New Guinea Hoogerwerf (1964) himself published a paper in which the majority of his faunistically interesting discoveries, concerning no less than 57 species, were already recorded. Naturally, this made the production of a paper on the whole collection even less urgent than it had been before. On the other hand I never entirely abandoned the plans and, from time to time, kept working on the collection. This was because, in spite of what has been said above, it still contained much of interest (distributional data, subspecific identity of *Elanus*, *Cacatua*, etc., relationship of *Lonchura* species). None of these items are of sufficient importance or have been worked out sufficiently to justify separate publication, but a paper of the Timbuctoo type is just the right kind of outlet for a miscellaneous lot of notes on diverse topics, and that is why I finally overcame my reluctance and decided to present my notes in this shape.

Although a museum systematist is often forced to work on collections of birds from regions of which he has no personal field experience, I have, for obvious reasons, never found this very satisfactory. Therefore the fact that in 1957 I stayed for a few days in Merauke, where I had an opportunity to do some bird-watching, has been of real help. In the main text a few of my observations will be recorded, and in a separate section I give a list of all species observed by me, with some notes on their status as I found them at the time. The list contains several species not collected by Hoogerwerf and therefore adds a little to faunistic knowledge of the region.

As explained above, the preparation of this paper has taken a long time. This has had the disadvantage that, long after certain discussions had been written, new literature had to be taken account of. It was not always practical to incorporate such new information completely as in some instances this would have required re-writing of large sections. In a few places it must be visible that, to the detriment of the style, additions have been made to text already written. I can only ask for understanding, and express the hope that the clarity of the discussions has not suffered too much from these later additions and alterations.

Abbreviations used in the text and in tables, of the names of institutions from which material has been borrowed are: AMNH (American Museum of Natural History, New York); FM (Field Museum of Natural History, Chicago); KMMA (Koninklijk Museum voor Midden-Afrika, Tervuren); MCZ (Museum of Comparative Zoölogy, Cambridge, Mass.); NRS (Naturhistoriska Riksmuseet, Stockholm); RMNH (Rijksmuseum van Natuurlijke Historie, Leiden); SM (Natur-Museum und Forschungs-Institut "Senckenberg", Frankfurt am Main); ZMA (Zoölogisch Museum, Amsterdam); ZMB (Zoologisches Museum, Berlin); ZRC (Zoological Reference Collection, formerly the Raffles Museum, Singapore).

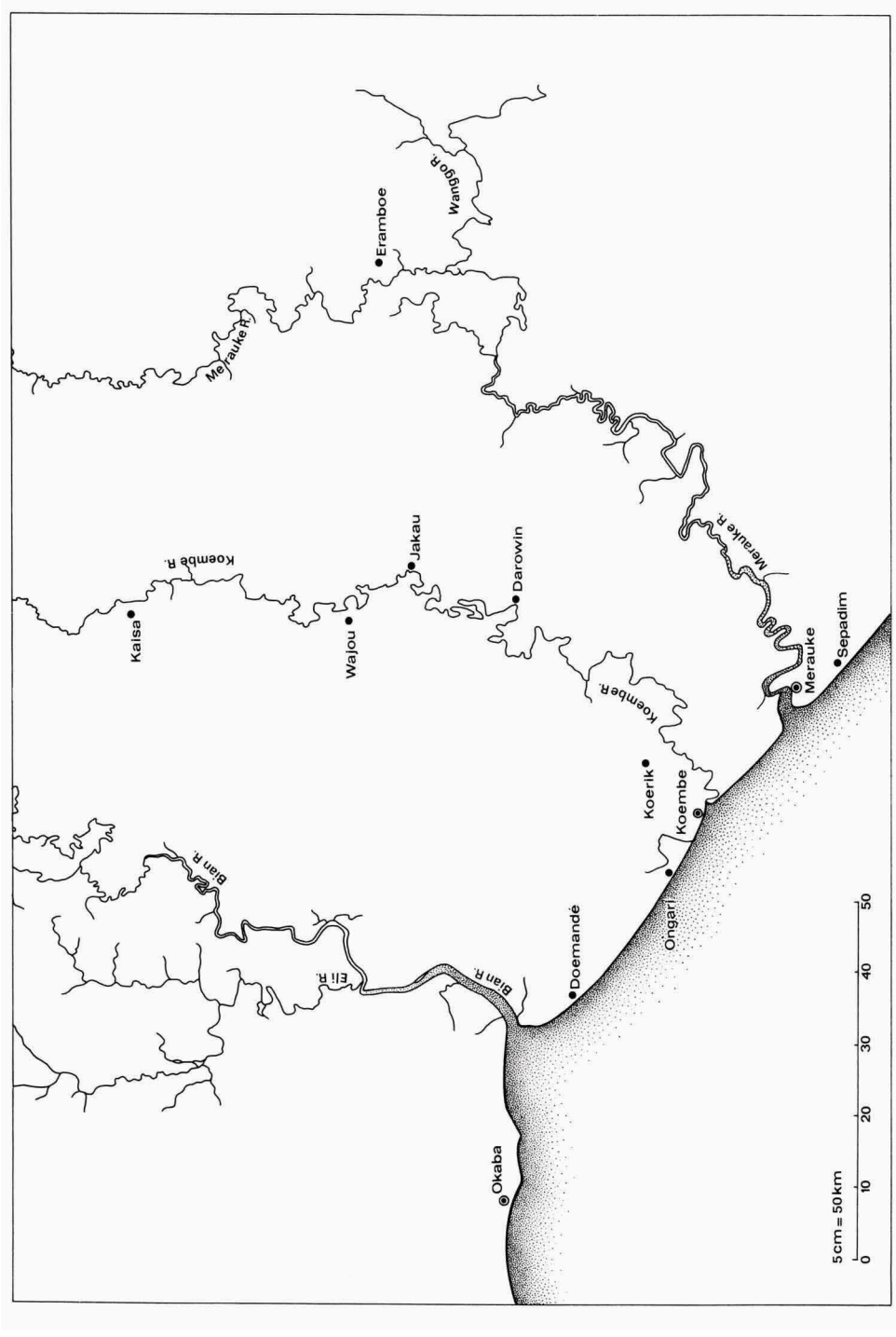

Fig. 1. Map of southern New Guinea, showing localities discussed in the text.

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The coloured plate and the text figures have been drawn by Miss Inge van Noortwijk. Our photographer Mr. E. L. M. van Esch is responsible for the plates 1-3, and the late Mr. Chr. Hoorn for plate 4.

AUSTRALIAN MIGRANTS IN NEW GUINEA

There is far more land in the Northern Hemisphere than in the Southern Hemisphere, a difference that is most pronounced in the temperate and cooler regions. For a comparison: the parallel of 40°N runs through the Mediterranean, south of the greater part of the land mass of Eurasia, whereas the parallel of 40°S passes well south of the tip of Africa, south of the Australian Continent, and has to its south only Tasmania, the South Island of New Zealand, the narrow tip of South America, and Antarctica. It is therefore obvious why migration of land birds is a far more spectacular process in the Northern Hemisphere than it is in the Southern Hemisphere. It is due to this factor that study of migration has long been confined to the Northern Hemisphere. As far as Australia is concerned: although it has been known for many years that some of its breeding

land-birds are migratory, reaching New Guinea, the Moluccas, even Borneo and Java, nevertheless the study of migration has been a neglected field until quite recently. For example, and in spite of some early pioneer work (cf. Chandler, 1959), co-ordinated ringing on a large scale started in Australia some forty or fifty years later than in many European countries and in North America (cf. Serventy, 1972: 49). It is therefore not surprising that direct evidence of migration through recoveries of ringed birds is still very incomplete and for many species entirely wanting.

The preceding remarks are only a statement of the position at this time and an attempt to explain why in the past study of migration has received less attention in Australia than it has in the Northern Hemisphere. It would be unfair not to mention that in recent years the situation, as far as Australia is concerned, has radically changed, both migration and nomadism receiving a considerable amount of attention. The same can scarcely be said of New Guinea; it is significant that Rand & Gilliard (1967: 16-17) devote less than a page to a discussion of migrant visitors from the North and from the South together, and that they begin this section with the words: "Little attention has been paid to the non-breeding birds that visit New Guinea". It is a great merit of Hoogerwerf that he has paid special attention to these two groups (northern as well as southern migrants) and thus has contributed substantially to a neglected field. Subsequently this field was entered by Bell (1966, 1971) and other enthusiastic members of the Papua New Guinea Bird Watching Society, and a list of both northern and southern migrants known to cross the Torres Strait was recently published by Ashford (1979).

Australian visitors to New Guinea fall in two distinct groups: actual migrants with periodic (annual) movements from their Australian breeding grounds to their winter quarters in New Guinea, and nomadic species, which show no such regular pattern. The last group contains mostly water- and swamp-birds; these can move in any direction in search of water, in periods of drought in Australia. It is only the first group, that of the true migrants, mostly land birds, with which I am concerned here. The list contains 39 names, including two migrants from New Zealand. Of some, the migratory status is not well established; for example, *Coracina l. lineata* is known in New Guinea from a single specimen only (near Merauke, cf. Van Oort, 1909: 87), which may be a straggler, but as both its congeners in Australia, *C. novaehollandiae* and *C. tenuirostris*, are strongly migratory, and in Australia there appears to be some evidence of migration, it is more likely to be a migrant visitor. On the other hand, some species which I regard as nomads may actually have a hitherto undisclosed pattern to their movements and may belong to the group of the migrants.

Threskiornis moluccus (cf. Mees, in press)
Circus approximans
Falco cenchroides cenchroides

Falco longipennis longipennis
Porphyrio porphyrio melanotus
Stiltia isabella
Chlidonias hybridus javanicus
Ducula spilorrhoa
Cuculus pallidus
Cacomantis variolosus variolosus
Cacomantis pyrrhophanus prionurus
Chrysococcyx basalis
Chrysococcyx lucidus lucidus (from New Zealand)
Chrysococcyx lucidus plagosus
Chrysococcyx (Misocalius) osculans
Eudynamys scolopacea cyanocephala
Urodynamis taitensis (from New Zealand)
Scythrops novaehollandiae
Eurostopodus mystacalis
Halcyon sancta sancta
Halcyon chloris sordida
Halcyon macleayii incincta
Tanysiptera sylvia sylvia
Merops ornatus
Eurystomus orientalis pacificus
Pitta versicolor simillima
Petrochelidon nigricans nigricans (see text below)
Petrochelidon ariel (cf. Bell, 1968b; Lindgren, 1971)
Coracina novaehollandiae
Coracina lineata lineata
Coracina tenuirostris tenuirostris
Lalage sueurii tricolor (but see Watson et al., 1962: 75 and Bell, 1979b)
Rhipidura rufifrons rufifrons
Monarcha melanopsis
Monarcha trivirgatus gouldi
Myiagra rubecula rubecula
Myiagra cyanoleuca
Aplonis metallica metallica
Dicrurus hottentottus bracteatus

In literature one finds occasional suggestions that other Australian birds would migrate to New Guinea. This is probably correct, but some of the suggestions that have been made are almost certainly erroneous. I will discuss them here.

According to Rowley (1975: 171, 175), the Australian population of *Phonygammus keraudrenii* would be migratory, leaving Cape York Peninsula to winter in

New Guinea. I have been unable to find on what this is based. The Australian population constitutes a separate subspecies *P. k. gouldii* (G. R. Gray) that to the best of my knowledge has never been recorded from New Guinea. The Paradisaeidae as a group are very sedentary and I regard trans Torres Strait migration as unlikely. Rowley (l. c.) has also listed *Monarcha frater* as migratory in Australia, but it could scarcely be, considering that the Australian subspecies has never been recorded from outside its very small range at the tip of the Cape York Peninsula.

Storr (1973: 125) believed *Ramsayornis modestus* (regarded by him as a subspecies of *R. fasciatus*) from Queensland to be migratory and to winter in north-western New Guinea. As this species is not known to show geographical variation, the references given by Storr (to Mayr & de Schauensee, 1939a: 139-140 and 1939b: 162) do not support his opinion.

According to Barnard (1911: 23), *Podargus papuensis* would migrate between Cape York and New Guinea. Even though this was based on second-hand information, it should not be rejected lightly, as all Barnard's other records of migration have since been confirmed. Moreover, supporting evidence was provided by M'Lennan (or Maclennan), who mentioned that in September 1910: "numbers of these birds were seen flying over Thursday Island, making for the mainland" (cf. Macgillivray, 1914: 158).

In Vidgen's (1921) paper, there is the definite statement that *Pitta erythrogaster macklotii* is a regular (annual) trans Torres Strait migrant; this may possibly be correct, but direct evidence is lacking. The same author refers to *Lopholaimus antarcticus minor* as an irregular migrant from New Guinea to Cape York, but he must have misinterpreted his data, as this species has never yet been recorded from New Guinea.

Possibly, the source of some of the erroneous records mentioned above is Broadbent's (1885) pioneer paper, in which for example *Podargus papuensis* and *Lopholaimus antarcticus* are already listed as migrants from New Guinea. If so this confirms the tenacity of errors, once they have been introduced in the literature.

Concerning the two swallows listed above, I am well aware that the genus *Petrochelidon* as defined by Peters (1960: 118-123) is not generally accepted. The alternative of uniting it with *Hirundo*, first suggested by Mayr & Bond (1943) and subsequently defended by Phillips (1973) does, however, go too far in my opinion. As long as *Delichon* is kept separate from *Hirundo*, although *H. rustica* and *D. urbica* are known to hybridize occasionally in the wild, the two Australian species *P. nigricans* and *P. ariel* deserve also to be kept apart from *Hirundo*. Whether *Petrochelidon* sensu Peters is a natural group, is something I do not feel competent to discuss. I also hesitate to follow Schodde (1975: 6), who placed the Australian species in *Cecropis*. Typical members of the genus *Cecropis* have a deeply forked tail and a tawny, chestnut or reddish rump, characters not found in the Australian species.

The monotypic genus *Urodynamis* has been united with *Eudynamys* in recent literature, but in view of the objections made by Stresemann & Stresemann (1961: 326) I regard this as premature. *U. taitensis* is well-known as a migrant to the Solomon Islands and the Bismarck Archipelago, but in the New Guinea region has been recorded but once (on Misima = St. Aignan, Louisiades, cf. Bogert, 1937).

Chrysococcyx osculans is known as a migrant visitor to the Moluccas and the Aru Islands (there is material in our collection), but I have been unable to find on what the inclusion of the New Guinea mainland in its winter range by Rand & Gilliard (1967: 239) is based.

Changes in nomenclature

In this paper a single new subspecies is described: *Cacatua pastinator transfreta.* On the other hand, some twenty-odd currently accepted subspecies have been relegated to the synonymy. Of course I realize that the recognition of subspecies can in many cases be a matter of subjective judgement as to how much or rather how little difference still merits expression in nomenclature. Complete agreement on such matters will probably never be reached, but in each case I have tried to give clearly my reasons for rejecting subspecies. Simple courtesy requires that when one rejects subspecies described by others, the arguments for doing so are presented, and it is unfortunate that this point is frequently neglected so that one is confronted with ex cathedra statements which are no better than the (frequently poorly described) subspecies about which they pass judgement.

The problem of how to treat certain members of widely distributed groups of allopatric forms, about which there is disagreement as to whether they should be treated as subspecies of one species, or should be regarded as species within their group, is never an easy one. Taking decisions of this kind is, of course, routine procedure to a systematist, but the present collection contains an unusually large number of such forms, in the genera *Anhinga*, *Elanus*, *Megapodius*, *Porphyrio*, *Haematopus*, *Himantopus*. Until much more is known about these complexes of closely related forms, any opinion about their exact status and interrelationships remains subjective and speculative. Often the status currently ascribed to some of these forms can only be understood from a historical perspective. Before the introduction of tertiary nomenclature, there was no problem: all morphologically distinguishable forms were given equal status as species. With the introduction of ternary nomenclature, a period followed in which much attention was devoted to uniting forms to polytypic species. In some instances this went further than in others. The general result was a considerable clarification of relationships and a simplification in classification, but inevitably in a few cases simplification along the lines sketched overshot its target, against which subsequently a healthy reaction set in. Perhaps unavoidably one gets an impression that in the past few years this reaction has gone a bit too far in the opposite direction. An example is the recognition of *Himantopus meridionalis* as a separate

species by Mayr & Short (1970: 47), although there is almost universal agreement amongst systematists, including those who are not opposed to the recognition of somewhat fine subspecies, like Clancey (1961: 177), that this name is no more than a synonym of *H. h. himantopus*.

When one has no new evidence, and has no strong opinions either way, the best is just to accept the status quo and not to make unfounded changes. This is the principle or the lack of principle that has guided me, more or less, but I admit that even so I have been inconsistent and have, for example, on slender evidence divided several forms of *Anhinga* in species, but on the other hand have united the several forms of *Elanus* usually regarded as specifically distinct, to one. For some philosophical arguments either way, see Bock & Farrand (1980: 10-11).

In this paper I have not been particularly concerned with generic classification and it is accident rather than purpose that has led to arguments against the recognition of *Poliolimnas* as different from *Porzana*, and for the recognition of *Habroptila* and *Megacrex* as valid monotypic genera. In addition I am now convinced that *Megaloprepia* must be united with *Ptilinopus*, as has been previously suggested by others. On the other hand I am strongly against uniting *Petrophassa* with *Geophaps*, which has also been suggested in recent literature, but as these genera do not occur in New Guinea, a discussion is held over. The retention of *Piezorhynchus* as a separate genus is purely opportunistic, but can be justified on the grounds that the Monarchine group of flycatchers is so badly in need of a revision, that it is preferable to leave matters as they are than to make changes which will later have to be modified again. After all, it is stability in nomenclature we all claim to pursue.

List of species

Phalacrocorax sulcirostris (Brandt)

Carbo sulcirostris Brandt, 1837, Bull. Acad. Sci. St. Pétersb., 3: col. 56 — Terrae australes (Südsee).

Material. — ♂, 13.VIII.1960, Koerik, no. 362. Wing ca. 260, tail 135, tarsus 51, exposed culmen $50^1/_2$ mm, weight 873 g. Iris emerald green, eye rim light blue, bill over culmen and tip black, remainder dirty slate grey, bare skin of head and pouch dark grey. No moult. The bird is in adult plumage, black with some tiny white spots above lores and above and behind the eyes.

Discussion. — In literature usually three races of the species have been recognized: the nominate race from extra-tropical Australia, *P. s. territori* (Mathews) from tropical Australia and the islands to the North of it, and *P. s. purpuragula* (Peale) from New Zealand (cf. Peters, 1931: 86-87). In a previous paper I have shown that *P. s. territori* does not differ from the nominate race (cf. Mees, 1961: 98-99), a conclusion earlier arrived at by Mack (1953: 7-8). The New Zealand population, *P. s. purpuragula*, was said to differ subspecifically from Australian birds: "on account of its longer wing and shorter bill and tarsus"

(Oliver, 1930: 183). Later, however, the same author stated: "There seem to be no significant differences between birds from Australia and New Zealand" (Oliver, 1955: 207). Material in our collection from Java (2), Borneo (3), Flores (1), Celebes (1), Halmahera (1), Batjan (1), Ambon (1), Aru Islands (3) and New Guinea (3) yields the following measurements: wing 238, 240, 241, 242, 245, 247, 248, 250, 255, 255, 257, 259, 260, 260, 262, 272; tail 116 (imm.), 123-140; tarsus 42-51; exposed culmen 42$^1/_2$-52 mm. In this material no difference in measurements between males and females is apparent, but with a few exceptions the specimens are old and the sexing may be unreliable; therefore I have united the sexes. Material from New Zealand, where the species is of very local occurrence, is scarce in collections, but the measurements published by Falla (1932: 140, s. n. *Phalacrocorax (Mesocarbo) ater*) are completely within the range of variation of my material and prove that differences in measurements or proportions do not exist. Apparently *Phalacrocorax sulcirostris* cannot be divided into subspecies. The Checklist Committee of the Ornithological Society of New Zealand (Fleming, 1953: 29; Kinsky, 1970: 32) has also given the species a binomial name, but as this was done without explanation, I believe that the discussion given above is still useful.

Anhinga novaehollandiae papua Rand

Anhinga rufa papua Rand, 1938, Amer. Mus. Novit., 990: 1 — Lake Daviumbu, middle Fly River, south New Guinea.

Material. — ♀ juv., 13.VIII.1960, Koerik, no. 363. Wing 352, tail 230, tarsus —, exposed culmen 71 mm, weight 1240 g. Iris light brown, bill dark grey, lower yellowish, legs yellowish grey.

Discussion. — See Hoogerwerf (1964: 72). There is no agreement as to whether all forms of *Anhinga* should be united into one species, or several species must be recognized. Peters (1931: 94-95) accepted four species, one of which was *A. novaehollandiae*. Rand (1938a) regarded *novaehollandiae* and *papua* as subspecies of *A. rufa* (Africa), which gave this species a broken range as *A. melanogaster* Pennant of south-eastern Asia was evidently excluded. Rand & Gilliard (1967) retained *A. rufa* as the specific name for birds from New Guinea but mentioned as its range: "Africa, southern Asia to Australia", clearly in error. Condon (1975: 46) recognized two species: *A. anhinga* of the New World, and *A. melanogaster* from the Old World and Australia, a classification supported by Harrison (1978) on the basis of osteological characters. So far so good, but in addition Condon claimed that: "Australian birds are virtually indistinguishable from subspecies *rufa* from Africa". He accepted the nomenclatural consequences of this opinion and listed the Australian form under the name *A. melanogaster rufa*, relegating *A. novaehollandiae* to the synonymy.

A review of all forms of *Anhinga*, with descriptions of the various plumages would be an interesting and worth-while undertaking but the material is not

available to me. I did, however, compare our two adult males of *novaehollandiae* with four adult males of *rufa*, and found them conspicuously different. The Australian birds have the crown as well as chin, throat and most of the neck blackish, only on the lower part of the foreneck is there a rather large light brown patch. African birds, on the other hand, have the crown tinged with brown, whereas chin, throat and the whole fore neck are pale brown, lower down a little darker. Unless the available sample is quite unrepresentative, *novaehollandiae* is a well-differentiated form. I do not like retaining the trinomial used by Rand for birds from New Guinea, with its implication that Australian and African birds are closer related to each other than either is to *melanogaster*. It is only for this reason that I have reverted to the classification given by Peters (see also Mayr & Short, 1970: 29 and White, 1975). Quite apart from the specific identity, my impression is that the validity of the race *papua* as different from *novaehollandiae* requires confirmation, but as a single immature female is evidently no base for a critical review, I have had to accept *papua* at face value, especially as females of *novaehollandiae* are not represented in our collection. I do not know on what grounds Hoogerwerf (1964: 72) could conclude that this same specimen: "apparently belongs to the subspecies *papua*". Hoogerwerf already mentioned that the specimen has a few blackish feathers on the cream-coloured under surface. As he especially stated that he had sexed the bird personally, there can be no doubt that it was correctly sexed as a female.

As Hoogerwerf (1964: 72) noted, it is quite well possible that Australian birds visit southern New Guinea.

Ardea picata Gould

Ardea (Herodias) picata Gould, 1845, Proc. Zool. Soc. Lond., 13: 62 — Port Essington.

Material. — ♂, 9.VIII.1960, Koerik, no. 346. Wing 222, tail 76½, tarsus 77½, entire culmen 75, exposed culmen 64 mm, weight 266 g. ♀, same data, no. 347. Wing 221, tail 82, tarsus 77, entire culmen 71, exposed culmen 63 mm, weight 227 g. Iris light yellow, bill dirty yellow, base of mandible olive grey, legs citrine. No moult.

Discussion. — In the 45 years following its description as *Ardea (Herodias) picata*, this species has been retained in the genus *Ardea* (the type-species of which is *A. cinerea* L.) or, less often, in *Herodias* (type species *Egretta garzetta* (L.) and therefore a synonym of *Egretta*, which has the same type species). Sharpe (1898: 112) transferred it to *Notophoyx*, a genus created a few years earlier by himself (type species *Ardea novaehollandiae* Latham). Sharpe's authority ensured sixty years of stability at the generic level, apart from an inevitable attempt by Mathews (1913) to split it off in its own monotypic genus[1]). The end of this un-

[1]) But Sharpe (1898: 247) upset nomenclature by claiming that *A. picata* Gould was preoccupied by "Raffles 1822". Raffles (1822: 326) described an *Ardea picta*, not an *Ardea picata*. Naturally *picta* (graceful) and *pictata* (coloured with tar or pitch) are entirely different words which under no rule of

precedented period of stability came with Bock (1956: 38), who decided that *A. picata* ought really to be placed in the genus *Hydranassa* (type species *Ardea ludoviciana* Wilson = *Hydranassa tricolor ruficollis* (Gosse)). According to Payne & Risley (1976: 84): "Bock's taxonomic treatment was guided mainly by the view that Peters' (1931) check-list of herons recognized far more genera than were compatible with current taxonomic trends". Anyway, once the stability of the preceding sixty years had been broken, the "current taxonomic trends" swept on in the direction of simplification with the result that especially Australian ornithologists reverted to the binomen *Ardea picata* (cf. Storr, 1966: 13 and 1973: 9; CSIRO Division of Wildlife Research, 1969; Frith & Hitchcock, 1974: 116; Condon, 1975: 53). Also conforming to current taxonomic trends, these later authors did not bother to explain what their opinion was based on. A paper of better quality is that by Curry-Lindahl (1968), who introduced a new binomen: this time it was *Egretta picata*. He drew also attention to the undeniable morphological resemblance between this species and the African "*Melanophoyx*" *ardesiaca*. The latest review available to me, a very thorough one, is by Payne & Risley (1976). These authors agree with Curry-Lindahl in using the combination *Egretta picata*. The osteological studies on which Payne & Risley based their conclusions look impressive and the temptation to follow them without comment has been strong. On the other hand I am not quite convinced that some of the characters used are not simply relations of size: the classification of the "typical" herons presented, places the large species in *Ardea* and the small ones in *Egretta*.

Obviously I am not in a position to judge conclusions arrived at after much serious labour by students of the family Ardeidae, but being compelled to make a choice I made a superficial examination of our material. On the basis of this I agree with Payne & Risley that (1) *Ardea picata* and *Ardea novaehollandiae* do not appear to be closely related so that the retention of the former in *Notophoyx* has nothing to recommend it, and (2) the only particular resemblance between *A. picata* and *Hydranassa tricolor* consists of their small size, a character a priori unlikely to have much phylogenetic significance. Incidentally, I am also quite unable to see that *Ardea pacifica* is especially close to *Ardea cinerea* and its relatives, an affinity suggested by Mayr & Short (1970: 31). Payne & Risley (1976: 75) confusingly start their discussion of this species with: "The Australian *A. pacifica* has been regarded as a member of the *A. cinerea* superspecies (Mayr & Short, 1970), but it is considerably smaller and has some maroon feathers at the base of the neck and on the back unlike the other herons of this group. We think it less closely related to this complex than the other allospecies are to each other...". Unexpectedly they end as follows: "It is probably an aberrant member of the *A. cinerea*

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homonymy could be considered the same. *Ardea picta* Raffles is a synonym of *Dupetor flavicollis*. It is revealing that for a quarter of a century apparently nobody bothered to look up Raffles's description, published in a very accessible journal: not even Mathews who had a certain reputation for unearthing obscure literature. Thus it was left to Stresemann (1923) to correct the error and to restore Gould's name to validity.

superspecies''. One wonders what a superspecies is supposed to be. As far as I can judge the main reason for the desire to include *A. pacifica* in the *A. cinerea* superspecies is that otherwise this widely distributed group of large herons would not be represented in Australia.

Finally, lack of knowledge and a reluctance to introduce the combination *Egretta picata* into the literature, have caused me to retain the binomen *Ardea picata* under which this species was originally described, as this is least likely to cause confusion, especially since so many Australian authors have used it in recent years. Further, I shall just wait until the nomenclature of the species has restabilized.

Nycticorax caledonicus hilli Mathews

Nycticorax caledonicus hilli Mathews, 1912, Novit. Zool., 18: 233 — North-West Australia (Parry's Creek).

Material. — ♂, 12.VIII.1960, Merauke, no. 357. Wing 280, tail 102, tarsus 85, exposed culmen 72½ mm, weight 850 g. Iris pale yellow, skin around eye light green, bill black, most of mandible light green, legs light citrine.

Egretta intermedia (Wagler)

A[rdea] intermedia Wagler, 1829, Isis: 659 — Java.
Herodias plumiferus Gould, 1848, Proc. Zool. Soc. Lond., 15 (1847): 221 — New South Wales.
H[erodias] brachyrhynchus A. E. Brehm, 1854, J. f. Orn., 2: 80 — am blauen Flusse.

Material. — ♂, 17.IV.1961, Koerik, no. 582. Wing 292, tail 118, tarsus 100, exposed culmen 82 mm, weight 390 g. Iris light yellow, bill yellow, legs black.

Discussion. — Traditionally this species has been divided into three subspecies: the nominate race in South and East Asia east to the Lesser Sunda Islands, *E. i. plumifera* in Australia, New Guinea and the Moluccas, and *E. i. brachyrhyncha* in Africa. These were based on slight differences in measurements and on differences believed to exist in colours of the unfeathered parts. Not all authors were satisfied about the validity of these subspecies; for example Frith & Hitchcock (1974: 118) commented: ''If one examines the literature it soon becomes apparent that much more precise information, based on birds of known age, is required before the validity of these races can be decided''. Recently I drew attention to the fact that the assumption that *E. i. plumifera* would differ from *E. i. intermedia* by having the bill yellow in all seasons and not changing colour in the breeding season, is incorrect. As size differences between the various Indo-Australian populations are no more than average ones, I synonymized *E. i. plumifera* with the nominate race (Mees, 1975: 118-119).

African birds were also thought to have the bill always yellow, but it has recently been found that the bill and legs turn red in the breeding season (cf. Schütte, 1969; Blaker, 1969; Macdonald, 1976). Amadon & Woolfenden (1952: 12) mentioned that: ''The Australian race, *plumifera*, has the legs and tibiae

yellow. It differs from those specimens of African *brachyrhynchus*, of which this is also true, by having the lores blackish''. However, Rand & Gilliard (1967: 44) describe the lores of ''*plumifera*'' (when not breeding) as pale yellow and my own observations confirm this. Compare this with Clancey's (1964: 33) description of South African birds: ''bare skin on lores and round eyes yellowish''. Now that these differences in colours of the bare parts have been proved invalid, I have investigated whether measurements show enough differences to justify retention of an African subspecies.

TABLE I

Measurements of *Egretta intermedia*

locality	sex	wing	tail	tarsus	exp. culmen	culmen fr. nostril	middle toe + nail
			Indo-Australian Region				
Australia	ø	294	113	104	75½	62	74 + 14
Aru	♂	280	113	94	78½	65	72 + 15¾
Biak 1)	♂	300	118	101	79	64	74 + 16
Klein Kai	♂	302	113	98	79	67	69 + 14
Ambon	♀	297	110	105½	82	69	81 + 16
Ceram	♂	293	111	103½	81	68	78½+ 16
Celebes	♂	295	112	99	77	64	72 + 15
"	♂	302	117	105	73½	61	75 + 16
"	♀	289	104	109	69	56	76 + 16½
"	♀	296	108	103	71	58	74½+ 16
Sanghir	♂	300	105	102	69	57	78 + 13
Philippines	ø	312	117	108	72½	59	81 + 15
Pulau Dao, Roti	♀	292	114	110	75	61	75½+ 14
Flores 2)	♂	278	116	107	85	70	80 + 15
Java 6	♂	287-312	102-119	94-113	65½-76	54-61	74½-79½+ 15-17
" 7	♀	281-312	101-112½	101-117	69 -74½	55-62½	72 -78 + 15-17½
			Africa				
Kabari, Congo	♂	306	117	101	71½	56	78½+ 17½
"	♂	326	124	115	73	59	84½+ 18½
Beni	ø	310	--	114	74	59	81 + 19

1) ♂, 15.VIII.1953, mudflats near Bosnek, Biak (C. Hoogerheide, RMNH reg. no. 20982), new record for Biak. This specimen was originally identified and registered by Junge and its omission from his paper (Junge, 1956) must be due to an oversight.

2) ♂, 20.IX.1969, Kenari, W. Flores (E. Schmutz, RMNH reg. no. 65179), new record for Flores.

Measurements of our older material from Japan, Java and Sumatra were supplied by Junge (1948: 319) and I have not thought it necessary to re-measure this material. In the table, measurements of our specimens received since 1948 and from localities excluded by Junge are listed. In addition, some years ago Mrs. LeCroy (in litt., 21.I.1971) provided measurements (wing only) of Indo-Australian specimens in the AMNH, which can be summarized as follows:

Australia	9♂	277-294	Ishigaki, S. Riu Kiu Islands	♂	259
	7♀	266-285	Japan	♂	291
	2Ø	280, 288		♀	306
New Guinea	5♂	277-300	Bali	♂	293
	6♀	268-283	India	♂	257
	Ø	283		2♀	290, 305+
Celebes	♂	280		Ø	306
Negros, Philippines	♀	295			

African birds being unrepresented in our collection, I borrowed three from KMMA, see table. These measurements and the ones supplied by Junge combined show that birds from Australia and New Guinea average smallest (wing 33 specimens 266-300 mm), those from Java and Sumatra larger (wing 24 specimens 268-313), those from Japan still larger (wing 14 specimens 291-317), although attention must be drawn to the very small specimen from Ishigaki, and that African birds are largest (wing 3 specimens 306-326 mm). None of the populations concerned is, however, large enough to justify its nomenclatural separation on the basis of size. Admittedly African birds seem very large, but for specimens from the Mariana Islands, Baker (1951: 82) recorded a wing-length of 295-321 mm, scarcely less than the 300-325 mm recorded for African birds by Hartert (1920: 1239). As Hartert (l. c.) mentioned that African birds would differ from Asiatic birds by having slightly larger bills, I have not only measured the bills, but also compared them, to see if they are perhaps wider or deeper, or show other differences in shape, but in all these characters the bills of the African birds come entirely within the range of variation of Indo-Australian birds.

African material in the AMNH was measured by Mrs. LeCroy (in litt., 31.III.1980); it confirms the size range indicated above (wing only):

Renk, White Nile, Sudan	♀	325
Blue Nile, Sudan	♀	296 (worn)
Lake Abdjata, S. Abyssinia	♂	305
Masabubu, Kenya Colony	♀	306 (worn)
Naiwasha, Kenya Colony	♂	317
Naiwasha, Kenya Colony	♀	312
Naiwasha, Kenya Colony	♀	325
Nosin Gishu Dist., Brit. E. Afr.	♂	305
Avakubi, Belgian Congo	♂	322
Catequers (Mossamedes) Angola	♂	316

The Blue Nile specimen (AMNH no. 529826), collected 23.I.1851, is a syntype of *Herodias brachyrhynchus* Brehm (1854: 80). This name was originally based

on two specimens, both of which are now in the AMNH (cf. Greenway, 1973: 243-244). Both were listed under the name *Egretta* (*Mesophoyx*) *intermedia brachyrhyncha* (Brehm) by Greenway, but when examining this material, Mrs. LeCroy found only the one specimen in the tray of *E. intermedia* and searching further located the second syntype (AMNH no. 529827), correctly placed, among the AMNH specimens of *E. alba melanorhyncha*: "It is unsexed, but the wing is 354 mm and the bill is much longer than *brachyrhynchus*". She further observed that although in the original description, Brehm clearly states that he had collected two specimens, he gives measurements and weight of one specimen only, and that without any doubt the bird described is *E. alba*. The measurements presented by Brehm are in Paris feet (pieds du roi); reduced to millimetres, they give for the length of the culmen 3″ 9‴ = 102 mm, for the wing 13″ 6‴ = 366 mm. As, in spite of this, Brehm expressly included also the specimen of *E. intermedia* in his new species, and later (Brehm, 1858: 471-472) it was this specimen that he described (culmen 2″ $7^1/_2$ = 71 mm, wing 11″ = 298 mm), there would be no objection to making this bird a lectotype. However, my conclusion is that *E. intermedia* is not divisible into subspecies, and if that is accepted, the identity of *Herodias brachyrhynchus* Brehm does no longer matter as in either case it is a synonym.

Whether *E. intermedia* occurs as a breeding bird on all islands whence it has been recorded or is a migrant or wanderer on some of them is uncertain. The Japanese population is known to be nearly totally migratory, the winter quarters being in the eastern Philippines (McClure, 1974: 83-84, 338-340). There is proof that Australian birds also make long-distance movements, for a bird ringed as a nestling on Campbells Island, Barham, N.S.W., 4.I.1975, was found dead at Mapur, Lake Aimaroe, Vogelkop, New Guinea, 3700 km NNW, on or before 18.XII.1975 (Anon., 1976), but whether Australian birds are truly migratory (directed seasonal movements), or the recovery listed is just an example of extreme wandering, is uncertain.

Our collection provides the following information on breeding. Celebes: downy young, 24.VIII.1863, Air Panas, Lake Limbotto, Gorontalo (v. Rosenberg, RMNH cat. no. 19); ♂ feathered nestling, 25.VII.1864, Pagoeat (v. Rosenberg, RMNH cat. no. 21). Although v. Rosenberg (1865: 65-67; 1881) recorded *E. intermedia* from Lake Limbotto, his notes about breeding are too inexact to be of use. Sumatra: clutch of two eggs, 29.X.1913, Sarilamak, Padang Highlands (Jacobson & van Heurn, RMNH), first definite record of breeding in Sumatra. Java: 3 c/2, 17.VII.1919, near Bloeboek (Bartels, RMNH reg. nos. 28538, 28539, 28540); c/3, 21.VIII.1923, Telar Kendeka Kulon, Tjitaroem Delta (Bartels, RMNH reg. no. 28541); c/3, 21.VI.1924, Poelau Lantjang or Groot Kombuis (Bartels, RMNH reg. no. 28542); c/2 and c/3, 7/8.III.1954, c/3 and c/4, 21.XII.1954, Poelau Doea off Bantam coast (Hoogerwerf, RMNH reg. nos. 75412-75415); note that three of the four localities concern islands in the sea.

Egretta alba modesta (J. E. Gray)

Ardea modesta J. E. Gray, 1831, Zool. Misc.: 19 — India.

Material. — ♂, 18.IV.1961, Koerik, no. 583. Wing 370, tail 141, tarsus 157, exposed culmen 111 mm, weight 860 g. Iris light yellow, bill yellow with a black tip, legs black.

Dupetor flavicollis gouldi (Bonaparte)

Ardetta gouldi Bonaparte, 1855, Consp. Gen. Av., 2: 132 — ex Austr. Based on Gould (1848, Birds Austr., 6: pl. 65), who had material from: "New South Wales, Swan River and Port Essington"

Material. — A clutch of 4 eggs, IV.1959, Merauke, reg. no. 76611.

Discussion. — See Hellebrekers & Hoogerwerf (1967: 12).

Threskiornis spinicollis (Jameson)

Ibis spinicollis Jameson, 1835, Edinb. New Philos. J., 19: 213 — Murray River, New South Wales (reference not verified).

Material. — ♀, 7.XI.1959, Koerik, no. 213. Wing 365, tail 139, tarsus 83, exposed culmen 131 mm, weight ca. 1500 g. Iris dark brown, bill black, legs dark reddish, above heels bright red.

Discussion. — The first observation of this species in New Guinea was by van den Assem (1960), who saw a single bird at Koembe in June 1957. A few weeks later Slater (1958) observed five individuals in the Mekeo sub-district of Papua, of which one was collected. Hoogerwerf (1964: 74-75) observed it many times in flocks of up to about 75 individuals, mostly in the dry season, which is the Australian winter. As *Threskiornis spinicollis* is from many ringing-recoveries known to be a great wanderer, it is not surprising that it is a frequent visitor to southern New Guinea.

Anseranas semipalmata (Latham)

Anas semipalmata Latham, 1798, Trans. Linn. Soc. Lond., 4: 103 — near Hawksbury river, in New South Wales.

Material. — Clutches of 3, 4 and 5 eggs, IV.1959, Merauke, reg. nos. 76588, 76590, 76591. A clutch of 12 eggs, 9.IV.1959, Merauke, reg. no. 76592. 15 loose eggs, 1959, without further data but undoubtedly from the same locality, reg. no. 76589.

Discussion. — See Hoogerwerf (1959, 1962, with illustrations).

Dendrocygna arcuata australis (Reichenbach)

Dendrocygna arcuata (*australis*) Reichenbach, 1850, Vollst. Naturgesch., 2 Vögel, 3 Syn. Avium 1 Natatores: 4 — Port Essington (reference not verified).

Material. — ♀, 12.III.1962, Koerik, no. 620. Wing 206, tail 45, tarsus 51, exposed culmen 45 mm, weight 650 g. ♂ 22.III.1961, no. 569. Wing 210, tail 51, tarsus 54, exposed culmen 48 mm, weight 720 g. ♂, 6.IV.1962, no. 664. Wing 208, tail 50, tarsus 53, exposed culmen 45 mm, weight 670 g. Iris dark brown, bill dark grey, legs grey.

Discussion. — See Hoogerwerf (1962: 28-44; 1964: 76). All three specimens have wing-measurements above the maximum given by Delacour (1954: 39) for the nominate race and confirm their identity as *D. a. australis*. Note that although Frith (1967: 67-68) in the text describes the ranges of the subspecies correctly, on the map New Guinea is shown as being inhabited by the nominate race.

Dendrocygna guttata Schlegel

Dendrocygna guttata Schlegel, 1866, Mus. Hist. Nat. Pays-Bas, 6 (mon. 31): 85 — Célèbes.

Material. — ♂, 8.III.1962, Koerik, not numbered. Wing 217, tail 64, tarsus —, exposed culmen 45 mm, weight not recorded.

Dendrocygna eytoni (Eyton)

Leptotarsis eytoni Eyton, 1838, Monogr. Anatidae: 111 — Australia.

Material. — ♀, 10.V.1961, Koerik, no. 601. Wing 230, tail 67, tarsus 57, exposed culmen 40 mm, weight 650 g. ♀, 18.V.1961, Koerik, no. 603. Wing 234, tail 64, tarsus 53, exposed culmen 41 mm, weight 602 g. ♀, same data, no. 604. Wing 242, tail 70, tarsus 54, exposed culmen 39½ mm, weight 650 g. Iris orange-red, eye rim yellow, bill: maxilla reddish-flesh colour with black spots, mandible flesh colour with a grey tip, legs salmon colour.

Discussion. — See Hoogerwerf (1962: 47-48; 1964: 76).

Tadorna radjah radjah (Lesson)

anas radja Lesson, 1828, Manuel d'Orn., 2: 417 — Bourou.

Material. — ♂, 8.III.1962, Koerik, without number. Wing 283, tail 122, tarsus 56, exposed culmen 44½ mm, weight not recorded.

Discussion. — This bird, like several from Merauke in our collection, belongs to the nominate race. *T. r. rufitergum* Hartert is browner on the mantle; according to Delacour (1954: 254-255) it is also a little larger, and that is the only difference given by Frith (1967: 153). Delacour gives for males of *T. r. radjah* a wing-length of 265-282 mm, for *T. r. rufitergum* 280-290 mm; Frith's table of measurements evidently contains a misprint, but even so I note that according to Delacour's figures males are much larger than females (so much so that the sexes can be separated on measurements alone), whereas Frith's figures show the females to be larger than the males.

Anas superciliosa rogersi Mathews

Anas superciliosa rogersi Mathews, 1912, Austr., Av. Rec., 1: 33 — Augusta, West Australia.

Material. — Sex ?, 28.III.1961, Koerik, no. 1940. Wing 253, tail 88, tarsus 43, exposed culmen 51 mm, weight not recorded.♂, 10.IV.1961, Koerik, no. 578. Wing 256, tail 90, tarsus 46, exposed culmen 49 mm, weight 820 g.♂, 3.V.1962, Koerik, no. 713. Wing 258, tail 84, tarsus. —, exposed culmen 48 mm, weight 900 g. Iris dark brown, bill slate blue, darker, blackish below, legs olive grey or olive green.

Discussion. — The wing-lengths of over 250 mm prove that these specimens belong to the race *A. s. rogersi.* In northern New Guinea and in the mountains the smaller *A. s. pelewensis* Hartlaub & Finsch is found (cf. Amadon, 1943; Junge, 1953: 5-6).

Anas querquedula Linnaeus

[*Anas*] *Querquedula* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 126 — Europa.

Material. — ♂, 16.V.1961, Koerik, no. 602. Wing 191, tail 66, tarsus 29, exposed culmen 39 mm, weight 330 g. ♂, 3.III.1962, Koerik, no. 615. Wing 188, tail 64, tarsus 29, exposed culmen 38 mm, weight 360 g. ♀, 14.III.1962, Koerik, no. 621. Wing 180, tail 66, tarsus 28, exposed culmen 35½ mm, weight 305 g.♂, 25.III.1962, Koerik, no. 623. Wing 189, tail 64, tarsus 28, exposed culmen 35½ mm, weight 358 g. ♀, same data, no. 624. Wing 185, tail 64, tarsus 26, exposed culmen 35½ mm, weight 330 g. Iris light or medium brown, bill very dark grey or black, legs olive grey, webs darker. Crop contents rice.

Discussion. — See Hoogerwerf (1962: 48; 1964: 76-77). In addition to this material, our collection contains two specimens from Atinjoe, Vogelkop (♂, 1.III.1949, cat. no. 92, and ♀, 12.II.1949, cat. no. 91), collected by Bergman (cf. Gyldenstolpe, 1955b: 212). In view of the experiences of Bergman (l. c.) and Hoogerwerf, the assessment of the status of this species in New Guinea given by Rand & Gilliard (1967: 55) "rarely to New Guinea", may well be upgraded.

Anas gibberifrons gracilis Buller

Anas gracilis Buller, 1869, Ibis, (n. s.) 5: 41 — Orona Stream, near its junction with the Manawatu River, in the Province of Wellington ... and ... Hawke's-Bay Province, New Zealand.

Material. — Sex ?, 9.IV.1961, Koerik, no. 577. Wing 196, tail 77, tarsus 33½, exposed culmen 35 mm, weight 360 g. ♀, 14.IV.1961, Koerik, no. 580. Wing 211, tail 75, tarsus 35, exposed culmen 37½ mm, weight 410 g. Iris light brown, bill slate grey or dark grey, distal half of mandible dirty fleshy, legs olive grey or dirty grey.

Discussion. — See Hoogerwerf (1962: 47). The recovery of a bird ringed at Port Fairy, Victoria (38°23′S, 142°14′E) and shot at Okaba near the mouth of

the Bian River in September 1958, proves that at least a proportion of the ducks that concentrated at Koembe were visitors from Australia. This is not surprising as in Australia the usual movements of this species: "are explosive random dispersals, and the distances and directions travelled are only limited by the availability of suitable habitat" (Frith, 1962: 67). There is no proof yet of breeding in New Guinea although Hoogerwerf (l. c.) considered it likely that it did on the basis of a specimen shot in May 1961, which had well-developed gonads.

My impression is that Australian ornithologists are not sufficiently aware of the great difference existing between *A. g. gracilis* and *A. g. gibberifrons*, cf. Storr (1966: 16 and 1973: 16), who could not be bothered to mention subspecies at all, and Frith (1967: 187), who in the discussion of the various subspecies made no reference to the shape of the forehead. Nevertheless, the high forehead from which the species derives its name is a very conspicuous field character of the nominate race. Note the illustration given by Ripley (1942: fig. 2A). It is not nearly so well developed in the Australian race.

In view of the great mobility of the Australian race, it is surprising that it is so well-differentiated from the nominate race, the latter ranging east to Timor (its type locality). Although *A. g. gracilis* has not been recorded from Timor, it is almost certain to reach the island from time to time, so that ample opportunity for hybridization between the two forms should exist.

Aythya australis (Eyton)

Nyroca australis Eyton, 1838, Monogr. Anatidae: 160 — Australia.

Nyroca australis ledeboeri Bartels & Franck, 1938, Treubia, 16: 337 — Gebirgssee Toendjoeng, Hiang-Plateau, Ost-Java, ca. 2000 m.

Aythya australis papuana Ripley, 1964, Peabody Mus. Nat. Hist. Bull., 19: 16 — Wamena, Baliem Valley, Netherlands New Guinea.

Material. —♀, 27.I.1960, Koerik, no. 297. Wing ca. 210, tail 59, tarsus 36, exposed culmen 44 mm, weight 600 g. Ovary developed with oocytes of 1-2 mm diameter. ♂, 8.IV.1961, Koerik, no. 576. Wing 219, tail 47$^1/_2$, tarsus 37, exposed culmen 44 mm, weight 620 g. Iris dark brown, bill olive grey to blackish with a blue-grey subterminal band and a black tip, mandible for the greater part blue-grey, legs olive grey with dark grey webs and joints.

Discussion. — The centre of distribution of this species is Australia where it is widely distributed. There are, however, small resident populations on mountain lakes in Java and probably New Guinea, and on certain Pacific islands. Several of these peripheral populations have been described as separate subspecies, but as Frith (1967: 245) has pointed out, none is recognizable.

As Hoogerwerf (1964: 77) mentioned, it is likely that most birds seen in southern New Guinea are visitors from Australia. In spite of Ripley (1964: 16-17) there is no proof yet of breeding in New Guinea. Rand (1942b: 431) found the species common on Lake Habbema, but the specimens collected

"showed no indication of breeding" and the number of individuals at the time present on the Lake, several hundreds, indicate flocking as is characteristic of ducks outside the breeding season. Ripley (l. c.) mentions the species from the Wissel Lakes, but I am not aware that it has been recorded from there. Certainly Boschma (1943: 521) only knew *Anas superciliosa* and *Salvadorina waigiuensis* from these lakes.

Nettapus pulchellus Gould

Nettapus pulchellus Gould, 1842, Birds Austr., 7: pl. 4 — Port Essington.

Material. — ♂, 11.VIII.1960, Koerik, no. 355. Wing 175, tail 71, tarsus 29, exposed culmen 26 mm, weight 380 g. ♂, 7.III.1962, Koerik, no. 616. Wing 165, tail 71, tarsus 29, exposed culmen 25 mm, weight 310 g. ♀, same data, no. 317. Wing 162, tail 68, tarsus 26, exposed culmen $25^1/_2$ mm, weight 310 g. Iris dark brown, bill black with a flesh coloured tip and some flesh coloured spotting on the mandible, legs dark grey mixed with olive green. No. 616 had large testes, measuring 10 × 4 mm; the ovary of no. 617, obtained on the same day was, however, small.

Discussion. — See Hoogerwerf (1962: 48). Since Mayr's (1941b) list was published this species has been recorded from several additional localities, such as the lakes Aitindjoe and Aimaroe in the Vogelkop (Coomans de Ruiter, 1955; Gyldenstolpe, 1955b: 213), records overlooked by Frith (1967), and Koerik (van den Assem, 1960; Hoogerwerf). On the other hand, the statements concerning occurrence at Geelvink Bay made by Rand & Gilliard (1967: 58) and Frith (1967: 275) are inaccurate. They are evidently derived from Mayr's (1941b: 13) reference to the fact that de Beaufort (1909: 397) found the species on "Lake Jamur, Geelvink Bay"; however, this is not a correct description of the topographical position of this lake, which drains to the south and not to the Geelvink Bay so that technically at least it can be said to be in southern New Guinea. The occurrence on this lake, where de Beaufort found it "very abundant" does therefore not conflict with Frith's opinion of the species' rarity on the north coast as the only record from "the north coast" was based on this misinterpretation of geographical data.

I take this opportunity to recall the fact that our collection contains two females of this species, collected at Port Essington by Gilbert and received from Gould (Schlegel, 1866a: 78). In the original description, Gould (1842) recorded four specimens: a pair collected by Gilbert, one bird obtained by Bynoe, and one, the first of all, from an anonymous collector. Gould (1842a, 1842b) described and figured both sexes. In his paper on Gould-types in Philadelphia, de Schauensee (1957: 141) lists a male and a female (the female misprinted as ♂ ad.) from "Port Essington, Gould Collection", which he assumes to have been collected by Gilbert. Our specimens, on the contrary, are directly marked as having been collected by Gilbert in the handwriting of Temminck (who died in January 1858). Admittedly there are no original labels: in those years it was standard

practice to remove labels when specimens were mounted, but in view of the early date of Temminck's handwriting it seems unlikely that he would have made an error. Even Schlegel's publication is early enough to disprove de Schauensee's assumption that: "Gould apparently secured no more specimens". Gilbert stayed at Port Essington from 12 July 1840 to 17 March 1841; he obtained the types of *N. pulchellus* on 16 January 1841.

Elanus caeruleus hypoleucus Gould

Elanus hypoleucus Gould, 1859, Proc. Zool. Soc. Lond., 27: 127 — Vicinity of Macassar, Celebes.

Elanus intermedius Schlegel, 1862, Mus. Hist. Nat. Pays-Bas, 2 (mon. 7, Milvi): 7 — à Java, à Borneo et à Célèbes = West Java, restricted type locality.

Elanus caeruleus sumatranus Salomonsen, 1953, Vidensk. Medd. Dansk naturh. Foren., 115: 210 — Korinchi, W. Sumatra, 3000 ft. altitude.

Elanus caeruleus wahgiensis Mayr & Gilliard, 1954, Bull. Amer. Mus. Nat. Hist., 103: 332 — Nondugl, Wahgi Valley, Central Highlands, Mandated Territory of New Guinea, 5200 feet.

Material. — Juvenile, sex uncertain, 23.IX.1960, Koerik, no. 429. Iris light brown, bill blackish, basis and mandible a little lighter, at gape citrine, cere citrine, legs pale citrine. Wing 321, tail 147, tarsus 40, culmen from cere 20 mm, weight 385 g.♂ 20.IV.1962, Ongari-Doemandé, no. 691. Iris orange-red, bill very dark grey, almost black, cere yellowish, legs citrine. Wing 302, tail 122, tarsus 38, culmen from cere $18^{3}/_{4}$ mm, weight 310 g. Stomach contents: remains of a lizard. ♀, 13.V.1962, along beach near Ongari, no. 722. Iris bright carmine, bill black, at gape yellowish, legs light citrine. Wing 308, tail 143, tarsus 37, culmen from cere $19^{1}/_{2}$ mm, weight 320 g. Stomach contents: a large lizard. No. 429 is in an interesting stage of change from immature into adult plumage, its large feathers are not moulting; no. 691 is in moult, the primaries 1-6 being old, 7 growing out, 8-10 new; the old primaries and especially the rectrices are very worn; no. 722 has almost completed a cycle of primary moult, primary 1 still growing out.

Discussion. — See Hoogerwerf (1964: 96). Although one would expect *Elanus caeruleus* to be conspicuous enough a bird, the species was not known to occur in New Guinea until 1950, when Gilliard discovered it as a not uncommon resident in the Wahgi Valley; he obtained a single specimen which became the type of *E. c. wahgiensis*. Hoogerwerf's material considerably extends the range westwards and down to sea level. Wood (1970) published an article on the distribution in New Guinea, in which he could add several other localities in the highlands as well as the Sepik lowlands, north of the central mountains, to its range. He speculated that the species might extend further to the west in the northern lowlands, but he entirely overlooked Hoogerwerf's (1964) records and observations made around Koerik.

Other authors have further contributed to filling out the range; it is now evident that *Elanus caeruleus* is widely though thinly distributed in the highlands, as well as in the Sepik and Markham valleys and in the southern lowlands (fig. 2). Apart from the publications already mentioned, literature has provided the

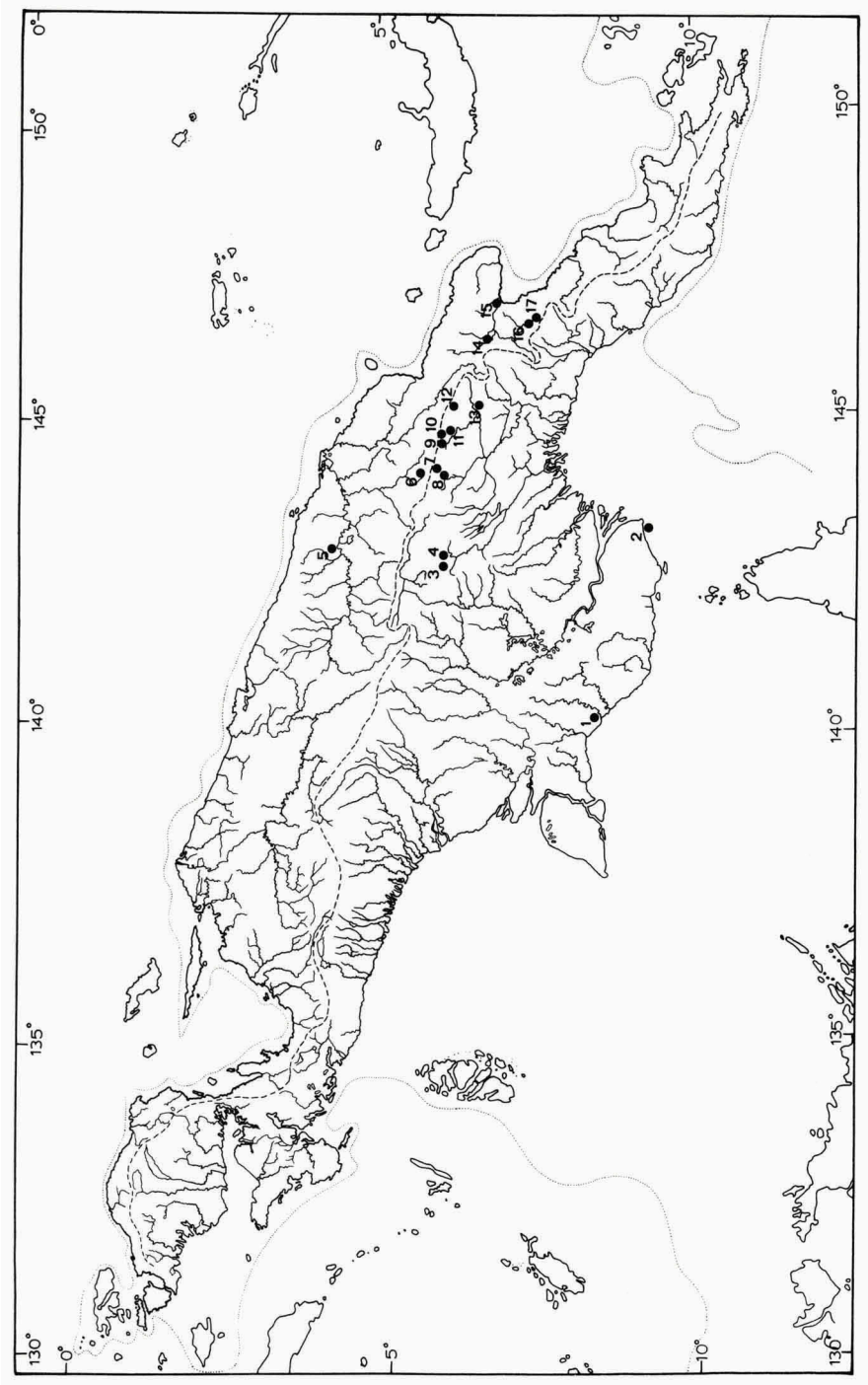

Fig. 2. Distribution of *Elanus caeruleus hypoleucus* in New Guinea. 1, Koerik; 2, Daru; 3, Pureni; 4, T ari; 5, Pagwi; 6, Baiyer; 7, Mount Hagen; 8, Togoba; 9, Banz; 10, Nondugl; 11, Kup; 12, Goroka; 13, Lufa; 14, Wawin; 15, Lae; 16, Bulolo; 17, Wau.

following distributional records: Bulolo and Wau (Watson et al., 1962: 42); Pureni, 4500′ (Mackay, 1967); Baiyer River, 3600′ (Bell, 1968a; Anon., 1970); Lae (Bell, 1970a); Goroka (Mackay, 1970a); Daru (Coates, 1970); Markham Valley, especially Wawin, 40 miles from Lae (Filewood, 1973); Pagwi, Sepik River (Nicholson, 1974); 10 miles east of Goroka, Highlands Highway; Togoba airstrip, W.H.D.; Banz, W.H.D.; Oliguti, Lufa Sub-District (King, 1975); Tari, 5380′ (Hadden, 1975); Mount Hagen (Campbell, 1978). The vertical distribution as ascertained to date is from sea level to 5380′ (1600 m).

As far as I know, Hoogerwerf's specimens are apart from the type of *wahgiensis* the only ones ever taken of the New Guinea population and therefore a careful study was desirable. The diagnosis of *E. c. wahgiensis* given in the original description reads as follows: "Nearest to *hypoleucos* [sic], but darker above, more slate gray, less ash gray; below, sides of chest darker, washed with steel gray, not nearly pure white; under wing coverts with some black tipping, not pure white".

In the first place a comparison with *E. c. hypoleucus* was necessary. Mayr & Gilliard (1954: 333) stated that they compared their specimen of *wahgiensis* with a series of 19 specimens of *E. c. hypoleucus* from the Philippines, Malaya and Celebes. The reference to Malaya is puzzling because to the best of my knowledge, that country has always been thought (erroneously as it turns out) to be inhabited by the very different nominate race, and *E. c. hypoleucus* had never been recorded from it (cf. Chasen, 1935: 78; Medway & Wells, 1976: 101). Perhaps, for Malaya, Malaysia (in the sense in which it has been used by ornithologists, not in the more recent political sense) should be substituted. Mayr & Gilliard also discussed the two "phases" known to occur in *E. c. hypoleucus*, the one in which the under surface of the primaries is black or blackish, and the one in which the under surface of the primaries is white or whitish; they mentioned that their bird from New Guinea had the primaries and secondaries coloured as in the black-winged phase of *E. c. hypoleucus*. They further stated that in size *wahgiensis* was similar to *hypoleucus*, but gave no measurements.

On comparison it was found that one of Hoogerwerf's birds (no. 722) is indeed rather dark grey dorsally, but the other adult specimen (no. 691) is lighter and fits very well into a series of *E. c. hypoleucus*. No. 722 is of the black-winged phase, whereas no. 691 is a good example of the white-winged phase (plate 1); the juvenile specimen is in the black phase, but is not so dark as no. 722. Both adult birds are pure white on the chest, as are all specimens of *E. c. hypoleucus*; the only form with distinct greyish on these parts is the nominate race. Hoogerwerf's specimens prove that a chest washed with steel grey, as described by Mayr & Gilliard for their New Guinea specimen, must be an individual rather than a subspecific character. Black tipping of the under wing coverts is a character frequently found in *E. c. hypoleucus*, it will be fully dealt with in the discussion of the validity of *sumatranus*.

In conclusion: none of the characters mentioned by Mayr & Gilliard for their race *wahgiensis* is valid, although birds from New Guinea may average darker above; in addition the juvenile bird is remarkably large whereas the

measurements of the two adult birds are in the upper part of the range of variation of *E. c. hypoleucus* from elsewhere. Brown & Amadon (1968: 240) recorded the wing of the type specimen as being 297 mm. The specimen was remeasured for me by Mrs. LeCroy who found: wing 299 + , tail 140, culmen from cere $18^1/_2$, tarsus 43 mm, to which she added: "the outer primary is about 1/4 grown in. While the second has no visible sheath, it is not quite as long as the third. The second primary should be the longest, so I feel sure that it is not quite fully grown. Therefore the measurement of 299 is several mm shorter than it would have been if the feather were fully grown". Therefore this bird is also rather large. Whereas a larger series would probably confirm the existence of a slight difference in size, it is unlikely that this would be great enough to justify its recognition in nomenclature. In my opinion *E. c. wahgiensis* is a synonym of *E. c. hypoleucus*.

Sumatra had been included in the range of *E. c. hypoleucus* until Salomonsen (1953) described birds from that island as representing a "very distinct subspecies". According to Salomonsen the characters of *E. c. hypoleucus* would be: "Under wing-covers white, primaries with white underside except at the tip, which is silvery grey to a varying extent. Sometimes almost the apical half of the primaries is silvery grey; this is the case in 2 of the 8 Java birds and in 1 of the 5 Celebes birds examined. In some of these a few of the outer greater under wing-coverts are supplied with a comparatively small slate-coloured apical spot... *Elanus intermedius* Schlegel... based on a specimen from Java, is a synonym". The characters of the new subspecies *E. c. sumatranus* were given as: "Strongly contrasting with the other forms mentioned: The greater under wing-coverts with large dark slate spots which cover the apical third or even the apical half of each feather; the primaries with pale silvery grey (not dark slate) underside in their entire length, only the base, concealed by the greater under wing-coverts, being white", and further down: "the colour of the under wing-coverts... appears to be the best diagnostic character". I do not know or understand why Salomonsen felt justified in describing the alleged Sumatran race on the basis of two specimens only in the American Museum of Natural History, when from Junge's (1948) publication he was aware that there were 27 specimens in Leiden, which he could have borrowed at any time. Junge's conclusion was that: "It seems unwise to give the Sumatran population a name" and the fact that Junge did not mention a difference in colour of the under wing-coverts between birds from Java and birds from Sumatra, used by Salomonsen as an argument to support his new race, should rather have made him wonder about the validity of this "best diagnostic character". Actually, the pigmentation of the under wing is extremely variable, with birds which have the under surface of the primaries darkest also tending to have the greater under wing coverts with the largest dark tips. Specimens with strongly pigmented under wing are more frequent in Sumatra than in Java, whereas reversedly birds with almost white under wing are more frequent in Java than in Sumatra, but the plates (plate 2) show better than any discussion can do that subspecific discrimination between the populations of the two islands on the basis of this character is out of the question.

Although Salomonsen referred to Schlegel's (1863) description of *Elanus intermedius*, he did not quote from it, but I believe that it is worth doing so: "Semblable à l'Elanus melanopterus [= *E. c. caeruleus*] par ses teintes, mais d'une taille plus forte, à face inférieure des grandes rémiges blanchâtre à leur base, et à tache noire aux grandes couvertures inférieures des ailes sensiblement prononcée". Note that Schlegel gives for his birds from Java, Borneo and Celebes exactly those characters, that Salomonsen ascribed exclusively to the Sumatran birds! Incidentally, Salomonsen stated that *E. intermedius* was based on "a specimen from Java", but actually it was based on two specimens from Java, one from Borneo, one from Celebes, and a cranium from Celebes; I agree however, that for purposes of nomenclature the type locality can be restricted to West Java, from where no. 1 of the specimens listed by Schlegel came. The matter is important as some authors regard Javanese birds as subspecifically different from Celebesian birds and recognize the name *E. c. intermedius* for the former (cf. Parkes, 1958).

I take this opportunity to mention that according to Smythies (1957, 1960, 1968) the bird from Borneo collected by Schwaner was from "S. Borneo (no locality)", but that Schlegel (l. c.) definitely states that it is from Bandjermasin, and that is also the locality written on the socle of this mounted specimen. Motley also obtained a specimen near Bandjermasin (Sclater, 1863: 207).

Swann's (1936: 264) wording on the form *E. c. hypoleucus*: "It is considerably larger than that found in the Indian Peninsula, and also exceeds the African race in size", is rather unfortunate as it suggests that African birds are larger than Indian birds whereas actually these populations are identical in measurements and birds from East Asia are larger (Table II).

Junge's (1948) material, inadequate as far as continental Asia is concerned, gave him an impression that there would be a gradual increase in size going from India to Celebes. Two specimens from Malacca with wing-lengths of 280 and 282 mm, very large for *caeruleus/vociferus*, would have contributed much to this opinion. These specimens from Malacca are not in our collection, I do not know from where Junge got them. Measurements supplied by other authors also show that birds from Thailand and the Malay Peninsula are decidedly larger than birds from Africa and India. For example, Stuart Baker (1928: 126) gives as wing-length of Indian birds ♂ 259-268, ♀ 262-268 mm, whereas Riley (1938: 42) found in Thailand ♂ 285, 3 ♀ 270, 281, 282 mm. The measurements provided by Brown & Amadon (1968: 240): wing ♂ 260-278, ♀ 263-287 would have been based on combined samples, including some large females from the eastern part of the range. Gyldenstolpe (1913: 63) recorded for an adult male collected near Bangkok a wing-length of 279 mm, tail 140 mm. In order to gain an own opinion, I borrowed the last-mentioned specimen, in which I measured a wing-length of 285 mm, but I could not obtain a tail length of over 127 mm (cf. table II). The only other specimen from this critical area that I have been able to examine (♀ ad., 19.X.1915, Taiping Lake, Perak, Mus. Stockholm) shows similarly large measurements (cf. table II).

TABLE II

Measurements of *Elanus*

	wing	average wing	tail	average tail	tarsus	culmen from cere	tail: wing
E. caeruleus (Africa)							
14 (11) ♂	255-276	264.6	117-126	120.4	33-36	15-18	45.5 %
11 (10) ♀	252-272	264.5	108-124	118.4	31½-37	16-17¾	
E. caeruleus (Kashmir, Nepal)							
5 (2 ♂, ♀, 2 ♂)	260-273	266.2	109-126	119.4	30 -34	15½-17½	44.9 %
E. hypoleucus (Thailand and Perak)							
1 ♂	285		127		34	16½	
1 ♀	286		130		35	17	45.0 %
E. hypoleucus (Sumatra)							
12 (11) ♂	290-303	293.7	132-146	137.3	36 -42	17¾-19	46.9 %
13 ♀	285-305	293.8	130-146	137.8	36 -41½	18½-20¼	46.8 %
33 sp.	281-305	293.4	120-146	137.1	36 -42	17 -20	46.7 %
E. hypoleucus (Java)							
18 (16) ♂	292-310	298.4	132-150	139.8	36½-41	18¾-19¾	46.5 %
18 (16) ♀	294-310	302.4	131-151	141.5	35 -42	19 -20¼	46.8 %
39 (35) sp.	292-310	300.6	131-151	140.3	35 -42	18¾-20¼	46.6 %
E. hypoleucus (Flores)							
1 ♀	300		135		40½	19	
1 ♂	292		139		41½	19	46.3 %
E. hypoleucus (Borneo)							
1 ♂	309		146		40	17½	47.2 %
E. hypoleucus (Sulu)							
1 ♂	300		148		40	20¼	
1 ♀	300		144		36	19	48.7 %
E. hypoleucus (Celebes)							
6 ♂	297-305	298.8	132-140	136.8	34-39	18½-20	45.8 %
E. notatus							
7 ♂, ♀, ♂	288-309	298.1	135-149	143.6	37-39	16 -18	48.2 %
E. leucurus							
12 ♂	292-312	302.3	150-178	163.4	36-40	16½-19	54.4 %
9 ♀	296-314	303.7	156-170	162.6	37-39	18 -19½	53.5 %
24 sp.	292-316	303.4	150-178	163.1	36-40	16½-19½	53.7 %

Note. A figure in parenthesis following the number of specimens examined, e. g. 14 (11), means that of three specimens the wings could not be measured due to moult.

Whether this justifies Junge's assumption of a cline seems doubtful to me. A specimen from Assam in our collection (♂, 13.IX.1904, Komlabarie, Sibsagar, Upper Assam, RMNH no. 26903) is a typical small *E. c. caeruleus* (wing 261 +, longest primary not quite fullgrown, tail 122, tarsus 31, bill $12^1/_2$ + mm, tip damaged). My impression is that the increase in size in south-eastern Asia is not a gradient but is rather abrupt, birds eastwards to Assam (and Burma?) being small, birds from Thailand and the Malay Peninsula being distinctly larger. Perhaps the forested mountains of western Thailand act as a barrier between the two populations. Hitherto birds from Thailand and the Malay Peninsula have been included in *E. c. caeruleus* or its synonym *E. c. vociferus*, but actually they are closer to *E. c. hypoleucus*, although it may be correctly stated that they are more or less intermediate. Further study on the basis of much more material than was available to me will be required to evaluate this population properly: is it really nothing more than a segment in a cline; is it a population that has been isolated from both its eastern and western neighbours and has undergone an independent evolution, or is it a product of secondary hybridization?

The Sumatran specimens of *E. c. hypoleucus* measured by me average about 2% smaller in wing-length than specimens of that subspecies from more easterly localities, whereas the two specimens from Thailand and Perak are about 5% smaller. The nominate race is 11-12% smaller than eastern *E. c. hypoleucus*.

The question of how many species the genus *Elanus* comprises has not been answered satisfactorily. Apart from Australia where two species co-exist, all forms replace each other geographically. The occurrence of two species in Australia naturally led to the question of which one is the earlier arrival and therefore is definitely a separate species. Condon & Amadon (1954: 193) inclined to the view that it was *E. notatus*, for: "... *notatus* is more like *leucurus* of America than it is like *caeruleus* of the East Indies, Eurasia and Africa. Twice in the past and at two widely separated intervals this genus invaded Australia, presumably from the north, thus giving rise to the two species endemic there. Present day distribution of the two species, and the resemblance of *notatus* to *leucurus* of the New World, suggests that the first-named was the earlier arrival in Australia". Parkes (1958), on the other hand "would interpret the similarity of the Australian *notatus* to the American *leucurus*, and the distinctiveness of the Australian *scriptus*, as evidence that the latter, not the former, was the earlier arrival in the putative 'double invasion' of Australia by *Elanus*". Husain (1959) held the same opinion, with which I agree and in this connexion I should also like to point out that by its long tail *E. leucurus* stands apart from both Australian species; this will be further discussed below.

Leaving out *E. scriptus*, the most widely accepted classification of the geographically complementary forms is into three species as follows:

E. leucurus (with subspecies *majusculus*) — America.

E. caeruleus (with subspecies *hypoleucus*, *sumatranus*, *wahgiensis* and perhaps *vociferus* and *intermedius*) — Iberian Peninsula, Africa, southern continental Asia and islands between Asia and Australia.

E. notatus — Australia.

In a previous paper I have given reasons for not accepting the minor subspecies *majusculus* (cf. Mees, 1970) and above the validity of *sumatranus*, *wahgiensis*, *intermedius* and *vociferus* has been discussed. This leaves four well-differentiated forms: *leucurus*, *caeruleus*, *hypoleucus* and *notatus*. The discussion as to whether or not these should be united into one species threatens to become sterile without new evidence and is at present largely a matter of personal opinion. Nevertheless I consider it useful to present another enumeration of the differences, and to draw attention to an obvious inconsistency in the current treatment. The characters of the four forms can be summarized as follows.

E. leucurus: differs from all other forms by its long tail; reaching to beyond the wing-tips, whereas in the other forms it falls short of the wing-tips; upper parts medium grey; under surface of primaries dark; under wing coverts forming a black patch.

E. notatus: differs from all other forms by its paler upper parts; under surface of primaries dark; under wing coverts forming a black patch.

E. caeruleus: differs from all other forms by small size; upper parts a little darker grey than any other form; under surface of primaries dark or intermediate; under wing patch absent or indicated by a few grey feather-tips only; a large percentage if not a majority of the birds has breast and belly pale grey, whereas in the other forms these parts are always pure white.

E. hypoleucus: upper parts medium grey; under surface of primaries dark, intermediate or whitish; under wing patch absent or indicated by a few grey feather-tips only, as in *E. caeruleus*, from which this form differs by conspicuously larger size, slightly paler upper parts and always pure white under parts.

The juvenile plumages of all four forms are quite similar in a general way, but *E. leucurus* is in this plumage richer, with more chestnut mixed in on head and mantle, and more strongly marked with this colour on the underparts, than *E. hypoleucus*. In colour of the dorsal surface, *E. caeruleus* is more or less intermediate between the two preceding forms, but if my few specimens are representative, the breast is washed with pale cinnamon rather than spotted.

The inconsistency referred to above, is that those authors who recognize several species, nevertheless treat *hypoleucus* as a subspecies of *caeruleus*, for *hypoleucus* is quite as distinctive as any of the forms given species status. The reason is probably the existence of intermediate populations as discussed above. Although I am perfectly aware that the matter is largely a subjective one, renewed examination has not made me change my opinion that the comparatively slight differences between the four forms do not justify their being treated as different species. The fact that in one case there exist intermediate populations only strengthens this opinion.

Moult. — Studying our material of *E. c. hypoleucus*, I was struck by the fact that practically all specimens are in some stage of primary-moult. The moult follows the familiar regular descending pattern, beginning with the tenth or in-

TABLE III

Moult in *Elanus*

Elanus hypoleucus

Java

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
5	6	6	7	4	8	4	1	5	3	9	2
2	4	5	6	1			A	3		5	
	3	4	4				N			4	
		2	1				N			3	
		1								3	
		1								3	

Sumatra

	9	7				N	7		8	8	6
0	8	0					1		7	5	5
	5	0								4	5
	0	N								3	2
											2

Celebes & Sulu

	2	1	6			1					
			2								

Flores

		N				N					

New Guinea

			6	0							

Elanus leucurus

North America

							3				

South America

		6			5	7		6	4	8	
		3			2	1		1	1		
					1	0			0		
						0					
						N					

Elanus caeruleus

Africa

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	4	2	3	N			8		6	5	
	4	1	1				N				
	3	1					N				
	1	N					N				
	1										
	1										
	A										
	N										

Elanus notatus

South Australian Museum

2	N	1	N		N	N	N	N	N	N	
		1	N		N	N	N	N	N		
			N		N						

nermost primary and ending with the first. Hoping to be able to establish some kind of seasonality in the process of moult, I have tabulated our specimens according to the month of collecting (Table III). In the table the Roman figures I-XII indicate the months of the year, the Arab figures each represent one specimen and show how many old feathers are left. For example, 6 means that the primaries nos. 1-6 are old and have not yet been replaced; thus, the lower the figure, the more advanced the moult is. The figure 1 means that only the first or outer primary has not yet been shed and 0 means that the first primary is either growing out or is missing, having just been shed. When it is fullgrown, the stage N for no moult is reached.

What can be deduced from the table? The first interesting point to be noted is that (apart from an aberrant specimen that will be discussed separately), no bird shows moult in more than one place. Staffelmauser, the situation in which two or even three cycles of primary-moult are concurrent, does not normally occur in *Elanus*. The second point is that birds may be in any stage of moult at any time of the year, there is no evidence of a seasonal synchronization. It is this point which makes it difficult, on the basis of skins, to guess at the actual duration of a moulting cycle. Nevertheless it is tempting to do so. Of 32 specimens from Java, two are not in moult, of 23 from Sumatra also two; of all 62 specimens, six show no moult. If the primaries are renewed annually, these figures are consistent with a cycle of moult taking eleven months, followed by one month of rest. On the basis of the available evidence, however, it is not possible to state definitely that the primaries are moulted every year, the cycle could be nine months or fifteen months or anything, except that one gets an impression that the rather soft remiges and rectrices wear rapidly and would not remain optimally functional for much longer than a year.

The moult proves that there is only one juvenile plumage. Contrary to the adults, a majority of fully-grown juvenile birds is not in moult; in other words, they acquire their juvenile plumage before fledging, retain it for some time, perhaps as long as a year, and than start changing into the adult plumage. The material further shows that during the moult from the juvenile into the adult plumage, the large feathers, remiges and rectrices, are the last to be replaced.

The one exception to the rule of regular descending moult as described above is an adult female from Java (23.VIII.1908, Telar Tjitesoeng, Krawang, RMNH cat. no. 78). This bird has the left wing: 1-4 old, 5 growing, half length, 6 and 7 new, fullgrown, 8 growing, half length, 9 and 10 old, and the right wing: 1-4 old, 5 growing, half length, 6 new and fullgrown, 7 new, not fullgrown, 8 and 9 old, 10 new. It looks as if the moult has started with primary 6 and from there has proceeded in both directions, with the additional complication that in one wing moult has also begun with 10. The fact that the moult is more or less symmetrical in both wings, makes it unlikely that this aberrant pattern has been caused by damage; further it is noteworthy that the moult of this bird resembles closely that normally found in the Falconidae.

The pattern of moult found in *E. leucurus*, at least in the South American populations of this form, corresponds closely to that of *E. hypoleucus*. Out of 16 specimens examined, only one is not in moult, and as far as can be judged from the limited material, any stage of moult can be found in any time of the year. Whether the same holds true for the North American populations remains to be seen. It has been suggested that *E. leucurus* is migratory (cf. Brown & Amadon, 1968: 236), more specifically that birds found in northern South America would be migrants from Argentina. It seems to me that if any regular long distance migration took place, this would be reflected in the moult, in which one would expect a clear periodicity.

The material of *E. caeruleus* from Africa suggests that in that continent the moult is different. Of 21 specimens from Africa, six show no primary moult. The material is insufficient, and not sufficiently spread over the year (from six of the twelve months there was no material at all); in addition it is geographically of very heterogeneous origin. Therefore it is not possible to deduce a regularity or seasonality in the moult.

One of the specimens forms an exception to the rule that the primary moult is regularly descendant. It is an adult female (14.II.1885, Humpata, Angola, RMNH cat. no. 13). This bird has in both wings the primaries 1 old, 2 new and still growing, 3 and 4 old, 5-10 new.

Of *E. notatus* only six specimens were available, of which four undated. Nevertheless it is interesting that none of these six shows any sign of primary moult. It would be almost impossible to imagine a random sample of six *E. hypoleucus* of which none shows moult; evidently *E. notatus* moults differently. There is a field here for further investigation. To pursue this goes beyond the scope of the present article, but I have been unable to resist the temptation to ask information from an Australian colleague. The material in the South Australian Museum, examined by Mr. Parker (in litt., 16.VIII.1979), is listed in table III (adult dated specimens only). To this Mr. Parker added that the birds collected in July and August are in worn plumage, those collected in September, October, November, and February in very worn plumage, whereas birds collected in April and June are in new plumage. The egg season in southern South Australia is about July-October, so moult is occurring after breeding. In contradistinction to *E. caeruleus*, etc., moult must be a fairly rapid process in *E. notatus*.

Aviceda subcristata stenozona (G. R. Gray)

Baza stenozona G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 169 — Aru Islands.

Material. — ♀, 3.VI.1962, Koerik, no. 746. Wing 300, tail 187, tarsus —, culmen from cere 21 mm, weight 290 g. Iris very pale yellow, bill, maxilla blackish, mandible light slate, cere grey, legs very pale yellow or cream colour. Stomach contents large caterpillars.

Haliastur sphenurus (Vieillot)

Milvus sphenurus Vieillot, 1818, Nouv. Dict. d'Hist. Nat., (nouv. éd.) 20: 564 — Australasie.

Material. —♀, February 1959, Koerik, no collector's number (RMNH no. 27942). Wing 440, tail 250, tarsus 50, entire culmen 42, culmen from cere 30 mm. Some moult in the inner secondaries.

Discussion. — Previous records of *Haliastur sphenurus* from this region (Merauke and Prinses Marianne Strait) were published by Bangs & Peters (1926: 426).

Accipiter novaehollandiae leucosomus (Sharpe)

Astur leucosomus Sharpe, 1874, Cat. Birds Brit. Mus., 1: 119 — New Guinea and adjacent islands = Aidoema Island in Triton Bay (cf. discussion).

Material. —♀, 31.VIII.1960, Koerik, no. 379. Wing 255, tail 191, tarsus 72½, culmen from cere 23 mm, weight 528 g. ♂, 25.IX.1960, Koerik, no. 441. Wing 216, tail 146, tarsus 60, culmen from cere 18½ mm, weight 261 g. Iris yellow, bill blackish, base slate, cere warm yellow, legs warm yellow.

Discussion. — Sharpe's (1874) diagnosis of this subspecies was entirely based on a bird described and figured by Schlegel (1866b: 19, 58, pl. 11 fig. 3); this bird is from Aidoema Island, Triton Bay.

Accipiter fasciatus dogwa Rand

Accipiter fasciatus dogwa Rand, 1941, Amer. Mus. Novit., 1102: 1 — Dogwa, Oriomo River, Territory of Papua, New Guinea.

Material. — ♀, 27.VIII.1960, Koembe, no. 375. Wing 256, tail 185, tarsus 69½, entire culmen 30, exposed culmen 25, culmen from cere 18 mm, weight 315 g.♂, 18.IX.1960, Koerik, no. 426. Wing 217, tail 164, tarsus 61, entire culmen 26¼, exposed culmen 20½, culmen from cere 15 mm, weight 181 g. ♂, 22.XI.1960, Koerik, no. 525. Wing 215, tail 161, tarsus 65, entire culmen 24, exposed culmen 19½, culmen from cere 14½ mm, weight 180 g. ♀, 15.VI.1962, Koerik no. 758. Wing 260, tail 200, tarsus 69½, entire culmen 30, exposed culmen 24, culmen from cere 17 mm, weight 370 g. Iris light yellow (nos. 375, 758), bright yellow (no. 426) or light grey-green (no. 525), eye rim yellow or yellow-green, bill dark grey to black, its base light slate blue, cere yellowish green, legs dirty yellow or light yellow. Stomach contents (no. 758) remains of large lizards.

Discussion. — In the original description of *A. f. dogwa* no mention was made of *A. f. didimus* (Mathews) of northern Australia which, on zoogeographical grounds, one would expect to be close, but according to Condon & Amadon (1954: 215), the former would differ from the latter by being smaller and paler.

As regards size, this is confirmed by the measurements they provide. See also Stresemann (1935).

Circus approximans Peale

Circus approximans Peale, 1848, U.S. Explor. Exped., 8: 64 — Vanua Levu, Fiji (reference not verified).

Circus gouldi Bonaparte, 1850, Consp. Gen. Av., 1: 34 — ex Austr.

Material. —♀? juv., 26.V.1962, Koerik, no. 727. Wing 398, tail 221, tarsus 99, exposed culmen 31, culmen from cere 22½ mm, weight 500 g. Iris middle-brown, bill black, base of mandible and cere citrine, legs citrine. No moult. Stomach contents hair and bone fragments of a rat.

Discussion. — See Hoogerwerf (1964: 95-96). Hoogerwerf (l. c.) mentions that on 8 May a bird of this species was shot, and that on 26 May: "a second one was shot but not secured owing to the high paddy in which it fell". The specimen available, however, bears Hoogerwerf's original label with the date 26 May, and its collecting number confirms that this date is correct; there is no other specimen in the collection so that it looks as if it is the bird shot on 8 May that was lost in the way described.

The differences between immature specimens of *C. a. gouldi* and *C. spilonotus spilothorax* are very slight. The present specimen is very close to the two type specimens of *C. a. gouldi* which are in our collection (cat. nos. 1 and 2). Characters of this specimen are the dark head, even on the forehead without white stripes, the dark under surface, pronounced bands on the tail; outer edges of rectrices with rust colour just as in the types: this colour is not present in any of our specimens of *spilothorax*.

In recent literature, *C. approximans* and *C. spilonotus* are both treated as conspecific with *C. aeruginosus*. It is probably for this reason that Brown & Amadon (1968: 383) have given them separate ranges in New Guinea, the distribution of *C. a. spilothorax* being given as Western New Guinea, that of *C. a. gouldi* as South-east New Guinea. A different and in my opinion more likely possibility has to my knowledge never been considered, it is that *C. a. gouldi* would be only a winter visitor to New Guinea. In the southern part of its range (Tasmania), *C. a. gouldi* is known to be strongly migratory (Sharland, 1958; Hitchcock & Carrick, 1960: 82; Purchase, 1973: 71, 72 fig. 4). How far these Tasmanian birds go appears to be unknown, but there is every reason to assume that at least a proportion of these migrants reaches New Guinea. Sharland's records reveal an almost complete absence of *C. a. gouldi* from Tasmania in the months May, June and July, and "The species begins to reach Tasmania in July; the numbers increase with more arrivals during August, and attain their climax during October and November". Compare this with Hoogerwerf's (1964) observations at Koerik: "During May to September — the period during which I failed to note males of *Circus spilonotus*! — observations of "brown Harriers" were rather common above the ricefields and surrounding marshes and savannahs, which no doubt

for the greater part belonged to this species, though observations of adult specimens remained restricted to a very limited number''. Evidently the period of greatest abundance in New Guinea corresponds with the period that *C. a. gouldi* is scarce or absent from Tasmania. In a paper published after the above discussion was written, Amadon (1978) has also suggested that *C. a. gouldi* would possibly only be an off-season visitor to New Guinea.

Since Amadon's (1941) revision, two subspecies have been recognized in *C. approximans*: the nominate race from the Fiji Islands and other islands in the tropical Pacific, and the allegedly larger *C. a. gouldi* from Australia and New Zealand. However, Nieboer (1973: 69) found size-differences between populations from Australia, New Zealand, New Caledonia and the Fiji Islands negligible and therefore would: ''refrain from a formal recognition of subspecies''. On the basis of a large material, Baker-Gabb (1979) could confirm that the supposed differences in measurements are largely imaginary and that *C. a. gouldi* is probably not a valid subspecies. I am glad to note that Amadon (1978) and Baker-Gabb (1979) have reverted to treating *C. approximans* as a separate species, not as a subspecies of *C. aeruginosus*, although I realize that in the present state of knowledge this is largely a matter of subjective preference.

Falco berigora novaeguineae (Meyer)

Hieracidea novaeguineae Meyer, 1894, J. f. Orn., 42: 89 — Nova Guinea orientali.

Material. — ♀, 11.VIII.1960, Koerik, no. 352. Wing 337, tail 185, tarsus 72, culmen from cere 23$^1/_2$ mm, weight 610 g. ♀, 19.VIII.1960, Merauke, no. 364. Wing 350, tail 189, tarsus 67$^1/_2$, culmen from cere 23 mm, weight 536 g. Iris dark brown, bare skin around eye slate, bill distally dark grey, basally slate, cere grey, legs grey. No. 364 is in worn plumage, no moult; no. 352 shows moult in the primaries.

Falco longipennis longipennis Swainson

Falco longipennis Swainson, 1837, Anim. Menag.: 341 — (reference not verified).

Material. — ♀, 15.VI.1962, Koerik, no. 757. Wing 227+, tail 122, tarsus 38, culmen from cere 14$^3/_4$ mm, weight 223 g. Iris very dark brown, eye rim light blue-green, bill pale slaty blue with a dark tip, cere light green-yellow, legs light yellow. Wing moult (see discussion).

Discussion. — This bird is in an advanced stage of wing moult; the outer primary is old on both sides, the second primary is represented by a very short stump, just beginning to grow, the other primaries are new. Even allowing for the fact that the 2nd, longest, primary is missing, the specimen which is in adult plumage, is exceptionally small for a female, and I consider it likely that it is a missexed male. On the label the ovary is noted as having been very small, so perhaps the gonads were difficult to find; even outside the breeding season an

adult female ought to have two fairly large ovaries. A juvenile female from Merauke in our collection (all feathers of the upper surface have cinnamon outer edges), has a wing-length of 271 mm (cf. Mees, 1964b: 7).

Condon & Amadon (1954: 238-242) have divided Australian *F. longipennis* into two subspecies, the darker nominate race from the southern part of the continent, and the paler *F. l. murchisonianus* from the North and inland. Hoogerwerf's specimen is, by these characters, clearly referable to the nominate race: it is dark above, with head and remiges dull black.

Records of this species in New Guinea are confined to the South (Hartert, 1932: 446; Rand, 1938a: 3; Mees, 1964b: 7), and the dates of collecting range from 28 March to 28 August. Two birds collected by Father Meyer in the Bismarck Archipelago, in May and August, fit into this picture (Stresemann, 1934c; Meyer, 1937). There is little doubt that Rand (l. c.) was right in considering *F. longipennis* a winter visitor from Australia, as it is in the Moluccas (van Bemmel, 1948: 391). That explains also why the birds belong to the nominate race.

Megapodius freycinet duperreyii Lesson & Garnot

Megapodius Duperryii Lesson & Garnot, 1826, Bull. Sci. Nat., 8: 113 — Doréry.

Material. — Sex ?, 27.VIII.1960, Koembe, no. 377. Wing 232, tail 81, tarsus 66, entire culmen 32 mm, weight 685 g. ♂, testes small, 17.VI.1962, beach forest Ongari-Doemandé, no. 759. Wing 240, tail 89, tarsus 67, entire culmen 31 mm, weight 750 g. Iris dark brown, bill yellowish brown, ridge of culmen and base dark grey, legs orange with some dark grey spots on the toes. No moult. Stomach contents of no. 377: a dark moist substance composed of animal matter; crop contents black cocoons with light green, brown-headed larvae.

Discussion. — New Guinea and the surrounding islands are inhabited by two groups of forms: blackish ones, mainly found on offshore islands, and lighter, brown-with-grey ones, inhabiting the mainland and some of the larger islands. Whether these constitute two different species or should be united in a single species is still controversial. Mayr (1938a) regarded them all as belonging to one species whereas Gyldenstolpe (1955b: 217-218, 361-362) argued in favour of the other point of view. Having not studied the problem myself, I have followed Mayr who based his opinion on the examination of a considerable material.

In current literature the name of this form is spelled *duperryii*, as it was in the original description. However, consulting the description, I found: "Mégapode Duperrey, *Megapodius Duperryii*, Garn." (cf. Lesson & Garnot, 1826). Under the Code, this provides clear internal evidence that the spelling *duperryii* was a misprint. Two years later, Lesson (1828: 223) used the correct spelling *Duperreyii* for the bird, which was named after L. I. Duperrey, commander of the corvette "La Coquille".

Talegalla fuscirostris occidentis C. M. N. White

Talegalla fuscirostris occidentis C. M. N. White, 1938, Ibis, (14) 2: 763 — Canoe Camp, Setakwa River, Dutch New Guinea.

Material. — ♀, 27.VIII.1960, Koembe, no. 378. Wing 280, tail 166, tarsus 78, entire culmen 38 mm, weight 1275 g.♂, 16.IX.1960, Koembe, no. 407. Wing 265, tail 163, tarsus 78, entire culmen 39 mm, weight 1325 g.♂, same data, no. 408. Wing 285, tail 158, tarsus 81, entire culmen 38 mm, weight 1330 g. Iris dark brown, bill blackish, legs citrine.

Discussion. — The sole character on which *T. f. occidentis* was separated from the nominate race inhabiting S.E. New Guinea is its smaller size. According to White (1938b): "Fourteen adults from S.W. New Guinea have wings 250-265 mm. Birds from S.E. New Guinea have wings 274-292 mm. These measurements include birds in the British Museum, measurements recorded by Salvadori, and measurements quoted by Mayr and Rand...". The measurements recorded by Junge (1937: 127) for birds from along the Lorentz River, S.W. New Guinea are 231-280 mm, but I found that specimen No. 136 for which he gives the very small wing-size of 231 mm is a juvenile, evidently not fully grown. If this specimen is excluded from the series the range is 254-280 mm, considerably larger than the measurements provided by White, and also with a larger maximum than Mayr (1938a) found. Rand (1942a: 296) included birds from as far east as Tarara, etc. in *occidentis*; for these he mentioned wing-lengths of ♂ 256-290, ♀ 252-269. Van Bemmel (1947: 5) recorded an unsexed bird from Merauke with a wing-length of 273 mm, and two unsexed specimens from the Ta River (north of Gebroeders, Weyland Mts.) with wings of 267 and 269 mm. The specimens from Koembe are also rather large compared with the measurements originally given by White and Mayr. However, our single specimen from S.E. New Guinea is still larger (♂, wing 293 mm), and therefore I accept *T. f. occidentis* for the moment, although the difference in size between the eastern and western populations is evidently less than its describer believed.

Turnix maculosa horsbrughi Ingram

Turnix horsbrughi Ingram, 1909, Bull. Brit. Orn. Cl., 23: 65 — Yule Island, British New Guinea.

Material. — ♂, 21.XII.1960, Koerik, no. 544. Wing 73, tail 27, tarsus 18, entire culmen $13^1/_2$, exposed culmen 10 mm, weight 32 g. Iris white, bill olive-yellowish with dark tip, legs light yellow-brown.

Discussion. — *Turnix maculosa* was reviewed by Sutter (1955), who assigned two females from Merauke in our collection (30.VIII.1904 and 7.X.1904, both leg. J. W. R. Koch) to *T. m. horsbrughi.* The present specimen is our first male from New Guinea and it conforms to Sutter's diagnosis of *T. m. horsbrughi* in that the chestnut nuchal band is only weakly developed. In spite of this I use the name with some hesitation. From Sutter's notes it is clear that the subspecific

identity of the populations inhabiting northern Australia, including the Cape York Peninsula, is still doubtful (see also Goodwin in Hall, 1974: 63). The large number of subspecies recognized by Sutter evidently indicates that populations of this species are in most places very sedentary, but its occurrence on even the remotest of the Torres Strait islands (cf. Storr, 1973: 27; Ingram, 1976) conflicts with this and suggests considerable mobility in this area, and perhaps a regular contact between populations from northern Australia and southern New Guinea. Material from this region is very insufficient so that for the moment I accept the current nomenclature.

Rallina tricolor tricolor G. R. Gray

Rallina tricolor G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 188 — Aru Islands.

Material. — ♀ ?, 21.IV.1962, Koembe, no. 699. Wing 143, tail 68½, tarsus 46, exposed culmen 29 mm, weight 137 g. Iris red-brown, bill bright green, tip and ridge of culmen grey, legs dark greenish grey. No moult.

Discussion. — For measurements of material in our collection, see Mees (1965: 153-154).

Megacrex inepta inepta D'Albertis & Salvadori

Megacrex inepta D'Albertis & Salvadori, 1879, Ann. Mus. Genova, 14: 130 — Fiume Fly (400-430 m).

Material. — ♀, 7.V.1962, Koembe, no. 716. Wing 180, tail —, tarsus 103, bill and shield measured from forehead feathers 72½ mm, weight ca. 1200 g. Iris red-brown, bill pale green, frontal shield dark grey, legs black. Ovarium active, with several oocytes of 2-4 mm diameter. Stomach contents dry pulp in which remains of beetles and vegetable fibre (sago ?) could be recognized. This specimen shows primary moult; its moult was described by Stresemann & Stresemann (1966: 148).

Discussion. — Olson (1973: 407) united *Megacrex inepta* with *Habroptila wallacii* G. R. Gray in one genus: "*Habroptila* and *Megacrex* are geographical counterparts, the first occurring on Halmahera and the other on New Guinea. They differ only in plumage and bill color, *Habroptila* being all dark with a red bill and *Megacrex* brownish above, white below, with a yellowish-green bill. In the shape and size of the bill and frontal shield, the very large heavy legs, and abbreviated tails, *Habroptila* and *Megacrex* are so similar that it is difficult to see why they were ever placed in different genera. I can find no character of generic importance that will permit their separation; therefore *Megacrex* D'Albertis and Salvadori 1879 becomes a synonym of *Habroptila* Gray 1860". In spite of this definite statement, Ripley (1977: 63, 255), in whose work Olson is known to have had a great hand, placed *Habroptila* as a generic synonym of *Rallus* and *Megacrex* as a generic synonym of *Amaurornis*; the genera *Rallus* and *Amaurornis* moreover widely

separated[1]). Evidently no stability has yet been reached in the generic classification of rails and therefore it appears advisable not to dispose too rigorously of monotypic genera. As regards Olson's statement about the similarity of *Habroptila* to *Megacrex*, moreover, I cannot at all agree. Far from having shape and size of the bill and the frontal shield similar, our material of the two species shows them to be very different in this character (fig. 3).

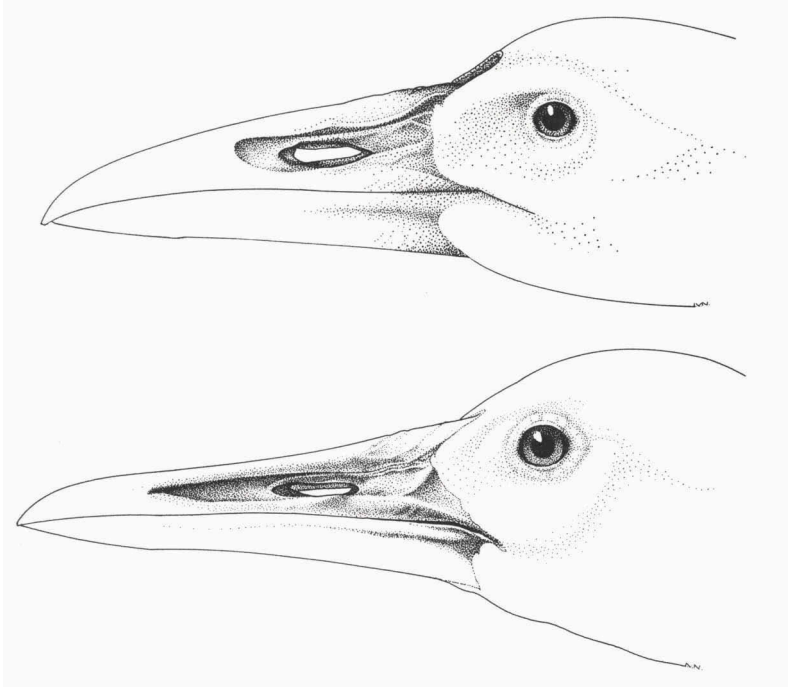

Fig. 3. Heads of *Megacrex inepta* (♀, RMNH cat. no. 2), top, and of *Habroptila wallacii* (ø, RMNH cat. no. 2), bottom, in lateral view, to show the considerable differences in shape and structure of the bills. Natural size.

The depth of the bill at the base does not much differ in the two species, but *M. inepta* has a strong and deep bill throughout, whereas in *H. wallacii* the distal part of the bill is conspicuously more slender. Seen in lateral aspect the outline of the culmen is convex over its whole length in *M. inepta*, but clearly concave in *H. wallacii*. The depression containing the nostril is deep and marked in *H. wallacii*,

[1]) There is in the mentioned publication even internal inconsistency about generic limits. On page 80, Ripley treats a species under the name of *Rallus maculatus*, and he stresses its resemblance to *Rallus aquaticus*. Yet on page 350, Olson states: "I have shown elsewhere ... that the species *sanguinolentus, nigricans*, and *maculatus* are not at all closely related to the genus *Rallus* and must be placed in the genus *Pardirallus*". A better agreement between the two authors would have enhanced the value of their work. A remark on page 6, that this is nothing but a matter "of taxonomic taste or discretion" makes it worse.

extending forwards for over two-thirds of the length of the bill, whereas it is far less marked and extending for only just over half the length of the bill in *M. inepta*. The frontal shields are entirely different: in *H. wallacii* the maxillary base is merely somewhat elevated and a little swollen near its fusion with the forehead; in *M. inepta* it is a much more complicated structure, consisting of a narrow protruding ridge which, originating on the bill above the posterior part of the nostrils, encircles the deeply concave frontal plate. It gives an impression that the frontal plate would be soft and perhaps swollen in life, so that its concaveness is a post-mortem artefact, but if this is true, it only adds to its distinctness. Seen from below, the mandibular rami of *H. wallacii* are continued much farther forwards before they fuse, than in *M. inepta*, the length of the gonys being about 40% of the total length of the exposed mandible in *M. inepta*, and only 25-30% in *H. wallacii*. Olson (l. c.) has made slight of the difference in colour of the bills and did not mention the colours of the eyes, eye-rim, and legs, parts which are bright red in *H. wallacii* (cf. Gray, 1860: pl. CLXXII; de Haan, 1950: pl. XIV), whereas *M. inepta* has a greenish bill, black legs, reddish-brown eyes and a feathered eye-rim. There is another difference between the two species that was not mentioned by Olson: in *H. wallacii* the tibiotarsus is feathered almost down to the joint; in *M. inepta* a considerable part of the lower tibiotarsus is bare. In the present state of knowledge I consider it advisable to retain both *Habroptila* and *Megacrex* as monotypical genera.

Porzana cinerea subsp.

Material. — Clutch of 2 eggs (out of 3), XII.1959, Kepi, reg. no. 76604. c/6, 31.I.1960, Koerik, reg. no. 76605. c/5, early II.1960, Koerik, reg. no. 76603. c/5, Koerik, III.1960, reg. no. 76606. Measurements of these 18 eggs 27.2-30.1 × 20.7-22.3 mm.

Discussion. — See Hoogerwerf (1964: 119) and Hellebrekers & Hoogerwerf (1967: 30). Hoogerwerf's label with reg. no. 76606 does not bear a date, but it must be the clutch referred to in 1964 as: "in March a nest with five eggs". In 1967 there is no mention of March, but two clutches are placed in January. I have assumed the earlier reference to be correct, especially since the later article shows other signs of having been written in haste.

This species is variously placed in the genus *Porzana* or in *Poliolimnas*, the second name having perhaps been more frequently used. Mathews (1911: 219) gave the following very sensible discussion: "Sharpe included *P. leucophrys* Gould as a synonym of *P. cinerea* Vieillot, for which he proposed the new generic name *Poliolimnas*, and since then the Australian bird has been called *Poliolimnas cinereus*. The characters used by Sharpe for differentiating this bird generically are not of generic value, though this bird is rather an aberrant *Porzana*. As, however, these small Porzanae vary considerably, I have not considered the character noted as sufficiently important to necessitate the retention of Sharpe's monotypic genus". I rarely find myself in a position to agree whole-heartedly with Mathews, but in this case I do, in spite of the fact that in his very next list this erratic author

reverted without explanation to the use of *Poliolimnas* (cf. Mathews, 1913: 25). A discussion of the validity of *Poliolimnas*, with my reasons for rejecting it, will be given below.

There is a conspicuous lack of agreement about how many subspecies should be recognized and what their characters are in the region of the Moluccas and New Guinea. Mayr (1941b: 24) included the Moluccas, New Guinea and the Bismarck Archipelago in the range of *P. c. leucophrys*, described from Australia. Rand (1942a: 297) separated New Guinea birds from Australian *leucophrys* under the name of *Poliolimnas cinereus minimus* (Schlegel), on account of their: "being whiter on throat and abdomen; in having the black markings in the feathers of the back larger, darker, and more conspicuous, especially in the foreback; and in having the black mark before the eye slightly smaller, making it advisable to recognize this lightly defined race". Van Bemmel (1948: 388) recognized a separate subspecies, *P. c. moluccanus* Mathews, type locality Buru, for Moluccan birds. Mayr (1949: 17) largely held to his earlier view, with a widely ranging subspecies *leucophrys*, but remarked that Buru birds agree better with *cinereus*. Rand & Gilliard (1967: 113) united birds from New Guinea, the Moluccas and the Bismarck Archipelago under the name *Poliolimnas cinereus minimus* (Schlegel), type locality Oetanata R. Diamond (1972: 117) wrote: "The race *minimus* is considered inseparable from *leucophrys*", but did not elaborate the point. Greenway (1973: 314) agreed with Mayr (1949) that birds from Buru, type locality of *P. c. moluccanus*, belong to the nominate race from which he considered them inseparable. He added the following significant observation: "In fact, except for having a rather darker (blacker, less grayish) head, sizable samples from Java and Malaya (*cinereus*) are inseparable from those of northern Australia (*leucophrys*)". The latest reviser, Ripley (1977: 224-227) followed the classification proposed by Mayr (1949) and Greenway. The distributional map presented shows, however, how improbable that arrangement is from the zoogeographical point of view, with an outlying population of the nominate race on Buru, pushed in between Celebes (*ocularis*) and Ceram/Ambon (*leucophrys*).

Before discussing the material in our collection, I want to point out that on Ripley's map the Lesser Sunda Islands Sumba, Flores, Timor and Wetar have been excluded from the range of the species, leaving an unexplained distributional gap. In the text, on the other hand, reference is made to Paynter's (1963) record from Flores. We have eggs from Flores in our collection, and specimens from Wetar and Timor, from which there are previous records (Hellmayr, 1914: 103). Stein collected specimens on Timor and Sumba, which were assigned to the nominate race by Mayr (1944: 133, 140). This range extension of the nominate race over the eastern Lesser Sunda Islands makes the occurrence of the same subspecies on Buru a little less improbable.

The diagnostic characters given by Ripley for the subspecies in question are worth quoting. *P. c. ocularis* is described as: "Similar to *P. c. cinerea* but generally darker, especially on the head. The gray tints on the head and the olivaceous tints on the back are purer and more strongly contrasted with one another, and

the neck and breast are conspicuously grayer", whereas under *P. c. leucophrys* we read: "Compared with *P. c. ocularis*, this race has the upperparts paler, there being less contrast between the dark centers of the feathers and the olive-brown edges; top of head not so dark gray. Underparts generally similar except for flanks and under tailcoverts, which are colored a deeper buff". So *P. c. ocularis* is darker than the two other subspecies, but there is no indication of how *leucophrys* differs from the nominate race.

The 170 specimens in our collection are geographically divided as follows: Sumatra (32), Java (83), Bali (5), Borneo (4, including type of *Erythra cinerea media* Schlegel), Celebes (25), Timor (1), Wetar (1), Buru (6), Ambon (6), Halmahera (1), New Guinea (1, type of *Erythra cinerea minima* Schlegel), Mindanao (1), Philippines without further locality (2), Palau Islands (1), Yap Island (1). A loan from the Zoölogisch Museum, Amsterdam, added another 19 specimens, from Sumatra (12, mostly unsexed and with insufficient data), Celebes (4), Halmahera (2), and S. Dionisio or Iwo Jima (1).

To simplify the discussion of the bulk of this material, a few specimens from peripheral parts of the range will be dealt with first.

Porzana cinerea brevipes Ingram. Ever since its description it has been agreed that this subspecies is morphologically distinguished by its short tarsus and toes (cf. Ingram, 1911; Stresemann, 1914: 54, etc.), but this is no more than an average character, as far as can be judged from the single specimen available to me, for both tarsus and middle toe are within the range of variation of topotypical *cinerea*. On the other hand the bill conforms to Ripley's (1977: 226) description: "Bill shorter in length than that of *ocularis* but much deeper at the base; giving it a stubby appearance". The bill is not shorter than in many specimens of the nominate race, but it is indeed a little heavier, a feature for which especially the deeper mandible is responsible. As regards plumage, the upper parts are not noticeable different from those of the nominate race, but the under surface is pale greyish buff rather than almost white, and the feathers of the vent are a little darker buff than in all other specimens.

Porzana cinerea ocularis Ingram. The three Philippine specimens are characterized by their greyish under parts, as stated in the original description. They are a little larger than topotypical specimens of the nominate race, but agree in this respect with specimens from Borneo and the Celebes.

The specimen from Yap is a juvenile, with the remiges still growing out. The unsexed adult from the Palau Islands agrees in every respect with topotypical *cinerea* (from Java). It does not have the grey breast of *ocularis*. Evidently these two specimens form no basis for a discussion of the validity of *P. c. micronesiae* (Hachisuka).

Geographical variation in the remaining material. Measurements (Table IV). Males average a little larger than females. Birds from the Celebes (currently included in the subspecies *ocularis* or its objective synonym *collingwoodi*) are somewhat larger than birds from Java (topotypical of the nominate race) and

TABLE IV

Measurements of *Porzana cinerea*

number/sex	wing	av. wing	tail	av. tail	tarsus	av. tarsus	bill	av. bill	middle toe	av. m. toe
Sumatra										
19 ♂	90–97	94.0	42–52	46.2	32–37	34.6	18–21½	20.5	34–39	36.1
12 ♀	87–96	90.5	40–47½	43.7	30–35½	32.8	17½–22	19.6	29, 32–38	34.0
Java										
42 ♂	92–104	96.1	41–52	46.8	33–39	35.7	18½–22½	20.9	32–40	37.0
31 ♀	89–97½	93.6	39–54	45.8	31–37	34.0	17–21	20.1	33–39	34.4
Bali										
3 ♂	93½, 94, 95	94.2	43, 45½, 47½	45.3	34, 34½, 35	34.5	19, 21, 21½	20.5	34½, 35½, 36½	35.5
2 ♀	88, 90		45½, 47		30, 30		18, 18½		32½, 32½	32.5
Borneo										
3 ♂	95, 97, 98	96.7	48, 48, 51	49.0	38, 38, 40	38.7	22, 22½, 22½	22.4	39, 39½, 40½	39.7
♀ im.	95		39½		31½		20		34½	34.5
Celebes										
9 ♂	93–102	98.2	41–48	44.9	36–38	37.1	20–24	22.3	38–40	39.2
10 ♀	92–102	97.7	39–47	43.8	33–39	36.2	19–23	21.5	33½–38½	37.0
28 ♂♀	92–106	97.6	39–52	44.3	32½–39	36.3	20½–24	21.8	33–40	37.3
Buru										
4 ♂	90–102	93.9	43½–54	48.3	32–35½	34.1	20–21½	20.9	33–36½	34.2
2 ♀	89, 94		43, 44		32, 34		19½, 20½		36½	
Ambon										
6 ♀	84!, 89–98½	90.6	39½–43½	41.4	28–34½	31.7	16½ juv., 17–19	17.9	31½–32	
Halmahera										
♂	93		43		35		21½		34	
2 ♀	91, 93		40, 42		34, 34½		19½, 20½		34, 36½	
New Guinea										
♀	92		44		33		17		32	
Bonin Islands										
♂	102		54		33½		20		34	
Philippines										
2 ♂	98, 99		43½, 43½		37, 39		21, 23		39, 40	
♂	101		41		36		22½		39½	

Sumatra, a difference that is most conspicuous in the bill. Birds from Buru and Halmahera agree in measurements with those from Java, whereas specimens from Ambon (all females) have slightly smaller bills. The single specimen from New Guinea (♀, type of *minima*) agrees with birds from Ambon.

Plumage. No sexual dimorphism in plumage. There is, however, a clear difference between juvenile and adult plumage. Whereas the adults have the heads with contrasting black, white and grey, in juvenile birds this pattern is much less distinctive, of brown and pale brown to off-white. Apart from the heads, there is not much difference; ventrally the juveniles may be a trifle more buffish, less grey on the sides of the breast and on the flanks, but not consistently, and dorsally there seems to be no difference at all.

As regards the plumage characters which Ripley (l. c.) believed to be of subspecific value, a few remarks about the plumage in general are necessary. The dark feathers on the head, when fresh, are black with broad grey margins; as these feathers become more worn, the grey outer edges gradually disappear with the result that birds in worn plumage have darker heads than birds in fresh plumage, as previously observed by Hartert (1930: 122). The feathers of the mantle are black in their central portions, with on both sides broad brownish margins. There is much variation in the pattern of the upper surface, some birds showing conspicuously blacker than others. Partly this is again a matter of wear, birds in worn plumage, which have lost most of the edgings, looking blacker and more strongly variegated than birds in fresh plumage. In addition there is a certain amount of individual variation in the tone of the brown colour.

Geographical variation in plumage is minimal. Birds from Borneo and Celebes tend to have the heads and the under tail coverts a trifle darker than birds from Java, but much of the difference can be explained by the state of the plumage, and all of it is covered by individual variation. I conclude that Sumatra, Java, the Lesser Sunda Islands, Borneo, Celebes and Buru are all inhabited by the nominate race. I am inclined to include Ambon and New Guinea also in the nominate race, but the material is not enough to be certain. Birds from Celebes do not have the grey under-surface of Philippine *ocularis* and notwithstanding their rather large bills, they fit well enough into the nominate race. This is the same conclusion at which Hartert (1924: 263-265) arrived over half a century ago. No material from Australia was available to me so that I cannot give an opinion on *P. c. leucophrys*, but it must be at best a very poorly differentiated subspecies, as is evident from Greenway's comment quoted on a preceding page. I expect that in future *leucophrys* will be found to be a synonym of *P. c. cinerea*.

Olson (1970) retained the previously monotypic genus *Poliolimnas*, which he rediagnosed and expanded to include the tropical-American *Porzana flaviventer*: "The bills of [these] two species differ in shape and proportions from the remainder of *Porzana*. In lateral view, the culmen and the top of the head are practically in the same plane, giving both species a decidedly flat-headed appearance, whereas in *Porzana* proper, the culmen is depressed above the nostril and ascends

more sharply to the forehead. Further, the pattern of facial stripes in *Porzana flaviventer* and *Poliolimnas cinereus* is unique among rails and stands out in comparison with the other *Porzana*-like forms. *Poliolimnas* lacks the barred flanks and longitudinal white dorsal markings of *Porzana flaviventer*, but this is probably not of great importance. Species lacking barred flanks and/or dorsal markings may be found in genera that possess both these characters (e.g. *Porzana*, *Rallus*)''. Later he (Olson, 1973: 405) added: ''In my previous note I neglected to point out that the white streaking in the dorsum of *flaviventer* is different from that found in the white-streaked species of *Porzana*. In the latter, each streaked feather has one or, more often, two streaks in the *outer* margins. In *flaviventer* each streaked feather has only a single streak down the *center*. The white streaks of *flaviventer*, therefore, must have evolved independently from those of *Porzana*''.

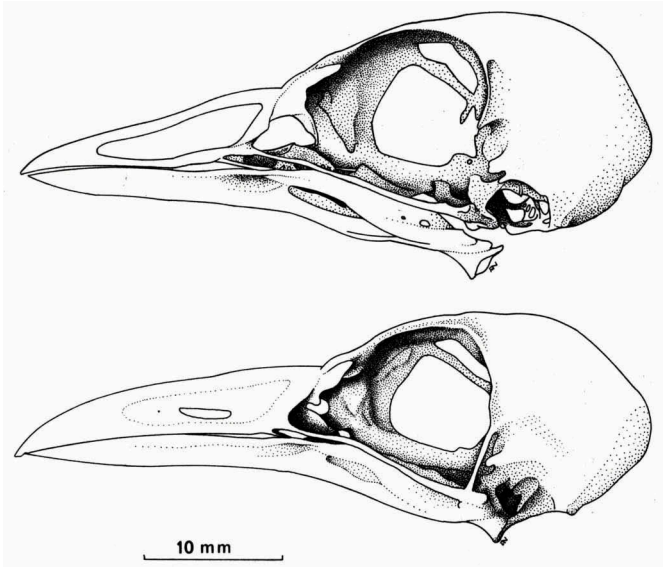

Fig. 4. Skulls of *Porzana porzana* from the Netherlands (ø, RMNH no. 60230), top, and of *Porzana cinerea cinerea* from Java (ø, RMNH cat. no. a), bottom. The bill of *P. cinerea* still retained much of its horn layer, for which reason the shape of the underlying bones could only be indicated approximately.

I have tried to verify these characters by comparing the species *cinerea* and *flaviventer* with species traditionally placed in *Porzana*. As regards the flat-headed appearance, it is difficult to be certain because in skins this is a matter of preparation, within one species some skins show flat foreheads and others quite high foreheads, but a comparison between skulls of *P. porzana* (type species of the genus *Porzana*) and *P. cinerea* (type species of the genus *Poliolimnas*) showed very little if any difference, in both the angle between bill and forehead being close to 180°, and the forehead being flat (fig. 4). Photographs of several European

species (*P. porzana*, *P. parva*, *P. pusilla*) confirm this. The depression above the nostril is not a useful character either. In some, especially thick-billed species, the bill tapers towards the tip, and has the depression more or less distinctly (*P. carolina*, *P. paykulli*, *P. albicollis*), but species with slender bills like *P. parva* have it less than *P. cinerea*. The bills of *P. cinerea* and *P. fusca* are quite similar in size and shape, although the bill of the latter is a little more slender than the bill of the former, a difference most conspicuous in the ventral aspect of the mandible. In the group of species traditionally placed in *Porzana*, *P. cinerea* holds an intermediate position as regards bill-shape: its bill is more slender than in several other species, but less slender than in some. As regards the suggested close affinity between *P. cinerea* and *P. flaviventer*, that also appears to me a debatable point. Both have the bill-shape found in most species of small Rallidae. *P. flaviventer* is a much smaller species than *P. cinerea*. Its bill is also smaller and relatively more slender. The bill of *P. flaviventer* is glossy black, that of *P. cinerea* is pale yellowish

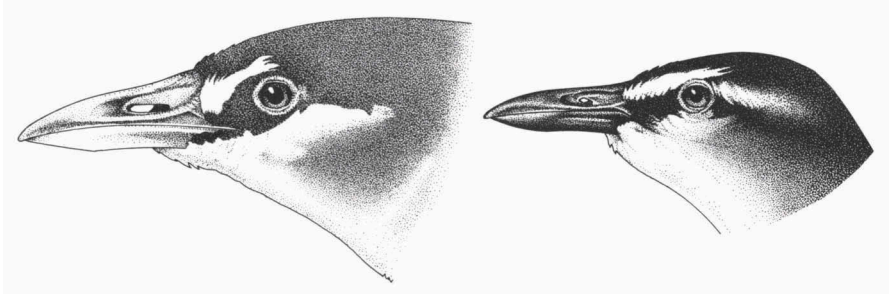

Fig. 5. Heads of *Porzana cinerea cinerea* from Java (♂, RMNH no. 52070), left, and of *Porzana flaviventer flaviventer* from Suriname (♂, RMNH no. 35665), right, to show differences in head pattern and bill. $1^1/_3 \times$.

green, reddish at the base. Remains the black-and-white facial pattern. Evidently Olson attached much value to it, but even his own illustrations show that in the two species it is not exactly the same. *P. cinerea* has a broad black band running from the anterio-ventral part of the orbit forwards and downwards towards the gape, ending in a black spot at the base of the mandible. *P. flaviventer*, on the other hand, has an almost horizontal black loral line, connecting the anterior margin of the orbit with the base of the maxilla; there is also a white streak behind the eye, which *P. cinerea* lacks (fig. 5). Conspicuous head markings are found in a great variety of quite unrelated birds, and also in other rails, for example in *Rallus* (*Hypotaenidia*) *philippensis*. As in all other respects the two species have a quite different plumage, it seems very questionable to me that the superficial resemblance in face pattern is indicative of relationship. Olson has drawn attention to the white streaks on the back of *P. flaviventer*, but as *P. cinerea* does not have these, they cannot very well be regarded as an argument for close relationship between the two. In view of the great value Olson has attached to the supposed resemblance in face patterns, it seems illogical that he has made slight of

the great differences in other plumage characters. I cannot possibly support Olson's view that *P. cinerea* and *P. flaviventer* are more closely related to each other than either of them is to other species of Rallidae, or in other words that the genus *Poliolimnas* as circumscribed by Olson is a natural one.

Amaurornis olivaceus subsp.

Material. — ♀, 8.II.1961, Koerik, no. 556. Wing 142, tail 51, tarsus 52½, exposed culmen 29½ mm, weight 183 g. Iris brown, bill olive, legs olivaceous ochre. No moult.

Discussion. — See Hoogerwerf (1964: 119-120). According to Rand (1938c) this bird would have to be *A. o. ruficrissa* (Gould), distinguishable from *A. o. moluccanus* of western and northen New Guinea by having darker, more rufous, under tail coverts. The present specimen, on the contrary, has conspicuously light, almost pinkish under tail coverts and also a rather pale grey under surface. Therefore I prefer not to apply a subspecific name to it. For a discussion of our other New Guinea material I refer to Junge (1953: 19-21), who already disproved the implicit suggestion made by Rand & Gilliard (1967: 118) that birds from southern New Guinea are larger.

Porphyrio porphyrio melanotus Temminck

Porphyrio melanotus Temminck, 1820, Manuel d'Orn., 2e éd., 2: 701 — la Nouvelle Hollande.

Material. — 3♂, 9♀, 2♀juv., collected between 9.III and 10.V.1961, 6.V. and 20.VI.1962, all at Koerik, nos. 1984 (!), 563, 584, 585, 586, 600, 714, 723, 724, 725, 732, 734, 735, 767. Wing♂ 273, 273, 275, ♀ 245-268, ♀ juv. 227, 237, tail 94-107, tarsus 81-97, culmen with frontal shield 64-69 mm, weights♂ 630, 640, 724, ♀ 490-665, ♀ juv. 420, 515 g. Iris, bill and legs red. Clutch of 3 eggs, V.1960, Wanggati, reg. no. 76602, measurements 49.8 × 34.8, 49.9 × 35.6, 50.5 × 35.7 mm, weights 2.371, 2.607 g (the third shell is too badly damaged for weighing).

Discussion. — See Hoogerwerf (1962). As this species was thought to cause serious damage to the rice fields, it was comprehensively investigated by Mr. Hoogerwerf. In their appearance on the rice fields there was a distinct periodicity: large numbers began to arrive in March and remained until the end of May or the first half of June, after which there was a pronounced decrease. Birds collected in this period all had small gonads. The suspicion that these birds would be migrants from Australia was confirmed by the find of specimen no. 584, ♀, 21.IV.1961, which bore a ring marked AG & S Dept Qld A 00567; it had been ringed 13.XII.1958 at Mt. St. John near Townsville, Queensland, apparently as an adult (Lavery, 1961; Hoogerwerf, 1962: 16). This single recovery does not, of course, prove that all birds visiting Koerik originated from Australia, but the further evidence obtained by Hoogerwerf certainly suggested that most of them did. The periodical character of their visits suggests to me that these birds may

be considered true migrants rather than wanderers, even though Lavery (l. c.) quoted evidence that in Queensland the majority of the population is sedentary.

Hoogerwerf could find no evidence of breeding of *Porphyrio* near Koerik, but proof that it does reproduce in the lowlands of southern New Guinea was provided by the clutch of three eggs listed above, found near Wanggati, Kepi, Mappi district, and forwarded to Hoogerwerf by the district officer.

Ardeotis australis (J.E. Gray)

Otis australis J. E. Gray, 1829, Griffith's Animal Kingd., 8: 305 — New South Wales. (reference not verified).

Material. — One egg, 22.VI.1960, Koerik, reg. no. 76593. Measurements 85.8 x 60.2 mm, weight 15.198 g.

Discussion. — About the status of this species near Koerik, see Hoogerwerf (1964: 120). The circumstances under which the egg was found were described by Hoogerwerf. I can add that the egg has an appearance of having been exposed to the elements for some time. Therefore it does not really constitute proof of breeding of *A. australis* in New Guinea, although I have little doubt that the species does. Judging from published descriptions, this egg is a large one: the measurements given by Schönwetter (1962: 368) for 32 eggs are 72.7-84 x 52.5-58.9 mm, and those provided by Serventy & Whittell (1967: 186) are 75-81 x 52-55 mm.

Irediparra gallinacea (Temminck)

Parra gallinacea Temminck, 1828, Recueil d'Ois., 5 (livr. 78): pl. 464 — Célèbes... dans le district de Menado.

Parra novae-guinae Ramsay, 1879, Proc. Linn. Soc. N. S. W., 3: 298 — a lagoon, fifteen miles inland from Boiara, and about twenty-five miles west of Port Moresby.

Material. — Sex ?, 25.I.1959, Koerik, no collector's no. (RMNH reg. no. 26695). Wing 130, tail 34$^1/_2$, tarsus 62$^1/_2$ mm, weight not recorded. ♂, 2.IX.1960, Koerik, no. 385. Wing 126, tail 36, tarsus 56 mm, weight 85 g. ♂ juv., same data, no. 386. Wing 130, tail 36$^1/_2$, tarsus 58 mm, weight 87 g. ♂, 18.IX.1960, Koerik, no. 412. Wing 125, tail 35, tarsus 58 mm, weight 87 g. ♀, 2.XII.1960, Koerik, no. 538. Wing 140, tail 36$^1/_2$, tarsus 65 mm, weight 134 g. ♀, same data, no. 539. Wing 143, tail 39, tarsus 64 mm, weight 134 g. ♂, 13.I.1961, Koerik, no. 552. Wing 120, tail —, tarsus 58$^1/_2$ mm, weight not recorded. Iris creamy to greyish white, grey in the juvenile bird, bare parts of head fleshy yellow to red, bill black with flesh coloured base, legs olive green.

Discussion. — A short revision of this species was given by Hartert (1930: 119-120), who recognized three subspecies: the nominate one from Celebes, the

Moluccas, etc.; *I. g. novaeguineae* from New Guinea, and *I. g. novaehollandiae* from Australia. Subsequently Mayr & Rand (1937: 26) recorded the Australian subspecies as occurring near Daru in the southern lowlands of New Guinea opposite Australia. Specimens later obtained at Lake Daviumbu were also referred to this form (Rand, 1938a: 5).

The differences between these three subspecies were enumerated by Hartert (l. c.) as follows:

I. g. gallinacea: "Tail black with steely gloss, upper surface a somewhat glossy olive-brown, nape metallic blue-black, extending to the interscapular region".

I. g. novaehollandiae: "This subspecies is strikingly paler, a sort of pale bronzy, almost greyish brown on the upper wing-coverts, secondaries, scapular and interscapulium. The rectrices are usually much less blackish, with a bronzy gloss, which is not present on the tail of the Celebes form. This was rather emphasized, but first pointed out by Mathews. That the black breast-band is less wide seems to be due to preparation, and is not a distinguishing character".

I. g. novaeguineae: "This form is the darkest. It is almost entirely black on the upperside. The deep blue-black of the nape extends over the interscapulium to the rump and upper tail-coverts. The tail is black with a slight bronzy gloss, and almost as deep in colour as in *I. g. gallinacea*. The scapulars and inner secondaries are a very deep oil-green, the upper wing-coverts are sooty black, with little or no gloss, the breast deep black, in all subspecies the feathers of the upper breast white at base".

The admittedly rather inadequate material available to me has made me very doubtful of the validity of any of these subspecies. I could study specimens from Northern Celebes (13); Timor (1); Roti (1); New Guinea: Lake Sentani (5), Merauke (3), Koerik (7); Australia: Port Mackay (2), Port Essington (1). This material includes several immature birds, not suitable for comparison. Of the three Australian birds, only one (from Port Mackay) is in adult plumage; it has rather pale wing coverts, although it must be said that this paleness is patchy, and the feathers in question are very worn. Anyway, because of lack of material I am unable to discuss Australian birds further. Between birds from the Celebes, Timor, Roti, northern and southern New Guinea, I have been unable to find any consistent difference in plumage. The characters mentioned by Hartert are quite variable. There is no difference in measurements either. Therefore I feel justified to include New Guinea into the range of the nominate race, leaving open the question of the validity of *I. g. novaehollandiae.*

The wide distribution of this species (Borneo, Mindanao, Celebes, Moluccas, Lesser Sunda Islands, etc.) shows that it is a good colonizer across water barriers, and therefore its lack of geographical variation in this area is perhaps not surprising.

In recent years the wisdom of dividing the seven or eight species of Jacanidae over six genera (Peters, 1934: 226-230), has been questioned, but apparently only for philosophical reasons as to what the size of a genus should be. I prefer to await a serious revision before changing established nomenclature.

Haematopus ostralegus longirostris Vieillot

Haematopus longirostris Vieillot, 1817, Nouv. Dict. Hist. Nat., 15: 410 — Australasie = Bernier Island, Western Australia (cf. Stresemann, 1951).

Material. — ♀, 13.V.1962, mouth of Bian River, no. 721. Wing 278, tail 106, tarsus —, exposed culmen 81 mm, weight 685 g. Iris bright carmine, eye ring orange, bill and skin of throat orange, legs flesh colour. Stomach contents a green slimy substance. No moult.

Discussion. — The Oystercatcher has been known from southern New Guinea since June 1828, when S. Müller collected a specimen at the mouth of the Oetanata River; the specimen is still in our collection (♀, cat. no. 2). Rand & Gilliard (1967: 125) mentioned that this species is scarce in New Guinea and may only be a non-breeding visitor from Australia. These authors have, however, changed the range given by Mayr (1941b: 28): "south coast of New Guinea between Utanata River and Orangerie Bay" to: "south coast of New Guinea (Utanata River and Orangerie Bay)", which is incorrect as D'Albertis obtained a specimen on the Katau (= Binaturi) River (Salvadori, 1882: 287-288). Von Rosenberg's three specimens from the Aru Islands (3♂, cat. nos. 3, 4, 5) were collected on 16.VI., 17.VI, and 11.VII.1865; the specimens listed by Salvadori (l. c.) were taken in June and October. These dates of collecting do not conflict with Rand & Gilliard's opinion that the species is a winter visitor from Australia. On the other hand, there is proof of breeding on the Kai Islands (Hartert, 1901: 101), which makes it at least feasible that the species also breeds on the Aru Islands and in New Guinea.

In recent Australian literature, this form has been raised to a full species, not conspecific with *H. ostralegus*, under the name *H. longirostris* (cf. van Tets, 1978). This change was based on work by Baker (1975) that, however, has been published in abstract only and is completely uninformative as to how its rather sweeping conclusions were attained. McKean (1978) criticized the fact that Baker retained New Zealand *H. finschi* as a race of *H. ostralegus*, commenting that: "In placing *finschi* as a race of *ostralegus* yet separating *longirostris* as a distinct species Baker asks us to believe that *H. ostralegus* invaded New Zealand over the Indo-Malay distributional gap apparently bypassing Australia and New Guinea". McKean's solution was, not only to recognize *H. longirostris* as a separate species, but *H. finschi* also. McKean's argument for separating *H. longirostris* specifically from *H. ostralegus* is that it differs in its wing pattern and lack of an eclipse plumage. To me the conclusion that the two are not conspecific appears premature. I should like at least to await the publication of the complete analysis on which Baker's abstract was based. As regards McKean's arguments, it must be said that the eclipse plumage of *H. ostralegus* differs from the breeding plumage only in the presence of a white throat patch. There are many examples of bird species in which one race assumes a winter plumage and another does not; such differences may even exist between members of one population. In this article, *Charadrius dubius* presents a case in point. Remains the difference in wing pattern. The difference is of course clear, but it only consists in certain feather-

parties in the wings which are white in *H. ostralegus* being black in *H. longirostris*. Personally I would not, in the absence of biological evidence, consider this one difference to be of specific value, and therefore I have for the time being retained the familiar trinomen *H. ostralegus longirostris* for the bird from New Guinea.

Lobibyx miles (Boddaert)

Tringa miles Boddaert, 1783, Table Planch. Enlum.: 51 — Louisanie (errore!) = Australia (cf. Hartert, 1905: 200).

Material. — ♀, 9.VIII.1960, Koerik, no. 350. Wing 204, tail 89, tarsus 78, exposed culmen 36 mm, weight 230 g. ♀, same data, no. 351. Wing 218, tail 90, tarsus 80, exposed culmen 36 mm, weight 266 g. Iris dark red, bill dirty citrine yellow, maxilla with a dark grey tip, mandible with a flesh coloured tip, bare skin around eye and wattles citrine yellow, legs dirty carmine, spurs yellowish. No moult. A clutch of three eggs, V.1960, village Tor, Frederik Hendrik Island, reg. no. 76607; although two of these eggs are damaged, one of which is badly cracked, they could be measured: 43.6 × 32.4, 44.2 × 32.5, 45.2 × 31.4 mm, weights 1.707, 1.8465 g (the third egg is too badly damaged for weighing).

Discussion. — As type locality of this species Hartert (1905: 200) substituted Australia. A few years later Mathews (1912a: 215) changed this with the following argument: "*Tringa miles* Boddaert ... Louisiana is an error. Although Dr. Hartert ... suggested that we might accept Australia as the type locality of *Tringa miles* Boddaert, the plate agrees better in coloration with the form inhabiting the East Indian Islands. I therefore designate as the type locality Timor Laut". Although there has been some discussion as to whether *L. miles* can be divided into subspecies (Peters, 1934: 239 recognized two), it is now generally agreed that it can not and that moreover the species is probably only a non-breeding visitor to the islands north of Australia (except Southern New Guinea, where it is known to breed). Admittedly Australia is a rather unlikely locality for a bird in a French collection to have come from before 1780, but Timor Laut, or rather the Tanimbar Islands are even less likely, having remained ornithologically virtually unexplored until about 1880. As Mathews's arguments for a change of type locality are manifestly invalid, Hartert's earlier designation remains the correct one (cf. Stoll et al., 1961: art. 72E).

The clutch of eggs taken by Hoogerwerf on Frederik Hendrik Island constitutes the first evidence of breeding in New Guinea. A few years later, in 1965, further records were provided by Bell (1967a, 1967b: 68, 79) from the Balimo Sub-District. As Bell remarks, *L. miles* must be a permanent resident in this part of New Guinea, although in the dry season numbers may be augmented by migrants from Australia.

Pluvialis dominica fulva (J. F. Gmelin)

Charadrius fulvus Gmelin, 1789, Syst. Nat., ed. 13, 1 (2): 687 — Tahiti.

Material. — Sex ?, 9.XI.1959, Koembe beach, no. 247. Wing 166, tail 56, tarsus 43, entire culmen 28, exposed culmen 24 mm, weight not recorded. ♂,

same data, no. 248. Wing 163, tail 55, tarsus 43, entire culmen 28½, exposed culmen 23 mm, weight not recorded. ♂, 1.XI.1960, Koerik, no. 511. Wing 157, tail 56, tarsus 43½, entire culmen 28, exposed culmen 23 mm, weight 90 g. ♀, 12.III.1961, beach between Koembe and Ongari, no. 560. Wing 158, tail 55, tarsus 42, entire culmen 27, exposed culmen 24 mm, weight 100 g. ♂, 10.IV.1962, beach between Koembe and Ongari, no. 668. Wing 164, tail 57, tarsus 44, entire culmen 28, exposed culmen 23½ mm, weight 146 g. ♀, 13.IV.1962, Koerik, no. 678. Wing 162, tail 52, tarsus 43, entire culmen 30, exposed culmen 25 mm, weight 143 g. Iris dark brown, bill black, legs dirty grey.

Charadrius cinctus (Gould)

Erythrogonys cinctus Gould, 1837, Synops. Birds Austr., 4: pl. 73 — New South Wales.

Material. — ♀, 16.IV.1961, Koerik, no. 581. Wing 104, tail 39, tarsus 38½, entire culmen 25½, exposed culmen 21½ mm, weight 48 g. Iris dark brown, bill dark grey, the mandible basally flesh coloured, legs dark olive grey with flesh coloured tibiotarsus. Plumage worn, no moult.

Discussion. — See Hoogerwerf (1964: 143).

Charadrius mongolus mongolus Pallas

Charadrius mongolus Pallas, 1776, Reise versch. Prov. d. Russ. Reichs, 3: 700 — Mongolia.

Material. — ♂, 4.XII.1960, beach between Koembe and Doemandé, no. 542. Wing 130, tail 46, tarsus 32, entire culmen 22, exposed culmen 17½ mm, weight not recorded. ♂, 15.IV.1962, Ongari beach, no. 685. Wing 130, tail 47, tarsus 32, entire culmen 20, exposed culmen 16 mm, weight 70 g. Iris dark brown, bill black, legs olive green or grey-green. No moult. Stomach contents of no. 685: remains of small crustaceans and many small undamaged mussel-shells.

Charadrius dubius curonicus Gmelin

Charadrius curonicus Gmelin, 1789, Syst. Nat., ed. 13, 1 (2): 692 — Curonia.

Material. — ♀, 29.XII.1960, Koerik, no. 545. Wing 110, tail 50, tarsus 22, entire culmen 16½, exposed culmen 12 mm, weight 31 g. Iris dark brown, orbital ring yellowish, bill dull black, legs olive-ochre. No moult.

Discussion. — The fact that this specimen is in winter plumage, with a brown breast-band and nowhere any black feathers, places it definitely in the race *curonicus*, the two other subspecies having even in the immature plumage a black pectoral band, whereas a winter plumage is unknown in the tropical subspecies. The small black bill further confirms this identity.

There is only one previous record of *C. d. curonicus* from New Guinea: ♀, 22.III.1931, Seroei, Japen (cf. Rothschild, Stresemann & Paludan, 1932: 245).

The geographical variation of *C. dubius* is still insufficiently understood and in particular there has been a lot of uncertainty about the subspecific identity of the New Guinea resident populations of these plovers. Van Oort (1909: 58) and Junge (1937: 144) listed them as *Aegialites dubius jerdoni* and *Charadrius dubius jerdoni* respectively. Van Oort also mentioned a pullus, thus providing proof of breeding. He pointed out the differences between these specimens and *A. dubius*. In this connexion it should be mentioned that with *A. dubius* he meant the subspecies now known as *C. d. curonicus*, and also that topotypical material of *C. d. jerdoni* (Legge), originally described from Ceylon, was at that time and still is unrepresented in our collection. The next step was taken when Mayr (1938b) noted differences between *C. d. jerdoni* and specimens from New Guinea, on the basis of which he described the latter as a new subspecies, *C. d. papuanus* Mayr. Subsequently Deignan pointed out (in Mayr, 1949), that the New Guinea subspecies should not have been compared with *C. d. jerdoni*, but with nominate *C. d. dubius*, the type-locality of which is Luzon, and that *C. d. papuanus* does not differ from *C. d. dubius*. This led to Mayr's (1949) short revision, which cleared up many but not all of the problems. One point not explained very satisfactorily by Mayr is that of the characters of *C. d. jerdoni*; on one page Mayr states: "The species contains three well-defined subspecies", but two pages onwards he tells us that one of these three, *C. d. jerdoni*: "is so similar to *curonicus* that is appears doubtful whether small wintering *curonicus* can be told from large *jerdoni*", the only difference recorded being an on the average smaller size of *jerdoni*. Ali & Ripley (1969: 234) knew no better characters, they stated that *C. d. jerdoni* differs only from *C. d. curonicus* in being slightly smaller, "but size difference in the two races clinal". The measurements provided by these authors for *C. d. jerdoni*: wing ♂ 107-115, ♀ 105-117 mm, range too large for this subspecies and conflict with their own statement that: "All examples with wing over 114 mm ... probably referable to *curonicus*". Finally Smythies (1960: 189-190) gave more extensive diagnoses of the three subspecies, based on notes supplied to him by Deignan.

Apparently Rand & Gilliard (1967: 128-129) overlooked all these developments, as they still refer to the subspecies breeding in New Guinea as *C. d. papuanus*.

Mayr (1949: 28) was able to examine only three immature specimens of *C. d. dubius*, which led him to comment as follows: "The fact that immatures are so rare in this subspecies as compared to *curonicus* may indicate either low survival or a shorter duration of the immature stage". Mayr failed to make clear whether he distinguished immature birds from adults in winter plumage, and the true solution to this puzzle was offered by Deignan in Smythies (l. c.), according to whom the two tropical races do not have a winter (or eclipse) plumage. The related *C. hiaticula* shows a similar difference between northern and southern populations (cf. Stresemann & Stresemann, 1966: 206).

From the preceding review it will be clear that, whereas the subspecies and their characters have become much better known in recent years, several points

concerning their plumages and distribution remain to be cleared up. The material of *C. dubius* in our collection is not very rich and one subspecies, *C. d. jerdoni*, is lacking altogether, but nevertheless I believed that its study would contribute a little to the solution of the remaining problems. Our holdings of *C. d. curonicus* (111 specimens) are geographically distributed as follows: Europe (28), Morocco (2), Tunisia (1), Gold Coast (3), Nubia (2), Altai (1), Nepal (2), Japan (2), China (3), Formosa (10), Ceylon (2), Borneo (2), Java (48), Celebes (1), Siao, Sanghir Islands (1), Ternate (2), New Guinea (1). The nominate race is represented by five specimens (3 ♂, 2 ♀), from Mindanao (1) and southern New Guinea (4). In addition I had at my disposal, on loan from NRS, material of *C. d. jerdoni* (11 specimens: 2 ♂, 9 unsexed) all from Koon Tan, northern Thailand, and a few specimens of *C. d. curonicus* from critical localities: northern Thailand (2), Selangor (1), and Persia (2).

In this material I have had no particular difficulty distinguishing the three subspecies on the basis of the following characters (see also Table V):

C. d. curonicus: large; eye-ring narrow; assumes winter plumage; mandible black to very near base; outer rectrix usually with a large dark patch or bar; bill of moderate length, usually wider at base.

C. d. dubius: a little smaller; eye-ring wide; no winter plumage; basal half of mandible yellow (in skin); outer rectrix usually with a smaller dark spot, or entirely white; bill relatively rather long.

C. d. jerdoni: small; eye-ring rather wide; no winter plumage; basal half of mandible yellow (in skin); outer rectrix usually with a fairly small dark spot; bill shortish and slender. I regret to say that of the 11 specimens only two are sexed and dated; the quality of the material is generally poor.

As mentioned above, Mayr, Ali & Ripley and apparently also Medway & Wells (1976: 138) believed that small wintering *C. d. curonicus* would be indistinguishable from large individuals of *C. d. jerdoni*, an opinion probably derived from a statement made by Ticehurst (1923: 653). Occasionally this may be so, but the great majority of wintering individuals of *C. d. curonicus* can be distinguished at once, even in the field, by being in winter plumage. Of our 42 specimens from Java, only five are almost or entirely in summer plumage. The dates of collecting of these five are: 22.VIII, 2.IX, 19.I, 21.I and 25.II.

A few remarks on its distribution are also in place. In Malaysia, Chasen (1935: 34) listed it from the Malay Peninsula, Sumatra and Borneo and presumably it is on the basis of this that Mayr (1949: 29) gave it a range: "From India to Sumatra and Borneo". Whereas the occurrence of *C. d. jerdoni* in northern Thailand is well-documented, although breeding has not been definitely established (cf. Deignan, 1945: 119-120), in the Malay Peninsula Medway & Wells (1976: 138) accepted a single specimen only as belonging to this subspecies, which they regarded as a vagrant. The identification appears to have been based exclusively on small measurements, and therefore I considered a re-examination desirable. Fortunately a loan could be arranged and it was at once evident that the specimen (♂, 5.XI.1921, Kuala Tembeling, Perak, leg. F. N.

TABLE V

Measurements of *Charadrius dubius*

number/sex	wing	av. wing	tail	av. tail	tarsus	av. tarsus	entire culmen	av. entire culmen	exposed culmen	av. exposed culmen
				C. dubius curonicus from Java						
14 ♂ 1)	110-120	115.0	53-60½	56.4	22½-26	24.5	15½-18¼	17.0	12-13¾	13.0
28 ♀ 2)	108,111-121	115.3	50-60	55.2	23 -26	24.3	15 -19	16.9	11½-15	13.1
				C. dubius curonicus from Sumatra						
♂	117	-	55½	-	22¾	-	17½	-	13½	-
♀	113	-	52½	-	23½	-	16¾	-	12½	-
				C. dubius dubius						
5 ♂♀	105-113	109.8	53-56	54.2	23½-26	25.0	17¾-18½	18.2	13½-15	14.3
				C. dubius jerdoni						
11 ♂♀	102-109	105.3	50-55	52.6	23 -25	23.9	14¼-17	15.7	10½-13	11.5

1) Wings of 11 specimens only (three are moulting the longest primaries)

2) Wings of 25 specimens only (three are moulting the longest primaries)

Chasen, ZRC 3.2570) was *C. d. curonicus* and not *C. d. jerdoni*, the specimen being in winter plumage with a brown breast-band. The small measurements are also easily explained (I measured: left wing 104, right wing 106, tail 55, tarsus $23^3/_4$, entire culmen $17^1/_2$, exposed culmen $13^3/_4$ mm): the specimen is in moult and on both sides the first primary is less than half grown; the second primary, which normally should be about 7 mm longer than the third, is in the left wing about 2 mm shorter than the third, in the right wing about 2 mm longer; in other words, both second primaries are not fullgrown. As in a fullgrown wing the first primary is the longest, the second a trifle shorter (sometimes equal), but the third 8-10 mm shorter than the first, the wing of the present specimen, when fullgrown, would measure 104 + 8-10 = 112-114 mm, which is right for *curonicus*, but is much too large for *jerdoni*. Conclusion: *C. d. jerdoni* is not known from the Malay Peninsula.

Evidence for the occurrence of *C. d. jerdoni* in Sumatra is, in spite of the literature just quoted, altogether lacking. The history of the species *C. dubius* in Sumatra, as far as I can find, began with Vorderman (1889: 415), who, however, listed it with a query. Species thus marked in his Sumatra list: "s'y trouvent probablement, étant donnée leur manière de vivre et leur présence dans les îles environnantes" (l. c. 387). In other words, at the time *C. dubius* was not known from Sumatra, but was mentioned as it had been recorded from: "Malacca, Bornéo, Java". Very soon afterwards Salvadori (1892: 75) recorded under the name *Aegialitis jerdoni* three specimens obtained by E. Modigliani at Balige on the shore of Lake Toba. Presumably on the basis of this, Robinson & Kloss (1918: 265) listed the species without comment for Sumatra under the name *Aegialitis dubia*. Probably they followed Sharpe (1896: 268) in not recognizing *A. jerdoni* as distinct from *A. dubia*. In their next list, Robinson & Kloss (1923: 325), as far as one can judge without having examined any material, felt competent to identify the birds recorded from Sumatra to subspecies: *Aegialitis dubius curonicus*. Through courtesy of Dr. Arbocco I have been able to examine two of the specimens from Balige (♂, ♀), and found that Robinson & Kloss had guessed correctly, they are *Charadrius dubius curonicus* in winter plumage. Twelve years later Chasen (1935: 34) added *C. d. jerdoni* to the Sumatran list, without explanation. I have been unable to find any published evidence in the intervening years (not a period of great ornithological activity in Sumatra) that would justify the inclusion of *C. d. jerdoni* in the Sumatran list, where it has remained since (Robinson & Chasen, 1936: 131-132; Mayr, 1949: 29; Vaurie, 1965: 374, etc.). Quite likely the record was based on the same three specimens that served also as basis for inclusion of *C. d. curonicus* in the Sumatran avifauna.

The inclusion of Borneo in the range of *C. d. jerdoni* can be traced back to Hartert (1920: 1537) who gave the following notes on its range: "Die Verbreitung dieser Form ist schwer festzustellen, doch scheint sie ganz Indien zu bewohnen und Exemplare von Borneo und Neuguinea scheinen auch zu derselben zu gehören. In Indien und auf den Sundainseln kommt aber auch *curonicus* als Wintergast vor". The occurrence in Borneo was accepted by Chasen

(1935: 34) and most later authors, but Smythies (1957: 600; 1960: 190; 1968: 195) was sceptical and stated that if a resident form is discovered in Borneo, it is more likely to be the nominate race. Note, moreover, that Smythies accepted only *C. d. curonicus* for Borneo.

It is curious that Mayr (1949) made no mention of records from Java, from which island the species has been known for over a century and a half. All specimens I have examined are clearly migrants of *C. d. curonicus*.

C. d. curonicus arrives early in its Indo-Australian winter quarters; the earliest autumn dates provided by our material are 14.VIII.1908 (♀, Moeara Wetan, Java, reg. no. 33012) and 16.VIII.1907 (♀, Telar Tjabang Tampajan, Java, reg. no. 33010), but surprisingly there are no late spring dates, the last one being 25.II.1926 (2 ♀, Sitoe Palachlar, Java, reg. nos. 33045, 33046). See table.

Month	VII	VIII	IX	X	XI	XII	I	II	III
Number of skins	—	8	8	16	3	5	5	6	—

Presumably the lack of specimens from the months March and April in our collection is fortuitous, as in Malaya there are records from the period 2 August to 31 May (cf. Medway & Wells, 1976: 138).

Charadrius leschenaultii Lesson

Charadrius leschenaultii Lesson, 1826, Dict. Sci. Nat. (Levrault), 42: 36 — Pondichéry.

Material. — ♂, 27.XI.1960, beach between Koembe and Doemandé, no. 531. Wing 139, tail 47½, tarsus 35, entire culmen 30, exposed culmen 24 mm, weight 71 g. Sex ?, same data, no. 532. Wing 136, tail 46, tarsus 37, entire culmen 30, exposed culmen 23½ mm, weight 64 g. ♂, 15.IV.1962, Ongari beach, no. 686. Wing 140, tail 49, tarsus 36½, entire culmen 30, exposed culmen 25 mm, weight 91 g. Iris dark brown, bill black, legs olive grey. Stomach contents of no. 686: remains of crustaceans.

Charadrius veredus Gould

Charadrius veredus Gould, 1848, Proc. Zool. Soc. Lond., 16: 38 — Northern Australia = Port Essington (cf. de Schauensee, 1957: 158).

Material. — ♀, 7.XI.1960, Koerik, no. 516. Wing 147, tail 56½, tarsus 44 mm, bill damaged, weight 83 g. ♂, same data, no. 517. Wing 160, tail 57½, tarsus 45, entire culmen 28, exposed culmen 22 mm, weight 83 g. Iris dark brown, bill black, legs fleshy cream colour. No moult, no. 516 in particular has the primaries strongly abraded.

Discussion. — See Hoogerwerf (1964: 120-121, s. n. *Eupoda asiatica* (Pallas)). Mayr (1941b: 30), Hoogerwerf (l. c.), Rand & Gilliard (1967: 130), etc. still regarded *C. veredus* as a subspecies of *C. asiaticus*, but it has since been demonstrated convincingly that they are different species (cf. Vaurie, 1964: 8-9).

Numenius minutus Gould

Numenius minutus Gould, 1841, Proc. Zool. Soc. Lond., 8 (1840): 176 — Maitland on the Upper Hunter, New South Wales.

Material. — ♀, 12.X.1960, upstream Koembe River near Kaisa, no. 463. Wing 190, tail 70, tarsus 49, entire culmen 56, exposed culmen 48 mm, weight 131 g. ♂, same data, no. 464. Wing 179, tail 68, tarsus 48, entire culmen 52½, exposed culmen 46½ mm, weight 119 g. ♀, 10.XI.1960, Koerik, no. 520. Wing 178, tail 71, tarsus 51, entire culmen 55½, exposed culmen 49 mm, weight 151 g. ♀, same data, no. 521. Wing 191, tail 72, tarsus 51, entire culmen 54, exposed culmen 47½ mm, weight 160 g. Iris dark brown, bill dark grey, base of mandible flesh colour, legs olive grey. No moult.

Discussion. — See Hoogerwerf (1964: 121).

Numenius phaeopus variegatus (Scopoli)

Tantalus (*variegatus*) Scopoli, 1786, Del. Flor. Faun. Insubr., 2: 92 — no locality = Luzon.

Material. — ♂, 27.XI.1960, beach between Koerik and Doemandé, no. 529. Wing 231, tail 89, tarsus 57, exposed culmen 80 mm, weight 325 g. ♀, same data, no. 530. Wing 230, tail 93, tarsus 58, exposed culmen 88 mm, weight 351 g. ♀, 2.IV.1961, beach between Koerik and Ongari, no. 573. Wing 245, tail 93, tarsus 58½, exposed culmen 88½ mm, weight 466 g. ♂, 9.IV.1961, beach between Koerik and Ongari, no. 576. Wing 230, tail 96, tarsus 57, exposed culmen 78 mm, weight 385 g. Iris dark brown, bill black, basal half of mandible flesh colour, legs greenish slate. No moult.

Numenius madagascariensis (Linnaeus)

Scolopax madagascariensis Linnaeus, 1766, Syst. Nat., ed 12, 1: 242 — Madagascar = Macassar, Celebes, t. t. subst., (cf. Neumann, 1932: 150), but = Philippinen (Stresemann, 1941: 96, footnote), and further restricted to Manila (Stresemann, 1952: 508, 219).

Material. — ♀, 4.XII.1960, beach near Koembe, no. 543. Wing 276, tail 107, tarsus 80, exposed culmen 144 mm, weight 638 g. Iris dark brown, bill, maxilla dark brown with a lighter base, mandible flesh colour, tip of bill blackish, legs light olive grey.

Limosa limosa melanuroides Gould

Limosa Melanuroides Gould, 1846, Proc. Zool. Soc. Lond., 14: 84 — Port Essington.

Material. — Sex ? [= ♂], 29.X.1959, Koerik, without number. Wing 193, tail 69, tarsus 58½, entire culmen 79, exposed culmen 75 mm, weight not recorded. Sex ? [= ♀], 9.XI.1959, Koembe beach, no. 256. Wing and tail damaged, tarsus 58, entire culmen 90, exposed culmen 83 mm, weight not recorded. Twelve specimens (5 ♂, 6 ♀, 1 ♀? [= ♂?]), 5.IV.1962, beach near

Ongari, nos. 630, 637, 639-647, 658. Wing ♂ 185, 186, 190, 192, 193, ♀ 190, 199, 199, 200, 206, 209, ♀? 195, tail ♂ 66, 69, 69, 69, 69, ♀ 64, 68, 68, 70½, 73, 75, ♀? 69, tarsus ♂ 57, 60, 62, 63, 63, ♀ 62, 62, 64, 65, 66, 69, ♀? 59, entire culmen ♂ 74½, 78, 81, 84, 87, ♀ 83, 86, 87½, 92, 96, —, ♀? 79½, exposed culmen ♂ 70½, 73, 76, 78, 81½, ♀ 78, 78½, 82, 82, 87, 88, ♀? 74 mm, weights ♂ 225, 225, 245, 245, 252, ♀ 265, 281, 285, 305, 306, 318, ♀? 295 g. Iris dark brown, bill with distal half black, basal half of maxilla olive grey, basal half of mandible flesh colour. Food: the oesophagus (not the gizzard!) of the bird collected on 29.X.1959 contained 47 specimens of a small bivalve, which were described as a new species, *Mesodesma altenai*, by de Rooij-Schuiling (1972).

Discussion. — Until quite recently there was only one record of this species from New Guinea; this concerned an individual collected at Stephansort, Astrolabe Bay, September 1894 (cf. Stresemann, 1923). Ignoring a note by Gyldenstolpe (1955b: 223), in which it is claimed that the species was observed by Bergman on an unspecified date at an unspecified locality somewhere along the coast of the Vogelkop Peninsula, the next observation was on 4 May 1957, when I saw an individual in breeding plumage on the wet savanna adjacent to the mouth of the Merauke River near Merauke. The following year van den Assem (1960) noted one bird on the beach near Merauke in February, and a fairly large group at the same place a month later; finally one on the beach at Koembe in June. A specimen collected near Merauke on 6 May 1959 and an undated specimen from the same locality, both leg. A. J. M. Monsanto, found their way to the Zoölogisch Museum, Amsterdam (Voous, 1963). Following all these more or less incidental records, it was left to Hoogerwerf (1964: 121-122) to find that *Limosa limosa* is a common winter visitor along the coast of southern New Guinea between the mouth of the Merauke or Maro and the Bian Rivers, occurring in flocks of up to several thousands. It is remarkable that fairly large numbers remained until late in spring: even as late in the season as 17 June 1959, several hundreds were present; in autumn they re-appeared in September. Evidently this area is an important winter quarter.

Tringa hypoleucos Linnaeus

[*Tringa*] *Hypoleucos* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 — Europa.

Material. — ♂, 28.IV.1962, Koembe, no. 705. Wing 108, tail 59, tarsus 25, exposed culmen 25 mm, weight 64 g. ♂, same data, no. 706. Wing 111, tail 56, tarsus 23, exposed culmen 25 mm, weight 57 g. Iris dark brown, bill dark grey, base olive grey, legs olive grey. Stomach contents remains of crustaceans and other animal matter including a complete small mussel.

Tringa glareola Linnaeus

[*Tringa*] *Glareola* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 — Europa.

Material. — ♀, 22.III.1961, Merauke, no. 568. Wing 125, tail 48, tarsus 39, exposed culmen 29 mm, weight 65 g. ♂, 10.IV.1962, Koerik, no. 673. Wing

126, tail 47, tarsus 40, exposed culmen 32 mm, weight 76 g. ♀, 21.IV.1962, Koerik, no. 694. Wing 122, tail 46, tarsus 40, exposed culmen 31$^1/_2$ mm, weight 88 g. Iris dark brown, bill black with an olive green base, legs olive yellow or light olive green. No moult.

Discussion. — See Hoogerwerf (1964: 124).

Tringa stagnatilis Bechstein

T[otanus] stagnatilis Bechstein, 1803, Orn. Taschenb.: 292 — Deutschland.

Material. — ♀, 14.IV.1962, Koerik, no. 682. Wing 138, tail 59, tarsus 56, exposed culmen 46 mm, weight 76 g. ♀, 21.IV.1962, Koerik, no. 692. Wing 136, tail 54, tarsus 51, exposed culmen 41 mm, weight 90 g. ♀, same data, no. 693. Wing 142, tail 55, tarsus 57$^1/_2$, exposed culmen 41 mm, weight 73 g. Iris dark brown, bill black with an olive grey base, legs olive. Stomach contents soft unidentifiable animal matter. No moult.

Discussion. — See Hoogerwerf (1964: 122-123). Hoogerwerf's observations and specimens constitute the first definite records from New Guinea. It is true that Temminck already claimed *T. stagnatilis* to occur in New Guinea, but it is no longer possible to verify this claim (cf. Mees, 1976). Another doubtful record was discussed and dismissed by Salvadori (1882: 324).

Tringa nebularia (Gunnerus)

Scolopax nebularia Gunnerus, 1767, in Leem, Beskr. Finm. Lapp.: 251 — near Trondheim, Norway (reference not verified).

Material. — ♀, 30.IX.1960, Koembe beach, no. 448. Wing 190, tail 79, tarsus 61, entire culmen 62, exposed culmen — mm, weight 159 g. ♀, 13.V.1962, beach between Koembe and Ongari, no. 719. Wing 187, tail 71, tarsus 54, entire culmen 62, exposed culmen 55 mm, weight 150 g. ♀?, same date, no. 720. Wing —, tail 64, tarsus 58, entire culmen 60, exposed culmen 53 mm, weight 168 g. Iris dark brown, bill black with a light grey to olive grey base, legs olive green. No. 720 shows heavy moult of the primaries, the two other specimens are not in moult.

Discussion. — See Hoogerwerf (1964: 123-124).

Tringa brevipes (Vieillot)

Totanus brevipes Vieillot, 1816, Nouv. Dict. Hist. Nat., 6: 410 — Pays inconnu = Timor.

Material. — ♀, 27.XI.1960, beach between Koembe and Doemandé, no. 534. Wing 153, tail 59, tarsus 29, entire culmen 43, exposed culmen 36 mm, weight 94 g. Iris dark brown, bill very dark grey, almost black, base of mandible olive grey, legs pale olive green. No moult.

Xenus cinereus (Güldenstadt)

Scolopax cinerea Güldenstadt, 1774, Nov. Comm. Petrop., 19: 473, pl. 19 — coast of the Caspian Sea (reference not verified).

Material. — ♀, 27.XI.1960, beach between Koembe and Doemandé, no. 533. Wing 123, tail 48, tarsus 26½, exposed culmen 47 mm, weight 56 g. ♀?, 28.IV.1962, beach between Koembe and Ongari, no. 707. Wing 126, tail 51, tarsus 32, exposed culmen 42 mm, weight 67 g. Sex ?, same data, no. 708. Wing 126, tail 54, tarsus 29, exposed culmen 46 mm, weight 75 g. Iris dark brown, bill black, base of mandible dirty yellowish, legs bright ochre. No moult.

Arenaria interpres interpres (Linnaeus)

[*Tringa*] *Interpres* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 148 — Europa & America septentrionali. = Europa.

Material. — ♀, 30.IX.1960, beach between Koembe and Doemandé, no. 453. Wing 148, tail 53½, tarsus 25, exposed culmen 20½ mm, weight 64 g. ♀, same data, no. 454. Wing 149, tail 55, tarsus —, exposed culmen 20 mm, weight 64 g. Iris dark brown, bill black, base of mandible lighter, legs dirty orange. No moult.

Gallinago hardwickii (J. E. Gray)

Scolopax Hardwickii J. E. Gray, 1831, Zool. Misc.: 16 — Van Dieman's [sic] Land.

Material. — ♀, 6.V.1961, Koerik, no. 599. Wing 160, tail 66, tarsus 38, entire culmen 76, exposed culmen 72½ mm, weight 170 g. ♀?, 5.IV.1962, Koerik, no. 659. Wing 158, tail 62, tarsus 36½, entire culmen 71½, exposed culmen 67 mm, weight 166 g. Both specimens have 18 rectrices. Iris dark brown, bill distally dark grey, basally olive grey, legs olive.

Discussion. — See Hoogerwerf (1964: 142-143).

Gallinago megala Swinhoe

Gallinago megala Swinhoe, 1861, Ibis, 3: 343 — by inference several localities in northern and eastern China (see Discussion below).

Material. — ♀, 18.XII.1959, Koerik, no. 281. Wing 143, tail 53, tarsus 35, entire culmen 74, exposed culmen 68 mm, weight 132 g. 20 rectices. Iris dark brown, bill dark brown, legs olive grey.

Discussion. — See Hoogerwerf (1964: 142-143). There is some inconsistency in literature in citing of the type locality of this snipe: Peters (1934: 275) gave it as: "Between Takoo and Peking, China", whereas Sharpe (1896: 626) listed two specimens from Amoy as types of the species, and Warren (1966: 181) improved on this by claiming one of these two specimens from Amoy to be the

holotype. Why it was possible that confusion could arise becomes at once evident when one consults Swinhoe's (1861) original description: the description is given in an annotated list of bird-species observed between Takoo and Peking, North China, and the description ends with the words "I enclose a specimen". Although Swinhoe does not actually say so, it appears likely that this specimen was obtained somewhere in the region just mentioned. However, from the description it is clear that Swinhoe did not describe one particular specimen, but a species that had been known to him for some years, from various localities. Amoy is the only locality actually mentioned, in the opening sentence: "Mr. Blyth has pronounced on a specimen of this bird forwarded to him from Amoy, that it is identical with *G. major*: now I am convinced that it is not. It resembles the Great Snipe, no doubt...".

It appears logical to accept all specimens that were in Swinhoe's possession before 1861 as syntypes. The type material would include the specimen listed as holotype in the British Museum type catalogue and several other Swinhoe specimens in the BM collecion. Our collection contains also one syntype: Amoy, Sept. 1858, received from R. Swinhoe in 1863 (RMNH cat. no. 1), cf. Schlegel (1864b: 12). On the other hand it might be argued that only the two specimens specifically mentioned by Swinhoe are types: the bird from Chihli forwarded to Sclater, and the one from Amoy previously sent to Blyth. It should be noted that at the time Blyth was curator of the Calcutta Museum and it appears unlikely that the bird sent to him would be identical with the one now listed as holotype that came to the British Museum through Seebohm. Where the specimen from Chihli is now, if it really was from Chihli and not just a specimen from Swinhoe's collections made elsewhere to show what kind of bird he had also seen in the marshes between Takoo and Peking, I do not know.

Crocethia alba (Pallas)

Trynga (alba) Pallas, 1764, Vroeg's Cat., Adumbr.: 7 — no locality, but refers to p. 32, no. 320 of the main volume, where: "Valt aan de Noordsche Zeekusten = North Sea coast of Holland.

Material. — ♀, 27.XI.1960, beach between Koembe and Doemandé, no. 537. Wing 121, tail 46, tarsus 22, entire culmen 30, exposed culmen 24½ mm, weight 53 g. Iris dark brown, bill and legs black. No moult.

Discussion. — See Hoogerwerf (1964: 144).

Calidris ferruginea (Pontoppidan)

Tringa Ferrugineus Pontoppidan, 1763, Danske Atlas, 1: 624 — no locality, but equals Christiansø Island off Bornholm, Denmark (reference not verified).

Material. — 2♂, ♀ ?, 13.IV.1962, Koerik, nos. 676, 677, 680. Weights ♂ 62, 75, ♀ ? 75 g. Iris dark brown, bill black, base of mandible dark grey, legs black.

Discussion. — See Hoogerwerf (1964: 144-145, s. n. *Erolia testacea* (Pallas)).

Calidris tenuirostris (Horsfield)

Totanus tenuirostris Horsfield, 1821, Trans. Linn. Soc. Lond., 13: 192 — Java.

Material. — 5 ♂, 12 ♀, 9 sex ?, from Koembe and Ongari beach, nos. 206, 207, 209, 210, 242, 243, 244, 253, 451, 452, 557, 558, 558, 648-654, 718. Weights 130-230 g. Iris dark brown, bill black, basally olive grey, legs olive green with grey joints. Dates of collecting from 30 September to 13 May.

Discussion. — See Hoogerwerf (1964: 143-144). Many thousands overwinter on the New Guinea south coast. The birds collected in September are in winter plumage with lightly spotted breasts; in November specimens this has increased, and spring birds have dark breasts and also assume black and sometimes some chestnut on the dorsal surface. An exception is a female collected on 5 April 1962 (no. 654) which is in autumn plumage with lightly spotted breast and flanks.

Calidris canutus canutus (Linnaeus)

Tringa Canutus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 149 — Europa.

Material. — Sex ?, 9.XI.1959, Ongari beach, no. 254. Wing 156, tail 54, tarsus 29, exposed culmen 33 mm, weight not recorded. 3 ♀, 5.IV.1962, Ongari beach, nos. 655, 656, 657. Wing 165, 168, 170, tail 59, 59, 56, tarsus 32, 31, 31 1/2, exposed culmen 33, 34 1/2, 34 mm, weights 150, 152, 166 g. Iris dark brown, bill black, legs dark grey slightly tinged with olive.

Discussion. — See Hoogerwerf (1964: 144).

Calidris (Erolia) ruficollis (Pallas)

Trynga ruficollis Pallas, 1776, Reise versch. Prov. Russ. Reichs, 3: 700 — Circa lacus salsos Dauriae campestris = Kulussutai, southern Transbaikalia (reference not verified).

Material. — ♂, 6 ♀, 2 sex ?, from Koembe and Ongari beach, and from Jakau, upstream Koembe River, nos. 200, 450, 488, 489, 535, 536, 587, 675, 684. Weights 16 (no. 536), 23-30 g. Dates of collecting from 30 September to 23 April. Iris dark brown, bill and legs black.

Discussion. — A common migrant, seen as late as 25 May 1960 in flocks mixed with other migrant waders (Hoogerwerf, 1964: 144-145).

Calidris acuminata (Horsfield)

Totanus acuminatus Horsfield, 1821, Trans. Linn. Soc. Lond., 13: 192 — Java.

Material. — 5 ♂, 4 ♂?, 6 ♀, 1 sex ?, from Koerik and Ongari beach, nos. 220, 226, 250, 255, 262, 263, 559, 589, 590, 665, 674, 679, 681, 683, 688, 689. Weights ♂ 63-108, ♀ 50-87 g. Wing ♂ 136-140, ♀ 122-131 mm. Dates of collecting from 9 November to 23 April. Iris dark brown, bill black, legs olive green.

Discussion. — Seen at least until 25 May (Hoogerwerf, 1964: 145).

Himantopus himantopus leucocephalus Gould

Himantopus leucocephalus Gould, 1837, Synops. Birds Austr., 2: pl. 34 — Australia generally and the islands of Java, Sumatra & c.

Material. — ♂, 9.VIII.1960, Koerik, no. 348. Wing 232, tail 72½, tarsus 129, entire culmen 69, exposed culmen 63 mm, weight 170 g. ♀, same data, no. 349. Wing 222, tail 72, tarsus 113, entire culmen 70, exposed culmen 63½ mm, weight 168 g. Iris dark red, bill black, legs light carmine. No moult. Both specimens have the tip of the bill damaged, so that the culmen measurements might have been a little longer.

Discussion. — The difference in tarsus-length between these two birds is striking. The male appears to have exceptionally long legs, even for a stilt.

Stiltia isabella (Vieillot)

Glareola isabella Vieillot, 1816, Analyse: 69 — l'Australasie.

Material. — ♀, 7.XI.1960, Koerik, no. 518. Wing 167, tail 52½, tarsus 42, entire culmen 20¼, exposed culmen 16¼ mm, weight 68 g. ♀, same data, no. 519. Wing 167, tail 57, tarsus 46, entire culmen 21, exposed culmen 15½ mm, weight 63 g. Iris dark brown, bill with its distal half black, basal half vermilion, legs blackish. Both specimens show primary moult.

Discussion. — Hoogerwerf (1964: 146-147) observed this species mainly from May to September, which suggests strongly that it was a winter visitor from Australia. There is no evidence that it breeds in New Guinea. Van Oort (1909: 60) recorded a female from Merauke (23.VIII.1904, leg. Koch) as a "young specimen", and on the basis of this, Mayr (1941b: 34) and Rand & Gilliard (1967: 145) mentioned that the species might breed in New Guinea. I have examined the bird in question (RMNH cat. no. 30) and found that it is not very young; its wings are fully grown and the rufous edges to the feathers of the upper parts are worn and narrow. Some other birds taken in their winter quarters have them much wider. Incidentally, Rand & Gilliard refer to "broad buffy edgings to feathers of underparts" as a character of the immature plumage, but surely the last word in this quotation should read "upperparts". I must admit to being somewhat doubtful of the validity of the character anyway as virtually all birds examined by me show it to some extent. Immatures also seem to have the breast brownish rather than buffish. The Merauke bird may be immature, but it is certainly not a juvenile and it provides no evidence of breeding in New Guinea.

Chlidonias hybridus javanicus (Horsfield)

Sterna Javanica Horsfield, 1821, Trans. Linn. Soc. Lond., 13: 198 — Java.

Hydrochelidon fluviatilis Gould, 1843, Proc. Zool. Soc. Lond., 10 (1842): 140 — Rivers and lakes of the interior of New South Wales.

Material. — ♂, 6.IX.1960, Koerik, no. 391. Wing 222, tail 74, tarsus 21½, entire culmen 36, exposed culmen 31 mm, weight 65 g. ♀, 30.IX.1960, Koembe

beach, no. 449. Wing 220, tail 80, tarsus 23, entire culmen 33½, exposed culmen 27 mm, weight 74 g. ♀, 13.V.1962, Koembe beach, no. 717. Wing 221, tail 71, tarsus 22½, entire culmen 38, exposed culmen 31 mm, weight 71 g. ♂, 17.VI.1962, Koembe beach, no. 762. Wing 211, tail 71, tarsus 22, entire culmen 35½, exposed culmen 30 mm, weight 79 g. ♂, same data, no. 763. Wing 210, tail 72, tarsus 23, entire culmen 38, exposed culmen 32½ mm, weight 90 g. ♀, same data, no. 764. Wing 200+, tail 79, tarsus 23, entire culmen 37½, exposed culmen 31 mm, weight 90 g. ♂, same data, no. 765. Wing 220, tail 75, tarsus 22, entire culmen 35½, exposed culmen 30 mm, weight 85 g. ♀, same data, no. 766. Wing 200+, tail 76, tarsus 22½, entire culmen 34½, exposed culmen 27 mm, weight 79 g. Iris dark brown, bill dark red to black, legs dirty red to dark red. Stomach contents small fishes. The specimens are in winter plumage, as was to be expected from the season of collecting, but no. 449 is well on its way to changing into breeding plumage: the cap is mainly black and there is much grey on the under parts.

Discussion. — A winter visitor from Australia. For particulars on status and nomenclature, see Mees (1977b).

Chlidonias leucopterus (Temminck)

Sterna leucoptera Temminck, 1815, Manuel d'Orn.: 483 — les bords de la Méditerranée, les lacs, les rivières et les marais des pays au-de-là des Alpes; assez commun sur les lacs de Lucarno, de Lugano et de Como; accidentellement de passage sur celui de Genêve = Lac de Genève, from where the two surviving syntypes are.

Material. — ♀, 10.IV.1962, Koerik, no. 671. Wing 210, tail 65, tarsus 18, entire culmen 28, exposed culmen 23 mm, weight 69 g. ♂, same data, no. 672. Wing 195+, tail 74, tarsus 21, entire culmen 32½, exposed culmen 26 mm, weight 69 g. Iris dark brown, bill black, legs dirty red overlaid with grey. Stomach contents skins and other remains of insect larvae and other animal matter.

Discussion. — Hoogerwerf (1964: 147) has already recorded his observations of this tern in southern New Guinea. I do not think that these observations justify his suggestion, put forward tentatively, of breeding in New Guinea. Actually there is (apart from a single abortive case of nesting in New Zealand, cf. Pierce, 1974) no evidence that the species breeds anywhere outside the warm-temperate regions of the Northern Hemisphere, the most southerly definite records known to me being from Iraq at about 33°N (Ticehurst et al., 1926). The supposed breeding in Central Africa was based on confusion with *C. hybridus* (cf. Mees, 1977b: 21-22).

Gelochelidon nilotica macrotarsa (Gould)

Sterna macrotarsa Gould, 1837, Synops. Birds Austr., 2: pl. [37], fig. 2 — Van Diemen's Land.

Material. — ♂, 11.VIII.1960, Koerik, no. 354. Wing 348, tail 140, tarsus 35, entire culmen 55, exposed culmen 44 mm, weight 240 g. ♂, 17.VI.1962, beach

between Ongari and Doemandé, no. 761. Wing 300+, tail 135, tarsus 32, entire culmen 53, exposed culmen 42 mm, weight 247 g. Iris dark brown, bill and legs black. No. 354 has fresh, unworn wing-tips, no. 761 shows primary-moult and has the wing-tips damaged. Both specimens had small gonads.

Discussion. — Besides these two specimens, our collection contains three specimens from Merauke, collected in November 1907; these birds have been recorded by van Oort (1909: 61) under the binomial name *G. nilotica*. *G. n. macrotarsa* is a very well-marked race: apart from the larger size and the conspicuously larger bill, it differs at a glance from the nominate race and from *G. n. affinis* (Horsfield) by its very pale, almost white, mantle. This character, rightly stressed by Hartert (1921: 1691) was not mentioned by Rand & Gilliard (1967: 150). An additional difference is that *G. n. macrotarsa* has no winter plumage: once the adult breeding plumage has been attained it is never lost (cf. Serventy et al., 1971: 206; Johnstone, 1977; further confirmed by Johnstone, in litt., 11.IX.1979)[1]). The three November birds are approaching the "second phase" of Serventy et al., having mainly white heads with large blackish patches behind the eyes, whereas Hoogerwerf's two specimens must be subadult, having black caps only slightly mottled with white.

It is worth noting that our large series of this species from Java and Bali, as well as specimens from Halmahera and Ambon, are all *G. n. affinis*, a subspecies that has also been recorded from Lake Sentani in northern New Guinea (Ripley, 1964: 25) and from Western Australia (Johnstone, 1977). On the other hand *G. n. macrotarsa* appears to be nomadic, rather than being a true migrant, and outside Australia it has been recorded only from the south coast of New Guinea.

Further to the status of *G. n. macrotarsa* in New Guinea, it deserves mention that there are now observations from the months February, March, April (v. d. Assem, 1960), May (Mees, see p. 175), June, August (Hoogerwerf), and November (see above), all in the Merauke area. Glancing through N.G. Bird Society Newsletters added the months January, September and October, near Port Moresby. Obviously this species occurs in southern New Guinea throughout the year. There is, however, no evidence of breeding.

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[1]) Serventy et al. (l. c.) are ambiguous: first, under the heading Field Characters, they give descriptions of the breeding plumage and of the: "Non-breeding plumage: head streaked mainly white with brown markings and a large dark patch behind eye. Lores speckled black and white. Wing quills appear darker than in breeding plumage". Only in a later paragraph they refer casually to: "the breeding plumage, never lost in Australia once it has been acquired". As this left me in some doubt I asked Mr. Johnstone for confirmation as mentioned above. The point is not generally appreciated. Rand & Gilliard (1967: 150) do not mention it and Mackay (1970b: 29) refers to: "Both breeding and non-breeding plumaged birds" observed near Port Moresby. Moreover, McKean (1981) disagrees: "Johnstone (1977) cites differences between *affinis* and *macrotarsa* but is not correct in stating that adult *macrotarsa* retain their nuptial plumage throughout the year. Although nuptial plumaged *macrotarsa* may be found throughout the year most of the birds wintering in Darwin moult into non-breeding plumage". Evidently further study is necessary.

Sterna albifrons sinensis Gmelin

Sterna sinensis Gmelin, 1789, Syst. Nat., ed. 13, 1 (2): 608 — Sina.

Material. — ♂, 2.IV.1961, beach between Koembe and Ongari, no. 570. Wing 191, tail 81, tarsus 18, entire culmen —, exposed culmen 31 mm, weight 50 g. ♀, same data, no. 571. Wing 176, tail 83, tarsus —, entire culmen 35½, exposed culmen 30 mm, weight 45 g. ♀ ?, same data, no. 572. Wing 187, tail 52, tarsus —, entire culmen —, exposed culmen 31 mm, weight 50 g. Iris dark brown, bill dull yellow with black tip, legs ochre.

Discussion. — The measurements confirm the identity of these birds as *S. a. sinensis* (cf. Hitchcock, 1959: table I; Nadler, 1976: fig. 4-6).

Sterna bergii cristata Stephens

Sterna cristata Stephens, 1826, in Shaw's Gen. Zool., 13 (1): 146 — China; and many of the south-eastern islands of Asia = China, restricted type locality.

Material. — ♀, 28.IV.1962, beach between Koembe and Ongari, no. 709. Iris dark brown, bill yellowish green, legs blackish. Wing 340+, tail 164, tarsus 29, entire culmen 64½, exposed culmen 56 mm, weight 305 g. Ovary small, no moult.

Discussion. — Several attempts have been made to subdivide this species in the huge eastern part of its range, which reaches from the coasts of China and Malaysia to Australia and far into the Pacific Ocean. The most recent of these is by Baker (1951: 162-164), who recognized three subspecies: *cristata* from China and the Philippines, small (average wing-length 332 mm), *pelecanoides* from the remainder of the range except Western Australia, larger (average wing-length 344 mm), and *gwendolenae* from Western Australia, largest (average wing-length 354 mm). I have no reason to query Baker's figures (unfortunately material from the area ascribed by him to *S. b. cristata* is hardly represented in our collection), but it should be realized that in these large birds an average difference of 10-12 mm in the wing-length amounts only to 3-4%, whereas the individual variation within one subspecies may be as high as 10%. Although Stresemann (1914: 57, 59) counted *gwendolenae* amongst the forms which were "mit Gewissheit auseinanderzuhalten", his diagnosis: "In der Färbung mit *St. b. cristata* übereinstimmed, aber durchschnittlich grösser", hardly justifies that claim. Also one gets an impression that there are numerous populations with slight differences in average measurements, rather than that these can be divided in clear subspecies. Baker suggested also that *gwendolenae* has a paler mantle than the others, but concluded that: "Size probably is a better character than color to use in separating these groups". Condon (1975: 156) called *gwendolenae* "medium-grey". As two specimens from south-western Australia obtained in 1968 do not appear to differ in mantle colour from material collected in New Guinea and Java, I agree that such differences as may exist are too dubious to be

used in the delimitation of subspecies. The same is true for the differences in size as on Baker's own figures only a small percentage of birds could be subspecifically distinguished by it. In addition it should be mentioned that many specimens, perhaps a majority of specimens of this large sea-swallow have the wing-tips very worn, so that those last ten millimetres which make the difference between one subspecies and another, are usually difficult to measure, or are missing altogether. Therefore I agree with Vaurie (1965: 490-491) that it is better to keep all birds from China and Malaysia eastwards under one name, *S. b. cristata.*

Ptilinopus superbus superbus (Temminck)

Columba Superba Temminck, 1810, Hist. Nat. Pigeons, Colombes: 75, pl. 33 — O-Taiti = Halmahera.

Material. — ♂, 13.X.1960, Kaisa, upstream Koembe River, no. 468. Wing 133, tail 72, tarsus 22, entire culmen 16 mm, exposed culmen —, weight 130 g. ♂, 14.X.1960, Kaisa, upstream Koembe River, no. 474. Wing 130, tail 74, tarsus 19, entire culmen 17, exposed culmen 14 mm, weight 100 g. Iris light yellow, eye rim light yellow, bill dark olive green, distally lighter, legs dark carmine. No moult.

Ptilinopus coronulatus coronulatus G. R. Gray

Ptilonopus coronulatus G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 185, pl. 138 — Aru Islands.

Material. — ♂, 15.IX.1960, Koerik, no. 404. Wing 116, tail 70, tarsus $17^1/_2$, entire culmen —, exposed culmen $10^3/_4$ mm, weight 73 g. Iris orange, bill olive green, legs dark carmine. One egg, 8.I.1961, Koerik, no. 76614. Measurements 29.0 x 19.0 mm, weight 0.2500 g.

Ptilinopus iozonus iozonus G. R. Gray

Ptilonopus iozonus G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 186 — Aru Islands.

Material. — ♀, 16.IX.1960, Koerik, no. 409. Wing 121, tail 59, tarsus $22^1/_2$, exposed culmen 13 mm, weight 102 g. ♀, 18.IX.1960, Koerik, no. 417. Wing $120^1/_2$, tail 52, tarsus 21, exposed culmen $13^1/_4$ mm, weight 98 g. ♂, 18.IX.1960, Koerik, no. 418. Wing 120, tail 55, tarsus 20, exposed culmen 14 mm, weight 96 g. Iris greyish white (nos. 409, 418) or pale yellow (no. 417), eye rim blue-grey, bill olive yellow, dirty yellow or light yellow, cere dark carmine, base of mandible dark olive green, legs dark carmine. No moult.

Discussion. — Bangs & Peters (1926: 422) brought specimens from Merauke to the nominate race. Subsequently Rand (1942a: 301) called his material from the lowlands of western Papua *P. i. finschi* Mayr, the type locality of which is Finschhafen, with the comment: "These agree well with southeast New Guinea specimens". Finally, Rand & Gilliard (1967: 161) gave *P. i. finschi* a range "to

Merauke district in south''; they also mentioned that the race *finschi* is like *iozonus* but has the throat with a wash of blue-grey. The specimens from Koerik look identical with our three birds from the Aru Islands. The terminal bar over the tail is not, as it is said to be in *finschi*, vaguer but even slightly more clearly pronounced than in the Aru specimens, there is no difference in colour of the upper parts, throat, or in the size of the markings in the upper wing coverts. As regards the chin and throat: birds from the Aru Islands as well as those from Koerik have it tinged with greyish, but very inconspicuously. The validity of *P. i. finschi* may well be questioned, but anyway, the birds from Koerik belong to the nominate race.

Ptilinopus aurantiifrons G. R. Gray

Ptilonopus aurantiifrons G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 185, pl. 137 — Aru Islands.

Material. — ♀, 24.IX.1960, Koerik, no. 431. Wing 131, tail 61, tarsus 23, exposed culmen 17$^1/_2$ mm, weight 140 g. ♂, 25.IX.1960, Koerik, no. 440. Wing 131, tail 61, tarsus 22, exposed culmen 17 mm, weight 143 g. No moult. Iris ochre, bill citrine, cere carmine, legs dark carmine. One egg, 15.XI.1960, Koerik, reg. no. 76615. Measurements 31.1 x 22.3 mm, weight 0.4255 g.

Ptilinopus magnificus puella (Lesson)

Columba puella Lesson, 1827, Bull. Sci. Nat. Géol. (Férussac), 10: 400 — alentours du Port-Praslin et du havre de Doréry.

Material. — ♂, 15.XI.1960, Koerik, no. 522. Wing 166, tail 121$^1/_2$, tarsus 25$^1/_2$. exposed culmen 15$^1/_2$ mm, weight 180 g. Iris red, bill olive yellow, cere orange, legs olive green. No moult.

Discussion. — See Mees (1964b: 8). I have again compared this and other specimens from the Koembe/Merauke districts with topotypical material and remain unable to confirm the differences in colour and size which Hartert (1932: 443) and Rand (1942a: 302) used to uphold the name *M. m. interposita* Hartert. Quite recently, Diamond (1972: 129-130) also recognized *interposita*; he correctly described its differences from *poliura*, but made no mention of *puella*, so that all he did was prove that ''*interposita*'' = *puella* differs from *poliura*, a point that has never been questioned.

In spite of a statement to the contrary made not long ago (Mees, 1973b), I must now admit my inability to see in the two species usually placed in the genus *Megaloprepia* a natural group and I agree with Goodwin (1959; 1967: 327-328) who pointed out their close relationship to certain species traditionally placed in *Ptilinopus*. See also Frith (1977: 180). My reluctance to combine *Megaloprepia* with *Ptilinopus* stemmed largely from a reluctance to change the long-established name *M. formosa* (G. R. Gray) to *P. bernsteinii* Schlegel, perhaps not strong enough a reason for retaining an unnatural classification.

Ducula spilorrhoa tarara Rand

Ducula spilorrhoa tarara Rand, 1941, Amer. Mus. Novit., 1102: 5 — Tarara, Wassi Kussa River, Western Division, Territory of Papua, New Guines.

Material. — ♀, 18.IX.1960, Koerik, no. 424. Wing 237, tail 119, tarsus 33, exposed culmen 23 mm, weight 576 g. Iris brown, bill olive yellow with a slightly lighter tip, legs dark slate, toes olive grey. No moult.

Discussion. — This is very typical *tarara*, entirely pale grey with a darker grey head. Two specimens from Merauke in our collection are not so grey, indicating that individual variation exists as also mentioned by Rand (1941).

Geographically this is an unsatisfactory race: its describer, Rand (1941), called it: "a very distinct race", confined to the southern lowlands of New Guinea. The whole of Australia and the lowlands of south-eastern New Guinea were retained in *D. s. melvillensis*, giving the last-mentioned race an interrupted range. Stresemann & Paludan (1935: 452), on the other hand, mentioned that a specimen from Cape York also had head and nape strongly tinged with grey. An additional consideration in evaluating the validity and range of *D. s. tarara* is that *D. spilorrhoa* is partial to coastal forests and small islands. It occurs on most of the islands in Torres Strait, showing that the Torres Strait forms no geographical barrier of much importance; indeed, the species is known for its frequent inter-island movements (Warham, 1962). Bell (1967b: 70), discussing the species in southern New Guinea, stated: "Mayr 1941 recognizes two races in the area *S.* [sic] *spilorrhoa*, a non-breeding migrant from Australia and *S. tarara*, the resident subspecies. *S. spilorrhoa* migrates across Torres Strait in October". In Mayr's (1941b) work, which after all is no more than a list of species and subspecies, there is, however, no mention of *D. s. melvillensis* (meant is this subspecies rather than *D. s. spilorrhoa*; cf. Rand, 1941) being a non-breeding migrant; on the contrary, Mayr gives *D. s. tarara* and *D. s. melvillensis* separate ranges. Actually, irrefutable proof that Australian birds do visit New Guinea was recently provided by two individuals ringed as chicks on the Low Islets (16°23′S, 145°34′E) off Port Douglas, Queensland, on 24 and 25.XI.1972 respectively, of which the first one was recovered 850 km NNW at Masingara (9°17′S, 142°50′E), 50 km W of Daru, Papua, on 18.IX.1974 (Anon., 1975; Purchase, 1975), and the other 900 km NNW near Balimo (8°00′S, 142°55′E), Papua, in June 1979 (Anon., 1980). Two further individuals ringed as nestlings on the Low Islets on 24.XI.1972, were killed by villagers of Birwar Laut (5°32′S, 138°18′E), 1300 km NW, on or about 10.IX.1979 (Anon., 1980).

It is tempting to speculate that the degree of greyness is not genetically fixed, but is a non-genetical effect of food or stain. Of course there remains the possibility suggested by Bell (l. c.), that in southern New Guinea two subspecies co-occur: *D. s. tarara* as a resident and *D. s. melvillensis* as a migrant visitor. The reason I consider this unlikely is that there appears to exist a large individual variation, rather than two distinct colour types as one would expect if two different subspecies were involved. I cannot find on what Goodwin's (1967: 422)

claim is based that: "The silver-grey form, *D. s. tarara*, is ... habitually found inland from the coast". Certainly Rand (1941; 1942a: 302-303) included in the type series of *tarara* specimens from Daru Island and Mabadauan.

On the rather primitive distributional map given by Goodwin (1967: 421), the Aru Islands (type locality), the Kimberley Division of Western Australia and the Bismarck Archipelago have all, mistakenly, been omitted from the range of *D. spilorrhoa.*

The *D. bicolor* group of pigeons would make a rewarding subject for closer systematic and ecological studies. Our collection contains specimens of three "species" (*D. bicolor, D. melanura, D. spilorrhoa*) from one island (Great Key).

Ducula mullerii mullerii (Temminck)

Columba mullerii Temminck, 1835, Recueil d'Ois., 4 (livr. 96): pl. 566 — les bords de la rivière Dourga, à la Nouvelle-Guinée.

Material. — ♂, 6.IX.1960, Koerik, no. 391. Wing 234, tail 141, tarsus 33½, entire culmen 30, exposed culmen 22 mm, weight 510 g. ♂, 18.IX.1960, Koerik, no. 423. Wing 234, tail 147, tarsus 33, entire culmen 32½, exposed culmen 24 mm, weight 528 g. Iris red, bill very dark grey, legs dark carmine, bare skin around eye grey. No moult. One egg, 29.IX.1960, Koerik, reg. no. 76612. Measurements 49.6 x 31.9 mm, too much damaged for its weight to be taken.

Discussion. — The egg is a little longer than the two eggs described by Rand (1942a: 303), which measured 47.4 x 33.7 and 47.7 x 34.3 mm.

Ducula pinon pinon (Quoy & Gaimard)

Columba Pinon Quoy & Gaimard, 1824, Voy. Uranie, Zool.: 118, pl. 28 — Rawak, une des îles des Papous.

Material. — ♀, 18.IX.1960, Koerik, no. 413. Wing 257, tail 135, tarsus —, entire culmen 33, exposed culmen 25½ mm, weight 710 g. Iris red-brown, bare skin around eye bright carmine, bill dark grey with an olive grey tip, legs bright carmine. Probably no moult.

Ducula zoeae (Lesson)

Columba Zoeae Lesson, 1826, Dict. Sci. Nat. (Levrault), 40: 314 — environs du village de Dorery à la Nouvelle-Guinée.

Material. — ♀, 11.X.1960, Wajou, Koembe River, no. 462. Wing 207, tail 111, tarsus 30, exposed culmen 24 mm, weight 525 g. Iris pale slate blue, bill dark grey, legs dark carmine. No moult.

Macropygia amboinensis cinereiceps Tristram

Macropygia cinereiceps Tristram, 1889, Ibis, (6) 1: 558 — Ferguson Island.
Macropygia kerstingi Reichenow, 1897, Orn. Mber., 5: 25 — Nuru-Fluss; Ramufl.

Material. — ♀, 2.IX.1960, Koerik, no. 384. Wing 169, tail 177, tarsus 22, entire culmen 19, exposed culmen 16 mm, weight 130 g. ♀, 6.IX.1960, Koerik, no. 394. Wing 170, tail 180, tarsus 22½ mm, bill damaged, weight 130 g. ♀ ?, 7.V.1962, Ongari, no. 715. Wing 166, tail 176, tarsus —, entire culmen 21½, exposed culmen 17 mm, weight 132 g. ♂, 3.VI.1962, Koerik, no. 745. Wing 171, tail 183, tarsus 22, exposed culmen 17 mm, weight 126 g. Iris pale blue or pale grey-blue, once orange-red (no. 715), bill distally dark brownish to blackish, basally flesh colour, legs dark red. Stomach and crop contents small berries and fruit pulp. The nos. 715 and 745 show primary moult, the two other specimens are not moulting.

Discussion. — Birds from this part of New Guinea have been called *M. a. kerstingi* Reichenow (cf. Mayr, 1941b: 46; Rand, 1942a: 304-305; Mees, 1964b: 8; Rand & Gilliard, 1967: 176, etc.), but as early as 1923 Stresemann concluded that *kerstingi* was insufficiently differentiated from *cinereiceps* for nomenclatural recognition, and later Gyldenstolpe (1955a: 43) expressed the same opinion. See also Mayr (1937b) and Gilliard & LeCroy (1961: 36-37), who retained the name *kerstingi* in spite of its being: "probably not worth separating". Diamond (1972: 134) stated that his material "reinforced the doubts" of the validity of *kerstingi*, without definitely rejecting it. A stage has now been reached where it seems best not to accept *kerstingi* until good arguments for its validity may be brought forward.

Geopelia humeralis humeralis (Temminck)

Columba humeralis Temminck, 1821, Trans. Linn. Soc. Lond., 13: 128 — Broad Sound à la côte orientale de la Nouvelle Hollande.
Geopelia humeralis gregalis Bangs & Peters, 1926, Bull. Mus. Comp. Zoöl., 67: 423 — Wendoe Mer River, southwestern New Guinea.

Material. — ♀, 23.IX.1960, Koerik, no. 430. Wing 135, tail 113, tarsus 24, exposed culmen 18¾ mm, weight not recorded. ♀, 1.X.1960, Koerik, no. 455. Wing 136, tail 117, tarsus 22¾, exposed culmen 15 mm, weight 119 g. Iris yellow, bill slate, legs red or bright vermilion. No. 455 shows wing moult. A clutch of two eggs, 1959 without exact date, Koerik, reg. no. 76613. Measurements 27.4 x 20.9 and 28.6 x 21.2 mm, weights 0.3777 and 0.3845 g.

Discussion. — *Geopelia humeralis* has been known from southern New Guinea since 1828 when Salomon Müller (1842: 23) secured a specimen on the Prinses Marianne Strait, that is still in our collection (cat. no. 3). There were several subsequent records in the course of the XIXth century, which extended the range eastwards to Hall Sound and Port Moresby; therefore Hartert's (1932: 439) statement: "Das Vorkommen dieser Art in Neuguinea war bis 1926

unbekannt", is an error. In those days the New Guinea birds were not distinguished from the Australian nominate race. Salvadori (1882: 160), who compared his six skins from New Guinea with two from Cape York, concluded that: "Gli individui suddetti non differiscono sensibilmente". Finally Bangs & Peters (1926) described birds from southern New Guinea under the name *G. h. gregalis* as being: "Similar to *Geopelia humeralis humeralis* (Temminck) but darker above, especially the hind neck which is nearly Mikado-brown instead of vinaceous-cinnamon or orange-cinnamon". As the authors of *G. h. gregalis* based their description entirely on notes supplied by Hartert, it is of interest to read that only a few years later Hartert (1932: 439) himself felt unable to confirm the racial characters ascribed to New Guinea birds. Subsequent authors have accepted *G. h. gregalis* without comment as a valid race (cf. Mayr & Rand, 1937: 40; Rand, 1942a: 305; Rand & Gilliard, 1967: 178, etc.). Our collection contains seven specimens from New Guinea, which I could compare with eight from Australia. Admittedly much of the material is very old, but there does not appear to be any difference between old and fresh specimens. The series contains specimens from Port Essington and Cape York and, like Salvadori, I am quite unable to distinguish these from New Guinea specimens. The only specimen in our material which is different is one from La Grange, Western Australia; this bird is clearly paler, confirming the validity of the race *G. h. headlandi* Mathews (cf. Mayr, 1951), although, as pointed out by Goodwin (in Hall, 1974: 84) and Frith & Hitchcock (1974: 142), the name may have to be replaced by *G. h. inexpectata* Mathews, depending on how far to the north-east this pale race extends. Condon (1975: 168) has deviated from the classification accepted during the preceding period by recognizing, besides the nominate race, three subspecies: *G. h. apsleyi* Mathews from the Northern Territory: "Smaller than nominate *humeralis*; otherwise similar"; *G. h. inexpectata*: "A small pale subspecies", and *G. h. hedlandi* (emendation of *headlandi*): "The palest and smallest subspecies; *apsleyi*, *inexpectata* and *hedlandi* form a cline in size and coloration"[1]). Measurements have rarely been recorded, and all authors here mentioned failed to do so. Wing-lengths of our other specimens from New Guinea are ♂ 134, 139, ♀ 132, 136, 137, 140; from Cape York, unsexed 139, 140, 142, from Australia without locality, presumably eastern Australia, unsexed 140, 146; from Port Essington ♀ 129, from La Grange ♀ in very fresh plumage 125 mm. As far as they go, these figures support Condon. It would be interesting to have good series of measurements from various parts of Australia, but as the geographical variation in the Australian continent has no direct bearing on the subspecific identity of the birds from New Guinea, which are large enough to be included in the nominate race, I have not further pursued this line of investiga-

[1]) Under the present code (Stoll et al., 1961: art. 32) the emendation of *headlandi* to *hedlandi* is unjustified. Mathews's geographical knowledge of Australia was rather sketchy and when he named this form he thought that the name of its type-locality was Port Headland, whereas actually it is Port Hedland. The name *headlandi* is therefore not an inadvertent error under the code.

tion. The Australian series with which Hartert compared the type material of *G. h. gregalis* may have included a large proportion of Western Australian specimens as at that time *G. h. headlandi* was not generally recognized, and that would explain why he found New Guinea birds darker.

That birds from northern Australia and southern New Guinea should be identical is not so surprising when it is remembered that *G. humeralis* has a preference for coastal areas, in particular mangroves. For an inhabitant of this kind of habitat the Torres Strait would not be much of a barrier; the species occurs on practically all islands in the Torres Strait where it may be said to have an almost continuous range (cf. Ingram, 1976).

McGill (1968) suggested that this species should be transferred to the genus *Streptopelia*, but the supporting evidence he provided is of a somewhat anecdotal character and is unconvincing. See Frith (1977: 180-181).

Chalcophaps indica chrysochlora (Wagler)

C[*olumba*] *chrysochlora* Wagler, 1827, Syst. Av., Columba: sp. 79 — Ceylon, Java, Sumatra et in China = New South Wales (t.t. subst.).

Material. — ♀, 25.IX.1960, Koerik, no. 444. Wing 146, tail 76, tarsus 28, entire culmen 21, exposed culmen 15$^1/_2$ mm, weight 110 g. Iris dark brown, bill light orange-red with purple base and cere, legs dark purplish red. No moult.

Discussion. — This specimen extends the known range of *C. i. chrysochlora* westwards from the Oriomo River.

Goura scheepmakeri sclaterii Salvadori

Goura sclaterii Salvadori, 1876, Ann. Mus. Genova, 9: 45 — Fiume Fly.

Material. — ♂, 21.VIII.1961, Koerik, died in captivity, no. 374. ♀, 31.III.1962, Koerik, died in captivity, no. 633. Weight 2235 g. Iris bright red or carmine, bill dark grey, legs dark carmine.

Chalcopsitta scintillata scintillata (Temminck)

Psittacus sintillatus Temminck, 1835, Recueil d'Ois., 4 (livr. 96): pl. 569 — la baie Lobo.
Psittacus scintillatus; Temminck, 1839, Recueil d'Ois., Tableau Méthodique (emendation).

Material. — ♂, 24.XI.1960, Koerik, no. 527. Wing 162, tail 99, tarsus 18$^1/_2$, culmen from cere 20 mm, weight 170 g. ♂, same data, no. 528. Wing 163, tail 106, tarsus 19, culmen from cere 19$^3/_4$ mm. Iris dark brown, bill and cere black, legs blackish grey. No. 528 shows moult in the body feathers, the other specimen is not in moult.

Discussion. — I see no point in retaining the original spelling, considering that Temminck himself corrected it within four years of its publication, as cited above. For those who might still be in doubt about the interpretation of the am-

biguous article 32 (Stoll et al., 1961: 34-35) I add that Temminck gave this bird the French name Perruche flammèchée, the latinisation of which is of course *scintillatus*; there is no word *sintillatus* in Latin.

Trichoglossus haematodus caeruleiceps D'Albertis & Salvadori

Trichoglossus caeruleiceps D'Albertis & Salvadori, 1879, Ann. Mus. Genova. 14: 41 — Fiume Kataw = Binaturi River.

Material. — ♂, 17.VI.1959, Merauke, no. 8. Wing 136, tail 88, tarsus 17, culmen from cere 19½ mm, weight not recorded. ♀ ?, 31.VIII.1960, Koerik, no. 382. Wing 130, tail 94, tarsus 17¼, culmen from cere 20 mm, weight not recorded. ♀, 18.IX.1960, Koerik, no. 420. Wing 137, tail very worn, tarsus 17, culmen from cere 20 mm, weight 130 g. ♂, 21.VI.1962, Koerik, no. 769. Wing 140, tail 108, tarsus 16, culmen from cere 20½ mm, weight 137 g. ♀, 22.VI.1962, Koerik, no. 770. wing 141, tail 95, tarsus 15½, culmen from cere 18 mm, weight 121 g. Iris red (nos. 382, 769, 770), light orange (no. 420) or yellow (no. 8), bill red, coral red or vermilion with a yellow tip and yellowish on the middle of the mandible, legs olive grey. Stomach contents green vegetable matter. No. 8 shows wing moult, the other specimens are not in moult.

Discussion. — Although previous authors (van Oort, 1909: 74; Rand, 1941; Cain, 1955: 447; Mees, 1964b: 9) all agreed that this subspecies differs from *T. h. nigrogularis* G. R. Gray by its smaller size as mentioned in its original description, recently Forshaw (1973: 59) questioned its validity, claiming it to be: "probably not separable from *nigrogularis*". Nevertheless, the measurements of fair series supplied by Forshaw indicate a clear difference and in my opinion confirm its validity convincingly.

Charmosyna placentis placentis (Temminck)

Psittacus placentis Temminck, 1835, Recueil d'Ois., 4 (livr. 93): pl. 553 — la rivière Utanata, à la Nouvelle-Guinée.

Material. — ♂, 31.VIII.1960, Koerik, no. 381. Wing 86, tail 63, tarsus 12, culmen 11½ mm, weight 31 g. ♂, 2.IX.1960, Koerik, no. 387. Wing 82, tail 50, tarsus 11, culmen from cere 11½ mm, weight 28 g. ♂, same data, no. 388. Wing, 85, tail 63½, tarsus 11½, culmen from cere 12 mm, weight 28 g. ♀, 19.III.1961, Koerik, no. 567. Wing 85, tail 56, tarsus 10, culmen from cere 11 mm, weight 25 g. ♂, 21.VI.1962, Koerik, no. 768. Wing 86, tail 55, tarsus 11, culmen from cere 12 mm, weight 31 g. ♀, same data, no. 773. Wing 83, tail 63, tarsus 10, culmen from cere 11 mm, weight 29 g. Iris ochre, warm yellow or orange-yellow, bill vermilion or dark red with a dark tip, legs dull red or flesh colour, less dark than bill.

Discussion. — See Hoogerwerf (1964: 154). The measurements of these specimens range rather low; older material in our collection has wing-

measurements as follows: 20 ♂ 87-95, 22 ♀ 84-93 mm (cf. Mees, 1965: 166). The majority of these specimens was from more westerly localities. Small measurements similar to those of the Koerik specimens were given for material from the lower course of the Fly River by Rand (1942a: 309). Wing-measurements of the three type specimens from the Oetanata River are: ♂ 90, ♂ juv. 86, ♀ 88 mm. I do not think that the slightly smaller size of the specimens from Koerik means much, especially as they appear to have the wings rather more strongly bent at the carpal joints than is usual in skins, which might have reduced their measurable length by one or two millimetres.

Probosciger aterrimus goliath (Kuhl)

Psittacus Goliath Kuhl, 1820, Nova Acta Acad. Caes. Leop. Carol., 10: 92 — In India orientali; restricted to the Onin Peninsula, New Guinea, by Stresemann (1923: 54).

Material. — ♀, 7.VIII.1960, Koerik, no. 344. Wing 355, tail 244, tarsus 26, culmen from cere 76, depth of maxilla 39 mm, weight 850 g. Iris dark brown, bare skin of head red, bill black, legs blackish. No moult.

Discussion. — In a previous paper (Mees, 1957) I propagated the use of the name *griseus* Bechstein for the large race of the New Guinea mainland, a name based on an aberrant individual with grey instead of black plumage seen alive by Levaillant at the Cape. I am now of the opinion that it is better to conform to the nomenclature used during the past sixty years and reject *griseus*: no grey specimens appear ever to have been recorded authentically since Levaillant's time and a certain measure of doubt is justified. The identity of *Psittacus Goliath*, on the other hand, is quite certain: the name was based on specimens: "In Museo *Temminkiano*, *Bullokiano*". I do not know what has happened to Bullock's specimen, but Temminck's bird still exists, a very large individual; it has been studied by Schlegel (1864a: 148), Stresemann (1923) and Junge (1937: 164).

Apart from the change discussed above, I see no reason to alter the conclusion arrived at in my earlier paper, that there are only two races in New Guinea: *P. a. stenolophus* van Oort confined to the north coast, and *P. a. goliath* in the rest of the island. Variation in size in mainland New Guinea is too irregular to base subspecies on; in this I agree with Hartert (in Bangs & Peters, 1926: 427) and differ from Mayr (1937b: 5-6). Forshaw (1969: 47) has included the Cape York population in the nominate race with the comment: "Mees (1957) points out that the Cape York birds should be referred to as *Probosciger aterrimus aterrimus* ⇌ *goliath* since they appear to be intermediate between the Aru Islands birds and those from New Guinea. I find such nomenclature cumbersome and confusing, and include the Australian population in the nominate race, where is has been placed by most authors. Perhaps *goliath* and *aterrimus* are also synonymous".

I sympathize with Forshaw in his feelings of reluctance to use an awkward nomenclature (why he should call it confusing is less clear to me), but as Cape York birds are intermediate in size between *P. a. goliath* and *P. a. aterrimus*, and

the conspicuous difference in size between these makes it in my opinion desirable to keep them separated, the formula used still appears to me the best way of expressing the position and characters of the Cape York population in nomenclature. Forshaw's argument that most previous authors have included Cape York in the range of the nominate race is not valid, for this was based on the mistaken notion that Cape York would be the type locality of the species, a matter I have discussed at length in my 1957 paper.

Cacatua galerita triton Temminck

Cacatua triton Temminck, 1849, Coup d'Oeil Gén. Poss. Neerl. Ind. Arch., 3: 405 footnote 1 — la Nouvelle-Guinée = Aidoema Island, Triton Bay.

Material. — ♂, 8.VIII.1960, Koerik, no. 345. Wing 278, tail 148, tarsus $24^1/_2$, culmen from cere 35 mm, weight 495 g. Iris dark brown, bill black, legs dark grey, almost black. Moult in remiges and probably also of rectrices; the old feathers are strongly abraded.

Discussion. — The worn condition of the plumage explains the rather small measurements. Unfortunately the colour of the bare skin around the eye is not indicated on the label (cf. Mayr, 1937b: 7).

Cacatua pastinator transfreta subspecies nova

Material. — ♂, 20.VII.1959, Koerik, no. 87. Wing 255, tail 125, tarsus 23, culmen from cere $28^1/_4$ mm, weight 382 g. ♂, 30.VII.1959, Koerik, no. 102. Wing 244, tail 106, tarsus $23^1/_2$, culmen from cere 29 mm, weight not recorded. ♂, same data, no. 103 (type, RMNH no. 42449). Wing 247, tail 125, tarsus $23^1/_2$, culmen from cere 31 mm, weight not recorded. In addition there are two unsexed birds, without further information, received in 1960, undoubtedly also from Koerik. They measure: wing 226, 241, tail 117 and missing, tarsus $23^1/_2$, 24, culmen from cere $28^3/_4$, 29 mm. Iris dark brown, bare skin around eye dark slate, bill very pale grey, legs dark grey. All specimens were skinned from alcohol and are not in a good condition. They are in worn to strongly abraded plumage, but not to such an extent that this has affected the measurements.

Diagnosis. — A small subspecies, agreeing in size with *C. p. normantoni* (Mathews), but differing from that and from all other subspecies by having the under surface of wing and tail tinged with a colour between Maize Yellow and Buff-Yellow (Ridgway, 1912: pl. IV) instead of Martius Yellow (Ridgway, 1912: pl. IV).

Discussion. — The occurrence of this species in southern New Guinea (near Merauke) was first recorded by van Bemmel (1958), who suggested that it had been introduced from Australia. Hoogerwerf (1964: 154-155) commented: "My experience ... points to the probability that the settlement in New Guinea ... is

not of recent date. The erratic occurrence of these birds may be one of the main reasons of late discovery; also the fact that the species, when observed at a distance can be confused with the Yellow-crested Cockatoo, *K. galerita* ... Though during certain periods the Corella is of daily appearance in and around Kurik's ricefields, occurring periodically in large flocks, sometimes it seems absent as is evident from my diary notes which do not mention the bird during March, April, November and December! Though the presence of this rice consuming cockatoo may be influenced, of course, by the availability of food, its absence during that period cannot be caused by that because attractive rice was often there in those months''.

Even allowing for their poor plumage condition, and leaving out the two specimens without data, these birds are remarkably small. Wing 3 ♂ 244, 247, 255 mm. In twelve specimens (♂, ♀) from Western Australia and the Northern Territory I found a wing-length of 260-288, average 275 mm (cf. Mees, 1961: 103, 131). See also the measurements recently published by Saunders (1978) which are even larger. The difference is too great to be ascribed solely to a combination of individual variation and accidents of collecting, and therefore I made a search in literature for information on variation in size of this species. Thus, I came across Mathews's (1917) description of *Ducorpsius sanguineus normantoni*: ''The series from Normanton, Queensland, are the most perplexing as they all measure very small and are constant, thus 3 ♂♂'s, 245, 245, 247; 3 ♀♀'s 238, 240, 247 mm. These do not correlate with any other form and though I am unwilling it seems necessary to designate these by name''. In view of the clear difference without any overlap shown by his series, it is surprising that Mathews felt ''unwilling'' to ''designate it by name'' as in his work there is usually no sign of reluctance to base subspecies on much poorer evidence. It is also surprising that some years later Mathews (1927: 317) himself made the name a synonym.

The measurements published by Mathews indicate that *normantoni* is a valid race. Mathews's material is now in the American Museum of Natural History and to make quite sure that he had measured his specimens correctly, I contacted the late Dr. Vaurie. The six birds were all taken by R. Kemp between 19 February and 22 March 1914; they were remeasured by Dr. Vaurie (in litt., 7.XII.1966): wing 2 ♂ 245, 247, wing 4 ♀ 238, 240, 247, 249 mm. To this Dr. Vaurie added: ''I cannot explain the discrepancies between these data and what Mathews said''. Nevertheless, it is evident that Mathews was right on the whole. From a zoogeographic point of view the subspecific agreement between birds from Normanton and southern New Guinea is also acceptable, as Normanton at the base of the Cape York Peninsula is in Australia the nearest locality to New Guinea where the species occurs (it has not been found near the tip of the Cape York Peninsula).

This is where the matter rested until Dr. Schodde, who had borrowed some of the specimens, drew my attention to the colour difference noted above. The fact that the New Guinea specimens had been in alcohol and that the total of material of *pastinator/sanguinea* in our collection consists of only three specimens prepared

from captivity, without further data, had caused me to neglect this character. At the suggestion of Dr. Schodde I re-examined our material and found that in the brownish-yellow rather than citrine-yellow colour the five specimens are quite uniform, something one would not expect from discoloured specimens having been immersed in alcohol for varying lengths of time, and also that there is no unevenness in this colour. Furthermore, and that clinched the matter as far as I am concerned, Dr. Schodde informed me that he has had some Australian corellas in alcohol for almost a year without any hint of change in colour.

A direct comparison between the birds from New Guinea and specimens of *C. p. normantoni* remained to the made. To this purpose four specimens of the latter were borrowed from the American Museum of Natural History, the only museum as far as I know in which this subspecies is represented. This material confirmed both the difference in colour and the absence of differences in size between the two populations.

In applying the specific name *pastinator* to these birds, I have followed the revision by Schodde et al. (1979), the authors of which had the courtesy to send me a manuscript copy before its publication.

It is peculiar that *C. p. normantoni* remains such an extremely little known subspecies; indeed, when I began my investigations, before the confirmation of its small size was received from Dr. Vaurie as related above, it was universally regarded as a synonym. Even its distribution is insufficiently known, see map in Schodde et al. (l. c.). Although it is known to be absent from the tip of the Cape York Peninsula, Storr (1973: 57) claimed it to occur along the western side of the Peninsula to as far north as Weipa, and on the map in Schodde et al. its range is further extended to Port Musgrave. On the other hand, I note that Kikkawa (1975) did not include the species in his list of birds from Weipa; my impression is that much of the range shown by the authors just mentioned is hypothetical.

Geoffroyus geoffroyi aruensis (G. R. Gray)

Psittacus aruensis G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 183 — Aru Islands.

Material — ♂, 27.II.1962, Koerik, no. 610. Wing 149, tail 62, tarsus 13, culmen from cere 20½ mm, weight 105 g. Iris light yellow, bill, maxilla red with a yellow tip, mandible blackish, legs grey-green. No moult. Stomach contents small carmine red remains of fruits or flowers.

Aprosmictus erythropterus (Gmelin)

Psittacus erythropterus Gmelin, 1788, Syst. Nat., ed. 13, 1 (1): 343 — no locality.
Aprosmictus erythropterus papua Mayr & Rand, 1936, Mitt. Zool. Mus. Berlin, 21: 241 — Wuroi, Oriomo-Fluss, Western Division, Territory of Papua.

Material. — ♂, 2.VIII.1960, Koerik, no. 321. Wing 185, tail 132, tarsus 18½, culmen from cere 18½ mm, weight not recorded. ♀, 17.X.1960, Makoeroem, upstream Koembe River, no. 494. Wing 187, tail 142, tarsus 18,

culmen from cere 17$^3/_4$ mm, weight 150 g. ♀, same data, no. 495. Wing 190, tail 42$^1/_2$, tarsus 19, culmen from cere 18 mm, weight 160 g. ♂, same data, no. 496. Wing 185, tail 130, tarsus 19, culmen from cere 19$^3/_4$ mm, weight 142 g. ♂ in female plumage, 21.V.1961, Koerik, no. 605. Wing 180, tail 115, tarsus 19, culmen from cere 18$^1/_2$ mm, weight 118 g. Sex ?, VII.1962, Koerik, no. 772. Wing 194, tail 136, tarsus 20, culmen from cere 19 mm, weight not recorded. Iris light brown to dark brown, upper bill light red or orange red, tip and lower bill light yellow; legs dark grey to blackish. No. 321 shows moult in the primaries, no. 495 shows tail moult.

Discussion. — Usually this species has been divided into three races: the nominate race from eastern Australia, *A. e. coccineopterus* (Gould) from northern Australia, and *A. e. papua* Mayr & Rand from New Guinea. Frith & Hitchcock (1974: 146-147), however, have shown that *A. e. coccineopterus* cannot be distinguished from the nominate race. Forshaw (1973: 212), who did recognize *A. e. coccineopterus*, observed of *A. e. papua* that it is probably not distinct from *coccineopterus*, although he did not go so far as to actually synonymize one with the other. Therefore I have considered it useful to compare this fresh material with Australian birds in our collection. The results of this comparison will be discussed below.

A. e. papua was diagnosed as follows (Mayr & Rand, 1936): "Unterscheidet sich von den australischen Formen dieser Art durch geringere Größe und durch weniger Schwarz an den Armschwingen und Skapularen. Das Schwarz der Oberseite ist bei der neuen Form auf den Oberrücken beschränkt, während es bei den australischen Vögeln auf den Skapularen und inneren Armschwingen (welche zuweilen bis zur Spitze schwarz sind) viel weiter erstreckt". The comparative measurements accompanying the description are (♂ ad.): southern New Guinea (3) 183-187, Cape York (9) 190-196, 205, Victoria and New South Wales (5) 196-210, Northern Territory and Western Australia (11) 191-204 mm. In a later publication, when much more material was available, Rand (1942a: 312) gave for eight ♂ ad. from New Guinea wing lengths of 181-196 mm. When this is further compared with the measurements of Australian birds supplied by Forshaw (1973: 211-212) and Frith & Hitchcock (1974: 146) it becomes evident that the alleged difference in measurements as expressed in wing-size between Australian and New Guinea birds is largely imaginary.

Originally my impression was that the described colour characters would suffice for retaining *A. e. papua* as an admittedly slightly differentiated race. Bangs & Peters (1926: 427) observed that their two males were not fully adult, having dark green feathers mixed in with the black of the black; the same was the case with the specimens described by Mayr & Rand, who were of the opinion that this was not a sign of immaturity and promoted it to a subspecific character. As Hoogerwerf's specimens also have the saddle on the back somewhat dull and mixed with green, it appeared to me that this might actually be a valid difference; to make sure about this point I borrowed from the American Museum

of Natural History three of their males from New Guinea with black maximally developed, and found that these specimens differ in no way from Australian males with which I compared them. Some of the New Guinea birds also have black on the secondaries, even right to their tips. There appears to be no character by which birds from New Guinea can be distinguished from Australian birds; *Aprosmictus erythropterus* cannot be divided into subspecies.

Greenway (1978: 93) accepted as valid a fourth race, *A. e. yorki* Mathews (for description see Mathews, 1912b), the recognition of which he believed to be supported by Forshaw (1969: 141-142): "Forshaw remarked that this is a poorly differentiated form found in northern Australia from the Fitzroy River, in the Kimberley Division of western Australia, to the Cape York Peninsula". However, Forshaw's remarks did not concern *A. e. yorki*, but *A. e. coccineopterus*, he did not even mention the name *A. e. yorki*. Incidentally, Condon (1975) also failed to mention this name, although his work purports to give a full synonymy as far as Australia is concerned.

Cuculus pallidus (Latham)

Columba pallida Latham, 1801, Suppl. Ind. Orn.: lx — Nova Hollandia.

Material. — ♀, 4.VIII.1960, Koerik, no. 334. Wing 187, tail 139, tarsus 20, entire culmen 27, exposed culmen 21 mm, weight 73 g. Iris dark brown, eye rim hard yellow, bill blackish, below yellowish brown. No moult.

Discussion. — As far as I am aware this is only the second record of this Australian migrant from New Guinea. The first concerned a juvenile male from Momi or Moemi at the foot of the Arfak Mountains, collected on 25.VI.1928 by Mayr (cf. Hartert, 1930: 101).

Cacomantis pyrrhophanus prionurus (Lichtenstein)

C[*uculus*] *prionurus* Lichtenstein, 1823, Verz. Doubl. Mus. Berlin: 9 — Nov. Cambr. austr.

Material. — Sex ?, 4.VIII.1960, Koerik, no. 328. Wing 142, tail 124, tarsus 20 mm, bill damaged, weight 37 g. Iris dark brown, eye rim light yellow, bill blackish, legs ochre with a slight brownish tinge. No moult. The pale and lightly barred under surface points to the bird being immature.

Discussion. — In the New Guinea region this subspecies had only been recorded from the Aru Islands (two specimens known, cf. Salvadori, 1880: 333-334), from the Wahgi Valley where, unexpectedly, Gyldenstolpe (1955a: 61) collected three specimens, one male and two females, and from the village of Awande about 100 km east of the Wahgi Valley, where Diamond (1972: 166) obtained one female. There is also a record of two specimens from the Anggi Lakes, Arfak Mountains, published by Hartert (1932: 453), but re-examination of one of these skins, which is now RMNH no. 6774, revealed that it was misidentified: it belongs clearly to the dark resident subspecies *C. p. excitus*

Rothschild & Hartert. Inasmuch as Gyldenstolpe's specimens were collected at Nondugl, 1600 m, and Diamond's bird at ca. 1800 m, the habitat preference "lowlands" given by Rand & Gilliard (1967: 238) for *C. p. prionurus*, has to be qualified.

Chrysococcyx lucidus plagosus (Latham)

C[*uculus*] *plagosus* Latham, 1801, Index Orn., Suppl.: xxxi — Nova Hollandia = New South Wales (the description was entirely based on one of the so-called Lambert drawings, which are known to have been made in New South Wales).

Material. — ♀, 30.IV.1961, Koerik, no. 595. Wing 100, tail 64, tarsus 16, entire culmen, 19$^1/_2$, exposed culmen 14 mm, weight 19 g. Sex ?, same data, no. 596. Wing 101, tail 68, tarsus -, entire culmen 18$^1/_2$, exposed culmen 15 mm, weight 19 g. Iris light grey, bill black with a light base to the mandible, legs dark grey with olive soles.

Chrysococcyx malayanus subsp.[1])

Material. — ♂, 22.IV.1962, Koerik, no. 700. Wing 96, tail 62, tarsus 16$^1/_2$, entire culmen 16$^3/_4$, exposed culmen 13$^1/_2$ mm, weight 18 g. Iris light brown, eye rim orange, bill black with a light grey base to the mandible, legs dark grey. Stomach contents a fine soft pulpy mass, probably consisting of small caterpillars and the like. Primary moult: on both sides the 6th primary is growing. One egg, with one egg and the remains of two more eggs of *Gerygone magnirostris*, 15.II.1962, Gali Ephata, Koerik, reg. no. 80636, measurements 20.5 x 14.7 mm, weight 0.1041 g.

Discussion. — Unfortunately this specimen has only a single pair of rectrices left, but these show a lot of rust colour, diagnostic of this species, as is the orange eye rim, especially mentioned on the label. Is the species to which this specimen belongs not in doubt (assuming, of course that *C. malayanus* and *C. minutillus* are conspecific, an unsettled question), the same cannot be said of its subspecific assignment. Stresemann & Paludan (1935) referred a specimen from Merauke to *C. m. russatus* on the basis of size (wing 101 mm). For the same reason, I identified a bird from Merauke with a wing-length of 100 m as *russatus* (Mees, 1964b: 10-11), although I felt obliged to mention that the differences between the subspecies *poecilurus* and *russatus* as described by Hartert & Stresemann (1925) hardly justified expression in nomenclature. Since then, Rand & Gilliard (1967: 241) came with a new character: *C. m. poecilurus* would have the "upperparts chiefly greenish brown strongly glossed with pinkish bronze; under wingcoverts barred", whereas *C. m. russatus* would be "like *poecilurus* but upperparts more greenish, less pinkish bronze". Note that the wing-length, the only character on which the inclusion of specimens from Merauke in the subspecies *russatus* was based, is not even mentioned by these authors.

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[1]) Parker (1981: 39) has identified this specimen as *Chrysococcyx russatus misoriensis* (Salvadori).

A comparison between the present specimen and the one I recorded previously (RMNH no. 30094) revealed that in colour of the upper parts they are strikingly different, the former being purple-bronze, the latter bronze-green. In addition the last-mentioned specimen is larger, and has indications of a brownish band across the chest, completely lacking in Hoogerwerf's specimen. Combining the characters claimed for the two subspecies by respectively Hartert & Stresemann and Rand & Gilliard, would give for *poecilurus*: small, mantle more pinkish bronze, for *russatus*: larger, mantle more greenish. On this basis, Hoogerwerf's specimen would clearly belong to *C. m. poecilurus*, whereas Monsanto's bird was correctly identified as *C. m. russatus*. Unless *C. m. russatus* is only a winter visitor to southern New Guinea, the co-occurrence of two subspecies near Merauke is difficult to explain and as the genus *Chrysococcyx* is being revised currently, I prefer to leave the subspecific identity of the bird from Koerik undecided.

The egg is olive brown in colour, a little darker and slightly larger than eggs of *C. lucidus plagosus* (the only cuckoo with eggs resembling those of *C. malayanus*) in our collection. The eggs of the host were tentatively identified by Hoogerwerf as belonging to *Nectarinia aspasia*, but correspond entirely with the description of eggs of *Gerygone magnirostris mimikae* as given by Rand (1942a: 332), except that the one measurable egg is on the small side: 15.1 x 11.6 mm. Both in northern Australia (North, 1911: 28) and in southern New Guinea, *G. magnirostris* is known as the principal host of *C. malayanus*.

Centropus phasianinus thierfelderi Stresemann

Centropus phasianus thierfelderi Stresemann, 1927, Orn. Mber. 35: 111 — Merauke.

Material. — ♂, 4.VIII.1960, Koerik, no. 331. Wing 217, tail 297, tarsus 48, entire culmen 34 mm, weight 250 g. ♂, 19.VIII.1960, Merauke, no. 365. Wing 222, tail 280, tarsus 56, entire culmen 35 mm, weight 281 g. ♂, 2.III.1962, Koerik, no. 614. Wing 213, tail 246, tarsus 49, entire culmen 36 mm, weight 300 g. ♂, 5.IV.1962, Koerik, no. 663. Wing 210, tail 263, tarsus 48½, entire culmen 36 mm, weight not recorded. ♀, 29.IV.1962, Koerik, no. 712. Wing 244, tail 290, tarsus 56, entire culmen 38 mm, weight 375 g. Iris bright carmine, bill black, mandible partly greyish or fleshy grey, legs dark slate colour. Stomach contents large insects: grasshoppers, stick-insects, etc. (no beetles). Four birds are in adult plumage with head, upper back and the whole under surface black; no. 331 is in juvenile plumage with dirty creamish under parts, also its bill was recorded as dark brown-grey, mandible flesh colour. This is also the only specimen to show moult: remiges and forehead-feathers.

Discussion. — The plumage-sequence and plumages of this species would merit a further study. In Australia there is said to be an alternation between a breeding- and a winter-plumage (cf. Chapman in Slater, 1971: 388; Macdonald, 1973: 250; Mackness, 1979), but I doubt that the same is the case in the New

Guinea subspecies. Apart from Hoogerwerf's material we have two "black" males from Merauke collected on 4.VIII.1904 and 12.X.1904, and a "pale" female collected on 18.IX.1904; also a "pale" juvenile, so young that it would not or only just have left the nest, collected on 10.VI.1959. Thus, birds in "black" plumage are available from the months March, April, August, and October, "pale" birds only in June (a fledgling) and August; admittedly the evidence is still somewhat scant but it does not look as if there is seasonality in the "black" plumage.

Centropus menbeki menbeki Garnot

Centropus menbeki Garnot, 1828, Voy. Coquille, Zool., 1: 600, pl. 33 — Nouv. Guinée.

Material. — ♂, 28.X.1960, Koerik, no. 503. Wing 237, tail 376, tarsus 68, entire culmen 59, exposed culmen 52 mm, weight 575 g. Iris bright carmine, bill olive grey, darker at base, legs black. No moult, plumage fresh.

Tyto novaehollandiae novaehollandiae (Stephens)

St ? [rix] Novae Hollandiae Stephens, 1826, in Shaw's Gen. Zool., 13 (2): 61 — New Holland = New South Wales.

Material. — ♂, 22.IV.1960, Merauke, no. 305. Wing 305, tail 126, tarsus 68½, culmen from cere 24 mm, weight 565 g. ♀, same data, no. 306. Wing 317, tail 127, tarsus 71, culmen from cere 25½ mm, weight 760 g. Iris dark brown, bill and bare skin light flesh colour, legs dirty flesh colour. Both specimens had inactive gonads. The stomach of no. 305 contained two legs and much hair of a juvenile marsupial rat, the stomach of no. 306 was empty.

Discussion. — There is some difference between these two specimens: both are almost pure white underneath without admixture of cinnamon or buffish, but the male is only very lightly spotted, with small spots, whereas the female is much more extensively spotted, with larger spots.

This species was discovered in New Guinea in 1904 by Dr. Koch (cf. Koch, 1908: 531), who collected three specimens which were recorded by van Oort (1909: 80-81). The species remains known from a very restricted area and from very few specimens; the only subsequent records I have been able to trace are by Stresemann & Paludan (1935: 455): one specimen from Toerey on the Merauke River; by Rand (1942a: 315): one specimen from Tarara and two from Daru, and finally Mr. Hoogerwerf's two specimens from Merauke. In a previous paper (Mees, 1964a: 39) I mentioned my inability to distinguish New Guinea specimens from the nominate race, but promised a further discussion of the five specimens in Leiden.

Koch's three birds are smaller than those collected by Hoogerwerf (wing-length 265, 280, 283 mm), but the reason for their small size is obvious: all three are juvenile, with the longest primaries not full grown and basally still in sheath.

The smallest, unsexed, is white underneath, sparsely spotted with dark grey, the second one (♂?) is light cinnamon on these parts and the third, largest specimen (♀) is deep cinnamon on the under surface. A similar variation occurs in Australia. I have reluctantly concluded that there is no option but to refer the New Guinea birds to the nominate race. The reluctance is due to the fact that the Cape York Peninsula is inhabited by the strikingly different *T. n. galei* Mathews, interposed between the ranges of the nominate race in eastern Australia and in New Guinea. On the other hand, as I have mentioned before, *T. n. galei* is known from two specimens only and it remains possible that they do not give a correct picture of the Cape York population as a whole (cf. Mees, 1964a: 44). Schodde & Mason (1981: 77) have united *T. n. galei* with *T. n. kimberli* Mathews. This does not solve the problem because now it is the subspecies *kimberli* that is interposed between the Australian and New Guinea ranges of the nominate race.

Hadden (1975) discussed a specimen of *Tyto novaehollandiae* from Tari, 5380 feet, rather far outside the known range of that species, the other records being confined to the southern lowlands. Therefore I considered that the record required verification. The specimen is now in the Auckland Museum (no. AV 730.1), from where I obtained it on loan. The bird proved to be *Tyto longimembris papuensis*, as I had suspected. The record is of interest as it decreases the gap in the known distribution of this species between the Baliem Valley (Ripley, 1964: 37-38) and the Mt. Hagen area (Mayr & Gilliard, 1954: 341, pl. 17 fig. 2).

Podargus papuensis Quoy & Gaimard

Podargus papuensis Quoy & Gaimard, 1830, Voy. Astrolabe, Zool., 1: 207 — Dorey.

Material. — ♀, 4.VIII.1960, Koerik, no. 323. Wing 228, tail 219, tarsus 24, entire culmen 41½ mm, weight 256 g. Iris orange red, bill grey, legs dirty ochre, inside of mouth citrine yellow. ♀, 24.II.1962, Koerik, no. 609. Wing 266, tail 256, tarsus 29, entire culmen 48 mm, weight 420 g. Iris bright orange red, bill dark grey with olive grey base and mandible, legs light olive yellow. ♂, 16.III.1962, Koerik, no. 622. Wing 252, tail 207, tarsus 29, entire culmen 52 mm, weight 370 g. Iris dark red, bill olive green, maxilla darker than mandible, legs ochre grey. The stomachs contained remains of large beetles. No. 609 shows primary moult as well as moult of the small feathers covering the throat.

Discussion. — This genus is known for showing much geographical and individual variation in size as well as in colour of the plumage. No. 609 represents a warm-brown variety. The largest specimen is still considerably smaller than two birds from Sibil which I recorded previously (♂ wing 296, ♀ wing 309 mm, cf. Mees, 1964b: 11). The small birds from near Merauke were separated under the name *P. p. pumilus* by Stresemann (1927, see also Stresemann & Paludan, 1935: 456), but it is now generally agreed that, in view of the geographically irregular character of the variation in size, it is impossible to recognize subspecies (cf. Junge, 1937: 172; Mayr & Rand, 1937: 70; Mayr, 1973a: 8-9; Condon, 1975: 221-222). Whereas the nos. 609 and 622 are not much outside the range of

variation previously recorded in birds from near Merauke, no. 323 is exceptionally small. The bird may be immature, but the primaries are fully grown, not in sheath, and the wings are not damaged or moulting, so that its small size has to be accepted as a reality. Small as it is, wings and tail of this bird are much too large for *P. ocellatus*, with which I compared it, and its colour pattern agrees with *P. papuensis* and not with that of the smaller species. The colour of the iris further confirms its identity; the iris of *P. papuensis* is orange red or red, that of *P. ocellatus* brown to orange brown. The possibility that in addition to the known species the Australian *P. strigoides* occurs in the area under discussion cannot be excluded (cf. Mackay, 1976), but it has a bright yellow iris and a relatively shorter tail. The small size of specimen no. 323 remains unexplained but it is probably just an extreme in individual variation.

Aegotheles bennettii bennettii Salvadori & D'Albertis

Aegotheles bennettii Salvadori & D'Albertis, 1875, Ann. Mus. Genova 7: 816 — Baia Hall (= Hall Sound).

Material. — ♂, 15.X.1960, Jakau, upstream Koembe River, no. 486. Wing 118, tail 98, tarsus $20^1/_2$, entire culmen 16, exposed culmen 10 mm, weight 45 g. Iris bright brown, bill dark grey, mandible flesh colour, legs light flesh colour. No moult.

Discussion. — Our collection contains only one other specimen of this species: ♂?, 10.X.1959, Eramboe, collected by A. J. M. Monsanto; it is a juvenile that can only just have fledged, all feathers of wings and tail are still in their sheaths (wing-length 100 mm). These records extend the known range of *A. b. bennettii* some 300 km westwards from Dogwa and Wuroi on the Oriomo River (cf. Mayr & Rand, 1937: 72; Rand & Gilliard, 1967: 263).

In literature the differences between *A. b. bennettii* and *A. w. wallacii* which has about the same measurements and may also occur in the lowlands of southern New Guinea (cf. Diamond, 1969: 12-16 and fig. 2) are not always stated clearly. For example, in their key Rand & Gilliard (1967: 261) separate *bennettii* from *wallacii* on the basis of the former having a pale collar on the hind neck. Of my two specimens, however, the juvenile bird has only a vague indication of a pale collar and the adult bird has no collar at all although there are a few pale feathers on the sides of the hind neck. Mayr & Rand (1937: 73) observed that in their specimens from the Oriomo River the nuchal collar was very narrow. As a character, certainly as a field-character, the collar appears to be almost useless. Laubmann (1914) also noted that the collar: "bei typischen Stücken bald mehr bald weniger verschwindet". If my few specimens are representative, the best distinction between the two species would be in the pattern of the under surface. Above, *A. w. wallacii* is darker and more finely vermiculated than *A. b. bennettii*, a difference that without actual comparison would be difficult to evaluate, but below the difference is conspicuous: *A. w. wallacii* has chin and throat buffy

white and this colour is continued downwards along the middle of the breast, clearly marked against the sides of the breast which are dark and similar in colour to the upper parts. *A. b. bennettii*, on the other hand, has the whole under surface, including chin and throat, finely barred grey and white, without any trace of the pale band bordered by dark which is so conspicuous in the other species. Under favourable conditions this difference ought to be visible in the field.

Caprimulgus macrurus schlegelii Meyer

C[aprimulgus] Schlegelii Meyer, 1874, Sitzb. Akad. Wiss. Wien, 69: 210 — no locality = Port Essington.

Material. — ♀, 23.IV.1961, mixed forest near Ongari, no. 594. Wing 176, tail 136, tarsus —, entire culmen 17, exposed culmen 10 mm, weight 60 g. ♀, 28.III.1962, Koerik, no. 627. Wing 178, tail 138, tarsus —, entire culmen 20½, exposed culmen 10 mm, weight 72 g. ♀, 29.III.1962, Koerik, no. 631. Wing 178, tail 132, tarsus 17, entire culmen 19, exposed culmen 10 mm, weight 67 g. ♀, 27.V.1962, no. 730. Wing 176, tail 133 mm, tarsus —, culmen —, weight 71 g. Iris dark brown, bill grey or blackish, its base flesh colour, legs flesh colour, grey-brown or dark brown. No. 627 shows moult in remiges and rectrices, no. 631 in remiges.

Discussion. — See Mees (1977a). In the publication mentioned I was sceptical of Meyer's (1936: 39, 52-53) inclusion of New Ireland, New Hanover and Lihir in the range of this species. I have since noted that Meyer (1934: 301, 307) is quite definite about its occurrence on Lihir, where he heard its calls and where the natives had a name for it. I am now inclined to believe that Meyer was right and that *C. macrurus* occurs throughout the Bismarck Archipelago, although hitherto it has been collected on New Britain only.

Apus pacificus pacificus (Latham)

H[irundo] pacifica Latham, 1801, Suppl. Ind. Orn.: lviii — Nova Hollandia.

Material. — ♂, 29.I.1960, Merauke, no. 301. Wing 184, tail 76, tarsus —, entire culmen 12, exposed culmen 9 mm, weight 33 g. Iris dark brown, bill black, legs blackish. Stomach contents remains of rather large insects.

Discussion. — The date of collecting is of some interest as it points to the species wintering in New Guinea, not merely migrating through to Australia. There are not many records of this species from New Guinea. The first to obtain it were Stone's collectors in 1876/1877; this concerned a single unlabelled specimen from Port Moresby (cf. Sharpe, 1878: 494). Rand collected one out of a party of about ten at Dogwa, on 12.II.1934. He further observed some ten birds over the river bank forest at Sturt Island, on 16.X.1936, and on 11 and 12.XI.1936 another small party of about ten at Gaima, one of which was collected. Mayr (1941b: 83) has also recorded the species from: "southern Dutch

New Guinea'', but I have been unable to trace on what this is based and suspect that it was derived through Salvadori (1880: 535) from Rosenberg (1863: 229; 1864: 117, s. n. *Cypselus australis*) in which case it can be dismissed. As therefore the few previous records are confined to southern and eastern New Guinea, it is worth mentioning that above the hills behind Sorong, in the extreme north-west of mainland New Guinea, on 5.IV.1957 I saw six individuals and two days later, on 7.IV.1957 a much larger group of ''zeker enige tientallen'', say thirty to fifty birds. On 11.IV.1957 one above the island of Sorong-Doom. The dates are also worth recording as in general spring migration is less well documented than autumn migration (cf. Mees, 1973a). In March 1974, Barlett (1977) observed the species on the Tipoeka River (near Kaap Steenboom), but he failed to supply any particulars. Heinrich's (1956) observations made on Halmahera on 8 and 9 April 1931 give some indication of the route birds wintering in New Guinea and Australia take back to the breeding quarters.

In my previous paper (Mees, 1973a) I mentioned that there is no evidence that *A. pacificus* winters in Java. Actually, I was aware that Hoogerwerf (1970: 481) has published observations from Udjung Kulon made in January 1943. The reason why I was reluctant to accept these is that in the same paper a ''certain'' observation of ''*Chaetura celebensis ernsti*'', with a description of a bird that could not have been seen, appeared as evidence that the identification of swifts in flight is not always easy. Mr. Hoogerwerf (in litt., 22.X.1973) has since assured me that in the case of *A. pacificus* an error of identification is out of the question. I believe now that I have been overcritical and that there is no reason to reject these sight-records as Hoogerwerf was a very experienced observer. I am also pleased to note that my 1973 paper has stimulated Holmes (1977) into publishing his notes on observations of *A. pacificus* in Sumatra. These include a sighting of a few birds in the Lampongs, South Sumatra, in mid-January. Hence, it looks as if small numbers (rather than stragglers as cautiously suggested by Holmes) overwinter in Java and Sumatra.

Ceyx azureus lessonii (Cassin)

Alcyone Lessonii Cassin, 1850, Proc. Acad. Nat. Sci. Philad., 5: 69 — Havre de Dorey, New Guinea.

Material. — ♀?, 8.I.1961, Koerik, no. 548. Wing 72, tail 40, tarsus 11, entire culmen 44½, exposed culmen 37 mm, weight 32 g. Iris dark brown, bill black with a pale tip, legs light vermilion.

Dacelo leachii intermedia Salvadori

Dacelo intermedius Salvadori, 1876, Ann. Mus. Genova, 9: 21 — costa della Nuova Guinea presso l'Isole Yule e di Naiabui.

Material. — ♀, 5.IX.1960, Koerik, no. 389. Wing 201, tail 118, tarsus 28, entire culmen 82½, exposed culmen 69, culmen from anterior point of nostril 63 mm, weight 392 g. ♂, 28.X.1960, Koerik, no. 502. Wing 199, tail 119, tarsus

26, entire culmen 76, exposed culmen 61, culmen from anterior point of nostril 60 mm, weight 267 g. ♂, 31.X.1960, Koerik, no. 510. Wing 191, tail 117, tarsus 26, entire culmen 74, exposed culmen 63, culmen from anterior point of nostril 59 mm, weight 282 g. ♀, 3.XI.1960, Koerik, no. 513. Wing 202, tail 117, tarsus 28, entire culmen 81, exposed culmen $69^1/_2$, culmen from anterior point of nostril 65 mm, weight 282 g. Iris greyish white, upper bill black, lower bill pale flesh colour with a dark base, legs olive grey. None of the specimens shows moult.

Discussion. — Our collection contains altogether twelve specimens (5 ♂, 7 ♀) from the Merauke/Koerik area. These form a reasonably uniform series characterized by remarkably broad black stripes on the crown and pale under parts which vary only from white (actually pale greyish: all birds are more or less dirty) to at most very pale buffish.

Currently two races of this species are accepted in New Guinea; *D. l. intermedia* from Papua, west to the Oriomo River, and *D. l. superflua* from the Mimika River in the west, east to Merauke. The western subspecies was described by Mathews (1918) as being: "still darker and deeper in coloration, with larger bills and darker heads" than *D. l. intermedia*. In contrast, Mayr & Rand (1937: 83) who upheld the race, found that: "It was much more brownish above and had the black of the head restricted to the centers of the feathers, the crown thus looks much lighter". Rand & Gilliard (1967: 286) condensed this to stating that *superflua* is: "like *intermedia* but with the white streaks of the head wider and the white tips to the secondaries wider". Note that there is no longer mention of *superflua* having a browner back. Why and on what evidence Merauke has been included in the range of the western race I do not know as all authors who have actually examined specimens from the Merauke area, referred their material to *intermedia* (cf. Bangs & Peters, 1926: 428; Stresemann & Paludan, 1935: 456). In view of the conflicting characters given in literature for this western race *superflua*, a renewed examination was evidently desirable. The two questions that required answering were: 1. Does *superflua* differ from *intermedia* or do the subspecific characters claimed for it by previous authors come within the range of individual variation? 2. If southern New Guinea actually has two subspecies, to which one do birds from Merauke/Koerik belong?

A loan of two syntypes of *D. l. superflua* could be arranged (♂, BM no. 1911.12.20.803; ♀, BM no. 1911.12.20.801). Both these specimens were found to differ from all our material from Merauke/Koerik by having more white, less black on the head (Plate 3). During a short visit to the AMNH I compared the photographs reproduced on Pl. 3 with a large series of *D. l. intermedia* from several localities in the eastern half of New Guinea, and found all these specimens to have dark heads similar to the Merauke/Koembe birds and unlike the Mimika specimens. From this I deduce that on present evidence *D. l. superflua* is a valid subspecies with a restricted distribution in south-western New Guinea, and that birds from the Merauke/Koembe area belong to the eastern

subspecies *D. l. intermedia*[1]). The presence and extent of white edgings to the secondaries does not appear to be of subspecific value: of the two specimens of *D. l. superflua* the male lacks them, whereas in the female they are wide. I have not forgotten that in a study of Australian representatives of this species I concluded that the colour of the head is an extremely variable character (cf. Mees, 1961: 109), and that *D. l. superflua* is known from four specimens only, so that more material is desirable. Whether the apparent distributional gap of some 600 km between the ranges of *D. l. superflua* and *D. l. intermedia* is real or is merely due to deficiency of collecting in the interposed area, is also a question that remains to be solved in the future.

Dacelo tyro archboldi (Rand)

Sauromarptis tyro archboldi Rand, 1938, Amer. Mus. Novit., 990: 13 — Tarara, Wassi Kussa River, south New Guinea.

Material. — ♂, 18.IX.1960, Koerik, no. 410. Wing 152, tail 115½, tarsus 20½, entire culmen 55, exposed culmen 44½, culmen from anterior point of nostril 41 mm, weight 128 g. ♀, 15.X.1960, Koerik, no. 482. Wing 153½, tail 111, tarsus —, entire culmen 55, exposed culmen 47, culmen from anterior point of nostril 42 mm, weight 165 g. ♀, 17.X.1960, Darowin, upstream Koembe River, no. 490. Wing 151, tail 106, tarsus 22½, entire culmen 52, exposed culmen 41, culmen from anterior point of nostril 39 mm, weight 148 g. ♂, same data, no. 491. Wing 147, tail 106, tarsus 21½, entire culmen 50½, exposed culmen 39, culmen from anterior point of nostril 38 mm, weight 130 g. ♂, same data, no. 492. Wing 157, tail 116, tarsus 20½, entire culmen 44½, exposed culmen 36½, culmen from anterior point of nostril 32 mm, weight 145 g. Iris dark brown, upper bill black, lower flesh colour, legs olive grey or light olive green. No moult. Nos. 410 and 491 show narrow grey edges to the feathers of the breast, probably a sign of immaturity.

Discussion. — See Hoogerwerf (1964: 155). This species had long been known from the Aru Islands, whence the nominate race was described in 1858, but on the New Guinea mainland it was discovered only in December 1936 (cf. Rand, 1942a: 320). Compared with our eleven specimens from the Aru Islands, these birds differ conspicuously by their almost white under parts, with only pale cinnamon on vent and under tail coverts; the light spots on the head are larger; the inner vanes of the secondaries are whitish, not dark cinnamon.

Fry's (1980: 122-123) figure 5 demonstrates clearly the inadequacy of such small-scale distributional maps: the range shown for *D. tyro* bears little resemblance to the true distribution of this species in New Guinea. His speculation that *D. tyro* originated in isolation on the Aru Islands, "from where it subsequently re-invaded adjacent New Guinea", takes no account of the recent geological history of the region.

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[1]) Bell's (1981) use of the name *D. l. superflua* for the population in the Port Moresby savannas, must be due to a slip.

Dacelo gaudichaud Quoy & Gaimard

Dacelo Gaudichaud Quoy & Gaimard, 1825, Voy. Uranie, Zool.: 112, pl. 25 — les bois des îles des Papous, Guébé = Waigeo (cf. Mees, 1972: 87).

Material. — ♂, 11. X.1960, along Koembe River, no. 458. Wing 132, tail 88, tarsus 17, entire culmen 56, exposed culmen 47½, culmen from anterior point of nostril 44 mm, weight 110 g. ♂, 12.X.1960, along Koembe River upstream from Kaisa, no. 467. Wing 132, tail 93, tarsus —, entire culmen 52½, exposed culmen 43, culmen from anterior point of nostril 40 mm, weight 108 g. ♀, 27.II.1962, Koerik, no. 611. Wing 136, tail 79+, tarsus 18, entire culmen 53, exposed culmen 50, culmen from anterior point of nostril 42½ mm, weight 130 g. ♀ juv., 27.II.1962, Koerik, no. 612. Not fully grown, weight 130 g. Iris dark brown, bill and legs pale grey-green. No moult, no. 611 is in extremely abraded plumage.

Halcyon sancta sancta Vigors & Horsfield

Halcyon Sanctus Vigors & Horsfield, 1827, Trans. Linn. Soc. Lond., 15: 206 — New Holland.

Material. — ♀, 5.VIII.1960, Merauke, no. 340. Wing 91, tail 53, tarsus 14, entire culmen 43, exposed culmen 35 mm, weight not given. ♀, 23.IV.1961, Ongari, no. 593. Wing 90, tail 60, tarsus damaged, entire culmen 48, exposed culmen 39 mm, weight 40 g. Iris dark brown, bill black, base of mandible pale flesh colour, legs greyish flesh colour. Both specimens look immature.

Discussion. — As a breeding-bird, the nominate race of *H. sancta* is confined to Australia, but it is strongly migratory, at least in the southern part of its range, and is a regular to common winter visitor to as far west as Sumatra, Bangka (♂, 5.VII.1873, cat. no. 6), Billiton (3 unsexed birds, VI.1888, Tandjong Padan, cat. nos. 90, 91, 92, cf. Vorderman, 1890: 441; see also Sharpe, 1892: 271, and Chasen, 1937: 218) and Borneo, north to northern Celebes, the Sanghir and Talaud Islands (cf. Eck, 1978), east to New Guinea and the Solomon Islands (see also Stresemann, 1914: 94-97). In spite of Peters's (1945: 205) definite statement that the winter range would include the southern Philippines, there are no records from the Philippines. In order to give some insight in its migratory movements, I have listed here all our dated material from outside Australia, according to month of collecting:

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Number of skins	1	0	1	18	38	22	31	25	42	7	3	0

Apart from the January specimen (unsexed, I.1923 without exact date, Hitoe, Ambon, leg. Kopstein, cat. no. 125), the earliest records are 25.III.1876 (♀, Mambriok, New Guinea, cat. no. 73) and 6.IV,1938 (♀, Bali, cat. no. 142), the latest record is from 27.XI.1864 (♀, Soela Mangoli, cat. no. 9). The list shows convincingly the periodical presence, and the rhythm of migration. The January

bird confirms that a few individuals may stay in their winter quarters, as suggested for Java by Hoogerwerf & Siccama (1938: 48-49) and Mees (1949), and mentioned for New Guinea by Rand & Gilliard (1967: 292). The bird collected on 31.I.1901 at Blanche Bay, New Britain, by Heinroth (1902: 438) was interpreted by Stresemann (1914: 96) as: "einen aussergewöhnlich frühen Ankömmling", but is more likely to have stayed over.

It is perhaps of interest to mention that amongst our 232 specimens there is not a single one from Sumatra. Sharpe's (1892: 271) specimen from the Lampongs, southern Sumatra, collected by Buxton and received from Tweeddale is still the only actual record from Sumatra I have traced (cf. Stresemann, 1914: 96); even in this case one wonders why Tweeddale (1877) made no mention of it in his report on Buxton's Lampong collection. Anyway, it is evident that southern Sumatra, Bangka and Billiton form the extreme western limit of the winter distribution of *H. sancta*. Stresemann (1941: 100) stated that the winter quarters are: "selten westwärts bis Java ... vereinzelt bis Celebes", but in Java, even in the west, it is a common winter visitor along the north coast, and Coomans de Ruiter (1954: 93-94) found it rather common in northern Celebes. Our collection contains 67 specimens from Java and 10 from Celebes.

Halcyon macleayii incincta Gould

Halcyon incinctus Gould, 1838, Synops. Birds Austr., 4; descr.: 1 — New South Wales.

Material. — ♂, 4.VIII.1960, Koerik, no. 322. Wing 91, tail 51½, tarsus 13, entire culmen 41, exposed culmen 34 mm, weight 36 g. ♀, same data, no. 333. Wing 91, tail 58, tarsus 13, entire culmen 40, exposed culmen 35 mm, weight 38 g. ♂, 8.IX.1960, Koerik, no. 396. Wing 85, tail 53, tarsus 14, entire culmen 39, exposed culmen 34 mm, weight 30 g. ♂, 1.X.1960, Koerik, no. 456. Wing 86, tail 53, tarsus —, entire culmen 39, exposed culmen 33 mm, weight not recorded. ♀, same data, no. 457. Wing 88, tail 56½, tarsus —, entire culmen 43½, exposed culmen 35½ mm, weight 40 g. Iris dark brown, bill black, basal half of mandible pale flesh colour, legs dark grey. The nos. 332, 396 and 457 show tail moult.

Discussion. — All these birds belong to the greenish-blue backed migrant race from Australia, as they should do, the resident *H. m. elisabeth* (Heine) being confined to the east of New Guinea, westwards to Hall Sound and Astrolabe Bay. Although Rand & Gilliard (1967: 291) still referred these migrants to the nominate race, which they gave a range over northern and eastern Australia, actually there are two well-differentiated subspecies in Australia: the race *incincta* with greenish back along the east coast, and the nominate race with bluish back in the north. It is the former that is migratory and visits New Guinea (cf. Keast, 1957).

Several points about the nomenclature of *H. macleayii* are rather unsatisfactory. The species appears to have been originally described with no more exact

locality than New Holland. When two subspecies were found to inhabit Australia, a restriction of the type-locality became necessary. The first restriction was to Port Essington (Berlepsch, 1911: 75). Mathews (1918: 171), however, not unreasonably argued that when the species was described Port Essington did not yet exist and that the settled east coast, where *H. macleayii* ranges (significantly?) south to the Macleay River in northern New South Wales, would be a much more likely provenance for a specimen received from A. Macleay, at the time Colonial Secretary of New South Wales. Deignan (1964b: 392), highly critical as he was of many of Mathews's views, nevertheless strongly supported Mathews in this case: "my own view is that Mathews was perfectly justified in correcting von Berlepsch's ill-considered and improbable locality to Moreton Bay, for the reasons he has given...". However plausible this sounds, the collection received from Macleay included the type specimen of *Geophaps smithii* (Jardine & Selby)[1]), a pigeon with a limited range in the coastal Northern Territory (cf. Whittell, 1954: 475). Evidently Macleay did forward material from the Northern Territory, so that Berlepsch's restriction is acceptable.

The type-locality of *H. m. elisabeth* is equally dubious. In the original description of *Cyanalyon Elisabeth* (not *elizabeth* as cited by Peters, 1945: 201) it is stated that: "Das Museum Heineanum erhielt das einzige, vorstehend beschriebene, anscheinend weibliche Exemplar durch den Naturalienhändler Dr. S. Rey zu Leipzig unter der Angabe, dass es von dem Reisenden Fels in Süd-West-Neu-Guinea gesammelt sei" (Heine, 1883). No resident race is, however, found in western New Guinea. It would be useful to know more about Fels and his travels, but the name is not, to my knowledge, to be found anywhere else in the literature. It should also be remembered that confusion between East and West is almost rule rather than exception in ornithological literature, so that perhaps for Süd-West, Süd-Ost should be read. Whereas the differences between *H. m. incincta* and the other subspecies are quite clear, literature is rather hazy on how the nominate race and *H. m. elisabeth* differ. The former being poorly represented in our collection and the latter not at all, I cannot contribute to a better understanding of these forms, but in this case, as in so many others, Mrs. LeCroy (in litt., 3.VIII.1979) came to my help: "In a quick survey I was unable to find any characters to separate *elisabeth* and *macleayii*. The size of the white wing patch seems variable and hard to assess in a skin. And measurements don't do it". The measurements supplied are:

H. m. macleayii (Northern Territory) ♂: wing 86, 87, 90, 91, 91; bill from base $40^1/_2$, 41, $41^1/_2$, 42, $42^1/_2$ mm.

H. m. elisabeth (New Guinea) ♂: wing 88, $89^1/_2$, $90^1/_2$, 91, $92^1/_2$; bill from base 40, $40^1/_2$, 41, $41^1/_2$, 42 mm.

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[1]) In their zeal to eliminate "superfluous" genera, recent authors have united *Geophaps* with *Petrophassa* (cf. Goodwin, 1967: 190-192; Condon, 1975: 171). This seems to me most unfortunate as structurally the members of the two genera are remarkably different.

The main reason why authors have recognized *elisabeth* is probably a geographical one. From the geographical point of view it does not make sense to have one subspecies in the Northern Territory and the extreme east on New Guinea, a second subspecies in eastern Australia north to Cape York. That, and the fact that I have not personally examined material of *elisabeth*, makes me reluctant to reject *elisabeth* definitely.

In its winter quarters, *H. m. incincta* appears to fan out. A specimen from Saumlaki, Tanimbar Islands, in our collection (cf. Stresemann, 1934a) clearly belongs to this subspecies; the locality is about 10° West of the breeding range, and eastwards records go to as far as the Bismarck Archipelago. Mayr (1937a) recorded two specimens from Sermatta which seemed to agree with Northern Territory specimens. Mrs. LeCroy was so kind as to re-examine these two skins and to confirm that they are not *incincta* and may safely be assigned to the nominate race. They constitute the only evidence that *H. m. macleayii* is also migratory to a certain extent, unless the species has a bridgehead on Sermatta where it breeds, a possibility that should not be rejected offhand (compare *Merops ornatus*).

Apart from the three forms discussed above, a fourth subspecies of *H. macleayii* has been described, *H. macleayii insularis* Berlepsch from Trangan, Aru Islands. The original diagnosis reads: "...muß ich konstatieren, daß die Vögel von Terangan sehr wesentlich von typischen Exemplaren der *H. macleayi* von Neu-Süd-Wales und Nord-Australien abweichen. Die Terangan-Vögel sind entschieden kleiner, haben namentlich merklich kürzere Flügel und unterscheiden sich durch die Färbung der Rückens, welche zwischen hellblau und cyanblau etwa die Mitte hält, während die typischen *H. macleayi* lebhaft hell-grünblaue Rückenfärbung zeigen. Die Aru-Vögel stehen in bezug auf die Rückenfärbung in der Mitte zwischen *H. macleayi* und *H. elizabeth* Heine, stehen aber letzterer etwas näher. Sie unterscheiden sich von beiden durch die kürzeren Flügel. Die Bauchseiten erscheinen lebhafter rostgelb überlaufen als bei *H. macleayi*, während *H. elizabeth* kaum eine Spur von röstlichem Anflug zeigt" (Berlepsch, 1911: 75).

As far as I am aware no ornithologist has critically evaluated the subspecies *insularis* since its description; in subsequent literature one finds it listed with just the short remark that its validity is doubtful (cf. Mayr, 1941b: 91; Peters, 1945: 202; Rand & Gilliard, 1967: 292). This form is still only known from its type material (three specimens) and a renewed examination of these specimens seemed overdue. Through courtesy of the authorities of the Senckenberg Museum I was able to borrow the type and the two paratypes.

A character evidently considered important by Berlepsch, as in his description he refers to it twice, is the shorter wing of *insularis*. The measurements taken by me would seem to confirm the small size, but I found that all three specimens are in an advanced stage of primary moult. The primaries 1, 1 and 2 or 1-3 in the three specimens are old and very worn, the primaries 2-5 growing out. Their condition of moult and wear is quite enough to explain the rather slight dif-

ference in wing-length between these specimens and material from other localities (normally, the 2nd and 3rd primaries are the longest). In colour the holotype (♂ ad.) is a trifle more violet, less azureous dorsally than a male from Port Essington, and agrees perfectly with a subadult male from near El Sharana, N. T. Of the two paratypes, one is supposed to be an adult female, the other a juvenile male. The last-mentioned specimen does, however, have a violet-blue, not a dull black cap and therefore it is not a juvenile but must be an adult female. The two paratypes, adult females, are very similar to each other; dorsally they are a little more azureous, less violet, than the male. These specimens have some pale cinnamon coloration on the lower flanks and thighs, but no more so than my few specimens of the nominate race. I conclude therefore that *H. m. insularis* can be regarded as a synonym of the nominate race, from which it does not appear to differ in any way. It should be kept in mind that in Berlepsch's time it was not yet known that Australia is inhabited by two subspecies. Australian material of the nominate race was evidently not available to Berlepsch when he described *insularis*.

Measurements of the type material of *H. m. insularis*:

coll. no.	sex	date	wing	tail	tarsus	ent. culmen	exp. culmen
SM 35255	♂	11.II.1908	87½	53	13½	40	34
SM 35256	♀	11.II.1908	83	52	13	39½	32½
SM 35257	♀	6.II.1908	86	54	—	44	37

A problem that remains to be solved is whether *H. m. macleayii* is a breeding bird on the Aru Islands, or is only a non-breeding migrant. The collector marked two of the specimens as having formed a pair, and in addition the dates of collecting strongly suggest resident birds. On the other hand, the heavy moult shown by the birds makes it improbable that they were in breeding condition. Moreover, birds I observed in Merauke in May 1957, certainly Australian migrants, also seemed to go about in pairs, so that being paired does not prove much. On the whole, it seems likely to me that they actually represent a resident population.

Halcyon nigrocyanea stictolaema (Salvadori)

Cyanalcyon stictolaema Salvadori, 1876, Ann. Mus. Genova, 9: 20 — Fiume Fly.

Material. — ♂, 29.IX.1960, Koerik, no. 446. Wing 97, tail 69, tarsus 16, entire culmen 50½, exposed culmen 43½, culmen from anterior point of nostril 40 mm, weight 66 g. Iris dark brown, bill black, legs dark slate. No moult.

Discussion. — This strikingly beautiful kingfisher ("questa bellissima specie" — Salvadori) is new for our collection. It has no trace of a white band across the chest, only the chin and throat being feathered white, the white feathers having small blackish tips. Koerik being not very far (about 150 km) from the Prinses Marianne Strait whence Bangs & Peters (1926: 428) recorded a specimen under the binary name *Halcyon nigrocyanea*, I thought that it would be of interest to

determine the subspecific identity of the latter. Mayr (1941b: 90) included it in the nominate race. In order to make quite sure, I wrote to Prof. Mayr, at the time director of the MCZ where the specimen in question is lodged, and received the following reply: "I checked the *Halcyon*. It is nominate *nigrocyanea*: no blue spots on chin and a broad white bar across the chest" (Mayr, in litt., 28.I.1965). Note that of three males from the east bank of the Fly River opposite Sturt Island, two were on external appearance pure *stictolaema*, whereas the third had: "more white on the throat and a narrow white bar across the central portions of the lower breast" (Rand, 1938a: 14).

The nominate race of *H. nigrocyanea* must be rather common, especially in the western part of its range, for we have twenty specimens from Salawatti and the Vogelkop, but the race *H. n. stictolaema* appears to be definitely scarce. Only a handful of specimens is known from scattered localities between Koerik (the present specimen) and Mt. Cameron, Owen Stanley Range, 2000′ (cf. Rothschild & Hartert, 1901: 154). The specimen collected was the only one ever seen by Hoogerwerf (1964: 155-156). Although Mackay (1970) did not list the species from Port Moresby, I note that Iredale (1956: 203, pl. XIII fig. 9) described a bird from there.

Halcyon torotoro torotoro (Lesson)

Syma torotoro Lesson, 1827, Bull. Sci. Nat. Géol. (Férussac), 11: 443 — Doréry.
Syma torotoro tentelare Hartert, 1986, Novit. Zool., 3: 534 — Aru Islands.
Syma torotoro pseustes Mathews, 1918, Birds Austr., 7: 113 — south-western New Guinea = Wakatimi, Mimika River.

Material. — ♀, 18.IX.1960, Koerik, no. 414. Wing 74, tail 59, tarsus $14^1/_2$, entire culmen $38^1/_2$, exposed culmen $32^1/_2$, culmen from anterior point of nostril 31 mm, weight 30 g. ♀, 25.IX.1960, Koerik, no. 443. Wing 75, tail $56^1/_2$, tarsus $14^1/_2$, entire culmen 39, exposed culmen 34, culmen from anterior point of nostril 32 mm, weight 40 g. ♀, 11.X.1960, Wajou, Koembe, no. 461. Wing 75, tail 58, tarsus 14, entire culmen $38^1/_2$, exposed culmen 32, culmen from anterior point of nostril $31^1/_2$ mm, weight 35 g. ♂, 29.III.1962, Koerik, no. 629. Wing 75, tail 57, tarsus 15, entire culmen 34, exposed culmen 29, culmen from anterior point of nostril $27^1/_2$ mm, weight 32 g. Iris dark brown, bill warm yellow (no. 414), saffron yellow (no. 461), warm yellow with a blackish tip (no. 443) or dark grey with base and mandible ochre (no. 629), legs warm yellow, or olive yellowish (no. 629). No moult. No. 629 was noted as having small testes; evidently it is a young bird which explains its different bill-colour and the small size of the bill.

Discussion. — It seems to me that this species was oversplit at the subspecific level even before Mathews (1918: 113) got his teeth into it with the words: "I would therefore range the species in many subspecies, and as it seems a variable bird as regards geographical conditions, it is possible still more will be recognised". Subspecies have been based on small differences in tone, on the extent of

the black crown-patch in females, and especially on slight differences in average size, often measured in small series containing immature birds. Thus, the number of subspecies was increased to six (cf. Mayr, 1941b: 87-88).

The material at that time available in our collection was studied by van Oort (1909: 77) and in detail by Junge (1937: 174) who provided measurements, not only of the material in Leiden but also of the typical series of *S. t. pseustes* in the British Museum. For material from the range ascribed to the nominate race he found a wing-length of 76-83 mm, bill from nostril 32-38 mm, for specimens from the range of *pseustes*, mainly the type material, a wing-length of 72-79 mm, bill from nostril 32-34 mm. He concluded: "So there is some overlapping in these series but on an average *pseutes* is smaller, the average wingmeasurement is 75-76 mm, in the nominal race 79-80 mm. There is no difference in size between the sexes. I cannot detect differences in plumage between these two series". Hartert (1932: 456), Mayr & Rand (1937: 79-80) and Rand (1938: 11-12) have also recognised *H. t. pseustes*, but partly on conflicting characters. Note that according to Hartert, discussing the type material: "Diese Stücke (Weibchen!) haben einen sehr ausgedehnten schwarzen Fleck auf dem Oberkopfe, der am Vorderkopfe nur eine sehr schmale gelbrote Linie frei lässt, rückwärts bedeckt der schwarze Fleck die ganze Kopfplatte; vorn, an den Nasenlöchern, sind einige schwarze Federn; um das Auge herum sind schwarze Federn". Mayr & Rand (1937) on the other hand observed that in their material from southern New Guinea: "The black of the crown-patch in the females is similar in area to that of females of *meeki*, being separated from the base of the bill by 6-7 mm of rusty brown". Admittedly these birds were later described by Rand (1938) as a different subspecies, but in the last-mentioned paper Rand confirmed that in *H. t. pseustes*: "No female has as small a black area in the crown as do some *meeki*, but the black in the crown averages but little larger than in that race".

In order to gain an independent opinion I have again studied our material: the birds recorded by Junge and the few that have since been added to our collection. I have also checked the measurements and broken them down to locality. As males and females do not appear to differ in measurements, the sexes are not separated here. I obtained the following wing-measurements: Waigeo (4) 78-81, Misool (5) 77-80, Vogelkop (16) 76-82, Lobo, Triton Bay (3) 77, 79, 79, Japen (1) 78, Lake Sentani (1) 80, Aru Islands (3) 72, 75, 80, southern New Guinea (8) 74-79 mm. These measurements are very close to those taken by Junge, as they should be, except that the maximum is 1 mm lower, thus weakening the case for retaining subspecies on the basis of size. Birds from the range ascribed to the nominate race have wing-lengths of 76-82 mm, those from southern New Guinea and the Aru Islands of 72-80 mm. The measurements of the British Museum material provided by Ogilvie-Grant (1915: 211) correspond very closely. Birds from southern New Guinea tend to have small bills; such large bills as are found in the north-west apparently do not occur in southern New Guinea, but other specimens scarcely differ. How unsatisfactory bill-length is as a subspecific character is best illustrated by comparing the figures given by Rand &

Gilliard (1967: 289) with my own. These authors reported for the nominate race a bill-length (from the nostril) of 36 mm (one specimen measured?), for *H. t. pseustes* 29-33 mm, for *H. t. tentelare* 31$^1/_2$ mm (two specimens, cf. Rand, 1938a: 12). In 15 specimens from the Vogelkop, more or less topotypical, I measured a culmen of 32-38$^1/_2$ mm, in three from Triton Bay ♂ 36, ♀ 34, 36 mm, in three from the Aru Islands ♂ 34, ♀ 34$^1/_2$, 35$^1/_2$ mm.

Remains the matter of colour differences. First the sexual differences: apart from the black crown patch which females have and males lack, males usually differ from females by the deeper cinnamon colour of head, nape and under parts. In my material this difference is fairly clear in all populations, but occasionally it breaks down: the two females from Triton Bay have a remarkably rich coloration and in this character do not differ from the male collected at the same locality. These specimens date from 1828 and have been exposed to the public for many years. As regards differences in plumage indicative of geographical variation, I can only subscribe to what Junge, quoted above, wrote, that there are no such differences, except in the black crown patch of the females which tends to be somewhat larger in the western part of the range, but is too variable to be of much use.

The conclusion that both *tentelare* and *pseustes* are synonyms of the nominate race appears to me inevitable. Very likely *Syma torotoro brevirostris* should be added to this synonymy: the occurrence of a separate subspecies, surrounded by the nominate race, in a small area in the southern lowlands of New Guinea is zoogeographically improbable, and the description (cf. Rand, 1938a: 12) is unconvincing. Surely the short bill from which the name was derived appears a very poor character. According to its describer, bill-measurements (from nostril) are in *brevirostris*: 6 ♂ 27$^1/_2$-30, 5 ♀ 27-31 mm, and in "*pseutes*": 17 ♂ 29-33, 10 ♀ 27$^1/_2$-31 mm.

As previously noted by Rothschild & Hartert (1901: 147), a white nape patch and a bill pigmented blackish are signs of immaturity; such birds, like Hoogerwerf's no. 629, have the culmen not full-grown. Very interesting is a specimen from Waigo (5.V.1863, leg. Bernstein, cat. no. 17). This bird, with pigmented bill and white nuchal spot betraying its immaturity, has been sexed as a female. It does not, however, have a fully developed black crown patch, but the feathers of the crown are distally cinnamon, basally blackish, giving the crown a dirty greyish-cinnamon appearance. It seems justified to deduce that in this species the female juvenile plumage is like the male plumage, a condition not usual in birds. Unless the specimen has been missexed. In this connexion I note that Ogilvie-Grant (1915: 212) describes a young male of *H. megarhyncha*, a species presumably having a plumage sequence similar to that of *H. torotoro*, which has: "the feathers of the crown tipped with black producing a large, though rather indistinct, black patch".

H. torotoro is generally known as a lowland species. According to Mayr (1941b: 87) it ranges up to 400 m, rarely up to 1000 m, whereas Rand & Gilliard (1967: 289) give it a vertical range of up to 1500 ft, rarely to 3000 ft. Diamond (1972:

187-188) observed it in the Karimui basin as high as 3650 ft (1100 m). Therefore it is surprising to see one of the syntypes of *Syma torotoro pseustes* recorded from an altitude of 5500 ft (cf. Warren, 1966: 234); perusal of a map shows, however, that the locality Wakatimi where this bird was obtained, actually is in the lowlands near the mouth of the Mimika River, where the BOU expedition of 1910/1911 had its base camp. Hartert (1932: 455-456) refers to the type material of *H. t. pseustes* as being from: "den südlichen Schneebergen", which is also misleading.

Diamond (l.c.) commented on the complete altitudinal segregation of *H. torotoro* and its slightly larger twin *H. megarhyncha*, as well as on the complete absence of intergradation. In this connexion I want to draw attention to a specimen from Heuvelbivak in our collection. This bird was identified as *H. torotoro* by van Oort (on label), but re-identified and published as *H. megarhyncha* by Junge (1937: 175). The measurements of this bird were given by Junge, but I remeasured it: ♂, 11.XI.1909, Heuvelbivak, 800 m, RMNH cat. no. 1. Wing 84, tail $62^1/_2$, tarsus 14, entire culmen $41^1/_2$, exposed culmen 36, culmen from anterior point of nostril 34 mm. Thus this bird is a little larger than *H. torotoro* (maximum wing-length measured by me 82 mm) and distinctly larger than the maximum attained by *H. torotoro* in southern New Guinea (79 mm), but just smaller than the smallest published measurements of *H. megarhyncha* (85 mm) and distinctly smaller than the few specimens of *H. megarhyncha* in our collection.

Our material of *H. megarhyncha* consists of only the following: three males of *H. m. sellamontis* from Sattelberg; three females of *H. m. wellsi* from Sibil (cf. Mees, 1964b: 13) and the Wisselmeren (cf. Junge, 1953: 39). Of the specimens of *H. m. sellamontis*, two have entirely yellow bills, the third one has a black streak over the distal two-thirds of the ridge of the exposed culmen. The specimens of *H. m. wellsi* have a considerable amount of black on the upper bill; it is not confined to the ridge of the culmen but invades also the sides of the bill. Adult specimens of *H. torotoro* have entirely yellow bills. The bird from Heuvelbivak has a black streak over the whole length of the ridge of the exposed culmen (not continued on the feathered part), but the black pigment does not extend laterally as in the specimens of *H. m. wellsi*. Thus it can be said that in this character it is intermediate between *H. torotoro* and *H. megarhyncha wellsi*. I have been unable to find any plumage differences between this bird and males of *H. torotoro* (as mentioned above, males of *H. m. wellsi* were not available).

The slight differences between the species *H. torotoro* and *H. megarhyncha* make it very difficult to recognize hybrids between them, but in my opinion the combination of measurements and bill pigmentation makes it more likely that the Heuvelbivak specimen is a hybrid, than that it would be either an exceptionally large *H. torotoro* or an exceptionally small *H. m. wellsi*. The altitude at which it was collected, 800 m, is also significant, as this is just about the level where the two species would meet.

The considerable theoretical interest attaching to the specimen and the paucity of comparative material made me eager to have a second opinion, and therefore

I forwarded it to Mrs. LeCroy, who compared it with specimens of *H. torotoro* and *H. megarhyncha* in the AMNH. The measurements taken by Mrs. LeCroy (in litt., 3.VIII.1979) confirm the intermediate position of the Heuvelbivak specimen:

	H. t. pseustes	*H. t. tentelare*	*H. m. wellsi*	Heuvelbivak sp.[1])
	11♂	2♂	6♂	♂
wing	72-78 (74.9)	75½, 76	87-92 (89.0)	84
tail	56-61½ (58.1)	58½, 58½	63½-69 (66.4)	63
tarsus	12-15 (13.7)	14, 14	15-16½ (15.5)	15
entire culmen	38-42 (40.2)	40½, 41½	43½-49 (46.3)	42

Mrs. LeCroy further commented: "The specimen seems intermediate between *H. torotoro* and *H. megarhyncha*... Back and underparts colors can be matched by either species. *H. megarhyncha* regularly has a black line on the culmen. *H. torotoro pseustes* doesn't usually and in the few cases where one was present, it was short and confined to the distal end of the bill. Black billed juveniles acquiring a yellow bill seem to go through a period in which the yellow and black are rather diffusely mixed, not sharply defined as a line as in your specimen. In some other subspecies of *torotoro* a black line does occur in some specimens. I would say it could be a hybrid — I don't know how one could be sure. It would be an interesting study to see what happens with regard to size of individuals collected at intermediate altitudes wherever both species occur". It would indeed, especially in view of Diamond's statements with which this discussion began.

Tanysiptera galatea minor Salvadori & D'Albertis

Tanysiptera galatea (var. *minor*) Salvadori & D'Albertis, 1875, Ann. Mus. Genova, 7: 815 — Monte Epa.

Material. —♂, 13.X.1960, Koembe River near Kaisa, no. 469. Wing 101, tail 216, tarsus 17, entire culmen 35, exposed culmen 30, culmen from anterior point of nostril 25 mm, weight 50 g. ♀, 14.X.1960, Koembe, no. 475. Wing 100, tail 194, tarsus —, entire culmen 32, exposed culmen 27, culmen from anterior point of nostril 24 mm, weight 42 g. Iris dark brown, bill light vermilion, legs dirty olive green.

Merops ornatus Latham

M[erops] ornatus Latham, 1801, Suppl. Ind. Orn.: xxxv — Nova Hollandia = New South Wales (cf. Latham, Gen. Synops. Birds Suppl. 2: 155-156).

Material. —♂, 2.IV.1962, Koerik, no. 634. Wing 105, tail 76, central rectrices 144, tarsus 11, entire culmen 38½, exposed culmen 32½ mm, weight 25 g. Iris carmine, bill black, legs dark grey.

[1]) Measured by Mrs. LeCroy, slightly different from the measurements taken by me of the same specimen.

Discussion. — As a breeding bird, *Merops ornatus* is almost confined to Australia, but it breeds regularly in the neighbourhood of Port Moresby (cf. Watson et al., 1962: 74; Mackay, 1970: 40; Bell, 1970b).

This species is supposed to have been found breeding on the island of Moa (cf. Stresemann, 1914: 108 and 1941: 99; Peters, 1945: 236; Rand & Gilliard, 1967: 300). The Moa record is based on specimens first mentioned by Hartert (1904: 202): "2♂♀ ad., very worn, 4 juv., without black praepectoral patch, in first plumage, Moa, November 1902" and lower down: "3♂ juv., in first plumage, Letti, November-December 1902". Hartert did not draw the conclusion that the juvenile birds had been hatched in situ, but Hellmayr (1914: 70) referred to them in these words: "Dieser Bienenfresser hat eine weite Verbreitung. Als Brutvogel ist er auf Timor noch nicht mit Sicherheit festgestellt, doch erbeutete Kühn auf der nahen Insel Letti junge Vögel im Nestkleid". To my mind "Nestkleid" is not an entirely warranted translation of "first plumage", as it suggests birds that were still in the nest or had only just left it. Note also that Hartert recorded juvenile birds from Moa and Letti; that Hellmayr only mentioned Letti not Moa, whereas the other authors listed above mentioned Moa but not Letti. Later, Stresemann (1914: 105-109) dealt comprehensively with these same birds, amongst which he found a specimen (♂, 20.XI.1902, Moa) with: "Grossgefieder noch nicht ganz ausgewachsen, das Wachstum des Kleingefieders dagegen grössenteils beendet". This would seem to be fairly conclusive as it is unlikely that a bird could already have migrated from Australia before its wings were fully grown, but in August 1980 I examined the material of this species in the AMNH; there were several specimens in juvenile plumage from Moa (20-24.XI.1902) and three from Letti (3.XI, 21 and 21.XII, 1902), and they all appeared to be fully grown.

Whatever the position is in the Southwest Islands, there is no doubt that the great majority of Rainbowbirds found north of Australia are migrants from that continent. Our collection contains 194 specimens of *Merops ornatus*. Leaving out specimens from Australia and specimens that are not dated to month. I have divided this material into two series, (a) from the Southwest Islands, (b) from elsewhere. They have been collected in the following months:

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
(a)	-	2	2	2	2	1	—	1	—	1	—	2
(b)	1	—	1	38	28	17	19	22	6	—	—	—

The one January-bird is from Bima, Soembawa, but apart from this one, the figures are revealing. On the Southwest Islands evidently the species can be found throughout the year (see also that Hartert's specimens were collected in November and December). Our material is from Wetar (5), Kisar (4), Letti (2), Sermatta (1), Roma (1); two of the birds from Wetar are juveniles (18 and 21.II.1898), but they are fullgrown and do not, in themselves, prove anything.

The position can be summarized as follows: in spite of suggestive published evidence, there is no proof of nesting on the Southwest Islands, but the dates of

collecting of specimens from there show that, in striking contrast to records from other regions to the north of Australia, *M. ornatus* is present throughout the year. It certainly looks as if the species is a resident on these islands although it should be repeated that irrefutable evidence of breeding has never been provided.

In series (b), apart from the January-specimen already mentioned, the earliest bird is from 28.III.1870 (♂, Andai, leg. Rosenberg, cat. no. 68), the latest are two collected 21.IX.1862 (♂, ♀, Batjan, leg. Bernstein, cat. nos. 33, 34). These dates are exactly as might be expected of a winter visitor from Australia.

The distributional map published by Fry (1969: 582 fig. 12) shows a peculiar dent in the winter range of *M. ornatus* in that it excludes the whole northern and north-western part of New Guinea. There is no basis for this as the species has been recorded on numerous occasions from that part of New Guinea. Our collection contains specimens from the western Papuan Islands of Misool and Batanta; on the Vogelkop Peninsula of New Guinea from Dorey (Manokwari), collected as long ago as 1858 by Wallace, from Andai, Amberbaki and Fakfak; along the north coast from the Mamberamo R., Sermowai R., and Tami R., Lake Sentani, the Humboldt Bay and Hollandia; in south-western New Guinea from Alkmaar, etc. Many of these localities have been published (cf. de Beaufort, 1909: 408, etc.). On the other hand I have been unable to find on what evidence the inclusion of Bali in the winter range is based, but perhaps on a remark made by Delacour (1947: 159): "The Australian form *ornatus* has been recorded from Bali as a migrant from the south". Although *M. ornatus* has been collected on Lombok and may be expected to reach Bali occasionally, I have searched the rather compact literature on Bali (Stresemann, von Plessen, Rensch, Kuroda) vainly for a definite record from that island.

Merops philippinus salvadorii Meyer

Merops salvadorii Meyer, 1891, Ibis, (6) 3: 294 — the north coast of New Britain = Kurakakaul (cf. Meyer, 1890, Ibis, (6) 2: 413).

Material. — ♂, 6.IX.1960, Koerik, no. 392. Wing 127, tail 84, central rectrices 168, tarsus —, entire culmen 46, exposed culmen 37½ mm, weight 29 g. ♀, same data, no. 393. Wing 122, tail 83, central rectrices 144, tarsus 11, entire culmen 41½, exposed culmen 35 mm, weight 31 g. ♀, 30.III.1962, Koerik, no. 632. Wing 120, tail 81, central rectrices 134, tarsus —, entire culmen 42, exposed culmen 34½ mm, weight 36 g. Iris bright red, bill black, legs dark grey to blackish. The specimens had small gonads. No moult.

Discussion. — See Hoogerwerf (1964: 156). *M. philippinus* has often been treated as conspecific with *M. superciliosus* of Africa and south-west Asia, but Marien (1950) demonstrated that in India the breeding ranges of *M. superciliosus persicus* and *M. p. philippinus* are in contact without apparent hybridization. Evidently, therefore, *persicus* and *philippinus* are not conspecific. The latest word on the classification of bee-eaters is the revision by Fry (1969). Discussing the *M.*

superciliosus/persicus/philippinus complex Fry states: "Eastern and western populations are at a stage of evolution where morphological differentiation has not progressed very far, but reproductive isolation in an area of secondary contact apparently occurs. The populations should be regarded as a superspecies comprising *M. superciliosus* (races *persicus*, *superciliosus* and *chrysocercus*) and *M. philippinus* (races *philippinus* and *salvadorii*)". Curiously, in the accompanying map of distribution (fig. 12), all the forms mentioned are listed as subspecies of *M. superciliosus*.

So far so good; the authors quoted above have not, however, eliminated another possibility: that *superciliosus* and *philippinus* are conspecific, and that *persicus* with *chrysocercus* constitutes a separate species. Morphologically *superciliosus* and *philippinus* are more similar to each other than either is to *persicus*. Fry's arguments for regarding *superciliosus* and *persicus* as conspecific are very tentative: "Pending the discovery of ecological or physiological distinction, it seems preferable to retain the three western populations as races of a single species". On present evidence it appears best to treat *M. philippinus* as a separate species, and I would be inclined also to give species status to *M. persicus*. See Fry in Snow (1978: 307).

As Fry's (1969) authoritative review is likely to be consulted widely by students of the Meropidae a few words of criticism of the distribution of *M. p. philippinus* as shown on his fig. 12 are in place here. To begin with, he does not indicate it as breeding anywhere south and east of continental Asia; he appears to have overlooked Heinrich's definite record of breeding in southern Celebes (cf. Stresemann, 1940: 404). I can add a record from the Lesser Sunda Islands: Father Verheijen forwarded eggs, taken at Maro-Kama, Flores, 50 m, on 24.X.1974. Breeding in Flores was already made practically certain by Weber, who collected a young bird with its bill still growing (cf. Büttikofer, 1894: 291). It is also unclear to me on what grounds Fry has included the Moluccas (Halmahera, Buru, Soela Islands) in the winter range, as to my knowledge there is not a single record from that area (cf. van Bemmel, 1948).

The fact that Fry has excluded the Philippines, Celebes and Java from the breeding range, proves that he does not agree with Deignan (1955) who recognised a separate subspecies for each of these three regions, but I regret that Fry has not taken the opportunity to discuss, and dismiss with arguments, Deignan's improbable assertion.

Eurystomus orientalis pacificus (Latham)

C[oracias] pacifica Latham, 1801, Suppl. Ind. Orn.: xxvii — Nova Wallia Australi = Port Jackson (cf. Latham. Gen. Synops. Birds Suppl. 2: 372).

Material. — ♂, 11.X.1960, Wajou, Koembe River, no. 459. Wing 187, tail 91, tarsus 18½, entire culmen 29, exposed culmen 22½ mm, weight 145 g. ♀, same data, no. 460. Wing 187, tail 92, tarsus 21, entire culmen 30, exposed culmen 23½ mm, weight 130 g. ♂, 14.X.1960, upstream Koembe River beyond

Kaisa, no. 479. Wing 189, tail 94, tarsus 20, entire culmen 33, exposed culmen 25 mm, weight 130 g. ♂, 10.IV.1962, Ongari, no. 669. Wing 182, tail 96, tarsus 19, entire culmen 33, exposed culmen 22 mm, weight 136 g. ♀, same data, no. 670. Wing 195, tail 99, tarsus $20^1/_2$, entire culmen 31, exposed culmen 21 mm, weight 132 g. Iris dark brown, bill bright vermilion with dark tip, except no. 669, which has a dark grey bill with red only near the base and round the nostrils, legs vermilion. All specimens are in a fairly fresh plumage.

Discussion. — About this species, Schodde et al. (1975: 69) wrote: "It is not generally realized that the resident race is by far the more frequent of the two throughout the southern lowlands and is very scarce in the north, whereas the Australian breeding race migrates in large numbers to the northern lowlands, leaving few individuals in the south except in the region of the Fly River ... *Pacificus*, in effect, leapfrogs *waigiouensis* on migration". The authors mentioned made no reference to my paper (Mees, 1964b: 14) in which three specimens of *E. o. pacificus* are recorded from the southern lowlands. Hoogerwerf's five specimens are also *E. o. pacificus*. Of the six birds listed by Bangs & Peters (1926: 428) under the name *E. crassirostris*, only one (♀, Lower Digul River, 24.IX.1923) is *E. o. waigiouensis*, the others are *E. o. pacificus* (Paynter, in litt., 28.III.1977). In judging the relative abundance of the two subspecies it must not be overlooked that *E. o. pacificus* is a migrant visitor so that its presence is seasonal. I believe therefore that the statement quoted above should be accepted with reservations. It might be a matter of *E. o. waigiouensis* being somewhat patchily distributed.

Rhyticeros plicatus ruficollis (Vieillot)

Buceros ruficollis Vieillot, 1816, Nouv. Dict. d'Hist. Nat., (nouv. éd.) 4: 600 — l'île de Waygiou.
Rhyticeros plicatus jungei Mayr, 1937, Amer. Mus. Novit., 939: 13 — Madang, Astrolabe Bay.

Material. — ♂, 1.VI.1962, Koembe, no. 733. Wing 384, tail 220, tarsus —, culmen 160 mm, weight ca. 1400 g. Iris orange-brown, bare skin of throat grey-blue, bill dull ivory with brownish base, legs dark grey. Stomach contents large (22-26 mm diameter) purple fruits with hard seed.

Discussion. — See Hoogerwerf (1964: 156), who believed that this species was not previously known from the area between the Lorentz and Fly Rivers, but he overlooked records by Bangs & Peters (1926: 429) and Stresemann & Paludan (1935: 456).

The small size of this specimen is explained by its being immature: the dorsal surface of the culmen is somewhat swollen near its base, but there is no trace yet of pleats.

According to Sanft (1960: 119) the subspecific status of birds from southern New Guinea is still unclear, but he inclined to the view that they would belong to the larger eastern race *R. p. jungei* Mayr rather than the smaller western *R. p. ruficollis*. Our collection contains an adult male from Merauke, 1953, collected

by Monsanto, with the following measurements: wing 445, tail 262, tarsus 63, culmen 217 mm, culmen with six pleats. These measurements place this bird definitely in the race *jungei* as defined by Sanft. In this connexion it is of interest to mention that Schodde & Hitchcock (1968: 39-40) recorded a male, presumed to be adult, from Lake Kutubu, much farther east, as clearly fitting into *R. p. ruficollis*.

Although the average wing-lengths of *ruficollis* and *jungei* differ clearly in the large series measured by Sanft, the individual variation is considerable: wing of *ruficollis* 56♂417 (398-440), 41♀385 (357-410), and *jungei* 40♂441 (416-465), 21♀408 (386-430) mm. There is an equally large variation in the other measurements. Moreover, as Sanft remarked: "Zwischen den angegebenen Grenzen von *ruficollis* and *jungei* liegt vermutlich ein breites Mischgebiet". I incline to the view that the average and moreover geographically irregular difference of about 5% in linear measurements, seen in the perspective of over 10% individual variation in these same measurements, is insufficient for recognition in nomenclature. Therefore I have listed the birds from Koembe and Merauke as *R. p. ruficollis*. Doubt about the validity of *R. p. jungei* was previously expressed by Hoogerwerf (1971: 11).

Pitta erythrogaster macklotii Temminck

Pitta macklotii Temminck, 1834, Recueil d'Ois., 2 (livr. 92): pl. 547 — la baie de Lobo.

Material. — ♀ juv., 10.VI.1962, Koerik, no. 756. Wing 101, tail 37, tarsus 37, entire culmen 26, exposed culmen 19 mm, weight 70 g. Iris dark brown, bill dark grey, a little lighter below, legs medium grey. Stomach contents assorted remains of insects. No moult. The bird is in juvenile plumage, with the red and blue just starting to break through on the light brown under parts.

Discussion. — This subspecies is distributed over the south-western part of New Guinea and the four largest of the Western Papuan Islands (Salawati, Misool, Batanta and Waigeo). There exists some uncertainty about the subspecific identity of birds from Misool. It began with Hartert (1901: 3): "Three specimens from Mysol (collected by Kühn) agree perfectly with the most typical *kuehni*. Two others, collected by Guillemard on Mysol, can also be united with *kuehni*, while another from N. Guillemard's collection, said to come from Mysol, is inseparable from typical *mackloti*". This was repeated in slightly different words by Rothschild & Hartert (1901: 63). Presumably on the basis of this, Mayr (1941b: 95) and Rand & Gilliard (1967: 309) referred to the Misool population as: "intergrading with *kuehni*". It should be noted that this is not quite the same as what Rothschild & Hartert wrote.

Stresemann (1913b), on the other hand, found that a specimen collected on Misool by O. D. Tauern clearly belonged to *macklotii* and not to *kuehni*. The material from Misool in Leiden was listed under the name *P. e. macklotii* by me (Mees, 1965: 177).

At the time I gave the name *P. e. macklotii* without comment and therefore I want to state now that as far as I can see the sixteen specimens from Misool available in Leiden agree perfectly with *P. e. macklotii*. A few words about *P. e. kuehni* are also in place. This subspecies, originally described from the Kai Islands, was differentiated from *P. e. macklotii* in the following words: "I now have a fine series and find that the species is not *P. mackloti*, but as different as many of the other forms of this group. In *Pitta kuehni* — as I propose to name the form inhabiting the Key Islands and Koer — the blue of the chest extends over the sides of the chest and breast (where there is a green patch in *P. mackloti*) and is continued in a narrow blue ring round the upper back. The feathers on the sides of the chest appear to be somewhat more elongated than in *P. mackloti*. Adult birds have some blue on the crown — a character which is rather rare in *P. mackloti*" (Rothschild, 1899), see also the redescription by Hartert (1901: 3). Unfortunately *P. e. kuehni* is poorly represented in our collection: only two specimens. A third specimen was made available by the Zoölogisch Museum, Amsterdam (the bird collected by Wertheim, cf. Maitland, 1893: 225). This material, poor as it is, suggests the existence of a considerable individual variation. Two of the birds are scarcely different from *P. e. macklotii*: I would certainly not describe them as having a blue ring round the upper back, at most it can be said that the green of the upper back tends to be slightly suffused with blue anteriorly. As regards the green on the sides of the breast, this is a matter of individual variation. All birds have the sides of the breast to a varying degree invaded by green and in this character I can see no difference between *P. e. macklotii* and *P. e. kuehni*. Wertheim's specimen (ZMA no. 30051) is aberrant in two characters: its head is much lighter brown than in all other specimens (of both *macklotii* and *kuehni*) and its back is not green or green anteriorly slightly tinged with blue, but shows an almost scalloped appearance through having at least as many blue feathers as green feathers, these more or less alternating. It appears to me, on the basis of this admittedly very inadequate material, that *P. e. kuehni* is at most a poorly marked subspecies, but apart from this, I see no reason to list birds from Misool as anything but *P. e. macklotii*.

Pitta versicolor simillima Gould

Pitta simillima Gould, 1868, Proc. Zool. Soc. Lond.: 76 — Cape York district of Queensland, Australia.

Material. — ♀ ?, ovary very small, 3.VI.1962, Koerik, no. 744. Wing 112, tail 39, tarsus 39, entire culmen 32, exposed culmen 23 mm, weight 74 g. Iris dark brown, bill dark grey, almost black, legs dirty flesh colour.

Discussion. — The only previous records of this Australian subspecies are from the Katau (= Binaturi) River and from Daru (cf. Rand, 1938b: 1). In 1966 there was a field observation near Port Moresby (Bell, 1968c).

Mirafra javanica aliena Greenway

Mirafra javanica aliena Greenway, 1935, Proc. New England Zoöl. Cl., 14: 50 — Biolowak Camp, Morobe District (2250 ft.).

Mirafra javanica sepikiana Mayr in Mayr & Camras, 1938, Field Mus. Nat. Hist. Zool., 20: 466 — Marienberg, Sepik River, northern New Guinea.

Material. — ♂, 12.X.1960, Kaisa, upstream on the Koembe River, no. 456. Iris dark brown, bill: upper dark grey, lower flesh colour with a dark tip, weight 18 g. ♂, 24.IV.1962, Koerik, no. 698, weight 19 g. Measurements, see Table VI. No. 698 shows heavy moult in the wings; most of the tail is missing.

TABLE VI

Measurements of *Mirafra javanica aliena*

coll.	no.	sex	date	locality	wing	tail	tarsus	entire culmen	exposed culmen
FM	87381 [1]	♂	11.V.1929	Marienberg	71	43	22	13¾	10¼
FM	87382	♀	11.V.1929	Marienberg	70	42½	23	14	11
MCZ	168359	♂	12.III.1932	Morobe: Wau (3400')	74	43	21	14	11½
AMNH	447958	♂	8.IV.1932	Morobe: Wau (3500')	72	46½	21	13¾	10¾
MCZ	168361 [2]	♀	23.VI.1932	Morobe: Bialowat (2250')	69	41	22	14	11½
MCZ	168362	♂	29.IX.1932	Morobe: Surprise Creek (3000')	74	46	22	12½	10
MCZ	168363	♂	3.X.1932	Morobe: Surprise Creek (3000')	76	46	21	-	-
RMNH	42525	♂	20.X.1960	Kaisa, Koembe	70	38½	22½	14	11½
RMNH	34893	♂	21.IV.1962	Koerik	66+	-	22	13¾	11¼
MCZ	99611	♂	-	Merauke area	67	41	22	13½	11
RMNH	76830	♂	12.VIII.1969	Trauna Valley	73	43½	22	15	12

1) Type of *Mirafra javanica sepikiana*

2) Type of *Mirafra javanica aliena*

Discussion. — These two specimens were particularly welcome, as previously only a single individual of this species had been recorded from southern New Guinea, and that one without data (Bangs & Peters, 1926: 433).

The distance separating Koembe and Merauke from the type-localities of the two races described from New Guinea, combined with the fact that its describer called *M. j. sepikiana* a very distinct subspecies, well-differentiated from *M. j. aliena*, made me suspect that southern New Guinea would be inhabited by a third, undescribed, subspecies, as had been suggested by Mayr (1941b: 96) and Rand & Gilliard (1967: 312), or perhaps by one of the Australian races.

Thanks to the co-operation of Mr. Hoogerwerf, who kept a special look-out for the species and thus procured the second specimen which he forwarded to me by air mail, and of Dr. Rand and Dr. Paynter, who personally brought the specimens from respectively the Field Museum and the Museum of Comparative Zoölogy, I had all the specimens of *M. javanica* then known from New Guinea together during the I.O.C. at Ithaca in July 1962. Together Dr. Rand and I compared the specimens and we arrived at the to me totally unexpected conclusion that they should all be assigned to a single subspecies. Since then I have received one additional specimen, collected by Kikkawa in the Trauna Valley; it is very close to Hoogerwerf's two specimens from the Koembe district, but has a slightly longer bill.

M. j. sepikiana was described as being: "Similar to *Mirafra javanica aliena* Greenway, but very much darker, particularly on the upper parts, which appear almost blackish. The dark centers of the feathers are blackish, not dark brown, and the light-colored edges are much narrower and more greyish, less brownish. The lower throat is more or less uniform, but with conspicuous black spots. The under surface of the wing is of a deeper rufous color. The next to the outermost tail feather has the inner web entirely black, not partly white. The size is similar, but the tail of *aliena* (48, 50) is apparently larger than that of *sepikiana* (45, 45.5)" (Mayr in Mayr & Camras, 1938).

Dr. Rand and I found in our larger series that the differences in colour observed by Mayr appear to be entirely due to differences in plumage condition. The specimens from Marienberg are in an extremely abraded plumage, the pale edges to the feathers of the back have almost entirely been worn away, which explains the blackish dorsal aspect of these birds. Actually all New Guinea birds are dark dorsally. The tail-lengths given by Mayr for the specimens from Marienberg are very much larger than those I took from the same specimens: the measurements given in the table do not suggest any difference in size between the various populations although the possibility that small average differences exist cannot, of course, be ruled out until much more material becomes available.

Comparisons were also made with birds from Australia and from the Lesser Sunda Islands. Greenway (1935) thought that *M. j. parva* from the Lesser Sunda Islands is smaller than *M. j. aliena*; he based this on measurements copied from Rensch (1931: 603) and evidently he had not personally examined any specimens. Our collection contains seven specimens of *M. j. parva*: five males from Flores (leg. Verheijen, 9.III.1971) have wing-lengths of 70, 70, 71, 71, 72 mm, and two unsexed birds from Sumba (leg. ten Kate, VI-VII.1891), 69, 74 mm. These measurements agree well with those of New Guinea birds. In plumage these specimens are also close to *M. j. aliena*, but their worn state may mask small differences that possibly exist between birds in fresh plumage. As Mayr (l.c.) stated, *M. j. parva* may be a little lighter (certainly not very much lighter) dorsally, but I would never agree with Mayr (1944: 154) that it is: "very pale and grayish". The specimens have the breast only lightly spotted. I cannot

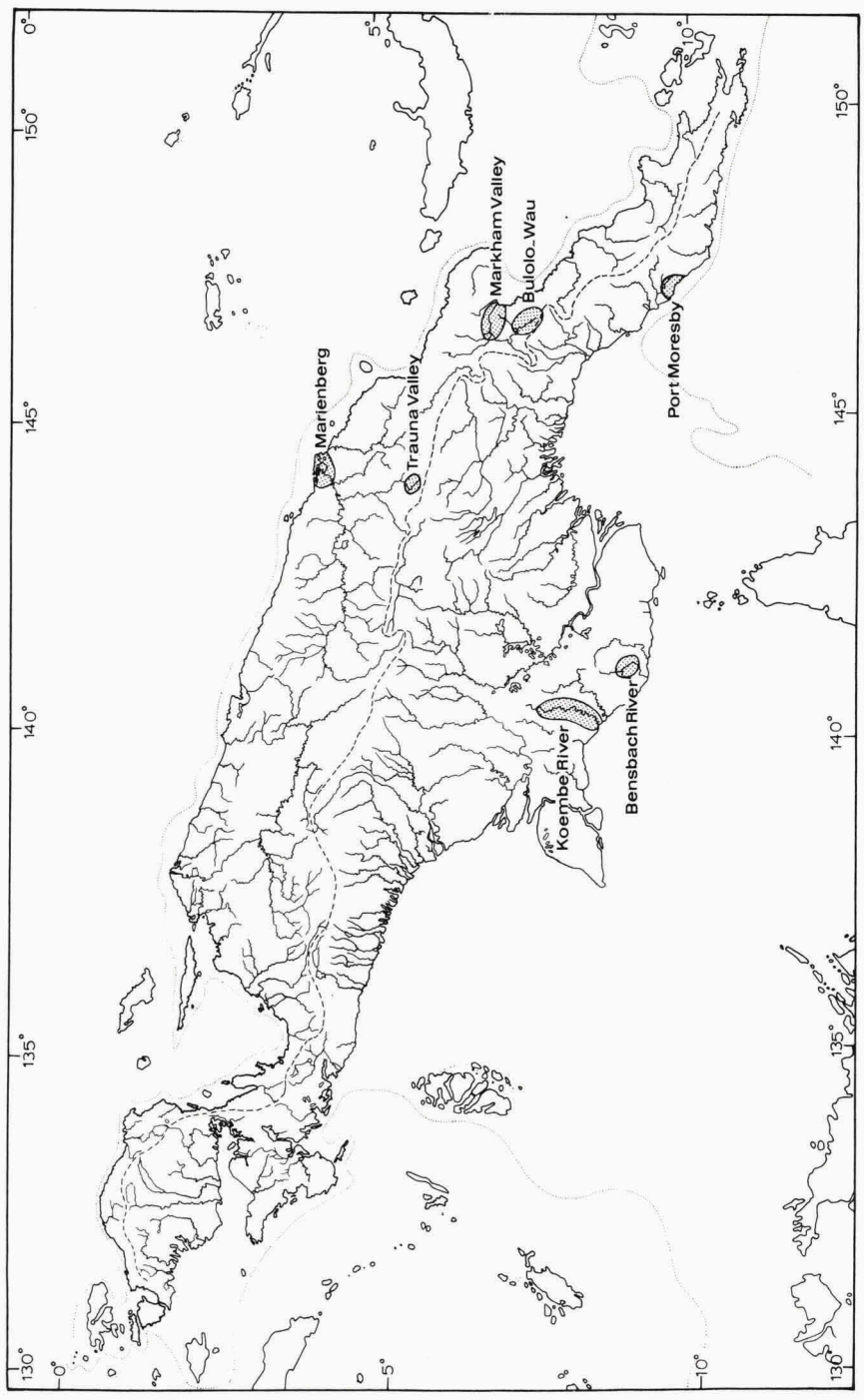

Fig. 6. Distribution of *Mirafra javanica aliena*.

find the differences in colour of the inner web of the second tail feather described by Mayr (in Mayr & Camras, 1938). However, *M. j. aliena* differs from *M. j. parva* by its slender bill (as also observed by Mayr), although one of the Sumba specimens is very close.

Our collection contains over sixty specimens of *M. javanica* from Australia, but practically all are from Western Australia and the Northern Territory, remote from New Guinea. From the Cape York Peninsula, Queensland, opposite New Guinea, *M. javanica* is apparently not yet known, the northernmost localities being Normanton and Inkerman on the Gulf of Carpentaria, and the Atherton Tablelands near the east coast (cf. Mayr & McEvey, 1960: 158; Freeman in Hall, 1974: 139-142). From the description of the race *normantoni* by Mayr & McEvey it is clear that birds from Normanton show no close resemblance to *M. j. aliena*, being much lighter, browner, and probably also larger. Remains *M. j. queenslandica* from eastern Queensland. According to Mayr & McEvey (l.c.) this form is very variable; also they had not examined much material and this from very few and widely scattered localities. Our collection contains only a single specimen from Queensland, collected at Lake Elphinstone (leg. Amalia Dietrich, ca. 1868) within the range ascribed to *queenslandica*. In the rather dark colour of the upper surface it resembles birds from southern New Guinea; on the breast it is more heavily spotted; wing 75, tail 46 mm. This bird is undoubtedly close to *M. j. aliena* but the latter differs from it and from all other Australian birds by having a more slender bill.

On the evidence at present available it is not possible to state whether the species colonized New Guinea from Australia, or (during a period of lower sea-level) through the chain of islands leading from Timor eastwards. That the last-mentioned possibility should not be dismissed as improbable is proven by the distribution of other grassland birds like *Elanus caeruleus hypoleucus* and *Lanius schach*.

It is likely that *M. javanica* is widely distributed in the eastern half of New Guinea. I have already mentioned the specimen collected by Kikkawa in the Trauna Valley (see also list of material examined and Diamond, 1972: 194). The species is common in the Port Moresby area (cf. Mackay, 1970: 41), and recently I found it recorded from the Bensbach River (Finch, 1980: 27). The observations published by Watson et al. (1962: 75), at Nadzab in the Markham Valley, Wau and Bulolo, are in a region from where the species had already been recorded by Greenway.

Motacilla flava simillima Hartert

Motacilla flava simillima Hartert, 1905, Vögel paläarkt. Fauna, 1: 289 — Brütet wahrscheinlich nur in Kamtschatka ... und überwintert in China, auf den Molukken und im malayischen Archipel. No type or type locality was indicated.

Material. — ♀, 5.IV.1962, Koerik, no. 661. Wing 83, tail 72, tarsus 23, entire culmen 15$^1/_2$, exposed culmen 11, nail of hind toe 10.8 mm, weight 24 g. ♂,

same data, no. 662. Wing 83, tail 66, tarsus 14½, entire culmen 15½, exposed culmen 13, nail of hind toe 12 mm, weight 27 g. Sex ?, 6.IV.1962, Koerik, no. 666. Wing 83, tail 71, tarsus 24½, entire culmen 17, exposed culmen 12, nail of hind toe 10.8 mm, weight 26 g. ♀ ?, 7.IV.1962, Koerik, no. 667. Wing 81, tail 70, tarsus —, entire culmen 15½, exposed culmen 10¾, nail of hind toe 10.7 mm, weight 25 g. Sex ?, 21.IV.1962, Koerik, no. 695. Wing 83, tail 66½, tarsus 25, entire culmen 16½, exposed culmen 12, nail of hind toe 11.6 mm, weight 22 g. Sex ?, same data, no. 696. Wing 79, tail 68, tarsus 24¾, entire culmen 18, exposed culmen 13, nail of hind toe 11.4 mm, weight 22 g. ♀, same data, no. 697. Wing 79, tail 69, tarsus 23½, entire culmen 17, exposed culmen 13, nail of hind toe 12.3 mm, weight 21 g. Iris dark brown, bill black, greater part of mandible flesh colour, legs dark grey.

Discussion. — These specimens were already recorded by Hoogerwerf (1964: 156-157); I have compared them with the various subspecies known to migrate to south-east Asia and found them all referable to *M. f. simillima*, the only subspecies at present known from New Guinea.

In 1910/1911 Grant (in Ogilvie-Grant, 1915: 47) found the Yellow Wagtail plentiful around his camp on the Mimika River. He collected six specimens and it is strange that his remained the only record of the species from New Guinea for forty years. Records by Gyldenstolpe (1955b: 270) and Ripley (1964: 66) suggested a much wider distribution and this has now been confirmed by Hoogerwerf, who also noted its occurrence near Manokwari and in the Kebar Valley. There are subsequent observations from Ok Tedi (Bell, 1969a: 204), Bereina (Heron, 1974), etc., which contribute to the view that New Guinea is a part of the normal winter range of the species.

Although van Bemmel (1948: 352) listed for the Moluccas only *M. f. simillima*, subsequently Voous (1950) examined several specimens of *M. f. taivana* (Swinhoe) from Ambon (see also van Bemmel & Voous, 1953). Indeed, many years ago Hartert (1905: 294) had already recorded the last-mentioned subspecies as a winter visitor: "auf den Molukken bis zu den Key-Inseln, Tanimbar, ..." and this was repeated, probably without renewed investigation, by Vaurie (1959: 82). These records make it likely that at least occasional individuals of *M. f. taivana* reach New Guinea. It cannot be automatically assumed that individuals of *M. flava* observed in New Guinea belong to *M. f. simillima.*

Actually, a second subspecies of *M. flava* has been recorded from New Guinea. Grant & Mackworth-Praed (1952: 260) re-identified one of Grant's specimens from the Mimika River (BM no. 1916.5.30.857) as *Budytes flavus tschutschensis* = *Motacilla flava tschutschensis* Gmelin, leaving the other five as *simillima.* As the identification of single specimens in the winter quarters of a strongly polytypic species is not always easy, I considered that the record required verification.

According to Vaurie (1959: 81) there is a difference in measurements between *tschutschensis* and *simillima*, the former being: "smaller, wing of eight males from Alaska 76-80 (78), as against 80-85 (83) in ten of *simillima*, hind claw slightly

shorter''. Therefore I requested Mr. Galbraith to measure the Mimika specimens for me, and he provided me with the following series of measurements:

BM no. 1916.5.30.857	*'tschutschensis'*	♂	wing 83.5 mm	hind claw 12.0 mm
856	*'simillima'*	♂	81.5	11.6
859	*'simillima'*	♂	81.5	14.2 !
860	*'simillima'*	♀	81.5	13.2
861	*'simillima'*	♀	78.5	12.5
858	*'simillima'*	?	79.5	12.1

The specimen identified by Grant & Mackworth-Praed as *tschutschensis* is the largest of the series; it is well above the range of variation given by Vaurie for *tschutschensis*, and it also exceeds the maximum of eleven adult males measured by Ridgway (1904: 9, s.n. *Budytes flavus alascensis*). Therefore I consider it justified to conclude that specimen no. 857 was misidentified by Grant & Mackworth-Praed and that on the basis of measurements and geographical probability there is every reason to assign it to *simillima*. Too little is known of the migration of *M. f. tschutschensis* to judge whether its appearance in New Guinea is at all likely. The only records from the presumed winter range I know of are two specimens from Gobang, West Java, collected in October 1948, which were identified by Voous (1950: 651) as *M. f. tschutschensis*, an identification questioned by Hoogerwerf (1963); two birds from the Philippines assigned to *tschutschensis* by Grant & Mackworth-Praed; a specimen from Satang Island, Sarawak, about the identification of which Voous and Vaurie agreed (cf. Voous, 1960); Vaurie's (1959: 81) statement, not supported by evidence, of migration through eastern China, and as the only unassailable piece of evidence, a bird ringed in Formosa which was recovered at Point Barrow, Alaska (McClure, 1974: 258-259).

In addition there are records of *M. f. tschutschensis* from Australia. The name entered Australian literature with Lindgren & Slater (1961) who mentioned a suggestion by Prof. Mayr that a wagtail observed near Derby, Kimberley Division, Western Australia, might have belonged to this subspecies on account of its greyish breast. As the bird was not collected this identification remained highly speculative. Pale grey or whitish underparts, with little or no yellow, are a character of immaturity. Gill (1967) wisely refrained from assigning a subspecific name to up to four Yellow Wagtails observed over a period of several weeks near Innisfail, Queensland, but subsequently a specimen in worn plumage was collected near Darwin (cf. Crawford & Parker, 1971) and was forwarded for subspecific identification to the British Museum, where Mrs. Hall: ''felt fairly confident in referring it to *M. f. tschutschensis*''. Mrs. Hall also studied the type specimen of *M. barnardi* North from Bimbi, Dawson River, Queensland. Hartert (1910: xxix), probably without having seen the specimen, placed the name in the synonymy of *M. f. simillima*. According to Mrs. Hall, however, it: ''came very close to specimens of *M. f. tschutschensis* in the BMNH''. In the above-mentioned papers, no reference is made to Vaurie's (1957) revision, and certain characters which Vaurie considers important (length

of hind claw, extent of white on chin and throat) are either not mentioned, or contradict the identification as *tschutschensis*. Thompson (1978) believed that two subspecies could be found wintering near Darwin, of which he assigned one to the "*flava*"-group (which includes both *simillima* and *tschutschensis*), whereas the other might be *taivana*. A Yellow Wagtail seen near Richmond, N.S.W., was thought to belong to the subspecies *M. f. thunbergi* (cf. Blackwell & Yates, 1979: the observers did not consider *M. f. macronyx*, which their excellent description suggests to me), but a bird seen on Heron Island, Qld., the latest record known to me, has again been referred to *M. f. tschutschensis* (cf. Moffatt, 1981). There is nothing in the published description of the Heron Island bird that would preclude its identification with *M. f. simillima*, and Moffatt's statement that *tschutschensis* "winters very close to the equator in the Sundas and the Moluccas" is mostly based on assumption as this subspecies has never yet been recorded from the Moluccas.

On general geographical grounds, two subspecies of *Motacilla flava* may be expected to reach Australia regularly, viz. *M. f. simillima* and *M. f. taivana*. These two subspecies accounted for 98% of the material from the Indo-Australian archipelago studied by Voous (1950). The identification of single specimens of *tschutschensis* from the winter quarters would be a precarious matter, especially as few museums possess adequate material from the breeding grounds. The idea that it would be possible to identify this subspecies in the field is preposterous. It is my opinion that the Australian specimens require further study before their subspecific identity may be definitely settled. I cannot help feeling that in identifying Australian birds as *tschutschensis*, authors have been influenced by the notion that this most northerly of all subspecies "ought" to be the one that migrates farthest to the south.

Coracina novaehollandiae melanops (Latham)

C[orvus] melanops Latham, 1801, Suppl. Ind. Orn.: xxiv — Nova Hollandia = Sydney, N.S.W.

Material. — ♀, 19.VIII.1980, Merauke, no. 366. Wing 186, tail 127, tarsus 28, entire culmen 30, exposed culmen 24½ mm, weight 106 g. ♀, 8.IX.1960, Koerik, no. 397. Wing 185, tail 135, tarsus 28, entire culmen 30, exposed culmen 25 mm, weight 109 g. ♀, 3.VI. 1962, Koerik, no. 738. Wing 181, tail 125, tarsus 28½, entire culmen 31, exposed culmen 25 mm, weight 117 g. ♀, same data, no. 739. Wing 186 tail 127, tarsus 28, entire culmen 30½, exposed culmen 23 mm, weight 102 g. All four specimens are in immature plumage, nos. 366, 738 and 739 do not show moult, no. 366 is in strongly abraded plumage, the other two are in moderately worn plumage. No. 397 shows tail moult, except for one new feather its rectrices are strongly abraded, its wing tips are moderately worn. Somewhat unexpectedly, no. 738 is recorded as having had a large ovary; the ovary of no. 739 was noted as very small. Iris dark brown, bill black or blackish, legs black. Stomach contents (no. 739); remains of insects, including pieces of chitine from small beetles.

Discussion. — As mentioned in previous publications (Mees, 1964b: 14-15, etc.) I do not feel sure about the subspecific identity of members of this species found in New Guinea and other islands to the north of Australia. The main two problems I have never been able to solve satisfactorily owing to lack of adequate material is, whether birds from the Australian mainland (*melanops*) are really separable from the nominate race inhabiting Tasmania, as claimed by White (1938a) and Keast (1958c) but partly contradicted by Keast's figures, and whether a smaller race (*connectens* or *didimus*) can be recognized in north-eastern Australia. Ripley (1941: 385) presented an entirely different classification, in which he united birds from Tasmania and the south-eastern part of the Australian mainland under the name *C. n. novaehollandiae* and used *C. n. melanops* for birds from northern Australia, without going into details, whereas Deignan (1964b: 397) expressed "grave doubts" about the separability of *melanops* from the Tasmanian nominate race. In addition one would like to know if White was right in his claim that the Tasmanian population is mainly sedentary and that at most: "its migrations are slight and irregular". According to White, therefore, Tasmanian birds would never reach New Guinea, but Mayr (1941b: 103) and Rand & Gilliard (1967: 325) arrived at the opposite conclusion and without reference to White listed *C. n. novaehollandiae* as a winter visitor to the Port Moresby area.

Coracina papuensis oriomo Mayr & Rand

Coracina papuensis oriomo Mayr & Rand, 1936, Mitt. Zool. Mus. Berlin, 21: 244 — Wuroi, Oriomo Fluss, Western Division, Territory of Papua.

Material. — ♂, 4.XII.1960, between Koembe and Doemandé, no. 540. Wing 146, tail 100, tarsus $22^1/_2$, entire culmen $25^1/_2$, exposed culmen $21^1/_2$ mm, weight 66 g. Iris dark brown, bill black, legs black. The bird is in full moult of wings and tail.

Discussion. — In their description of *C. p. oriomo*, Mayr & Rand (1936) differentiated it from a series of ten Australian birds from Cairns and Cape York which they ascribed to *C. p. stalkeri* Mathews (type locality Cooktown, between Cairns and Cape York). Keast (1958c) came with a rather different arrangement in that he transferred the Cape York birds to *C. p. oriomo*. It should be particularly noted that Keast based his conclusions on the same material (in the American Museum of Natural History) that had previously been used by Mayr & Rand. Peters et al. (1960: 180-181) followed the arrangement proposed by Keast, but Galbraith (1969: 26) did not agree: "Keast (1958) recorded a discontinuity in bill-length further north and assigned the Cape York populations to the race *oriomo* of southern New Guinea. However, my studies show no discontinuity in eastern Australia north of the Burdekin, and indicate that *oriomo* (which also seems to occupy the islands of the Torres Strait) differs in colour from the Cape York populations as its original description states".

When different workers studying the same material arrive at different conclusions, it is at once clear that the differences between the various population samples must be at best very slight. Therefore a further investigation into the validity or otherwise of *C. p. oriomo* appeared desirable. The material from South New Guinea and northern Australia available to me consisted of the following: Lorentz River (4), Koembe (1), Wanggo River (2), Aru Islands (2), Australia without locality (1), Cape York (4), Port Darwin (1), Western Australia (3), Great Kai (1), Kisar (1).

In this unpromising assemblage, the birds from the Lorentz R. are distinguished by having the feathers of the throat pale grey, whereas in the specimens from Koembe and the Wanggo R. these feathers are almost white. There is not much difference in the colour of the remainder of the under surface although the specimens of *oriomo* are a trifle paler grey on the breast. The one adult male of *oriomo* (Hoogerwerf's; the Wanggo birds, ♂ and ♀ are immature) has the black band across the forehead a little narrower than the one male from the Lorentz R.

Australian birds are distinguished from the Lorentz R. specimens by having the under parts whiter, with a white throat, but there always remains a shade of grey on the breast. The black frontal band is similar to that of *oriomo*. Actually I find it difficult to distinguish *oriomo* on plumage characters from *hypoleuca*, but the latter, as pointed out by the describers of *oriomo*, is a little larger. Wing-length of *oriomo*: ♂ ad. 146, ♂ im. 142, ♀ im. 144 mm; wing-length of *hypoleuca* from Cape York; ♂ ad. 148, unsexed 156, 160, 163 mm; Port Darwin: unsexed 155; Great Kai: ♀ 147; Kisar: ♀ 151 mm; Western Australia: ♂ ad. 150, ♀ ad. 151, 157 mm.

A further comparison of the specimens from Lorentz R., which had been assigned to *C. p. intermedia* Rothschild (cf. Junge, 1939: 4), with the nominate race showed that the difference between these two is extremely slight; specimens of the nominate race are a little darker on the breast, and also on the mantle, but as Junge remarked, this may be partly due to dirt having accumulated on our specimens of the nominate race, which have been mounted and have been on display for many years.

C. p. intermedia Rothschild, 1931, is a secondary homonym of *C. melaschistos intermedia* (Hume, 1877), but I do not consider it desirable to rename it as I believe that the populations hitherto called *intermedia* can better be united with *C. p. papuensis*.

Keast (1958c: 256), discussing geographical variation of *C. papuensis* in Australia, wrote: "The few Kimberley specimens have a relatively short wing. More material is needed from this area". The wings of the four Kimberley specimens he examined measured 147-152 (148) mm. The measurements of my specimens, collected in 1968 and 1974, are larger and the wing of the largest specimen (157 mm), almost reaches the maximum wing-length Keast recorded from elsewhere (158 mm).

Mayr & Rand (1936) mentioned broad white edges to the remiges as a

subspecific character of *oriomo*. In northern Australia, Deignan (1964b: 398) regarded such edges as a character of adult females. The extent of these edges is extremely variable, and as they are usually correlated with the presence of very faint cross-bars on the sides of the lower breast and with narrow and pointed rectrices, I am inclined to regard them as a character of immaturity (cf. Schodde, 1977: 71).

Coracina tenuirostris tenuirostris (Jardine)

Gracaulus [*sic*] *tenuirostris* Jardine, 1831, Edinburgh J. Nat. Geog. Sci., (n. s.) 3: 211 — New Holland = New South Wales (reference not verified).

Cebl[*epyris*] *plumbea* S. Müller, 1843, Verh. Nat. Gesch. Ned. Overz. Bez., Land- en Volkenk.: 189 — Nieuw-Guinea en Timor = Oetanata River, S.W. New Guinea (cf. van Oort, 1909: 88).

Edolisoma müllerii Salvadori, 1875, Ann. Mus. Genova, 7: 927 — nomen novum for *Ceblepyris plumbea* S. Müller, considered preoccupied.

Material. — ♂, 5.VIII.1960, Merauke, no. 341. Wing 130½, tail 101, tarsus 25, entire culmen 28, exposed culmen 22 mm, weight not given. Iris dark brown, bill black, mandible largely brown-grey, legs blackish. No moult. ♀, ovary small, 27.V.1962, Koerik, no. 729. Wing 131, tail 99, tarsus 23½, entire culmen 25, exposed culmen 18 mm, weight 67 g. Iris brown, bill very dark grey, almost black, legs black. Wing-moult.

Discussion. — In recent literature, this part of southern New Guinea has been included in the range of *C. t. aruensis* (cf. Mayr, 1941b: 101; Rand, 1942a: 325; Rand & Gilliard, 1967: 321), but in a previous publication I discussed a female from Merauke that in my opinion clearly belonged to *C. t. plumbea* (cf. Mees, 1964b: 15, s. n. *Edolisoma tenuirostre muelleri*). The present specimens are also obviously referable to this larger subspecies, but further investigations have led to the conclusion that the supposed endemic New Guinea subspecies *plumbea* does not differ from the Australian *C. t. tenuirostris* and that in fact all birds hitherto recorded under the former name are winter visitors from Australia. The arguments will be presented below in the discussion of *C. t. aruensis*.

Hitherto *C. t. tenuirostris* had never been recorded from New Guinea. It is true that Macdonald (1973: 291) anticipated developments by calling *C. t. tenuirostris* in Australia a: "mainly breeding visitor migrating to New Guinea", but this was not based on any published evidence that I know of and Storr (1973: 80) summarized the current state of knowledge correctly in the following words: "principal winter quarters unknown; in Queensland only a few winter records (the Archer and the Bloomfield)". In New South Wales the species is: "a regular migrant, arriving in October and leaving in April (with some winter records)" (McGill, 1960: 34). In other words, *C. t. tenuirostris* is known to vacate Australia almost entirely in winter, yet had never been recorded from outside Australia, an absurd situation. The obvious place for it to migrate to is New Guinea and the reason why it had not been recorded from that country is now abundantly clear: as soon as migrants reached New Guinea, in the minds of systematists they changed name to *C. t. plumbea* (or *müllerii*) and were regarded as residents.

Before the synonymy indicated above can be definitely accepted, it is necessary to discuss the type material of *Ceblepyris plumbea*. This consists of two specimens, one an immature male in change from the brown juvenile into the grey adult plumage (RMNH cat. no. 1), the other in female plumage and marked as being a "jeune femelle de l'année". I present here their measurements, compared with those of specimens from Misool, northern and eastern New Guinea, and specimens of *C. t. aruensis* from the Aru Islands (all RMNH).

			Misool, N. G.		Aru Islands	
	♂ type	♀ type	8♂	9♀	4♂	2♀
wing	123	129	128-137	125-131	115-119	118-120
tail	87	91	89-101	87-93	75-83½	86-89
tarsus	24¼	23	22-25	23-25¼	22-23½	22¼-23½
entire culmen	26¾	24½	25-28	24½-28¼	25¾-27	25½-25¾
exposed culmen	18¼	18¼	19-22	18-20½	18¾-20	18½-20¼

Excluded from this series is a bird from the Aru Islands with a wing-length of 125 mm (♀ juv., 18.VI.1864, Wanoembai, RMNH cat. no. 6), as I do not know whether this is a small specimen of migrant *tenuirostris*, or a large specimen of *aruensis*. As regards the type material of *C. plumbea*, there can be no doubt about the identity of the female specimen, but the smaller male might conceivably belong to the smaller subspecies. I would not know to which subspecies birds with a wing-length of about 121-125 mm have to be assigned. The large series of measurements of AMNH material supplied by Mrs. LeCroy shows also that there is some overlapping in wing-length. For the moment it appears best to accept the definite identity of the female and to place *C. plumbea* as a synonym of *C. t. tenuirostris*.

Within Australia, *C. tenuirostris* shows some minor geographical variation, which induced Keast (1958c) to recognize three subspecies in this part of its range. Peters et al. (1960: 186) reduced this to two and finally Storr et al. (1975) concluded that the very slightly shorter bills of north-western birds, used by Keast as the only character for recognition of *C. t. melvillensis*, are insufficient for expression in nomenclature, especially as on the basis of Keast's own figures birds from Melville Island, the type locality of *melvillensis*, have bills of intermediate size. Inter alia it may be mentioned that whereas Keast found for all Australian populations combined a length of the exposed culmen of 14.8-18.5 mm, I measured in specimens from New Guinea a length of 18-22 mm, in one from Melbourne, Australia, a length of 19½ mm. Evidently our methods of measuring differ so much that the results are not comparable.

The measurements provided by Keast (1958c) and by Mrs. LeCroy (based on material also examined by Keast), show that *C. tenuirostris* ranges a bit smaller in the wing in northern Australia than in southern Australia. Possibly New Guinea specimens like the ♂ type of *C. plumbea*, which are large for *C. t. aruensis* but small for *C. t. tenuirostris*, derive from northern Australia.

Coracina tenuirostris aruensis (Sharpe)

Edoliisoma aruense Sharpe, 1878, Mitth. Zool. Mus. Dresden, 1 (3): 369 — Lutor, Aru Islands.

Material. — ♂, 12.VIII.1959, Wanggo River, leg. A. J. M. Monsanto, RMNH reg. no. 30159. Wing in heavy moult, not measurable, tail 97, tarsus 22½ mm, bill damaged. ♀, 5.IX.1959, Wanggo River, leg. A. J. M. Monsanto, RMNH reg. no. 30160. Wing 121, tail 78, tarsus 22½, entire culmen 25, exposed culmen 19 mm. ♂, 15.X.1960, Jakau, upstream along Koembe River, no. 485. Wing 121, tail 80, tarsus 22¾, entire culmen 25, exposed culmen 18¼ mm, weight 52 g. ♀, 8.I.1961, Koerik, no. 549. Wing 121, tail 88, tarsus 23, entire culmen 24, exposed culmen 18¼ mm, weight 62 g. ♂, testes large 5 x 3 mm, 22.IV.1962, Koerik, no. 704. Wing 122, tail 88, tarsus 23½, entire culmen 25, exposed culmen 19 mm, weight 55 g. Iris dark brown, bill black, legs blackish. Stomach contents (no. 704) remains of small fruits.

Discussion. — In a previous paper I mentioned Monsanto's two specimens, about the identity of which I was at the time in doubt (cf. Mees, 1964b: 16). I am now satisfied that they and Hoogerwerf's three additional specimens belong to *C. t. aruensis*. This form was previously recorded from the mainland of New Guinea by Ogilvie-Grant (1915: 122-124, s. n. *Edoliisoma plumbea*), by Mayr & Rand (1937: 95) and by Rand (1942a: 325), who commented: "South New Guinea birds average smaller than those from elsewhere in New Guinea, and the adult males are somewhat darker blue gray". Rand placed all his specimens under the name *Edolisoma tenuirostre aruense*. The measurements presented by Rand are, however, of sufficient interest to be quoted here: ♂ ad. 115, 115, 117, 117, 117, 117, 119, 120, 121, 121, 124, 125, 133; ♂ imm. 117, 117, 127, 128, 130; ♀ ad. 113, 116, 117, 118, 119, 120; ♀ imm. 122, 123, 129 mm. These measurements show enough evidence of bimodality to make it likely that Rand's sample consisted of two different forms, one with an average wing-length of ca. 120 mm, the other with as average wing-length of ca. 130 mm. Note also that the type locality of *Ceblepyris plumbea*, the Oetanata River, is less than 50 km away from the mouth of the Mimika River, whence Ogilvie-Grant (l.c.) recorded a whole series of *C. t. aruensis* (Ogilvie-Grant did not recognize *aruensis* but the measurements he provided show clearly that with the possible exception of one idividual his specimens belonged to this small subspecies). Again, along the lower course of the Lorentz (= Noord) River, 210 km East of Mimika, *C. t. plumbea* has been found (van Oort, 1909; specimens re-examined by me).

The co-occurrence of *C. t. plumbea* and *C. t. aruensis* in southern New Guinea raises the question of what their exact relationship is. Hitherto both have been regarded as subspecies of *C. tenuirostris*. As the only clear difference between the two is one of size, and that a moderate one, there has never been any reason to doubt the status of the two forms as closely related subspecies. Now that both forms have been shown to occur together, either proof will have to be provided that one (or both) is only a non-breeding visitor to southern New Guinea, or they will have to be accepted as different species.

The five specimens of *C. t. aruensis* have been collected in the months January, April, August, September and October, and one of them was marked as having conspicuously large gonads. This suggests strongly that *C. t. aruensis* is a resident and that if migration comes into the picture at all, it is *C. t. plumbea* that must be migratory.

C. t. plumbea has been regarded as an endemic subspecies of New Guinea, with a range embracing: "Kofiau, Misol and Salawati; the whole of New Guinea (except the south), D'Entrecasteaux Archipelago, and Woodlark Island" (cf. Peters et al., 1960: 187), and to me it was not obvious why a bird which is common over most of the New Guinea lowlands, should be an apparently frequent wanderer to this particular part of southern New Guinea, without remaining to breed.

The idea of migration naturally led to the inclusion of the Australian nominate race in the investigation. *C. t. tenuirostris* ranges in eastern Australia right down into Victoria. It is known to be strongly migratory, vacating the southern part of its range almost entirely in winter, but nevertheless has never been recorded from outside Australia. This gave me the idea that the specimens from southern New Guinea, which I had identified as *C. t. plumbea*, might actually be winter visitors of the nominate race. The dates of collecting of my material, all in the Australian winter, and the fact that on the label of the one specimen in which the size of the gonads was given, these were indicated as small, gave some support to this theory. In this connexion it became of the greatest interest to find out what exactly the differences are between *C. t. tenuirostris* and *C. t. plumbea.* It came as a surprise that the only description of differences I have been able to find is by Salvadori (1881: 155), who states that males of the latter would differ from males of the former by having the under wing coverts not whitish but lead-grey. The nominate race is poorly represented in our collection, but whereas one merely labelled "Australia" does indeed have whitish under wing coverts, another one from Melbourne has them grey, in no way different from several New Guinea birds. It seems that this character is variable, probably mainly due to wear. Females from New Guinea would have a more greyish pileum than Australian birds, according to Salvadori, but several specimens from New Guinea in our collection, including the female syntype of *C. t. plumbea*, have it brown. Australian females are not available in our collection, but I note that Mathews (1921: no. 495) figures an Australian female with a definitely greyish head. This was enough to convince me that the characters usually relied on to distinguish the alleged subspecies are not valid, but because of our inadequate material, I asked the opinion of Mrs. LeCroy, who examined the AMNH material about which she informed me as follows (in litt., 25.VII.1977): "I cannot see any consistent morphological differences between *plumbeus* and *tenuirostris.* Some individual females in each subspecies have the edges of the primaries and secondaries quite rufous, others have these areas very light buff. I suspect that the color may fade with age of the feathers. The color of the back of females and the contrast between back and head also seem to vary individually. This may be an age character, with young females having head and back concolorous and adult females having the head grayer. I saw no consistent differences between males".

The identity of *C. t. plumbea* with *C. t. tenuirostris* having been established, the next question is whether the current concept of its being a widely distributed breeding bird in New Guinea is correct, or perhaps all records from New Guinea and other Islands to the north of Australia could be based on migrant visitors. The 17 dated specimens in our collection (from Misool Island and several localities in the western half of the New Guinea mainland), were collected between 10 April and August, with one exception: ♀, 25.XI.1864, Sorong, leg. Bernstein (cat. no. 3); in other words, 16 of the 17 specimens have been taken in the Australian winter. Mrs. LeCroy forwarded a list of 50 dated specimens from New Guinea and adjacent islands in the AMNH, which I have tabulated according to month of collecting together with our own material.

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Number of skins	3	0	3	6	15	13	5	11	6	3	2	0

The January birds are two females without exact date from Fergusson Island (AMNH nos. 329898, 329899) and a female from Woodlark Island (4.I.1877, AMNH no. 562604); they spoil an otherwise extremely suggestive picture.

If, as I believe is the case, *C. t. tenuirostris* is only a migrant visitor, there is no reason why it should not be also found in the Aru Islands. Actually Salvadori (1881) recognized both forms from the Aru Islands, under the names *Edoliisoma aruense* and *Edoliisoma mulleri*, a fact ignored by later workers.

Wing measurements of Aru birds in Leiden are: ♂ 115, 117, 117, 119; ♀ 118, 120, 125 mm, of specimens in the AMNH, provided by Mrs. LeCroy: ♂ 119, 125; ♀ 111, 114, 117, 123, 128½ mm. There is little doubt that at least the last-mentioned specimen (14.VIII.1900, Wokan, AMNH no. 562563) belongs to the nominate race.

During May-July 1969, the middle of the southern winter, *C. tenuirostris* was a common and conspicuous bird on Karkar (= Dampier) Island (cf. Diamond & LeCroy, 1979: 488, 519). These authors concluded that the species was a new colonist as it had not been obtained by Meek's collectors in 1914. However, Meek's men worked on the island from January to March, the latest date given for a bird collected being 14 March (cf. Rothschild & Hartert, 1915a). Thus, this collection was made during summer and early autumn, when no migrants are to be expected.

I realize only too well that the elimination of *plumbea* as a valid subspecies leaves an awkward problem. *Coracina tenuirostris* is a highly polytypical species with a wide distribution in the Australian region. No less than 33 subspecies are currently recognized (cf. Peters et al., 1960: 185-189). New Guinea takes a central place in its total range; nevertheless, now, with *plumbea* having been withdrawn, New Guinea (except in the southern lowlands where *C. t. aruensis* occurs), with the islands of Misool and Salawati, becomes a great blank in the distribution. Adjacent islands like Biak, Numfor and the Louisiade Archipelago, all have their endemic subspecies. I have not neglected to consider other

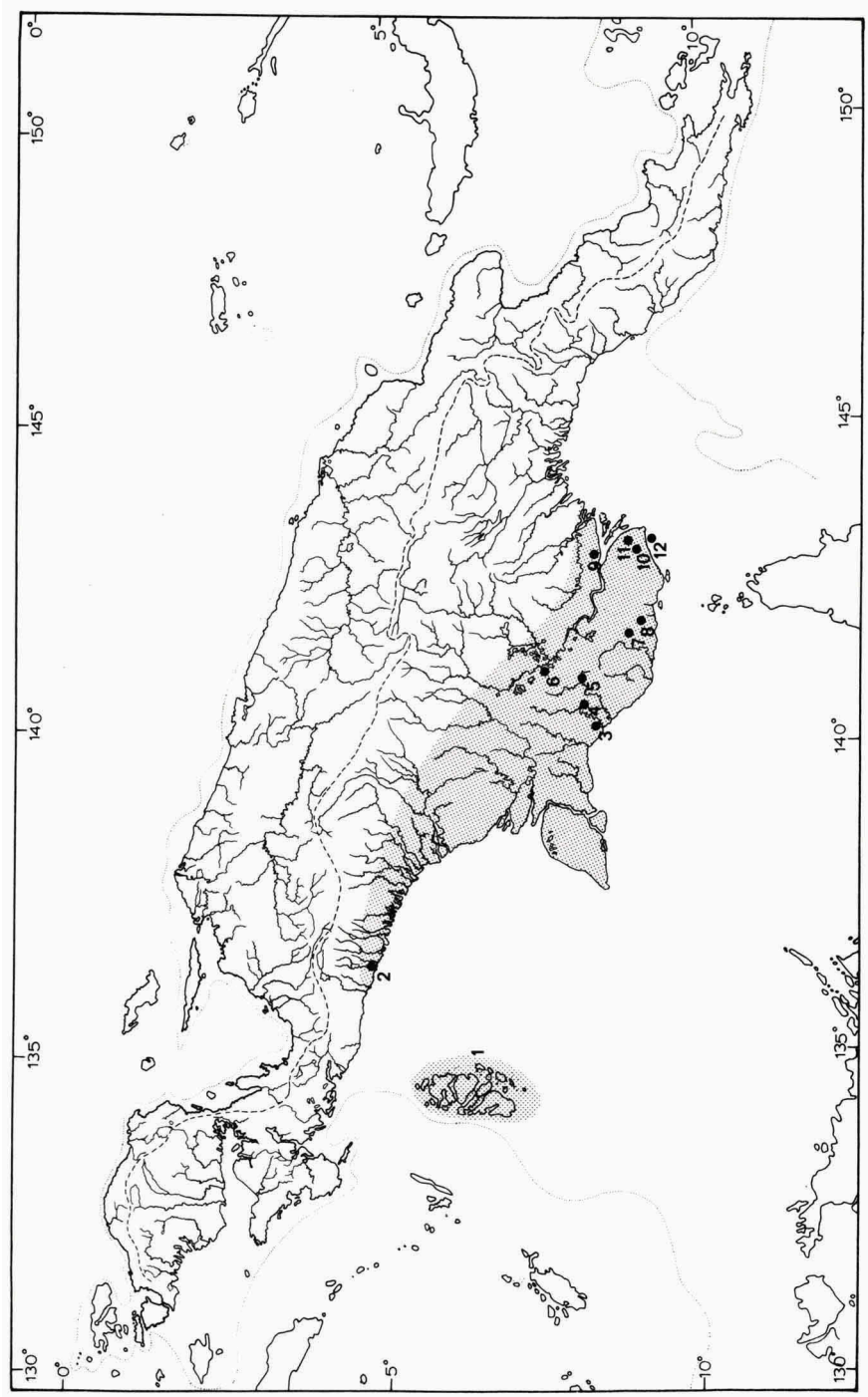

Fig. 7. Distribution of *Coracina tenuirostris aruensis*. 1, Aru Islands; 2, Mimika River; 3, Koerik; 4, Jakau; 5, Wanggo River; 6, Lake Daviumbu; 7, Penzara; 8, Tarara; 9, Gaima; 10, Dogwa; 11, Wuroi; 12, Daru Island.

possibilities that could explain the co-occurrence of two forms in southern New Guinea. The first would be that *C. t. aruensis*, although clearly belonging to the *C. tenuirostris* group of forms, is a separate species. The relation of *C. aruensis* to *C. tenuirostris* might resemble that of *Tanysiptera hydrocharis* to *Tanysiptera galatea*, the geographical ranges of *C. t. aruensis* and *T. hydrocharis* being rather similar. There is, however, one important difference: whereas the Aru Islands are the exclusive domain of *T. hydrocharis*, both *C. t. aruensis* and *C. t. tenuirostris* are found there. This would mean either a two-way invasion: *C. t. tenuirostris* to the Aru Islands and *C. t. aruensis* to the mainland, or a separation between the two going back in time to before the separation of the Aru Islands from the New Guinea mainland. Explanatory theories are possible, but are much more complicated than in the case of *Tanysiptera*, and therefore are less likely. The fact that the great majority of records of *C. t. tenuirostris* is from the winter months remains entirely unexplained, as remains the enigmatic disappearance of *C. t. tenuirostris* from its Australian breeding range in winter.

Another possibility is that *C. t. tenuirostris* has a breeding range extending over both eastern Australia and the "blank" area of New Guinea, and that individuals found in winter in southern New Guinea are Australian migrants, whereas in the remainder of New Guinea it is a resident. Such a distribution is unsatisfactory as it gives *C. t. tenuirostris* a breeding range, broken in two by *C. t. aruensis* (but compare the position of *Halcyon macleayii*!). It fails also to explain why in New Guinea *C. t. tenuirostris* occupies just about the range that one would expect a winter visitor from eastern Australia to have.

Finally, there is a distinct possibility that the whole concept of *C. tenuirostris* as a strongly polytypic species is erroneous. The genus *Coracina* is by no means well known, and it is debatable whether all forms included into *C. tenuirostris* by Peters et al. (l.c.) have found final placement there. For example, the forms *talautensis*, *salvadorii*, *pelingi*, *obiensis*, included without comment in *C. tenuirostris* by these authors, were assigned to *C. morio* by Stresemann (1939). Subsequently Jany (1955) decided that Stresemann had erred, and that *C. obiensis* (with the subspecies *pelingi*) is a separate species.

The study of *C. tenuirostris* and related species revealed that several specimens in our collection were misidentified. Here I shall only mention two misidentifications that have found their way into literature, and therefore require correction in print. The first is a bird from Merauke recorded by van Oort (1910: 81) under the name *Edoliisoma schisticeps poliopsa*, which is *C. tenuirostris aruensis*. The correction is of some interest in that *C. schisticeps*, although a lowland bird, does not usually occur in the coastal lowlands and does probably not occur in the vicinity of Merauke. The second concerns a specimen from Sibil, 1260-1290 m, listed by Mees (1964b: 16) as *Edolisoma schisticeps poliopsa*, but actually *C. morio incerta*. In spite of my rude remarks about sexing by the collector of this specimen, it is now apparent that it was correctly sexed as a female. Although Sibil would not be above the upper limit of distribution of *C. schisticeps*, it is at a level where one would expect *C. morio* to be more common.

For the benefit of the unwary, I further note that Rand & Gilliard (1967: 320) indicate for *C. tenuirostris* a culmen-length of 27-34 mm (culmen from skull!), for *C. morio* and *C. schisticeps* a culmen-length of respectively 16 and 17 mm (culmen from nostril?!, certainly not measured from the skull). Therefore these measurements are not comparable, a fact not mentioned by the authors.

Lalage leucomela polygrammica (G. R. Gray)

Campephaga polygrammica G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 179 — Aru Islands.

Material. — ♂, 12.VIII.1960, Merauke, no. 358. Wing 95, tail 60, tarsus 18½, entire culmen 17, exposed culmen 13 mm, weight 21 g. ♀, same data, no. 359. Wing 94, tail 62, tarsus 19, entire culmen 16, exposed culmen 11 mm, weight 23 g. ♂, 22.I.1961, Koerik, no. 554. Wing 92, tail 65, tarsus 20, entire culmen 16, exposed culmen 11½ mm, weight 25 g. Iris dark brown, bill and legs black. No moult.

Discussion. — The female is much greyer than two very brownish females from the Aru Islands in our collection, dating from over a century ago and therefore undoubtedly discoloured.

This species has a wide distribution in the Papuan region, northern and eastern Australia. Geographical variation in New Guinea has been discussed by Rand (1942a: 323-324), variation in Australia by Mayr (1940) and by Keast (1958c), who supported and confirmed Mayr's findings. Rand did not discuss the Australian subspecies, whereas Mayr and Keast made only passing references to the subspecies found in New Guinea, which means that from their papers it is impossible to distill in what the subspecies *L. l. polygrammica* and *L. l. yorki*, inhabiting opposite shores of Torres Strait and therefore the closest neighbours, differ from each other, but published measurements show that *L. l. yorki* is larger than *L. l. polygrammica*, the former having a wing-length of 94-102 mm (Mayr, Keast), the latter one of 90-97 mm (Rand).

Mayr believed that Mathews (1930: 549) erred in including Western Australia in the range and expressed the opinion that the species was not to expected there, but actually it has been known from the Drysdale River in the Kimberley Division of Western Australia since 1910 (cf. Hill, 1911: 278) and has more recently been collected as far west as the Prince Regent River (Storr et al., 1975).

Pomatostomus temporalis temporalis (Vigors & Horsfield)

[*Pomatorhinus*] *Temporalis* Vigors & Horsfield, 1827, Trans. Linn. Soc. Lond., 15: 330 — Shoalwater Bay.

Pomatorhinus temporalis cornwalli Mathews, 1912, Novit. Zool., 18: 335 — Cairns, North Queensland.

Pomatorhinus temporalis strepitans Mayr & Rand, 1935, Amer. Mus. Novit., 814: 6 — Dogwa, Oriomo River, Western Division, Territory of Papua.

Material. — ♀, 4.VIII.1960, Koerik, no. 326. Wing 116, tail 113, tarsus 33, entire culmen 31, culmen from anterior point of nostril 25½ mm, weight 75

g. ♂, same data, no. 327. Wing 117, tail 117, tarsus $33^1/_2$, entire culmen $34^1/_4$, exposed culmen 29 mm, weight 75 g. Iris cream colour, bill black, mandible largely flesh coloured, legs dark grey. No moult.

Discussion. — According to current nomenclature, these birds would belong to *P. t. strepitans*, which was diagnosed as being: "Similar to *cornwalli* Mathews from Cape York but differing in its darker coloration. The crown stripe and hind neck are darker grey, the back, rump, and wing-coverts more blackish; flanks, abdomen, and thighs much darker, less tinged with sandy. In *cornwalli* the upper back differs only slightly from the hind neck and crown stripe; in *strepitans* the dark upper back contrasts more sharply with the gray of the hind neck and crown stripe" (Mayr & Rand, 1935). Earlier, Hartert had compared three specimens from New Guinea with a large series from Cape York and adjacent northern Queensland, and had found them identical (cf. Bangs & Peters, 1926: 430). Comparing our five New Guinea specimens (the two from Koerik, and three from the Wanggo previously recorded as *P. t. strepitans* by Mees, 1964b: 16) with material from northern and eastern Queensland (RMNH and BM), I was unable to find any difference. Even though some of the Queensland material was very old so that one would expect it to be a bit duller than the more recently-taken New Guinea specimens, the two series agreed perfectly; New Guinea specimens are not darker and there is no difference in measurements either.

Northern Queensland opposite New Guinea is inhabited by the nominate race, *P. t. temporalis*, and that is what birds from southern New Guinea also belong to.

A short revision of the Australian races of this species was presented by Deignan (1950), who recognized a separate subspecies *P. t. cornwalli* from northern Queensland, but it is generally agreed that he admitted far too many subspecies (cf. Condon, 1951: 43; Mack, 1953: 24; Mees, 1961: 111-113; Frith & Hitchcock, 1974: 158-159; Cowles in Hall, 1974: 159). Even Deignan (1964a: 279) regarded *P. t. cornwalli* as doubtfully distinct.

A few more remarks about nomenclature and geographical variation in Australia are in place. Although formerly I have tried to retain more than one subspecies in the north-western part of the range, this was mainly for fear of appearing too radical on the basis of a somewhat inadequate material. Now I agree with the latest reviser, Cowles (l.c.), that: "it does not seem useful to retain more than three Australian subspecies out of the ten recognised by Deignan". The correct name for the north-western subspecies is *P. t. rubeculus* (Gould) and the fact that Cowles called it *P. t. nigrescens* (Mathews) must be due to an oversight as *rubeculus* has more than seventy years priority over *nigrescens*.

Deignan (1950) was apparently unaware that the colour of the iris changes with age, for in the description of his new subspecies *P. t. browni* he wrote: "I have noted that the type specimen had the irides straw yellow. This unusual eye colour may prove to be of subspecific importance". But Gould (1848: text to pl. 20) already described *P. temporalis* as having: "irides in the adult straw-yellow, in

the young brown'' and of *P. t. rubeculus* (the subspecies with which I synonymize *browni*) he also recorded the irides as straw-yellow. Recently Counsilman & King (1977) described the various stages the iris-colour passes through from juvenile to adult, the complete transition from dark brown to yellow apparently taking as long as three years.

Rhipidura rufiventris gularis S. Müller

Rhipidura gularis S. Müller, 1843, Verh. Nat. Gesch. Ned. Overz. Bez., Land- en Volkenk.: 185 footnote — Nieuw-Guinea (distrikt Lobo, rivier Oetanata, straat Prinses-Marianne).

Material. — ♂, 10.VI.1962, Koerik, no. 754. Wing 81, tail 76, tarsus —, entire culmen 17, exposed culmen 13^1/$_2$ mm, weight 13 g. ♀, same data, no. 755. Wing 79, tail 76, tarsus 14^1/$_2$, entire culmen 16, exposed culmen 12^1/$_2$ mm, weight 12 g. Iris dark brown, bill and legs black. Probably no moult.

Rhipidura leucophrys melaleuca (Quoy & Gaimard)

Muscipeta melaleuca Quoy & Gaimard, 1830, Voy. Astrolabe, Zool., 1: 180 — le hâvre Carteret à la Nouvelle-Irlande.

Material. — ♀, 5.VIII.1960, Merauke, no. 338. Wing 97, tail 96, tarsus 24, entire culmen 20, exposed culmen 13^1/$_2$, culmen from anterior point of nostril 11^1/$_2$ mm, weight 24 g. Iris dark brown, bill and legs black.

Discussion. — This specimen has the large bill which is diagnostic of the subspecies *melaleuca* (cf. Mees, 1961: 118-119).

Arses telescophthalmus harterti van Oort

Arses telescophthalmus harteri van Oort, 1909, Nova Guinea, 9: 87 — Noord River, Van Weel's Kamp, Sabang, Geitenkamp.

Material. — ♀, 29.IX.1960, Koerik, no. 447. Wing 78, tail 71, tarsus 16^3/$_4$, entire culmen 15^1/$_4$, exposed culmen 11^1/$_4$ mm, weight 12 g. 2♂, 13.X.1960, upstream Koembe River beyond Kaisa, nos. 471, 472. Wing 76, 79, tail 63, 65, tarsus 16, 17^1/$_4$, entire culmen 15^1/$_2$, 16^1/$_2$, exposed culmen 12, 12 mm, weights 13, 13 g. ♀, 14.X.1960, same locality, no. 480. Wing 76, tail 66, tarsus 17, entire culmen 16, exposed culmen 13 mm, weight 12 g. ♂, 19.III.1961, Koembe, no. 566. Wing 82, tail 70, entire culmen 16 mm, exposed culmen not measurable, weight 15 g. Iris brown or dark brown, bill light blue, light slate blue or dark slate with a black tip and with a blue-grey mandible, bare skin around eye light blue, legs dark grey or black. No. 566 shows moult of the primaries; the other specimens are not in moult.

Discussion. — These specimens are close to *A. t. aruensis* Sharpe, the types of which were available for comparison, but differ in the female sex by being distinctly colder brown on the upper parts, as pointed out by van Oort (1909).

the measurements now available show that the supposed smaller size of *harterti*, compared with *aruensis*, is at most insignificant. Van Oort (1910: 81) previously identified a specimen from Merauke as *harterti*. Our material is not sufficiently well preserved for the difference in size of the eye wattle mentioned by Rand (1942a: 338-340) to be noticeable.

Monarcha melanopsis (Vieillot)

Muscicapa melanopsis Vieillot, 1818, Nouv. Dict. Hist. Nat., 21: 450 — la Nouvelle-Galles du Sud.

Material. — ♂ juv., 23, IV.1961, Ongari, no. 592. Wing 76, tail 64, tarsus 18, entire culmen $18^1/_2$, exposed culmen $13^1/_2$ mm, weight 17 g. ♂ ad., 22.IV.1962, Koerik, no. 701. Wing 94, tail 74, tarsus $19^1/_4$, entire culmen $20^1/_4$, exposed culmen 16 mm, weight 25 g. Sex ? imm., 28.IV.1962, near Ongari, no. 710. Wing 73, tail 60, tarsus 18, entire culmen 20, exposed culmen 15 mm, weight 15 g. ♀ ad., 10.VI.1962, Koerik, no. 747. Wing 80 +, tail 71, tarsus —, entire culmen 20, exposed culmen 16 mm, weight 22 g. Iris brown or dark brown, bill of adults pale slate, of juveniles blackish, legs slate. Stomach contents: remains of insects. Both adults are marked as having had small gonads. The small wing-size of the female (no. 747) is explained by her being in full moult as well as badly damaged by shot. Plumages will be discussed below.

Discussion. — Juveniles of this species lack the black face-mask and are, to quote Rothschild & Hartert (1903: 455): "apparently indistinguishable" from *Monarcha cinerascens*. It is therefore mainly on geographical grounds (*M. cinerascens* is unknown from this part of New Guinea) that I have identified the two young birds as *M. melanopsis*.

No. 710 is the younger of the two; it is light grey on the upper parts, lighter than the adult birds, the primaries with buffish outer edges; the chin is light grey, but the lower throat is pale rufous, similar in colour to, but perhaps a little paler than the remainder of the under parts; the lores are almost white, with perhaps the faintest tinge of buffish.

No. 592 differs in that it is a little darker both above (grey) and below (rufous); chin, throat and breast are light grey, with only a suggestion of buffish on the lower chin; the lores are pale grey.

Keast (1958a: 91) accepted in Australia two subspecies: the nominate one ranging from Victoria to southern Queensland, and the slightly smaller *M. m. pallidus* Mathews ranging from Cardwell to Cape York. The wing-measurements presented by Keast in support of this distinction are not very convincing. Previously Rand (1942a: 336), who examined the same material later studied by Keast, clearly regarded the difference as much too slight to be expressed in nomenclature, whereas Mack (1953: 28), in a paper on birds of the Cape York Peninsula, stated categorically: "*melanopsis* is the only form present". As no other subspecies are recognized Mack should not have retained a trinomial. In view of the summary manner in which he has dismissed

numerous perfectly valid subspecies, I am surprised to note that Storr (1973: 94) has chosen to retain *M. m. pallidus*. I agree with the authors quoted earlier (Rand and Mack) who do not accept subspecies and therefore revert to a binomial for the species. In this connexion it is necessary to state that (1) it is by no means certain that a breeding population occurs in the extreme north of Queensland (this point will be further elaborated below), and (2) even if it does there is no guarantee that Mathews's type belonged to it and was not a migrant from the south. The whole description (Mathews, 1916) reads: "Differs from *M. m. melanopsis* (Vieillot) in being paler. Type, Cape York". It is not made clear whether there ever was an actual type specimen, or even whether he examined any specimens at all.

There is still controversy over the question whether *M. melanopsis* is in New Guinea a non-breeding migrant visitor from Australia only, or has also a resident population. The second opinion was brought forward by Mayr & Rand (1937: 148-149); these authors agreed that birds from south-eastern New Guinea were probably Australian migrants, but they listed two rather small specimens from south New Guinea (locality and date not given) with the following words: "♂ ad., wing 83; tail 64. ♂ imm., wing 79; tail... From this it appears that the birds from south New Guinea are smaller than southeast New Guinea birds, though we have only a single adult male from the former locality. The black on the forehead is of less extent in the south New Guinea bird, but there appears to be no color difference. A larger series from south New Guinea may show that it is necessary to separate these birds".

Subsequently Mayr (1941b: 134) recognized two subspecies from New Guinea as follows: *M. melanopsis melanopsis* with the range: "Northern and eastern Australia. — On migration and in the winter in southeast New Guinea, westward on the south coast as far as Hall Sound (? Fly River), on the north coast to the Huon Gulf (Finschhafen); Fergusson, Goodenough, Tagula and Trobiand islands", and *M. melanopsis* subspecies with the range: "South New Guinea from Merauke to the Oriomo River".

Rand (1942a: 336-337) recorded new material from the lower course of the Fly River. These specimens were also rather small. Nevertheless Rand considered it: "probable that these south New Guinea birds are winter visitors from Australia. None of the specimens collected was in breeding condition, and I found no specimens during the austral summer". Rand's 22 specimens were collected in the period 30 March-16 November, and near Bereina north of Hall Sound, Heron (1975) observed the species from 17 February to 15 September. Admittedly Nevermann obtained a female near Merauke as late as 5 December 1933 (cf. Stresemann & Paludan, 1935: 456).

Rand & Gilliard (1967: 393) expressed themselves cautiously: "Though this bird is considered only an off-season visitor to New Guinea, with occasional stragglers staying into the austral summer, there is the possibility that there may be a resident population in south New Guinea".

My own evaluation of the available evidence is, that the occurrence of a resi-

dent population of *M. melanopsis* is southern New Guinea is not only entirely unproved, but also unlikely. I find in particular Mayr's presentation, with two subspecies, one the migrant visitor, with winter quarters confined to the lowlands of south-eastern New Guinea, and the other a resident, confined to the contiguous more westerly parts of the same lowlands of southern New Guinea, unacceptable.

Closely related to *M. melanopsis* and even now thought to be conspecific by some authors (cf. Storr, 1973: 95) is *M. frater*, a species occurring over most of New Guinea and in the extreme north-eastern part of Australia. One of the arguments for treating *M. frater* and *M. melanopsis* as different species is their supposed co-occurrence in the Cape York Peninsula, see the distributional maps given by Slater (1975: 182-183) and Crone in Frith (1976: 382-383). Note, however, that Crone states of *M. melanopsis*: "At Iron Range, Qld., the birds appear for only short periods around September and March". The implication is that these birds are migrants, passing through on their way to and from the winter quarters, and although Crone also says that there are sedentary populations in north Queensland, these would be farther south. I doubt that *M. frater* and *M. melanopsis* co-occur as breeding-birds.

In spite of this, I consider *M. frater* to be a distinct species, for the differences are greater than the literature would suggest. *M. frater* differs in plumage from *M. melanopsis* as follows: wings and tail black, not grey, black on forehead more extensive (reaching to around the eyes in one subspecies), but black bib smaller, grey breast band considerably wider, grey plumage, both back and breast, a little paler.

Although I regard *M. frater* as a distinct species, this is a good opportunity to draw attention to the confusion surrounding in particular its Australian population. In New Guinea currently three subspecies of *M. frater* are recognized: the nominate race which is confined to the Vogelkop Peninsula, *M. f. kunupi* from the Weyland Mountains, and *M. f. periophthalmicus*, occupying the remainder of New Guinea. The most conspicuous difference between the nominate race and the other two forms, is that the former has the black face mask not extending to the eyes, although there may be some black above the eyes, whereas in the two other subspecies the black is continued backwards to around the eyes, forming a complete black eye-ring. Discussing the Australian population, Keast (1958a: 91) suggested that it was consubspecific with the population of opposite New Guinea, but he did not apply a subspecific name to the Australian population. This was done by Macdonald (1973: 368) who called Australian specimens *M. f. periophthalmicus*. Storr (1973: 95) pointed out that *M. canescens* Salvadori, 1875, described from Cape York, has priority over *M. f. periophthalmicus* Sharpe, 1882, so that if birds from Australia and New Guinea are the same, *M. f. canescens* is the valid name. Whether they indeed are identical remained to be seen for the descriptions one finds in the Australian literature are contradictory. More exactly: does the Australian bird have a black eye-ring, as it must have if it is identical with *periophthalmicus*? The coloured plates in Mathews (1921: pl. 411), Officer

(1969: pl. III fig. 6) and Slater (1975: pl. 20 fig. 11) all show it without a black eye-ring, which would mean that the Australian bird is not the same as *periophthalmicus*. But in his text, Officer says: "A ring round the eye and the forehead black". Macdonald (1973: 368), on the other hand, claims of the Australian bird: "black face mask extending close to the eye" and Slater (1975: 183) says about the same, hence, no black eye-ring. In the most recently-published work I have it says: "forehead, lores, behind eye black", suggesting that a black eye-ring is present (Crone in Frith, 1976: 383).

The holotype of *Monarcha canescens* is in the Genoa Museum, where Dr. Violani examined it. From notes, a sketch and photographs provided by him it is clear that the black mask does not reach to the eye. In other words, this subspecies is not identical with the populations of opposite southern New Guinea, and the latter retain the name *Monarcha frater periophthalmicus*.

Some years ago I claimed that the gender of *Monarcha* was feminine. This was after a search in several Greek and Latin dictionaries, in which I found the words *Monarchus* and *Monarchos*, but not *Monarcha*. Hence, I concluded that *Monarcha* was not of classical origin and therefore should take the gender ascribed to it by its authors. Since then my attention has been drawn to the fact that *Monarcha* actually is a classical word, and that its gender is masculine (G. Steyskal, Z. Stewart).

Piezorhynchus alecto chalybeocephalus (Garnot)

Muscicapa chalybeocephalus Garnot, 1828, Voy. Coquille, Zool., 1: 589, pl. 15 fig. 1 — La Nouvelle-Irlande.

Material. — ♂, 4.VIII.1960, Koerik, no. 330. Wing 86, tail 71, tarsus 19, entire culmen 19, exposed culmen 13 mm, weight 19 g. ♂, 15.IX.1960, Koerik, no. 406. Wing 90, tail 75, tarsus 20, entire culmen 20, exposed culmen $14^1/_2$ mm, weight 20 g. ♀, 24.IX.1960, Koerik, no. 436. Wing 82, tail 72, tarsus 20, entire culmen 20, exposed culmen $14^1/_2$ mm, weight not recorded. Iris dark brown, bill light slate with a black tip, legs slate. No moult. A clutch of two eggs, V.1960, village Tor, Frederik Hendrik Island, RMNH reg. no. 80635, measurements 22.0 × 16.1, 22.7 × 15.7 mm, weights 0.1245 and 0.1344 g.

Discussion. — Following its description in the genus *Drymophila*, this species had been placed in the genera *Muscicapa*, *Monarcha*, *Tchitrea*, *Myiagra*, *Piezorhynchus* and *Seisura*, before Salvadori transferred it (again) to *Monarcha*. Ignoring Mathews, who placed almost every species in its own genus and therefore contributed nothing to knowledge of their interrelationships, the first to challenge the position of *P. alecto* in the genus *Monarcha* appears to have been Mack (1953: 28), who observed: "There is a tendency at present to refer back to the genus *Monarcha* some Australian species of flycatchers. This is all to the good in some instances, but I prefer to retain *Piezorhynchus* for the present species. The marked difference in plumage between the sexes is sufficient reason for maintaining a convenient subdivision". Keast (1958a) added a very fair discussion, concluding

that: "Whether or not the species in the genera *Myiagra*, *Seisura*, and *Piezorhynchus*, should be regarded as belonging to a single genus depends largely on whether a worker wishes to give his genera a wide or a 'moderate' meaning. The segregation is an old one...". This was all the encouragement later authors needed, riding high on the tide of simplification, to unite both *Seisura* and *Piezorhynchus* with *Myiagra*. This may well be correct, but the Monarchine group of flycatchers is badly in need of a revision and before the necessity of the assignment of *alecto* to *Myiagra* is established without doubt, I prefer to retain the genus *Piezorhynchus* for it. One reason for this is that *P. a. nitidus* Gould, 1841, becomes a secondary homonym of *Myiagra nitida* Gould, 1838, if transferred to *Myiagra*, and would, after having been in use for almost a century and a half, have to be replaced by one of Mathews's forgotten names. *Myiagra nitida* Gould, 1838, is nowadays regarded as a synonym of *Myiagra cyanoleuca* (Vieillot, 1818), but it continues to preoccupy in the genus *Myiagra*.

In a previous paper I expressed doubt about the validity of *P. a. chalybeocephalus* (cf. Mees, 1972: 83). Hoogerwerf's specimens confronted me anew with this problem, so that once more I got our material of this species out. The geographical variation in the New Guinea region has been studied by Mayr (1941a) and the Australian forms by Keast (1958a) and Galbraith (in Hall, 1974). Although Mayr did not deal comprehensively with the Moluccan birds (the nominate race), he mentioned "that the adult females of *alecto* differ from New Guinea females by having the back washed with grayish which gives it an olive hue instead of the bright chestnut of *chalybeocephalus*", and that, as far as I know, is the only difference between the two subspecies ever given in literature (Finsch, 1901: 204-205, appears to be the first to have discussed these differences). It is, however, partly contradicted by Mayr (l.c.) himself, who under *M. a. chalybeocephalus* states: "Under this name a great number of island populations are combined in some of which the females have a pale back, in others a dark chestnut one", etc.

The species is represented in our collection by 112 specimens, several of which are insufficiently labelled and therefore are of very limited value. They are geographically divided as follows:

I. Australia: Derby, W.A. (♀); Port Darwin, N.T. (♂, ♀); Cape York, Q. (♂); North Australia without exact provenance (♂, ♀).

II. New Guinea and its satellite islands: mainland New Guinea (21 ♂, 4 ♂ juv., 12 ♀); Gebe (2 ♂, ♂ juv., ♀); Gagi (♂, ♂ juv., ♀); Waigeo (♂, ♂ juv., ♀); Batanta (♂, ♀); Misool (3 ♂, 2 ♀); Salawati (♂, 2 ♀); Biak (2 ♂, ♀); Meosnum (2 ♂); Mafoor = Numfoor (3 ♂, ♀); Jobi = Japen (♂); Ferguson Island (♂).

III. Bismarck Archipelago: New Britain (♂, 3 ♀); Duke of York = Mioko (2 ♂, ♀).

IV. North Moluccas: Morotai (2 ♂); Ternate (4 ♂, ♂ in change, ♂ juv., 4 ♀); Tidore (♂); Mare (♂, ♀); Moti (♂, ♀); Halmahera (♂, 2 ♂ juv.); Moor off E. Halmahera (♂); Damar off S. Halmahera (2 ♂); Obi-latoe (♀).

V. Aru Islands: (2♂, 2♂juv. = ♀, fledgeling).

VI. Timor Laut = Tanimbar Islands (♂).

The most distinctive specimen in this series is the female from Derby, W.A., which has the bill longer and more slender than any other specimen and, although it is an adult bird (sexed by me personally), has the crown dark grey with but a slight greenish sheen instead of glossy blue-black as in all other populations. The specimen is almost topotypical of *P. alecto tormenti* Mathews and entirely conforms to Keast's (1958a) diagnosis of this apparently well-marked subspecies. Galbraith (l.c.) mentioned that the only female of this subspecies examined by him had a glossy blue-black crown as in other races, showing that there is individual variation in this character. Anyway, the long and slender bill is in itself sufficient guarantee of the validity of this subspecies.

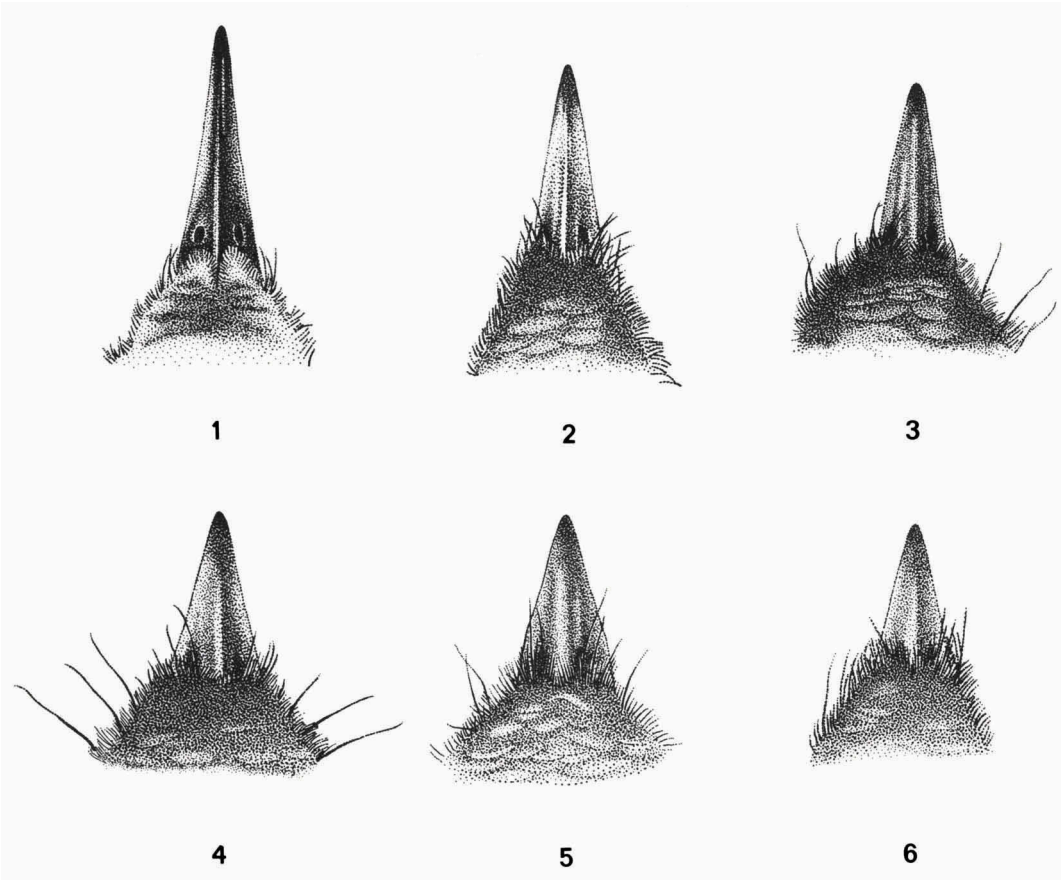

Fig. 8. *Piezorhynchus alecto*: geographical variation in shape and size of the bill. 1, Derby, Western Australia; 2, Port Darwin, Northern Territory; 3, Wanggo, southern New Guinea; 4, Sorong, western New Guinea; 5, Ternate, Moluccas; 6, Morotai, Moluccas. 2 x .

The two specimens from Port Darwin have slightly shorter and broader bills than the Derby bird, but the bills are longer and more slender than in all other specimens except the one from Tanimbar. The female has a glossy crown. *P. a. nitidus* Gould, which if the species is placed in *Myiagra* will have to be known as *M. a. melvillensis* (Mathews).

The specimen from Cape York has a damaged bill, but evidently its bill has been shorter again than that of the Darwin birds. It does not appear to be distinguishable from birds from opposite southern New Guinea. Keast (l.c.) applied the name *P. a. wardelli* Mathews to birds from Cape York and islands in the Torres Strait (he examined specimens from Banks Island), and Mayr (1941a), who at the time was not concerned with geographical variation within Australia and tentatively combined all Australian birds under the name *Monarcha alecto nitida* (Gould), included specimens from Daru Island, off the south coast of New Guinea, in the Australian subspecies.

Birds from New Guinea and surrounding islands (listed above under II and III) show a reasonably homogeneous appearance and in agreement with Mayr may all be assigned to *P. a. chalybeocephalus* (Garnot). Much of the variation in the dorsal colour of the females noted by Mayr appears to be due to individual variation and external factors (state of plumage) rather than to geographical variation. Specimens from southern New Guinea (Koerik, Merauke, Wanggo River) tend to have more slender bills than birds from elsewhere, but the difference is too slight to find expression in nomenclature. The evidence suggests that the Australian populations referred to *P. a. wardelli* by Keast should be united with the New Guinea subspecies, but this remains to be verified on the basis of a more adequate material.

Birds from the North Moluccas (listed above under IV) belong to the nominate race, *P. a. alecto* (Temminck). Unfortunately few females are available, but they tend to have more extensive grey on the upper back than females of *P. a. chalybeocephalus*, the character previously noted by Finsch and by Mayr. In addition there is a difference in size between the two subspecies, the nominate race averaging a little smaller. Wing-length of *P. a. chalybeocephalus*: 36♂84-93 (89.4) mm, 21 ♀ 77, 81-90 (84.7) mm; of *P. a. alecto*: 16 ♂ 76, 78-88, 91 (83.75) mm, 7♀ 76-83 (80.3) mm. It should be noted that the one large Moluccan bird with a wing-length of 91 mm is merely labelled "Ternate", without any further information such as date or collector, and may well be mislabelled. Within the Moluccas the two specimens from Morotai (both adult males) are small (wing-length 76, 82 mm) and have very small bills.

The two presumed adult females from the Aru Islands have dull dark grey extending from behind the glossy black crown over the whole upper back. Mayr noted the same character in his material, hence my specimens further confirm the validity of *P. a. rufolateralis* G. R. Gray. In shape of bill this subspecies agrees with *P. a. chalybeocephalus*.

The one adult male from the Tanimbar Islands has a long and slender bill, similar to the bill of *P. a. nitidus* from Darwin. It is a large bird (wing 93 mm; the

wing of the Darwin male measures 89 mm). This one specimen suggests that *P. a. longirostris* Mathews is a valid race, closer to *P. a. nitidus* than to the subspecies inhabiting New Guinea and the Moluccas.

In addition a loan of thirteen specimens was received from ZMA: Ternate (6 ♂, 3 ♀), Halmahera (2 ♂, ♀), and Gebe (♂). Wing-length of the birds from Ternate and Halmahera: 8 ♂ 79 1/2-88 (85.6), 4 ♀ 79-83 (81.25).

The wing-lengths of specimens from Gebe (RMNH and ZMA) are: ♂ 85, 86, 89 mm, ♀ 84 mm. These measurements agree better with those of *chalybeocephalus* than with those of the nominate race to which I assigned birds from Gebe in a previous publication (Mees, 1972: 83).

Postscript. — It is relevant to add a few words on the type-locality of *Piezorhynchus nitidus* Gould. The name was based on a single adult male, and was introduced with the following elucidation: "The only specimen I possess was forwarded to me by E. Dring, Esq., surgeon of H.M.S. Beagle, by whom it was procured on the north-west coast of Australia" (Gould, 1841). Stone (1913: 160) and de Schauensee (1957: 215) listed a male from Port Essington in the Academy of Natural Sciences of Philadelphia as the holotype, and nobody appears to have queried the authenticity of either this specimen or its locality of provenance. In my opinion, it is highly questionable that this specimen is the type, for Port Essington is not on the north-west coast of Australia as understood by Gould. In the same paper in which *P. nitidus* was described, *Entomyzon albipennis* was introduced, with provenance: "Port Essington on the northern coast of Australia". There is ample evidence that Gould's "north-west coast" is what is nowadays known as the West Kimberley Division, and the officers of the Beagle are known to have done much ornithological collecting there (cf. Mees, 1961: 112-113).

Gould's description of the type-specimen supports the view that it could only have come from Western Australia: "*Rostrum* quàm caput longius, altius plusquàm latum, ferè cylindraceum, lateralitèr compressum, apicem versus denticulatum", and the measurements: total length 7 1/4, bill.1 1/8, wing 3 1/4, tail 3 1/4, tarsi 3/4 inches. Converted into mm the bill had a length of ca. 28.5 mm, which even for a specimen from Western Australia is long (too long?) and for a specimen from Port Essington would be excessive. My female from Western Australia has a culmen-length of 23 mm, exposed culmen 16 3/4 mm; a male from Port Darwin has culmen from skull 21 mm, exposed culmen 15 mm, a female from Port Darwin has culmen from skull 20 1/4 mm, exposed culmen 14 mm. De Schauensee records for the Philadelphia "holotype" a length of the exposed culmen of 16 mm, which means that its entire culmen could not have been more than 22 1/2 mm at most, far less than the 28 1/2 mm of the type (even allowing for the possibility that Gould has exaggerated the length of its bill), and confirms its provenance from Port Essington. Moreover, birds from the Darwin area have the bills basally wider, their bills do not have the narrowness that was made the main generic character by Gould.

A correction of the type-locality appears to me inevitable. As a shift of names will be necessary anyway, this removes my main objection against transferring *P. alecto* to the genus *Myiagra*.

Myiagra rubecula rubecula (Latham)

Todus Rubecula Latham, 1801, Suppl. Ind. Orn.: xxxii — Nova Hollandia = New South Wales (cf. Latham, Gen Syn. Birds Suppl. II: 147), restricted to Sydney by Mathews (1923, Birds Austr. Suppl. 2: 134).

Material. — ♀, 5.VIII.1960, Merauke, forest along the river, no. 339. Wing 71, tail 60, tarsus $15^1/_2$, entire culmen $16^1/_2$, exposed culmen $11^3/_4$ mm, weight 15 g. Iris dark brown, bill blackish, basal half of mandible light brownish. No moult.

Discussion. — The specimen clearly belongs to the broad-billed nominate race breeding in eastern Autralia, which is known to winter in southern New Guinea. Rand (1941: 12) believed that the specimens he collected in 1936/37 constituted the first record of this subspecies in New Guinea, but thirty years earlier, on 26.XI.1907, Dr. J. W. R. Koch had already obtained one at Merauke about which van Oort (1909: 86) wrote: "This specimen in female's plumage agrees with examples of *M. rubecula* from Australia". This bird is still in our collection, it is very similar to Hoogerwerf's bird from the same locality; both have the broad flat bill which is diagnostic of the nominate race.

This subspecies is generally accepted as a winter visitor from Australia and if it were not, the co-occurrence of this and the following race in southern New Guinea would be difficult to explain. Rand (1941) stated of this race: "Found near sea level between March 21 and October 31", but his list of material collected includes a specimen dated 21 November, and Koch's specimen extends this period by another five days. Thus this migrant has been recorded in its winter quarters over a period of more than eight months. It is known that in south-eastern Australia *M. rubecula* is strictly a summer visitor. Wilson in Frith (1969: 356): "There is a very well marked migratory movement in south-eastern Australia generally. It arrives here about the middle of October and leaves by the middle of April and there are no winter records". According to other authors, the birds stay from September to the end of March in south-eastern Australia (cf. Officer, 1969: 21, etc.). These data fit well those from New Guinea, although the birds from the second half of November appear to be definitely late.

Myiagra rubecula papuana Rothschild & Hartert

Myiagra rubecula papuana Rothschild & Hartert, 1918, Novit. Zool., 25: 317 — Kumusi River.
Muscicapa tasmanii van Oort (ex Temminck MS), 1909, Nova Guinea, 9: 86 — nomen nudum (Lobo Bay).

Material. — ♂, 24.IX.1960, Koerik, No. 435. Wing 77, tail 65, tarsus $14^3/_4$, entire culmen 16, exposed culmen $11^1/_2$ mm, weight 11 g. Iris dark brown, bill light slate blue with a dark tip, legs dark grey, almost black. No moult.

Microeca flavigaster tarara Rand

Microeca flavigaster tarara Rand, 1940, Amer. Mus. Novit., 1074: 3 — Tarara, Wassi Kussa River, Western Division, Territory of Papua, New Guinea.

Material. — ♂, 8.I.1961, Koerik, no. 551. Wing 72½, tail 47, tarsus 13, entire culmen 13, exposed culmen 9¼ mm, weight 13 g. ♀?, 30.IV.1961, Koerik, no. 597. Wing 69, tail 42, tarsus 13, entire culmen 12, exposed culmen 8½ mm, weight 10 g. Sex ?, 27.V.1962, Koerik, no. 731. Wing 74, tail 48, tarsus —, entire culmen 13, exposed culmen 9 mm, weight 11 g. Iris brown or dark brown, bill: upper black or blackish, lower light brownish or brownish flesh-colour, legs black. No. 551 shows primary moult.

Discussion. — Between the several authors who have studied this species systematically there is a conspicuous lack of agreement over the number of subspecies to be recognized and their characters. Rand (1940) recognized four subspecies in Australia and two more in New Guinea. The naming of *M. f. tarara* was speculative as comparative material of the previously-described New Guinea subspecies *M. f. laeta* Salvadori was not available to him. Subsequently, Mack (1953: 29) stated that he could recognize only two subspecies in Australia: the nominate race and *M. f. terraereginae* Mathews, but he failed to give evidence in support of this opinion. He was followed by Keast (1958a: 94) who arrived at the same conclusion, based on the examination of much material. Deignan (1964b: 406) added some remarks on individual variation caused by wear, and this was confirmed by Galbraith in Hall (1974: 219-221). Unfortunately none of these authors (since Rand) included the New Guinea populations in their reviews. Hoogerwerf's specimens from Koerik appear to differ from two specimens of *M. f. flavigaster* Gould collected in December 1974 at Edith River, N.T., by having their throats slightly tinged with dirty yellowish: I find the difference far less striking than descriptions had led me to expect. Previous revisers were handicapped by lack of adequate material and so am I; therefore I accept *M. f. tarara* for the time being. Until comparisons between fresh material of *M. f. terraereginae*, *M. f. laeta* and *M. f. tarara* have been made, the validity of the last-mentioned subspecies remains, however, hypothetical.

I am surprised to see that in Northern Territory specimens of this species, Deignan (1964b: 407) "noted that adults of either sex had the irides red: the bill black; the feet and toes slate; the claws black. Juveniles differed in having the irides brown, and the bill horny brown, more yellowish on the basal half of the mandible". The two specimens from the Edith River, N.T., collected by me personally, are adult males with fully ossified skulls, moderately enlarged gonads, singing when collected, and in both I indicated the iris as dark sepia-brown, bill black, basal two-thirds of mandible light brown, legs black. This agrees quite well with Hoogerwerf's notes on colours of the unfeathered parts in New Guinea specimens, listed above.

The Australasian genus *Microeca*, in superficial morphology and behaviour closer to *Muscicapa* (*M. striata*) than any of the other genera of flycatchers of the

region, is in New Guinea represented by five species. One of these, *M. leucophaea*, widely distributed in Australia, is in New Guinea confined to the surroundings of Port Moresby. The Port Moresby population, known since 1920, was described as a separate subspecies *Microeca leucophaea zimmeri* Mayr & Rand (1935: 7); its description looks convincing and I find it difficult to understand how Macdonald (1973: 351) could dismiss the occurrence of this species in New Guinea with the words: "occurrence at Port Moresby in New Guinea probably due to assisted passage", without any reference to geographical variation or to the name *zimmeri*.

Poecilodryas pulverulenta (Bonaparte)

Myiolestes pulverulentus Bonaparte, 1850, Consp. Gen. Av., 1: 358 — N. Guinea = Utanata R.
Eopsaltria leucura Gould, 1869, Ann. Mag. Nat. Hist., (4) 4: 108 — The Cape-York district.
Poecilodryas cinerea Sharpe, 1879, Notes Leyden Mus., 1: 26 — Noisaroe, Arfak Mountains.
Poecilodryas cinereiceps Hartert, 1905, Novit. Zool., 12: 231 — island near Hampton Harbour.
Pachycephala leucura alligator Mathews, 1912 (31 Jan.), Novit. Zool., 18: 312 — Northern Territory (Alligator R.).
Pachycephala leucura connectens Mathews, 1912 (31 Jan.), Novit. Zool., 18: 312 — Pt. Torment, North-West Australia.
Pachycephala leucura greda Mathews, 1912 (2 April), Austr. Av. Rec., 1: 40 — Melville Island, Northern Territory.
Quoyornis leucurus normani Mathews, 1914, Austr. Av. Rec., 2: 93 — Norman River, North Queensland.
Quoyornis leucurus mimika Mathews, 1931, Bull. Brit. Orn. Cl., 52: 25 — Mimika River, Dutch New Guinea.

Material. — 3 ♂, 25.IX.1960 (2 ×) and 22.I.1961, Koerik, nos. 438, 439, 553. Iris dark brown, bill black, legs dark grey or black. For measurements and weights, see Table VII.

Discussion. — Mayr & Rand (1937: 141-142) discussed the variation in New Guinea, assigning all specimens to the nominate race, except those from the Aru Islands, which: "had a darker breast-band than the New Guinea birds, though the upper parts were about the same, and they could best be referred to the Australian *leucura*". Keast (1958a: 102-103) reviewed the species in its Australian range. Under the caption Geographical Variation he wrote: "This is mainly in the dorsal coloration. The specimen from the "mid-west", those from Derby and the two females from Napier Broome Bay, are distinctly paler (lighter grey) above than the typical. Melville Island and Alligator River birds are a stage darker towards the Cape York-east Queensland type. Birds from the intermediate dry area at Normanton are relatively pale above. The Normanton birds lack the greyish breast marking but so do many of the Melville Island birds". Keast expressed this variation in nomenclature by recognizing three subspecies in Australia: *Peneoenanthe pulverulenta leucura* from Cape York and eastern Queensland, *P. p. alligator* from the Gulf of Carpentaria to coastal Northern Territory, and *P. p. cinereiceps* from Mid-western Australia to the Kimberleys. Galbraith in Hall (1974: 224-226) studied fresh material from

TABLE VII

Poecilodryas pulverulenta (Bonaparte)

coll.no. RMNH	sex	date	locality	wing	tail	tarsus	entire culmen	exposed culmen	weight (g)
cat. 1 [1]	♂	VI.1828	Oetanata	89	64	22¼	19	13	-
cat. 2 [1]	♂	"	"	84	62	23	19	15	-
cat. 3 [1]	♀	"	"	77	54	21	16¾+	12¼+	-
cat. 5	♂	I.1865	Aru Isl.	84	62½	21¼	17½	14	-
cat. 6	♂	"	"	80	59	-	18½	13½	-
cat. 4 [2]	♀	16.I.1876	Nusaron, Arfak	86	59	21¼	18¾	13½	-
-	♂	22.IV.1903	Metoe Debi, Humboldt Bay	87	63	20½	-	-	-
-	♂	28.IV.1903	"	89	67	21¾	19	13	-
H 438	♂	25.IX.1960	Koerik	78	55	21	18	14	20
H 439	♂?	"	"	81	59	20	19	15	19
H 553	♂	22.I.1961	"	83	60	22	17	13	21
54847	♀ im.	9.IX.1968	Wyndham, W. Aust.	-	-	22½	18	13½	17.1
54852	♂	10.IX.1968	"	81	57	22	19¼	15½	21.0
54855	♂	11.IX.1968	"	82	58	23	17	14	21.0
54856	♀	"	"	80	56	23	18	12½	17.3

1) Syntype of *Myiolestes pulverulentus*

2) Holotype of *Poecilodryas cinerea*

Australia and concluded that two Australian races should be recognized in his material: *P. p. leucura* from Queensland and *P. p. cinereiceps* from Western Australia. He had no material from the Northern Territory and therefore was not in a position to discuss the validity of *P. p. alligator*. The character mentioned by Galbraith was the same as that used by Keast, a slightly paler dorsal coloration in the western populations, but he added a second character: Queensland birds are separable on the decidedly greater amount of black on the face. In my material this character shows much individual, but no apparent geographical, variation. Contrary to the authors mentioned above, I am unable to see any difference in colour of the upperparts or of the "breast-band" (an incorrect name for the pale grey tinge of the breast) between birds from New Guinea, the Aru Islands and Australia. Table VII shows that it is not possible to separate the various populations on the basis of measurements either. Therefore I have concluded that no subspecies should be recognized in this species.

Megalurus timoriensis subsp.

Material. — ♀, 5.VIII.1960, Merauke, no. 335. Wing 62, tail 76½, tarsus 24, entire culmen 16, exposed culmen 13 mm, weight 17 g. Iris light brown, bill black, base of mandible light flesh colour, legs light flesh colour.

Discussion. — See Hoogerwerf (1964: 157). This specimen ought to be *M. t. muscalis* Rand (1938b: 4), but I have an impression, strengthened by remarks made by Sims (1956: 414-415), that the species is badly oversplit at the subspecific level, both in New Guinea and elsewhere and therefore I refrain from applying a subspecific name to this single specimen that, moreover, is not in a particularly good condition.

Gerygone magnirostris mimikae (Ogilvie-Grant)

Pseudogerygone conspicillata mimikae Ogilvie-Grant, 1915, Ibis, (10) Jub. Suppl. 2: 168 — Mouth of the Mimika River.

Material. Sex ?, 19.VIII.1960, Merauke, no. 364a. Wing 56, tail 40, tarsus 18, entire culmen 13½, exposed culmen 9½ mm, weight not recorded.

Discussion. — A nest of this species, parisitized by *Chrysococcyx malayanus*, was found on 15.II.1962, see p. 84-85.

Malurus alboscapulatus dogwa Mayr & Rand

Malurus alboscapulatus dogwa Mayr & Rand, 1935, Amer. Mus. Novit., 814: 11 — Wuroi, Oriomo River, Western Division, Territory of Papua.

Material. — ♀ ?, 5.VIII.1960. Merauke, no. 336. Wing 46, tail 41, both tarsi damaged, entire culmen 12¾, exposed culmen 10 mm, weight 7 g. Iris brown, bill black, base of mandible lighter, legs brownish flesh colour. ♂ ? (in ♀-plumage), same data, no. 337. Wing 45½, tail 48½, tarsus 20, entire

culmen 12¼, exposed culmen 9¾ mm, weight 7 g. ♂, 25.IX.1960, Koerik, no. 445. Wing 43, tail 34, tarsus 20, entire culmen 11¾, exposed culmen 10 mm, weight 6 g. Iris dark brown, bill black, legs dark grey, almost black. No. 336 shows heavy tail moult, the other specimens are not in moult.

Discussion. — Compared with the type material of *M. a. lorentzi* van Oort, these specimens show exactly the differences noted by Mayr & Rand (1935) in the description of *M. a. dogwa*: finer bills, slightly smaller wing measurements, and the birds in female plumage are dorsally less dark.

Pitohui ferrugineus ferrugineus (Bonaparte)

Rhectes ferrugineus Bonaparte, 1850, Comp. Rend. Acad. Sci. Paris, 31: 563 — la Nouvelle Guinée = Triton Bay.

Material. — ♀, 24.XI.1960, Koerik, no. 526. Wing 138, tail 115, tarsus 38, entire culmen 30, exposed culmen 26 mm, weight 96 g. Iris white, bill black, legs dirty slate. ♀, 10.VI.1962, Koerik no. 750. Wing 135, tail 115, tarsus 36½, entire culmen 32, exposed culmen 26½ mm, weight 89 g. Iris whitish, bill dark grey, mandible a little lighter, legs light slate. Stomach contents remains of insects amongst which the skin of a large green caterpillar. Neither specimen shows moult.

Discussion. — These birds belong to the nominate race (cf. Mees, 1964b: 20). Note that Mayr (1967: 50) retained the lowlands of southern New Guinea in the range of *P. f. clarus* (Meyer).

Colluricincla megarhyncha megarhyncha (Quoy & Gaimard)

Muscicapa megarhyncha Quoy & Gaimard, 1830, Voy. Astrolabe, Zool., 1: 172 — Dorey.

Pinarolestes megarhynchus goodsoni Hartert, 1930, Novit. Zool., 36: 59 — Merauke.

Myiolestes megarhynchus wuroi Mayr & Rand, 1936, Mitt. Zool. Mus. Berlin, 21: 247 — Wuroi, Oriomo Fluss, Western Division, Territory of Papua.

Myiolestes megarhynchus palmeri Rand, 1938, Amer. Mus. Novit., 991: 10 — Palmer River, two miles below its junction with Black River, south New Guinea.

Material. — ♂, 12.VIII.1960, Merauke, no. 360. Wing 101, tail 79, tarsus 24 mm, bill damaged, weight 35 g. ♂, 31.VIII.1960, Koerik, no. 383. Wing 97, tail 73, tarsus 26, entire culmen 24, exposed culmen 19 mm, weight 39 g. ♀, 8.I.1961, Koerik, no. 547. Wing 96, tail 73, tarsus 25 mm, bill damaged, weight 37 g. ♂, 19.III.1961, Koerik, no. 564. Wing 96, tail 73, tarsus 24, entire culmen 23, exposed culmen 20 mm, weight 37 g. ♀, 27.III.1962, Koerik, no. 626. Wing 92, tail 67, tarsus 25 mm, bill damaged, weight 40 g. ♂, 2.IV.1962, Koerik, no. 636. Wing 95, tail 71, tarsus 26, entire culmen 22¼, exposed culmen 17 mm, weight 38 g. ♀, 10.VI.1962, Koerik, no. 743. Wing 92½, tail 71, tarsus 26½, entire culmen 22¼, exposed culmen 18¾ mm, weight 37 g. Iris light brown, brown or dark brown, bill dark grey to dark brown-grey, lower greyish flesh colour, legs bluish grey or slate. No. 636 has almost completed its primary moult,

the other birds are not in moult. Stomach contents: remains of soft insects as well as fruits. No. 636 has the testes marked as very large, 7 x 3 mm.

Discussion. — It is easy to be suspicious of the surfeit of subspecies currently accepted (Mayr, 1967: 37-40, listed 22 from New Guinea and its surrounding islands). In a recent paper, Ford (1979) has already expressed doubt about the validity of some of these, but he accepted the subspecies from southern New Guinea. To me it seemed unlikely that a species with, on present evidence, a continuous or almost continuous range in the lowlands of southern New Guinea, would have three subspecies (*goodsoni*, *wuroi* and *palmeri*), with type localities each about 300 km from the others. In view of this I considered it useful to make a comparison between material of the three nominal subspecies. To this purpose a loan of five specimens of *palmeri* and six specimens of *wuroi* was arranged (all AMNH). The subspecies *palmeri*, the last one to be named, had been separated from *wuroi* on the basis of being: "In the color of the underparts similar to *wuroi* but differs in being slightly more richly colored with the streaking of throat and upper breast averaging heavier and more distinct, giving an almost mottled effect in some specimens; and the upperparts being considerably darker and more olive" (Rand, 1938b). In the material examined by me, which includes paratypes of both subspecies, I have been unable to see any of these differences; in coloration of both underparts and upperparts I consider them identical. The next move was to compare this material with specimens of the nominate race from western New Guinea, of which our museum possesses a large number. Evidently the species suffers from foxing in collections and the old material, dating from the last century, differs from more recently-taken specimens by its richer, browner coloration, from which the olive tinge has entirely disappeared. Fortunately there is also some more recent material, and this I found to differ in no way from specimens ascribed to *wuroi* and *palmeri*. Measuring a number of specimens did not reveal any difference in size or proportions either, hence I was forced to conclude that both *wuroi* and *palmeri* enter the synonymy of the nominate race. Inter alia it may be mentioned that specimens from Peramelesbivak and Heuvelbivak near the Lorentz River definitely belong to the nominate race, to which they had already been assigned by Junge (1939: 41-42); Mayr (1941b: 153; 1967: 37) referred to these birds as "subsp.", whereas Rand & Gilliard (1967: 432) conveniently ignored them.

The fact that the nominate race ranges, without showing any appreciable geographical variation, from Misool and the western Vogelkop at least to the Fly River, made the occurrence of a separate subspecies *goodsoni* in the Merauke area look even more of a zoogeographical oddity than before. Hartert (1930: 59) based *Pinarolestes megarhynchus goodsoni* on a single specimen from Merauke. When Hartert described this bird, he was greatly impressed by the ornithological affinity between the Merauke district and opposite tropical Australia. He stated that it was dorsally "more reddish than any specimen in the large series of *P. megarhynchus rufogaster* (and *gouldi*, if the latter is separable), mostly from the Mathews col-

lection'', but apart from the general statement that the specimen did not agree with any of the known New Guinea subspecies, he made no attempt to describe in what it differed from any of the New Guinea subspecies, or to which one it was closest. A few years later Stresemann & Paludan (1935: 457) received a specimen from near Merauke, on which they commented as follows: ''Der vorliegende Balg unterscheidet sich in nichts von der Nominatrasse. Wir halten daher für ein Synonym derselben: '*Pinarolestes megarhynchus goodsoni*' Hartert ... beschrieben nach einem ♂ von Merauke, das nur mit der nordaustralischen (langschnäblichen) Rasse *rufogaster*, nicht aber mit *megarhynchus* verglichen wurde''. In spite of the remarks just quoted, in the same year Mayr & Rand (1935) accepted the validity of *goodsoni* without comment, and so did Mayr (1941b: 154; 1967: 38), Rand & Gilliard (1967: 432), and Diamond (1972: 284-285).

The small series collected by Hoogerwerf presents a uniform appearance. All specimens differ from material of the nominate race by having: slightly duller, greyer upperparts, pinkish buff rather than rufous buff underparts, and whiter, less streaky feathers on the throats. Originally I thought that these differences would justify recognition of *goodsoni*, but on closer inspection I found that all Hoogerwerf's specimens have been treated heavily with borax or some other powder, and I got a strong impression that this had affected the colours. The only way to provide proof was to examine material from Merauke not collected by Hoogerwerf. Therefore I borrowed from Berlin the specimen collected by Nevermann, that had been recorded by Stresemann & Paludan, as mentioned above. This specimen (♀, 10.X.1933, Dongeab, ZMB no. 34.2780) I found to be, as Stresemann & Paludan did before me, indistinguishable from the nominate race. Therefore the conclusion is justified that Hoogerwerf's specimens are discoloured, and that *goodsoni* is a synonym of the nominate race.

It is true that in one character, first mentioned by Ford (1979: 198), there is some differentiation between birds from western and birds from southern New Guinea. The latter have the basal portions of the feathers covering the throat pale, whereas in the other populations these feathers are basally grey. I see not much reason for enthusiasm here, as the character is somewhat variable: all forms have the feathers of the breast basally grey, and all forms have the feathers of the chin basally pale, so that the difference only consists of the grey bases running up higher towards the chin in some populations than in others. Specimens from Misool and Salawati tend to have the grey bases less pronounced than birds of the adjacent mainland. Aru birds show more individual variation than other populations. Specimens from the Lorentz River area have, unexpectedly, the grey bases quite conspicuous.

Colluricincla harmonica tachycrypta Rothschild & Hartert

Colluricincla brunnea tachycrypta Rothschild & Hartert, 1915, Novit. Zool., 22: 60 — Milne Bay.

Material. — Unsexed juvenile, 4.VIII.1960, Koerik, no. 322. Wing 120, tail 104, tarsus 30, entire culmen 26, exposed culmen $20^{3}/_{4}$ mm, weight 60 g. Unsex-

ed = ♀, 18.IX.1960, Koerik, no. 421. Wing 122, tail 93, tarsus 30½, entire culmen 28, exposed culmen 23½ mm, weight 60 g. Iris dark brown, bill ♀ black, lower light grey, juvenile black, lower with a flesh coloured base, legs slate. No. 421 shows primary moult, the 6th primary still growing out on both sides; this does not affect the length of the wing.

Discussion. — The subspecies *tachycrypta* was based on one specimen from Port Moresby and four (2 ♂, 2 ♀) from Milne Bay, and was diagnosed as follows: "The specimens of which we said that we could not see any reliable difference between them and Australian ones, differ from the latter by being smaller, by the bill being slightly slenderer, and by the white of the lores extending in a narrow line over the eyes and in a short streak or spot, more or less indicated, behind the eye; the chest is also darker, thus throwing up the whitish throat in distinct contrast. Wings 121-127 mm" (Rothschild & Hartert, 1915). These authors did not state exactly what Australian material they had used for comparison, but give a reference to an earlier article (Rothschild & Hartert, 1903: 99), where they mention a good series from Western Australia (Derby) and Queensland. In the place indicated, they also expressed the opinion that *C. superciliosa* is a synonym of *C. brunnea*. In other words, when Rothschild & Hartert described *tachycrypta*, they compared it with *C. h. brunnea* and not with the geographically nearer *C. h. superciliosa* of Cape York Peninsula.

Our collection contains five specimens of *C. harmonica* from New Guinea: the two listed above and three which I recorded previously (Mees, 1964b: 19). In my earlier paper I was unable to discuss the characters by which *C. h. tachycrypta* differs from *C. h. brunnea*, as the latter was not, at that time, represented in our collection, but I believed that the slightly larger size of *brunnea* could be confirmed. We have now eleven specimens of *C. h. brunnea* of which ten from the Kimberley Division of Western Australia and one from the Northern Territory. Their wings measure 5 ♂ 124-132, 6 ♀ 122-132 mm. Compare this with the wing measurements of our specimens of *C. h. tachycrypta*: 2 ♂ 122, 128, 2 ♀ 122, 122 mm, and it becomes evident that any difference in size is at most a very minor average one. Macdonald (1968) measured in *C. h. brunnea*: 3 ♂ 120-123, 2 ♀ 120-125 mm, in *C. h. tachycrypta*: 2 ♂ 120-122, 1 ♀ 122 mm, thus finding no difference at all.

The series of *C. h. brunnea* shows that the shape of the bill is quite variable; the bills of the specimens of *tachycrypta* are within this range of variation and are not more slender.

C. h. tachycrypta does, however, differ in colour characters from *C. h. brunnea*: it is generally darker, with darker breast band and browner flanks; because of the darker plumage, the white lores show clearer and more contrasting than in *brunnea*. I cannot see that the white lores are continued farter backwards in *tachycrypta* than in *brunnea*.

In recent years it has become clear that the Cape York Peninsula opposite New Guinea is not inhabited by *C. h. brunnea*, but by a separate subspecies *super-*

ciliosa, and evidently it is this subspecies rather than *brunnea* to which birds from New Guinea are likely to be closest. Unfortunately, *superciliosa* remains insufficiently known.

The geographical variation of *C. harmonica* in Australia has been studied repeatedly in recent years (Macdonald, 1968; Galbraith in Hall, 1974: 256-260; Ford & Parker, 1974). All these authors were handicapped by lack of material from within the range of *superciliosa*. Macdonald recognized *superciliosa*; he referred also to *tachycrypta*, but did not discuss its characters, apart from providing a few measurements. Subsequently Ford & Parker claimed that: "*tachycrypta*... was implicitly synonymized with *superciliosa* by Macdonald", but I cannot find anything in Macdonald's paper to justify this statement. The authors mentioned proceed to synonymize not only both *tachycrypta* and *superciliosa* bus also *brunnea* itself with the nominate race, the argument being that there is a large area of intergradation between *brunnea* and nominate *harmonica*. The same fate befell *C. h. strigata*. It is well known that this Tasmanian subspecies is distinguished from the mainland populations by its markedly longer bill. Ford & Parker first belittle this difference: "The populations of Tasmania and islands in Bass Strait, *strigata*, differ from those of the opposite mainland in longer bills, 31-34 v. 24-27 mm (Macdonald 1968). Their recognition as a separate subspecies on length of bill alone is a moot point", and on the next page go in for the kill by placing *strigata* without further comment in the synonymy of the nominate race. As *strigata* is an insular isolate, there is here not even the excuse of intergradation. Evidently Ford & Parker use in their publication a subspecies concept very different from the current one. They also fail to make clear whether they have personally examined material of the subspecies synonymized by them. For these reasons their conclusions are not acceptable to me.

I have been able to borrow only a single specimen of *C. h. superciliosa* (♀, 1.VI.1948, Portland Road, QM no. 0.5251). It is the bird recorded by Mack (1953: 31) as *C. h. brunnea*, but it differs from *brunnea* in exactly the same way as *tachycrypta* differs from *brunnea*, and in fact agrees very well with the two females of *tachycrypta* with which it could be compared. The measurements do not differ either (wing 129, tail 99, tarsus $29^1/_2$, entire culmen 28, exposed culmen $23^1/_2$ mm). Therefore the evidence points to *C. h. tachycrypta* being a synonym of *C. h. superciliosa*. However, none of the skins examined is of a very good quality, and with only one specimen of *superciliosa* at hand I prefer not to synonymize *tachycrypta* definitely until more adequate material can be compared.

Dicaeum pectorale albopunctatum D'Albertis & Salvadori

Dicaeum albo-punctatum D'Albertis & Salvadori, 1879, Ann. Mus. Genova, 14: 75 — Fiume Kataw = Binaturi River, west of Oriomo River.

Material. — ♂, 19.VIII.1960, Merauke, no. 373. Wing 54, tail $25^1/_2$, tarsus $11^1/_2$ mm, bill damaged, weight 4 g. ♂, 15.XI.1960, Koerik, no. 400. Wing $55^1/_2$, tail 26, tarsus $11^1/_2$, entire culmen $11^1/_2$, exposed culmen $8^3/_4$ mm, weight

6 g. ♂, 18.IX.1960, Koerik, no. 427. Wing 51, tail 24 mm, tarsus and bill damaged, weight 6 g. ♀, same data, no. 428. Wing 51½, tail 22½, tarsus 11½, entire culmen 9½, exposed culmen 8 mm, weight 6 g. ♀, 15.X.1960, Jakau, upstream Koembe, no. 487. Wing 49½, tail 21½, tarsus —, entire culmen 9½, exposed culmen 7½ mm, weight 5 g. Iris dark brown, bill black, mandible a little lighter, legs black. None of the birds shows moult.

Nectarinia jugularis frenata S. Müller

Nectarinia frenata S. Müller, 1843, Verh. Nat. Gesch. Ned. Overz. Bez., Land- en Volkenk.: 173 footnote — westkust van Nieuw Guinea = Triton Bay.

Material. — ♂, 4.XII.1960, between Koembe and Doemandé, no. 541. Weight 7 g. The bird is in heavy moult and therefore is not measurable.

Lichmera indistincta indistincta (Vigors & Horsfield)

[*Meliphaga*] *Indistincta* Vigors & Horsfield, 1827, Trans. Linn. Soc. Lond., 15: 315 — King George's Sound.

Material. — ♂, 18.XI.1960, Koerik, no. 415. Wing 67, tail 50½ tarsus 16, entire culmen 20, exposed culmen 16 mm, weight 11 g. Iris dark brown, bill black, legs dark grey. No moult.

Discussion. — This bird agrees well with specimens from Western Australia (including the south-west, near the type-locality) and the Northern Territory, collected in 1968, 1974 and 1975. Some years ago I concluded, contrary to Stresemann (1912), that all Australian birds belong to the nominate race (cf. Mees, 1961: 120-121). Subsequently Salomonsen (1967: 346-347) reverted without explanation to Stresemann's classification with three Australian races but Frith & Hitchcock (1974: 169) and Colston (in Hall, 1974: 285), on the basis of fresh material, agreed that geographical variation within Australia is negligible. This leaves, besides the nominate race, only the races *L. i. nupta* Stresemann from the Aru Islands and *L. i. limbata* (S. Müller) from the Lesser Sunda Islands. *L. i. limbata* is well-marked subspecies, its main character being a clear sexual dimorphism: females have a yellow chin and throat, and generally yellowish underparts, whereas chin and throat of the males are grey. From the Aru Islands our collection contains only a single specimen which is so old and faded that for comparative purposes it is useless.

Myzomela obscura fumata (Bonaparte)

Pt[*ilotis*] *fumata* Bonaparte, 1850, Consp. Gen. Av., 1: 392 — N. Guinea = Oetanata River, from where the types are.[1])

Material. — Sex uncertain, 1.I.1961, Koembe, no. 546. Wing 69, tail 50, tarsus 17½, entire culmen 20, exposed culmen 17½ mm, weight 12 g. Sex uncer-

[1]) Salomonsen (1967: 352) has suggested that this name was published in 1851, but there is proof that it was published in 1850, as printed on the title page of the volume (cf. van Rossem, 1946).

tain, 22.VI.1962, Koerik, no. 771. Wing 67, tail 52, tarsus 16½, entire culmen 20, exposed culmen 17 mm, weight 12 g. Iris light brown, bill black, legs dark grey. On measurements both specimens would be females.

Discussion. — It may be of interest to mention that our collection contains two specimens of *M. o. fumata* collected in New Guinea by Salomon Müller. Both are males, they were obtained at Oetanata in June 1828. One is labelled *Melliphaga concolor* Müller, the other *Melliphaga fumata* Müller (cf. Salvadori, 1878: 334; 1882: 304). As Bonaparte (1850: 392) referred to both names and definitely synonymized *M. concolor* with *M. fumata*, both specimens are syntypes of *P. fumata* Bonaparte.

Meliphaga analoga analoga (Reichenbach)

P[tilotis] analoga Reichenbach, 1852, Handb. Spec. Orn., 2 (Cont. IX), Meropinae: 103, pl. 467 fig. 3332 — Oceanien = Triton Bay (ex Hombron & Jacquinot, Voy. Pôle Sud, Atlas: pl. 14 fig. 2).

Meliphaga analoga papuae Salomonsen, 1966, Breviora, 254: 4 — Wuroi, Oriomo River, British Papua (western division), southern New Guinea.

Material. — ♂, 13.X.1960, upstream Koembe River beyond Kaisa village, no. 473. Wing 75, tail 64, tarsus 21, entire culmen 23, exposed culmen 17 mm, weight 20 g. ♂; 21.I.1961, Koerik, no. 555. Wing 81, tail 66½, tarsus 19, entire culmen 22½, exposed culmen 17 mm, weight 19 g. Iris dark brown, bill black, legs light grey (no. 473) and dark olive grey (no. 555). No moult.

Meliphaga gracilis gracilis (Gould)

Ptilotis gracilis Gould, 1866, Proc. Zool. Soc. Lond.: 217 — The Cape York district of Queensland.

Material. — ♂, 19.III.1961, Koerik, no. 565. Wing 70, tail 54, tarsus 19, entire culmen 22, exposed culmen 17 mm, weight 15 g. Iris greyish, bill black, legs slate. No moult.

Discussion. — The wing-length of this specimen is even slightly less than that of individuals of its sex from southern New Guinea as given by Rand (1936: 19). A specimen collected by Salomon Müller in 1828, sexed as a male, also has a wing-length of only 70 mm.

Melithreptus albogularis Gould

Melithreptus albogularis Gould, 1848 (1 March), Birds Austr., 4: pl. 74 — Cobourg Peninsula, and ... the neighbourhood of Moreton Bay.

Melithreptus albogularis Gould, 1848 (29 March), Proc. Zool. Soc. Lond., 15: 220 — Northern and Eastern Australia.

Melithreptus lunatus subalbogularis Mathews, 1912, Novit. Zool., 18: 392 — North West Australia (Derby).

Material. — ♂, 8.I.1961, Koerik, no. 550. Wing 70, tail 45½, tarsus 16, entire culmen 15½, exposed culmen 12½ mm, weight 14 g. Iris bright red-brown, bill black, legs light brownish flesh colour. No moult.

Discussion. — The present specimen constitutes a small but predictable westward extension of the known range of this species in New Guinea; hitherto the most westerly locality whence it was recorded was the Oriomo River (cf. Rand & Gilliard, 1967: 530; Salomonsen, 1967: 396).

Salomonson (l.c.) has recognized two subspecies: the race *M. a. subalbogularis* Mathews from the Kimberley Division, Western Australia, and the nominate race from the whole remainder of the range of the species. Salomonsen's monograph, in which the nomenclature used in the 1967 list is to be explained, has not yet been published, but *M. a. subalbogularis* was described as differing from *M. a. albogularis* in its smaller size and paler coloration (Mathews, 1912a). Unfortunately most of our small series of the species is well over a century old and is unsexed, but in this material there is little evidence of geographical variation in size. Wing measurements are: Kimberley Division 3 ♂, 70½, 72, 72½; Port Darwin, unsexed ad. 67; Port Essington ♂ juv. 70; Cape York, 2 unsexed ad. 67, 73; Rockhampton, unsexed ad. 77; south eastern New Guinea, unsexed juvenile 72 mm. It is likely that the birds with wings of less than 70 mm are females, the larger ones males. Possibly birds from eastern Queensland are larger than those from elsewhere, but there is in these measurements certainly nothing that would justify recognition of *subalbogularis*; see also Hindwood (1951). As regards colour, a careful examination did not reveal any difference, although the specimen from Rockhampton gives an impression of being perhaps a trifle greener, less yellowish above.

Colston (in Hall, 1974: 302) comes with a different classification, stating: "Our Kimberley, Northern Territory and north Queensland birds together with older specimens from Darwin, Katherine, South Alligator River, Normanton and Cape York are similar and refer to *M. a. subalbogularis.* They have the upperparts especially the rump, a brighter yellower green than others from southeast Queensland and New South Wales, *M. a. albogularis*". This classification, with one subspecies ranging across northern Australia, and the other in the south-eastern part of the range, appears to me more natural than the one proposed by Salomonsen (even although I am of the opinion that the differences are too small for the recognition of subspecies). The nomenclature used by Colston, is, however, erroneous. Although in the original description of *M. albogularis*, besides Cobourg Peninsula, Moreton Bay in south-eastern Queensland was mentioned, all later authors have regarded Port Essington, Cobourg Peninsula, as the type-locality (cf. Mathews, 1913: 260; de Schauensee, 1957: 224; Salomonsen, 1967: 396), thus the unexplained and possibly unconscious change of the type locality to south-eastern Queensland (Moreton Bay by inference) appears to be quite unnecessary as well as in conflict with all previous usage. Therefore, if a division is made as suggested by Colston, it is the northern subspecies that is the nominate race. There is, however, more: even if the type-locality is transferred to Moreton Bay, the name of the northern subspecies would not be *M. a. subalbogularis*, but *M. a. vinitinctus* De Vis (cf. Mack, 1953: 33). Colston expressly included material from Normanton on the Norman

River, type-locality of *M. a. vinitinctus*, in the northern subspecies. Remains the south-eastern subspecies, called *M. a. albogularis* by Colston. As far as I can find not even Mathews provided a name for birds from this section of the species' range. If, therefore it is believed that they are sufficiently distinct to be separated nomenclaturally, a new name would have to be given. From the preceding discussion it will be clear that I consider such differences as may exist too slight for expression in nomenclature.

Hitherto New Guinea has always been included in the range of the Australian nominate race (cf. Mayr & Rand, 1937: 213; Mayr, 1941b: 191; Rand & Gilliard, 1967: 530; Salomonsen, 1967, etc.) and no attention has been paid to a pertinent difference recorded between birds from Australia and from New Guinea. In Australia, *M. albogularis* has the bare circumorbital skin pale blue or white (in specimens personally collected in Western Australia I noted it as pale blue or above eye whitish, lower eye lid blue-grey), and the same colour was noted in many birds observed in the field in Western Australia and the Northern Territory (cf. also Deignan, 1964b: 415-416; Frith & Hitchcock, 1974: 167). In the eastern Australian part of the range this colour is the same (cf. Hindwood, 1951; Disney, 1974: 104; Colston in Hall, 1974: 302); evidently this feature shows no geographical variation within Australia. In New Guinea however the bare circumorbital skin has been described as being orange red (Mayr & Rand, 1937, repeated by Rand & Gilliard, 1967). Probably I would not have paid much attention to this, were it not that the two subspecies of the closely related *Melithreptus lunatus* show exactly this same difference: *M. lunatus chloropsis* from south-western Australia has the bare skin above the eye white, the lower eye lid greyish blue (cf. Mees, 1964c), whereas the eastern Australian nominate race has the small lunate patch of bare skin over the eye red (cf. Disney, 1974: 102). Note that the coloured plate in Officer (1964: pl. 1 fig. 7) is not quite correct as it shows the red colour all round the eye instead of only above it.

Unfortunately Mr. Hoogerwerf failed to note the colour of the bare skin of the specimen he collected on its label. As a systematist is naturally reluctant to accept as certain differences which he is unable to verify in the material before him, I wrote to Mr. Peckover of Port Moresby, New Guinea, for confirmation. *M. albogularis* is a fairly common bird around Port Moresby (cf. Mackay, 1970). Mr. Peckover has been able to answer my question beyond expectancy: he forwarded colour transparancies of two different birds and both show convincingly that the bare space above the eye is white. There remains a possibility, suggested by Mr. Peckover (1977 and in litt., 15.IV.1977) that there is individual variation, and that some birds do have the circumorbital skin orange red, but to me this seems unlikely, as individual variation is not known to occur anywhere else in the genus, although juvenile birds may differ from adults, but this cannot have played a role here as of the large series of birds listed by Mayr & Rand (1937) on which the record "orange-red" was based, only one was listed as immature. I believe therefore that the record "orange-red" is an error. This means that the New Guinea population is not differentiated from the Australian populations and that all can be united under the binomen *Melithreptus albogularis*.

Entomyzon cyanotis harterti Robinson & Laverock

Entomyza cyanotis harterti Robinson & Laverock, 1900, Ibis, (7) 6: 635 — Cooktown, Queensland.

Material. — ♀, 19.VIII.1960, Merauke, no. 370. Wing 140, tail damaged, tarsus 34, entire culmen 33, exposed culmen 24 mm, weight 105 g. ♂, 27.VIII.1960, Koembe, no. 376. Wing 150, tail 110, tarsus 35, entire culmen 35, exposed culmen 28 mm, weight 107 g. Iris creamy white, bare skin above eye light blue-green, below eye violet ("paars"), bill black, base of mandible greyish, legs dark grey. Both birds are in very abraded plumage but show no moult.

Pyncopygius stictocephalus (Salvadori)

Pycnonotus (?) stictocephalus Salvadori, 1876, Ann. Mus. Genova, 9: 34 — Naiabui, Hall Sound.

Material. — ♂, 18.IX.1960, Koerik, no. 422. Wing 114, tail 97, tarsus 24, entire culmen 23, exposed culmen 18 mm, weight 39 g. Iris brown, bill dark brown, a little lighter below, legs dark grey.

Discussion. — This specimen agrees well with three skins from the Noord- or Lorentz River in our collection. A female from Sailolo, Salawati, 3.III.1865, leg. Bernstein, type of *Hemixos bernsteini* Finsch, differs by having the black on throat and sides of head less developed, and by its definitely shorter bill: entire culmen 19 1/2, exposed culmen 14 1/2 mm, against entire culmen 22-23, exposed culmen 16-18 mm in the other four specimens (3 ♂, 1 ♀).

Ramsayornis modestus (G. R. Gray)

Glyciphila modesta G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 174 — Aru Islands.

Material. — "♀" but surely ♂, 5.VIII.1960, Merauke, forest along river, no. 342. Wing 68, tail 42, tarsus 15, entire culmen 16 1/4, exposed culmen 13 mm, weight 12 g. ♀, same data, no. 343. Wing 61, tail 35, tarsus 15, entire culmen 16, exposed culmen 12 1/4 mm, weight 11 g. ♀ 18.IX.1960, Koerik no. 416. Wing 62 1/2, tail 39, tarsus 16, entire culmen 16, exposed culmen 12 mm, weight 10 g. ♀ 17.X.1960, Darowin, upstream Koembe River, no. 493. Wing 62, tail 38, tarsus 14 1/2, entire culmen 14 1/2, exposed culmen 11 mm, weight 10 g. Iris brown or dark brown, bill dark brown to blackish, mandible basally flesh colour, legs brownish flesh colour.

Discussion. — The identity of *Glyciphila nisoria* Salvadori (1878: 335), based on a specimen in Leiden labelled as having been collected by S. Müller at Lobo and bearing Müller's manuscript name *Melliphaga nisoria*, has remained one of the unsolved problems of Papuasian systematic ornithology. Discussing *Myzomela erythrocephala infuscata* Forbes, Mayr & Rand (1937: 215) stated: "*Glyciphila nisoria* Salvadori, of which Mayr has examined the type in the Leiden Museum, is undoubtedly a *Myzomela* and is probably the young of this species. If

this is so, the name *nisoria*, which was published in 1878, antedates *infuscata* of Forbes, which appeared in 1879''. A few years later, Mayr (1941b: 193 footnote) had apparently become less confident, for, referring to *Myzomela erythrocephala infuscata*, he now only observed that: ''*Glyciphila nisoria* Salvadori ... is possibly an older name for this form''. Since then, the name *G. nisoria* has conveniently faded into oblivion.

About twelve years ago I made an attempt to solve the problem. I borrowed material, females and immatures of *M. e. infuscata*, to add to the type material already present in our collection, and concluded that *G. nisoria* was definitely not referable to that species. It did not agree with any other species of *Myzomela* known from New Guinea either. Although this negative result was of some value in showing that *G. nisoria* could not affect the nomenclature of *Myzomela*, I had to admit my inability to identify the specimen.

When therefore, in September 1975, Dr. Schodde visited our museum to study Meliphagidae, I drew his attention to the type specimen of *G. nisoria*. Dr. Schodde identified the specimen as a female of *Certhionyx niger* (Gould), an Australian dry-country species, not known from outside the Australian Continent and most unlikely ever to occur in New Guinea. The only other specimen of this species in our collection is an adult male, received from Gould. This further led to the discovery that evidently, before Salvadori examined the specimen, an interchange of labels had taken place and that the original *Melliphaga nisoria* S. Müller pertained to *Ramsayornis modestus* (cf. Schodde, 1978). With this, a century of confusion has been satisfactorily cleared up.

The two old specimens, male and female, are still the only ones of *Certhionyx niger* in our collection. They were received from Gould in December 1840 or early 1841, under the name *Myzomela nigra*, as an original exchange list in our archives proves.

The range in New Guinea of *M. e. infuscata* is given by Mayr (1941b: 193) and Rand & Gilliard (1967: 536) as the south coast between Triton Bay and the mouth of the Fly River, by Salomonsen (1967: 357) as the south coast between Hall Sound and Triton Bay. All this may be perfectly correct, but the most westerly record I have been able to find in literature is from the mouth of the Mimika River (Ogilvie-Grant, 1915: 50). I suspect that somehow the extension of the range westwards to Triton Bay may be based on the type specimen of *Glyciphila nisoria*. Triton Bay is about 300 km West of Mimika.

Philemon citreogularis papuensis Mayr & Rand

Philemon citreogularis papuensis Mayr & Rand, 1935, Amer. Mus. Novit., 814: 15 — Dogwa, Oriomo River, Territory of Papua.

Material. — ♂, 31.VIII.1960, Koerik, no. 380. Wing 124, tail 96, tarsus 27, exposed culmen 29 mm, weight 53 g. Iris dark brown, bill black, bare skin around eye light blue, legs dark grey. ♀ 15.X.1960, upstream Koembe River, no. 484. Wing 119, tail 90, tarsus 27, exposed culmen 30 mm, weight 55 g. Iris

medium grey, bill black, bare skin around eye light blue-grey, legs light slate grey. No moult, both birds are in very worn plumage.

Discussion. — These specimens further confirm the small size of this race. A point to which future observers might pay attention is that Hoogerwerf noted the bare patch around the eye as light blue or light blue-grey. In Australian specimens I found this skin to be dark blue-grey, dark slate-grey or dark grey: definitely dark, not light.

Salomonsen (1967: 406) has changed the name of this subspecies from *P. c. papuensis* to *P. c. papuanus*, evidently an unintended lapsus; I only mention it as it is likely to cause confusion.

Philemon novaeguineae novaeguineae (S. Müller)

Trop [*idorhynchus*] *novaeguineae* S. Müller, 1842, Verh. Nat. Gesch. Ned. Overz. Bez., Land- en Volkenk.: 153 footnote — de zuid-westkust van Nieuw-Guinea = Oetanata (see discussion).

Philemon novaeguineae brevipennis Rothschild & Hartert, 1913, Novit. Zool., 20: 513 — Snow Mountains.

Material. — ♀ 15.IX.1960, Koerik, no. 403. Wing 143, tail 116, tarsus 37½, bill from posterior edge of knob base 42½ mm, weight 110 g. Iris dark red (!), bill and helmet black, legs dark grey. ♀, 2.IV.1961, near Ongari, no. 574. Wing 145, tail 126, tarsus 34, bill 44 mm, weight 111 g. Iris brown, bill and knob black, base of mandible slate blue, legs black. No. 574 shows primary moult.

Discussion. — Hoogerwerf (1964: 160) believed that his specimens were the first of the species recorded from this part of New Guinea, but he overlooked van Oort's (1910) specimen from Merauke collected in 1907/1908 and the two birds from Prinses Marianne Strait recorded by Bangs & Peters (1926: 433).

This species shows within New Guinea some variation in size on which subspecific names have been based. In recent years the name *P. n. novaeguineae* has been applied to the large birds from the Vogelkop and the Western Papuan Islands, whereas the smaller population inhabiting the lowlands of southern New Guinea went under the name *P. n. brevipennis* (cf. Mayr, 1941b: 211; Rand & Gilliard, 1967: 573; Salomonsen, 1967: 408-409).

In the original description of *T. novaeguineae*, Müller (1842) gave as locality only a rather inexact: "de zuid-westkust van Nieuw-Guinea". This was cited by Salvadori (1881: 358) as "Nova Guinea, ad litus occidentale" and further changed to: "W. coast of New Guinea" by Rothschild & Hartert (1903: 449). Ten years later these same authors ascribed to *P. n. novaeguineae* a range: "from the Berau Peninsula (Arfak, Dorey, Sorong, etc.) to Ron Island, Batanta, Waigiu and Mysol". Note that the range as circumscribed here does not include any part of New Guinea visited by Müller. It is or ought to be well known that the corvette Triton on board of which Müller and the other members of the "Natuurkundige Commissie" travelled, followed the south-west coast from Prinses Marianne Strait to Triton Bay (= Lobo Bay). Next came Stresemann

(1923) who extended the range of *P. n. novaeguineae* on the New Guinea mainland eastwards: "etwa bis zur Etnabai". This extension brought Triton Bay, one of Müller's collecting localities, within the range of the nominate race and reasoning on from this it was a logical step that Mayr (1941b: 211) gave as type locality Lobo, Triton Bay.

None of the authors mentioned has followed the more obvious line of investigation, which would be the examination of the type material and reading of the original description. I have searched our collection for type material of *T. novaeguineae* and found amongst the mounted specimens one (and only one) bird collected by Müller. This bird is labelled as from the Oetanata River, not Triton Bay. In the following lines I shall explain why this bird must be the holotype, so that the Oetanata River is the only possible type locality. It might be argued that formerly there could have been more specimens, including specimens from Triton Bay, and that by accident the one from Oetanata is the only one that has survived all these years. Although in the description Müller does not state whether he had one or more specimens, he gives only a single set of measurements as follows: "Lengte des beks, van den mondhoek tot aan de punt, 0,036; lengte der vleugels, van den carpus, 0,141, des staarts 0,119". These same measurements taken by me from the Oetanata specimen are: culmen from gape 36 mm, wing 144 mm, tail 116 mm. These measurements are so close that there can be little doubt that this is the same bird measured by Müller. Note also that the wing-length found by me is a little greater than that given by Müller. In other words, the measurements given by Müller place the specimen described by him even more definitely in the small subspecies later redescribed as *P. n. brevipennis*, and incidentally confirm the locality of provenance Oetanata, as birds from Triton Bay (I have not seen specimens from there, and doubt that the species has ever been collected at that locality!) would be larger. The measurements therefore are already enough to show that Müller described the Oetanata specimen, but there is support for this from another side. Underneath the socle of the specimen appear in Temminck's handwriting the notes "*Tropidorhynchus mitratus* Müller, Verh.", a name evidently dropped by Müller in favour of *T. novaeguineae*. Sclater (1858: 158), following a visit made to Leiden in 1857, mentioned the Oetanata specimen under the name *Tropidorhynchus mitratus* Müll. M. S., Mus. Lugd., whereas under the name *T. novaeguineae* he did not list any material. This means that as long ago as 1857, only fifteen years after the name *T. novaeguineae* was published, there was only the specimen inscribed *T. mitratus* in Leiden, and no material labelled as *T. novaeguineae*. Everything therefore points to the Oetanata specimen being a holotype. There is no evidence at all that Müller, when he drew up the description of *T. novaeguineae*, had other material.

The correction of the type locality does not automatically solve all other problems of nomenclature and subspecific variation of this interesting species. The wing-length of the type specimen (144 mm) is actually a little above that given for females of *P. n. brevipennis* by Rothschild & Hartert (1913) and Ogilvie-Grant

(1915: 78): 8 females 130-140 mm. Birds of the size of the Oetanata bird have been recorded from the Etna Bay by Junge (1953: 73) under the name *P. n. aruensis* (Meyer). Fortunately the consequences of the correction are slight or absent if Diamond (1972: 380-384), the most recent reviser of the species, is followed. In a discussion of the geographical variation in mainland New Guinea he wrote: "There seem to be only two reasonable alternatives: to consider southwestern New Guinea riverplain birds as *brevipennis* and the rest as nominate *novaeguineae*, or else to consider all the Vogelkop and south coast populations as *novaeguineae*. Because the former procedure gives *novaeguineae* a discontinuous range and the sizes overlap, the latter procedure may be preferable". Diamond's arguments are healthy and I agree that his second alternative should be chosen, which means that all the populations here discussed belong to the nominate race. If, however, Diamond's first alternative is preferred, *brevipennis* remains a synonym of the nominate race, and the larger birds from the east and the west will have to be known as *P. n. fretensis* Salomonsen (1966).

As Diamond did not discuss *P. n. aruensis* (Meyer), I add a few words on this race. It was described from the Aru Islands, but later Junge (1953: 73) extended its range to the Etna Bay on the mainland of New Guinea, as already mentioned. This extension of range was done on the basis of measurements, but Junge did not say anything about the size of the bill knob, although he correctly described it in an earlier publication (Junge, 1939: 66). *P. n. aruensis* is characterized by having a large bill knob (Rand & Gilliard, 1967: 573: "with a small bill knob", should read: "with a large bill knob"). Our material suggests that the character is sufficiently pronounced to be recognized in nomenclature so that I consider *P. n. aruensis* a valid subspecies. It does not, however, occur on the mainland, for Junge's specimens from Etna Bay do not have a large bill knob and agree with other mainland populations in this character.

Lonchura nevermanni Stresemann

Lonchura nevermanni Stresemann, 1934, Orn. Mber., 42: 101 — Merauke.

Material. — 13♂, 2♂ juv., 2♀, 1♀?, 1 ?, from Koerik and Merauke, 1.VII.1959, 24.X.1959, 24.X.1960, 28.X.1960, nos. 36, 37, 186, 188-190, 192-194, 497-501, 504-508. Wing 52-54, tail 27 (very worn), 30-35, 37$^1/_2$, tarsus 15-17, exposed culmen 10$^1/_2$-12 mm, weights 9-13.4 g. Iris dark brown, bill light slate, legs dark slate. Nos. 36 and 507, collected in July and October respectively, are moulting primaries; the other specimens are not in moult.

In addition there is an individual perfectly intermediate between *L. stygia* and *L. nevermanni*: ♀, 2.XI.1960, Koerik, no. 512. Wing 54, tail 34$^1/_2$, tarsus 15, exposed culmen 11 mm, weight 11 g.

Discussion. — Apart from the intermediate bird listed separately (frontispiece), there are several specimens in this series which, by the presence of a few black feathers in the brown of the under surface, betray and influence of *L.*

stygia. These various stages of intermediacy show convincingly that (1) hybridization is no exception but, at least locally, occurs frequently, and (2) that hybrids are fertile.

Considering the complete agreement in measurements between *L. nevermanni* and *L. stygia*, and their almost identical geographical ranges, naturally the question arose whether *L. stygia* might be not a separate species but would only represent a melanistic plumage of *L. nevermanni*. This, indeed, was a possibility previously considered and rejected by Stresemann (1934b): "Die größte strukturelle Aehnlichkeit besitzt *L. stygia* mit *L. nevermanni*, und man könnte auf den Gedanken verfallen, sie für einen Melanismus dieser Spezies zu erklären; aber gegen diese Vermutung spricht vor allem, daß der Schnabel von *L. stygia* etwas kräftiger und gedrungener, die Kralle der Hinterzehe anscheinend etwas länger und die Tönung der Unterflügeldecken bedeutend gelblicher, weniger rötlich ist. Weiterhin stimmen auch die Fundorte nicht überein".

In later years the idea that *L. stygia* and *L. nevermanni* could be closely related was entirely abandoned: Mayr (in Mayr, Paynter & Traylor, 1968: 383, 386) placed them wide apart, *L. nevermanni* between *L. caniceps* and *L. spectabilis*, *L. stygia* between *L. castaneothorax* and *L. teerinki*, a sequence retained by Morony, Bock & Farrand (1975: 136).

In the summer of 1962, when we both were working in the American Museum of Natural History, I had an opportunity to ask Professor Stresemann whether he regarded the two species as closely related and likely to hybridize in nature and received an unequivocal reply: "nein, gar nicht". After that I produced specimen no. 512 (that I had with me), and convinced him.

When Stresemann (1934b) wrote the passage quoted above, only two specimens of *L. stygia* were known, and my additional material shows no structural differences in shape of bill and hallux between *L. stygia* and *L. nevermanni*.

The reason why later workers regarded the two species as only remotely related is obvious: Stresemann (1934b) could still state that the localities of occurrence were not the same, the Mandum Swamp, type locality of *L. stygia*, being some 130 km away and inland from Merauke, the type locality of *L. nevermanni*, but subsequently Rand (1938b) found both species common near Lake Daviumbu, often in mixed flocks (he collected 36 *L. stygia* and 24 *L. nevermanni* in this one locality), and now Koerik near the coast has been added as a locality of co-occurrence. So we have two species which share a very limited range without obvious geographical barriers. Evidently the modern systematist, instilled with the idea of geographical speciation, would like these to be of different origin as speciation in situ looks unlikely.

In the preceding paragraphs it has been argued that most of Stresemann's reasons for not considering *L. stygia* a melanistic variety of *L. nevermanni* are invalid, which made the theory that they are varieties of one species once more disputable. Fortunately it can again be rejected on the basis of the fact that the two species differ not only in the adult plumage, but also conspicuously in the juvenile plumage.

Juveniles of both species differ from the adults in that there is no black in the plumage.

L. nevermanni has in the juvenile plumage the upper surface, including crown, nape and sides of the head Brussels Brown (Ridgway, 1912: pl. III), except for the rump, which is Ochraceous Tawny (Ridgway, 1912: pl. XV). The rectrices are of the same dull brown colour as the back, without conspicuous yellow edges. The under surface is Ochraceous Tawny, chin and throat paler. Subsequent, transitional stages show a somewhat mottled forehead and crown, from cream coloured feathers replacing the brown feathers of the juvenile plumage, and an increasingly scalloped appearance of the nape, where dark feathers with a pale creamy edge break through. A few black or blackish feathers appear on the

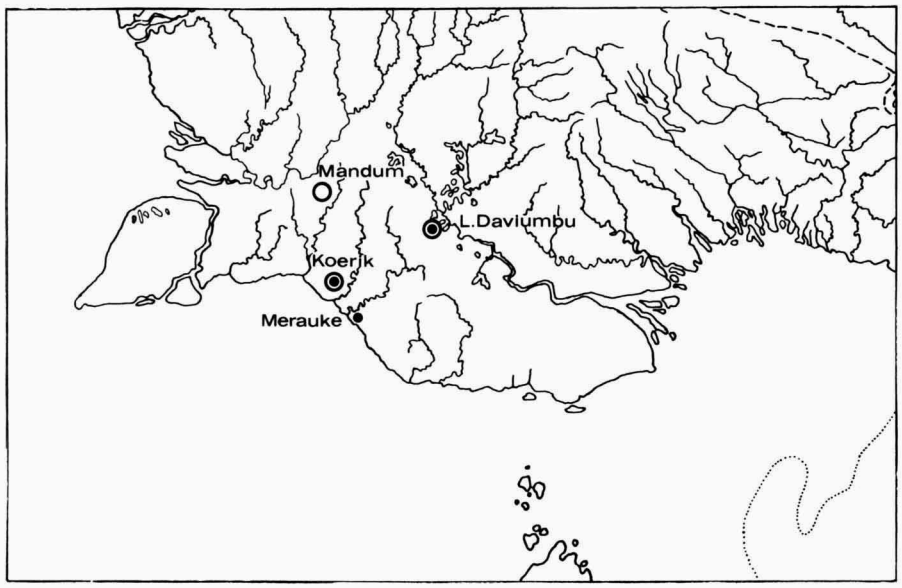

Fig. 9. Distribution of *Lonchura stygia* (rings) and of *Lonchura nevermanni* (dots). Where both species have been found, one symbol is placed inside the other.

throat. This leads finally to the fully adult plumage, in which forehead and sides of the head are cream-coloured, crown and nape scalloped cream and brown, there is a black bib covering chin and throat, and there are broad yellow margins to the rectrices.

L. stygia has an entirely different juvenile plumage: the upper surface does not differ much from that of *L. nevermanni*, except that the rump is scarcely different from the back, at most a trifle paler. There is a suggestion of yellow on upper tail coverts and rectrices. The whole under surface is Cream Buff (Ridgway, 1912: pl. XXX), throat and breast are lightly but rather densely spotted with dusky. The specimen described (AMNH no. 428473) has already a few black feathers

breaking through on rump and belly. The transitional stages, of which several examples are available, show a particularly mottled appearance as the black adult plumage evidently comes through in irregular patches; the brown upper tail coverts are replaced by bright yellow ones. This leads to the adult plumage in which the bird is entirely black: the upper surface brownish black, the under surface almost pure black, the only other colour that remains being the bright golden yellow upper tail coverts.

Stresemann already drew attention to a difference in colour of the under wing coverts in adult birds: these are light tawny, similar to to colour of the belly but paler, in *L. nevermanni*, and almost white, when fresh pale cream buff, in *L. stygia.*

The considerable differences in plumage of juveniles as well as adults, combined with their almost identical geographical ranges, would logically lead to the conclusion that the two species *L. nevermanni* and *L. stygia* are not closely related, a conclusion drawn by previous revisers. There remains, however, the undeniable fact of frequent hybridization which proves that in spite of all the evidence to the contrary, they must be related.

As regards the more remote affinities of the two species: it appears fairly obvious to me that *L. nevermanni* is a derivative of *L. castaneothorax.* In recent publications *L. nevermanni* has been placed near *L. caniceps* and that is not necessarily incorrect, for *L. caniceps* and *L. castaneothorax* must also be more closely related than was hitherto thought: Filewood (in Peckover & Filewood, 1976: 138) has recorded occasional hybridization in the wild between these two superficially quite dissimilar species. Several other localized species in New Guinea have been derived from *L. cataneothorax*: *L. monticola*, *L. montana* and *L. teerinki. L. stygia* must evidently be placed in the same group, although its plumage characters do not help in placing it. Therefore I find it surprising that *L. stygia* has been recognised as a member of the *L. castaneothorax* group, before *L. nevermanni* was (cf. Mayr, 1968: 11).

Lonchura stygia Stresemann

Lonchura stygia Stresemann, 1934, Orn. Mber., 42: 102 — Sumpf Mandum, Bezirk Merauke.

Material. — Sex?, 28.X.1960, Koerik, no. 509. Wing 54, tail 35, tarsus 16, culmen 11 mm, weight 12 g. ♂, 3.XI.1960, Koerik, no. 514. Wing 54, tail 34, tarsus 16, culmen 11 mm, weight 11 g. ♂, 5.XI.1960, Koerik, no. 515. Wing 50, tail 31, tarsus 15$^1/_2$, culmen 11 mm, weight 10 g. ♀, 17.XI.1960, Koerik, no. 523. Wing 53, tail 36, tarsus —, exposed culmen 11 mm, weight 12 g. ♀, same data, no. 524. Wing 52, tail 34$^1/_2$, tarsus —, exposed culmen 10$^1/_2$ mm, weight 11 g. Iris dark brown, bill light slate blue, legs dark slate. No. 523 shows primary moult, no. 515 is in full moult as described below.

Discussion. — No. 515 is in full moult from the juvenile into the adult plumage: on the under parts patches of the pale juvenile plumage contrast

strongly with the larger areas which are already black; dorsally the moult is less far advanced, brown dominating over black. The four other specimens are in fully adult plumage. The affinities of this species have been discussed under *L. nevermanni*.

Aplonis metallica metallica (Temminck)

Lamprotornis metallicus Temminck, 1824, Recueil d'Ois., 2 (livr. 45): pl. 266 — les îles de Timor et de Célèbes, error = Ambon.

Material. — ♀, 19.VIII.1960, Merauke, no. 371. Wing 108, tail 89, tarsus 23¼, entire culmen 20, exposed culmen 17 mm, weight 64 g. ♂, 24.IX.1960, Koerik, no. 432. Wing 116, tail 102, tarsus 24, entire culmen 23, exposed culmen 17¾ mm, weight 71 g. Iris bright red, bill black, legs black. Neither specimen shows moult.

Mino dumontii dumontii Lesson

Mino Dumontii Lesson, 1827, Bull. Sci. Nat. (Férussac), 10: 159 — Dorey.

Material. — ♀, 19.VIII.1960, Merauke, no. 369. Wing 144, tail 67, tarsus 34½, entire culmen 30½, exposed culmen 24½ mm, weight 179 g. Sex?, 23.II.1962, Koerik, not numbered. Wing 142, tail 61, tarsus 35, entire culmen 32, exposed culmen 24 mm, weight not recorded. ♂, 1.III.1962, Koerik, no. 613. Wing 148, tail 63, tarsus 34, entire culmen 29, exposed culmen 23½ mm, weight 165 g. Iris light brown (♂) or dark brown (♀), bill yellow, bare skin on head yellow, a little lighter than the bill, legs yellow. Stomach contents of no. 613 small dark fruits with stony seeds. No. 613 is in the last stage of wing moult, the other specimens are not in moult.

Oriolus szalayi (Madarász)

Mimeta szalayi Madarász, 1901, Termész. Füz., 24: 76, 80 — Finschhafen, Umgebung des Dorfes Madang.

Material. — ♀, 24.IX.1960, Koerik, no. 433. Wing 136½, tail 103, tarsus 27, entire culmen 31, exposed culmen 27 mm, weight 90 g. Primary moult: on both sides the 3rd primary is growing out. Iris bright carmine, bill brownish flesh colour, legs slate.

Oriolus sagittatus magnirostris van Oort

Oriolus sagittata magnirostris van Oort, 1910, Notes Leyden Mus., 32: 82 — Merauke.

Material. — ♂, 19.VIII.1960, Merauke, no. 367. Wing 149, tail 109, tarsus 26 mm, bill damaged, weight 104 g. Iris dark brown, bill blackish brown, below lighter, legs slate. No moult, plumage worn.

Oriolus flavocinctus (King)

Mimetes flavo-cinctus King, 1826, Narr. Survey Austr., 2: 419 — north coast of Australia.
M[imeta] mülleri Bonaparte, 1850, Consp. Gen. Av., 1: 346 — ex N. Guinea = Prinses Marianne Str.
Oriolus flavocinctus migrator Hartert, 1904, Novit. Zool., 11: 218 — Letti.

Material. — ♂, 24.IX.1960, Koerik, no. 434. Wing 136, tail 106, tarsus 25, entire culmen 33, exposed culmen 30 mm, weight 95 g. Iris red-brown, bill black, legs slate. No moult, plumage worn. ♂ with large testes 8 × 4 mm, 22.IV.1962, Koerik, no. 703. Wing 143, tail 110, tarsus 28, exposed culmen 33½ mm, weight 104 g. Iris bright light carmine, bill flesh-colour-brown, legs dark slate. Stomach contents remains of fruit. No moult.

Discussion. — In a previous publication (Mees, 1964b: 29), I expressed doubt about the validity of *O. f. muelleri*, as Keast (1956) had done before me. At the time the material to arrive at a definite conclusion was not available to me, but since then Dr. A. L. Spaans (MS) has made a study of the genus *Oriolus*. His conclusion, based on a large material, was that neither in tone of colours, nor in measurements, nor in colour pattern such as black markings and extent of the pale tips to the rectrices, is geographical variation sufficiently pronounced to justify the recognition of subspecies.

Dicrurus hottentottus carbonarius Bonaparte

[*Dicrourus*] *carbonarius* Bonaparte, 1850, Consp. Gen. Av., 1: 352 — ex Nov. Guinea = Lobo, Triton Bay.

Material. — Sex?, 12.III.1961, between Koembe and Ongari, no. 561. Wing 146, tail 113, tarsus 23, entire culmen 31 mm, weight 70 g. Sex?, 23.IV.1961, Ongari, no. 591. Wing 151, tail 115, tarsus 23, entire culmen 34 mm, weight 70 g. ♂, 27.III.1962, Koerik, no. 625. Wing 156, tail 116, tarsus 23, entire culmen 35 mm, weight 90 g. ♂, 20.IV.1962, between Ongari and Doemandé, no. 690. Wing, 146, tail 114, tarsus 21½, entire culmen 30½ mm, weight 75 g. Sex?, 22.IV.1962, Koerik, no. 702. Wing 148, tail 110, tarsus 23, entire culmen 33½ mm, weight 78 g. ♀, 27.V.1962, Koerik, no. 728. Wing 153, tail 126, tarsus 23½, entire culmen 33½ mm, weight 74 g. ♀, 3.VI.1962, Koerik, no. 747. Wing 157, tail 120, tarsus 23½ mm, bill damaged, weight 85 g. ♂, 10.VI.1962, Koerik, no. 751. Wing 159, tail 129, tarsus 24, entire culmen 35 mm, weight 91 g. ♂, same data, no. 752. Wing 155, tail 116, tarsus 22½, entire culmen 33 mm, weight 80 g. Iris various shades of red, except nos. 561, 591 and 728 which have it marked as light brown, bill black, legs black. Stomach contents remains of diverse, often large, insects; the stomach of no. 752 contained a complete small lizard.

Dicrurus hottentottus bracteatus Gould

Dicrurus bracteatus Gould, 1843, Proc. Zool. Soc. Lond., 10 (1842): 132 — The eastern and northern coasts of Australia.

Material. — ♂, 19.VIII.1960, Merauke, no. 368. Wing 166, tail 135, tarsus 23, entire culmen 38 mm, weight 91 g. Iris dark red, bill black, legs black. No moult, plumage moderately fresh.

Discussion. — The large measurements, in particular the large bill, place this bird in *D. h. bracteatus*. The plumage has a strong green gloss, but that is also present in some specimens of *D. h. carbonarius*. Hitherto this Australian migrant was in New Guinea only known from the Fly River area (cf. Rand, 1938c; Vaurie, 1949: 289).

Artamus cinereus hypoleucus Sharpe

Artamus hypoleucus Sharpe, 1890, Cat. Birds Brit. Mus., 13: 17 — nomen novum for *Artamus albiventris* Gould, nec *Ocypterus albiventer* Lesson, 1830.

Artamus albiventris Gould, 1847, Proc. Zool. Soc. Lond., 15: 31 — Darling Downs ... and ... Peak-range Camp.

A[rtamus] cinereus inkermani Keast, 1958, Emu, 58: 214 — Inkerman.

Material. — ♂, 12.X.1960, village Kaisa, upstream Koembe River, no. 466. Wing 119, tail 66, tarsus 21, entire culmen 20, exposed culmen 17$^1/_2$ mm, weight 35 g. Iris dark brown, bill light slate blue with a darker tip, legs black. No moult.

Discussion. — The only previous record of this species from New Guinea is by Bangs & Peters (1926: 430), who had a single female collected on 6 November 1924 at Prinses Marianne Strait, that they identified tentatively as *A. c. venustus*. Besides the specimen collected, Hoogerwerf (1964: 158) observed it also in July 1960 and March 1961, and Lindgren (1971) saw three birds south of Wean, in the extreme south-western corner of Papua, in October 1969. On the basis of these few records it is not yet possible to say whether the species is a resident in southern New Guinea or only a migrant or straggler from Australia but the available data suggest that it occurs in small numbers throughout the year.

The name *A. c. venustus* for the one specimen then known from New Guinea was retained by Mayr (1941b: 161), but later the same author transferred it to *A. c. hypoleucus* (cf. Mayr, 1962: 164-165). Rand & Gilliard (1967: 443), on the other hand, continued to use the name *A. c. venustus*, a name that (in my opinion incorrectly, as will be discussed below) has not been recognized by any recent reviser.

The present specimen was forwarded to Mr. Macdonald, at the time head of the bird department of the British Museum. Mr. Macdonald (in litt., 20.XII.1967) reported as follows on the bird: "It is a very close match with the type of *A. c. hypoleucus*. It lacks the darker colour of the belly which we find in specimens taken from north of the Flinders River, at least on the east side of Cape York peninsula".

Artamus cinereus has suffered from a number of revisers in recent years. It started off with Keast (1958b), who revised the species over its whole range, although he did not comment on the one record from New Guinea known at the time. A few years later I made some remarks on geographical variation in

Western Australia, on the whole supporting Keast's conclusions (Mees, 1961: 125). This was followed by Macdonald's (1967) complete revision in which several of Keast's conclusions were modified. The next year I pointed out that the nomenclature in current use is incorrect as the type-locality of *A. cinereus* (the nominate race) is Australia, not Timor (Mees, 1968). Finally Hall (1974: 335) discussed geographical variation in Australia on the basis of the material recently collected by the British Museum expeditions.

Although I do not intend to present here another revision as I hope to publish my notes on Australian birds separately, it is relevant to state that in my opinion none of the revisions just mentioned is final and that also my own remarks made in 1961 have to be corrected. All revisers have included the Kimberley Division and the Northern Territory in *A. c. melanops*, which should now be known as *A. c. cinereus*. Material I collected recently in the area mentioned shows that birds from there are smaller and conspicuously lighter in colour than southern birds. I believe that these birds ought to be recognized as *A. c. venustus*, a name few recent revisers have deemed valid (only Deignan, 1964b: 409, accepted it). It is likely that *Austrartamus melanops normani* Mathews (1923: 255) is, as Keast suggested, only an intermediate between *A. c. venustus* and *A. c. hypoleucus*. The name was accepted by Macdonald and Hall, and ignored by Mayr (1962). It should be mentioned that, like so many of Mathews's races, the description of *A. m. normani* doubtfully qualifies for acceptance in scientific nomenclature.

I further want to draw attention to the fact that according to Mack (1953: 32), in a contribution ignored by later revisers, the type-locality Darling Downs for *A. hypoleucus* cannot be correct: "Birds of the species with white under tail-coverts do not occur outside Cape York Peninsula; certainly not as far south as the Darling Downs". It appears that he was wrong. It is also surprising that Macdonald (1967) considered the type of *A. hypoleucus* (and of *A. albiventris*) to be in the British Museum, but that Warren (1971) makes no mention of it.

Several years after the above notes were written, Ford (1978) has published yet another contribution on the geographical variation and the nomenclature of this species. His detailed study of the variation in plumage found in north-eastern Queensland is very valuable. His distributional map shows that, although Mack erred in stating that *A. c. hypoleucus* does not range outside the Cape York Peninsula, nevertheless he may have been right in questioning Darling Downs as its type locality. Further investigations at Darling Downs appear to be called for.

In the nomenclature used by Ford, there are two names requiring comment. Ford has (against my prior advice) resuscitated the name *albiventris*, which ninety years ago had been replaced by *hypoleucus* as it was considered preoccupied by *albiventer*. Although under the present Code (Stoll et al., 1961: art. 58), strictly speaking *albiventris* and *albiventer* are not homonyms, nevertheless they are so similar that confusion is bound to ensue from the proposed re-introduction of the former.

In the above connexion it is not entirely irrelevant to discuss the legitimity of

the name *Ocypterus albiventer* Lesson (1830: 370), which in the combination *Artamus leucorhynchus albiventer* (Lesson) is currently in use as the valid name for the subspecies of *A. leucorhynchus* of Timor and adjacent islands (cf. Mayr, 1962). Consulting Lesson, one finds: "Langrayen à ventre blanc; *Ocypterus albiventer*, Valenc., pl. 7. fig 2 (Mém. Mus., t. VI)". This shows that Lesson ascribed the name *albiventer* to Valenciennes. Consulting the reference given one finds, however, that in the place indicated Valenciennes (1820) described and figured a bird not under the name of *albiventer*, but as *Ocypterus leucogaster*. Although Valenciennes described and figured a specimen from Timor, the name *leucogaster* was only a nomen novum for *leucorhynchus*; I quote: "Toutes les espèces de ce genre ont le bec bleu, et non pas blanc. J'ai préféré, d'après cela, changer le nom spécifique de *leucorhynchus*, donné par Gmelin, en celui de *leucogaster*, parce que le premier ne caractérisant nullement l'espèce, donne au contraire une idée fausse de la couleur du bec. D'ailleurs il n'y a pas plus de raison pour adopter ce premier nom, que celui de *dominicanus*, sous lequel cette espèce a été aussi décrite". The name *leucogaster* has been generally recognized to be a synonym of *leucorhynchus* (cf. Stresemann, 1913a: 290). Back to Lesson: it is quite evident that Lesson, as quoted above, never meant to describe a new species, not even to provide a new name, but that *albiventer* is a lapsus calami for *leucogaster*. If my interpretation of the Code (Stoll et al., 1961: art. 33b) is right, *albiventer* is an incorrect subsequent spelling of *leucogaster* and therefore has no status in nomenclature. If, on the other hand, *albiventer* is (against the evidence) regarded as a demonstrably intentionally given new name (art. 33a), it is an objective synonym of *leucogaster* and therefore of nominate *leucorhynchus*; in that case the name cannot be used for the Timor subspecies, but it does preoccupy. A third interpretation is perhaps possible: Lesson refers to Valenciennes's plate only, not to his text. The plate figures a specimen from Timor and it might be argued that Lesson has provided a name for the plate only and that, therefore, *O. albiventer* is an available name for the subspecies found on Timor. It is most unlikely that this interpretation is correct, but it is perhaps defensible, and would save the name *albiventer* for the Timor subspecies.

When I published my note about the identity of *Artamus cinereus* (cf. Mees, 1968), I foolishly believed to have cleared up a problem of nomenclature for all time. It was, however, not to be, for Ford (1978) has rejected my conclusions; he first refers to the familiar evidence that many of Vieillot's descriptions are based on Temminck (1807), but continues to say that: "It seems strange that Vieillot would twice give Timor as the type-locality if indeed he had based his description on Temminck's. Mees believes that Vieillot may have overlooked Temminck's mention of New South Wales as it appeared on a different page from Temminck's description but surely Vieillot would have read all of the Catalogue if he has been in a habit of extracting its descriptions! It seems equally strange that Temminck had a specimen from New South Wales in or before 1807, nothwithstanding that New South Wales then comprised the whole of the eastern half of the continent, because the black-vented form is of inland occurrence in

eastern Australia and the interior, west of the Great Dividing Range, was not explored until 1813. Could it be that Temminck's specimen came from the western side of the continent?''.

I am grateful to Ford for pointing out that in certain respects I have not done my homework well enough, a matter I shall try to remedy below, but before doing so I shall discuss a point in which Ford evidently errs. In the quoted paragraph, Ford flatly denies the evidence that Vieillot has used Temminck's Catalogue. Of course there is proof from Vieillot himself that he did use it; in a few instances he has even acknowledged this in his descriptions. As far as *Artamus cinereus* is concerned, one could almost suspect Ford of not having read and compared the descriptions, as otherwise it is difficult to understand how he could deny the obvious.

A serious omission in my previous note is that I failed to consult the paper by Valenciennes (1820). The fact that this paper is not easy to obtain may serve as an explanation, but never as an excuse. The description and figure published by Valenciennes prove beyond doubt that at that time a specimen of *Artamus cinereus*, collected by Maugé and labelled as originating from Timor, was present in Paris. Hence, my opinion that *Artamus cinereus* was exclusively based on Temminck's specimen was incorrect, for it is reasonable to assume that Vieillot has examined this specimen and has taken the locality Timor from it as, indeed, I suggested in my previous paper.

Evidently, for a correct interpretation of the identity of *Artamus cinereus* Vieillot, both specimens have to be considered: Temminck's specimen on which the description was based, and Maugé's specimen from which the locality Timor was taken. I need not say more about the identity of Temminck's specimen, having dealt with that in my previous paper, so that only the identity of the Paris specimen remains to be established. Although this specimen does not exist any more, it has been well described and figured by Valenciennes, who believed that he was describing a new species. Therefore his description was not derived from or influenced by the prior descriptions made by Temminck and Vieillot, but is an original one, and that gives his description of the tail a great demonstrative power: ''Celle-si est arrondie, d'une noir foncé, principalement en dessus, et terminé par une bande blanche: les deux plumes intermédiaires seules sont entièrement noires''.

In spite of the sentence quoted, Hellmayr believed that he could identify the descriptions of Vieillot and Valenciennes as pertaining to the Timor subspecies, on the basis of the rather limited extent of the black face mask and the provenance Timor given in these descriptions. As regards the tail, he speculated that in specimens in a very abraded plumage the white tips to the central tail feathers might get entirely lost. A very slight additional point in favour of Hellmayr's identification is that Valenciennes's figure shows a comparatively thick bill; birds from Timor generally have larger bills than Australian birds.

Now we get the arguments against Hellmayr's identification. There is in the first place the stated locality of provenance. Hellmayr was well aware of ''der

häufigen Fundortsverwechselungen bei den von Maugé gesammelten Objecten", but nevertheless gave the locality Timor as published much weight. In my opinion it means nothing. For example, in the same paper in which he described *Ocypterus cinereus* from Timor, Valenciennes named *Ocypterus albovittatus* from Timor, also from the Maugé collection: this name is a synonym of *Artamus cyanopterus*, a species confined to extra-tropical Australia. As regards the black face mask, it is amusing to see that Hellmayr quotes from Vieillot the following sentence in support of his identification: "une raie noire part les narines, s'étend vers l'oeil et l'entoure", for this sentence was so obviously copied from Temminck's (1807: 232): "de l'orifice de chaque Narine, part une raije noire qui s'élargit vers l'Oeil et l'enchasse"! Hellmayr's opinion that the white tips to the central pair of tail feathers may sometimes wear off, which in itself might be correct, is contradicted for the specimen described by Valenciennes by the figure, which depicts a bird in very fresh plumage. The figure also shows a gradual increase in darkness of the underparts from the breast downwards, such as is found in birds from southern Australia, whereas in birds from Timor the belly has the same pale colour as the breast.

To summarize: Vieillot's description of *Artamus cinereus* was, as stated in my previous paper, entirely based on Temminck (1807), but the locality Timor was added after a specimen in Paris, collected by Maugé. This bird was later described and figured by Valenciennes. My earlier surmise that Temminck's specimen was the only one to be considered is erroneous as Maugé's specimen was also included in the original description. About the identity of Temminck's specimen there is no doubt, as it is preserved. As regards Maugé's specimen, Hellmayr believed that it came from Timor, whereas I consider it more likely that it came from Australia, as explained above. In other words: there were two type specimens; one, Temminck's, is definitely Australian, the other may possibly have come from Timor but more likely from Australia. The last-mentioned specimen being lost, a certain identification is no longer possible. The most sensible thing to do will be to regard Temminck's specimen as the lectotype of *Artamus cinereus* Vieillot, so that the identity of Maugé's lost specimen is no longer important.

Ford has questioned the provenance of Temminck's specimen as in New South Wales *A. cinereus* is an inland species and in 1807 the part of the State where it occurs had not yet been reached by European explorers. Fortunately some light can be thrown on this. The specimen bears the number 166 in Temminck's Catalogue, and Stresemann (1953a) has shown this to mean that the bird was registered in his collection not later than 1799. Stresemann (1953b: 81-82) has given strong arguments for believing that at that time Temminck had received material from the collection of J. J. H. de Labillardière and it is logical to assume that the specimen of *A. cinereus* derives from the same source. This excludes New South Wales as a locality of provenance for the only parts of Australia visited by Labillardière are Tasmania (where *A. cinereus* does not occur) and south-western Australia. The only place then where *A. cinereus* could

have been collected is the mainland of Western Australia opposite the Archipelago of the Recherche, in December 1792 (cf. Serventy & Whittell, 1967: 21-23). This is supported by the fact that the specimen is identical with recent material from Western Australia.

Cracticus mentalis mentalis Salvadori & D'Albertis

Cracticus mentalis Salvadori & D'Albertis, 1876, Ann. Mus. Genova, 7 (1875): 824 — Nicura, Hall Sound.

Material. — ♀, 4. VIII.1960, Koerik, no. 324. Wing 145, tail 103, tarsus 28, entire culmen 35$^1/_2$ mm, weight 94 g. ♂, same data, no. 329. Wing 152, tail 109, tarsus 31, entire culmen 40 mm, weight 88 g. ♂, 13.IX.1960, Koerik, no. 398. Wing 157, tail 112, tarsus 31, culmen 40 mm, weight 108 g. ♀, 24.II.1962, Koerik, no. 608. Wing 145, tail 106, tarsus 30, culmen 36 mm, weight 100 g. ♀, 28.III.1962, Koerik, no. 628. Wing 150, tail 109, tarsus 30$^1/_2$, culmen 37$^1/_2$ mm, weight 110 g. Iris dark brown, bill light blue-grey with a black tip, legs dark grey. Nos. 608 and 628 show heavy moult of the regimes. Stomach contents of no. 628: remains of large insects, but also a fruit seed.

Discussion. — These specimens confirm the large size of the New Guinea population (cf. Amadon, 1951: 4), although the measurments given by Amadon indicate that the smaller subspecies *kempi* from the Cape York Peninsula is scarcely worth recognition. Specimens from Cape York are not available to me.

Macdonald's (1973: 470) assertion that *C. mentalis* might only be a melanistic phase of *C. torquatus* is not to be taken seriously.

Gymnorhina tibicen papuana Bangs & Peters

Gymnorhina tibicen papuana Bangs & Peters, 1926, Bull. Mus. Comp. Zoöl., 67: 431 — Southwest New Guinea: Princess Marianne Straits.

Material. — ♂, 11.VIII.1960, Koerik, no. 353. Wing 240, tail 127, tarsus 66, culmen 62 mm, weight 328 g. Iris very light brown, bill pale slate-blue with a few dark stripes near base on maxilla and a dark tip, legs black. No moult, plumage moderately worn.

Discussion. — This is a bird in immature plumage: there is a broad black saddle on the middle of the back, posteriorly bordered by grey; rump and base of tail white; nape white. In a previous paper I described the first adult male known of this race, which unexpectedly was found to have a white back (cf. Mees, 1964b: 32-33); the two specimens are illustrated on plate 4.

Ailuroedus melanotis melanotis (G. R. Gray)

Ptilonorhynchus melanotis G. R. Gray, 1858, Proc. Zool. Soc. Lond., 26: 181 — Aru Islands.

Material. — ♂, 14.X.1960, Kaisa, upstream Koembe River, no. 478. Wing 162, tail 109, tarsus 45$^1/_2$, entire culmen 37, exposed culmen 30 mm, weight 242

g. ♂, 30.IV.1961, Koerik, no. 598. Wing 160, tail 115, tarsus 47, entire culmen 35, exposed culmen 29 mm, weight 200 g. Iris red, bill horn grey, legs olive grey. No moult.

Discussion. — See Hoogerwerf (1964: 159-160). Rand (1942a: 352) regarded specimens from Tarara and Lake Daviumbu as identical with the Aru Islands birds and "quite different" from *A. m. facialis*. When therefore some years ago I received a single specimen from Eramboe, no more than about 50 km from Lake Daviumbu, I listed it without comment as *A. m. melanotis* (cf. Mees, 1964b: 33). With the addition of Hoogerwerf's two specimens to our collection a comparison with material from the Aru Islands became meaningful. Whereas differences in plumage are negligible, the Aru birds being a little paler on the under parts, it became evident that Aru birds are larger than those from mainland New Guinea. Compare the figures gives by Rand (l.c.) for mainland birds. A specimen from Wuroi recorded by Mayr & Rand (1937: 210) had a wing-length of only 156 mm. For the type specimen of *Ptilonorhynchus melanotis* G. R. Gray a wing-length of 7″ was recorded, or 178 mm, and a male measured by Salvadori (1881: 671) had a wing-length of 175 mm. On the basis of these figures there would appear to be no doubt that Aru birds are significantly larger than birds

TABLE VIII

Ailuroedus melanotis

British Museum material

coll. no. BM	sex	sex fide Ogilvie-Grant	locality	wing	wing fide Ogilvie-Grant	culmen	depth of maxilla
			A. m. melanotis				
1858. 3.10. 47[1)]	♂	♂	Aru	167+	167	33	12
1907.12.11. 125	♂	♂	"	163	161	41	14
1881. 5. 1.1756	-	[♂]	"	169	167	36.5	13.5
1881. 5. 1.1757	-	[♂]	"	167+	165	40	14
1888. 4. 1. 863	-	[♂]	"	moult	164	38	14
1880.11.18. 381	-	[♀]	"	159+	158	37	12.5
1873. 5.12.1336	♀	♀	"	155.5	155	35.5	12.5
			A. m. facialis				
1916. 5.30.1010	♂	♂	Utakwa R.	161.5	160	37.5	13
1916. 5.30.1009	♂	♀!	"	154	153	-	13
1916. 5.30.1011	♀	[♀]!	"	158.5	156	35	12.5
1916. 5.30.1012	♀	♀	"	154.5	153	33	12.5

1) Type of *Ptilonorhynchus melanotis*

coll.no. RMNH	sex	date	locality	wing	tail	tarsus	entire culmen	exposed culmen	depth of maxilla
			A. m. melanotis (Aru Islands)						
cat. 1	♂	21.V.1864	Aru Isl.	175	122	48½	39	32	12½
cat. 2	♂	17.III.1865	Wokan, Aru	172	122	49	35	28	12½
cat. 3	♂	20.III.1865	Wokan, Aru	171	115	49	34	28	13
cat. 4	♂	21.III.1865	Wokan, Aru	170	119	48	-	-	13½
cat. 5	♀	25.III.1865	Wokan, Aru	165	111	46	37	31	12¾
cat. 6	♂	3.VII.1865	Trangan, Aru	172	119	47	39	32½	13½
cat. 7	♂	17.VII.1865	Maikor, Aru	165	115	49	38½	31½	13½
			A. m. melanotis (Mainland)						
30127	♀	8.VIII.1959	Eramboe	151	111	44	37	29½	11¾
42631	♂	14.X.1960	Kaisa, Koembe	162	109	45½	37	30	13½
42632	♂	30.IV.1961	Koerik	160	115	47	35	29	12½
			A. m. facialis						
cat. 1	♀	5.XII.1912	Peramelesbivak	159	109	44	37	30	12
			A. m. arfakianus						
cat. 2	♂	27.I.1876	Warmendi, Arfak	167	125	50	38½	30½	13
cat. 3	♂	15.II.1876	Tjobonda, Arfak	145	111	47	28	24	10
			A. m. misoliensis						
cat. 1	♀	14.VIII.1867	Waigama, Misool	173	124	45½	35½	29	12¼
			A. m. subsp. *(jobiensis?)*						
cat. 1	♂	-	-	154	117	48½	38½	32	13½
			A. m. maculosus						
cat. 1	♂	II.1888	Cairns, Qld.	149	92½	45½	31	23	11¾

from mainland New Guinea. A suggestion in this direction was already made by Gilliard (1969: 271), who recorded for birds from the Aru Islands a wing-length of 169-1977 mm and added: "Lake Daviumbu birds are slightly smaller".

Ogilvie-Grant (1915: 34), on the other hand, listed for Aru birds wing measurements a good deal smaller than those found by me: 5 ♂ 161-67, 2 ♀ 155, 158 mm. For the type he gave a wing-length of 167 mm instead of the 178 mm previously recorded. In addition this author observed that: "Males are easily recognised by their larger, often much larger, bills", an interesting point for which I regret that he did not provide the supporting evidence. Ogilvie-Grant (1915: 36) also claimed that in the related *A. buccoides* the males have "considerably larger" bills than the females, but again without giving measurements.

In my material a sexual difference in bill size is not evident, but it contains few females and moreover a good deal of faulty sexing must be reckoned with. Being eager to have the exact wing measurements of the BM specimens from the Aru Islands, and to have the alleged sexual dimorphism in bill size verified, I wrote to

Mr. Galbraith, who provided me with the measurements desired and with his usual meticulous care went into the problem of sexual dimorphism.

Table VIII shows the measurements of the Aru and Utakwa birds in the British Museum as measured by Ogilvie-Grant (who pencilled the wing measurements on the labels, so that the specimens could be identified), and re-measured by Galbraith. Although this series confirms the larger size of the insular birds, the measurements range somewhat smaller than those of the Leiden material from the Aru Islands. In the absence of any colour characters to support it, the size difference seems insufficient for nomenclatural separation of the mainland and insular birds, and therefore I leave the former under the name of the nominate race.

Mr. Galbraith's notes on sexual dimorphism in bill size are of sufficient interest to be quoted here in full:

"Unfortunately we have no specimen from southern New Guinea, so we cannot help directly with the problem. What we do have is a reasonably good sexed sample from northern Queensland (*maculosus*) which throws some light on the possible sexual dimorphism in bill size. I cannot agree with Hall's (1974: 344) comments on plumage dimorphism in *maculosus*, based on the same specimens. Though 3 of the 13 males are more heavily marked on the breast than any of the 6 females, several females agree with them in head coloration, and no female is appreciably less heavily marked on the breast of greener on the head than any male. The coloration of breast and head is only moderately correlated. I do not think that the male from Ayton weighing 185.9 g., listed as immature because its skull is incompletely pneumatised, is in a different phase of plumage.

Depth of maxilla seems to be the measurement which best separates males from females in *maculosus*, and the results are as follows:

♂, testes enlarged	skull pneumatised 11.5, 12.5
♂, testes somewhat enlarged	skull pneumatised 11, 11
♂, testes not enlarged	skull pneumatised 11, 11.5
♂, testes not recorded	skull not recorded 11.5, 11.5, 12, 12, 12, 12, 12
♀, ovary somewhat enlarged	skull pneumatised 10, 10.5, 10.5
♀, ovary not enlarged	skull pneumatised 10, 10, 10

So it does look as though the sexes can be separated by this criterion. Total bill depth would probably give better separation, but the mandibles of several specimens do not articulate properly. Even accepting Grant's sexing, the separation of our Aru series is not as good as this, and I suspect that he assigned unsexed specimens as ♂ or ♀ according to their bill size. Accepting only label sexes the maxilla depths come out: ♂ Aru Is. 14, 12; ♂ Utakwa R. 13, 13; ♀ Aru Is. 12.5; ♀ Utakwa R. 12.5, 12.5.

I measured the depth of the maxilla immediately behind the nostril, and the culmen from its junction with the skull. I cannot detect any independent character by which the smaller-billed birds can be identified as immatures".

So far Mr. Galbraith. His last remark corresponds with my own findings: there does not appear to be any difference in plumage between males and

females and birds like the one from Arfak (RMNH cat. no. 3), which by their small measurements one would assume to be immature.

The species *A. melanotis* consists of a number of apparently isolated populations with a peculiarly scattered distribution, as well shown on Gilliard's (1969: 270) map. In parts of New Guinea it is a mountain bird and it is likely that its range has been influenced by the related *A. buccoides*, the two being mutually exclusive (cf. Diamond, 1972: 347), with *A. melanotis* occupying the higher levels, *A. buccoides*, the lower levels. Therefore it is of interest that in the southern lowlands, on the Aru Islands and on Misool it is *A. melanotis* which occurs and not *A. buccoides*. Forshaw & Cooper (1977: 208, 216) present distributional maps of the two species which show widely overlapping ranges in the southern lowlands of New Guinea, but this does not conform to the facts as published by Rand (1942a: 352) and others.

The Aru and mainland birds are almost as well differentiated from each other as *A. m. misoliensis* is from *A. m. arfakianus* and as the population from the southern lowlands of New Guinea is geographically widely separated from that of the Aru Islands, a case could be made for subspecific distinction. As has been pointed out above, however, this case is not strong enough.

Chlamydera cerviniventris Gould

Chlamydera cerviniventris Gould, 1850, Contrib. Orn. (Jardine): 100 — Cape York.

Material. — ♂, 15.IX.1960, Koerik, no. 401. Wing 146, tail 108, tarsus 41, entire culmen 30, exposed culmen 23 mm, weight 165 g. ♂, same data, no. 402. Wing 149, tail 107, tarsus 41½, entire culmen 30, exposed culmen 22½ mm, weight 155 g. Iris brown, bill black, legs olive green. No moult, plumage worn.

Discussion. — See Hoogerwerf (1964: 158-159 and 1971: 80), who supplies interesting particulars on periodicity in occurrence and on habitat. Until recently this species was not known to occur west of the Wassikussa River, but this was extended to the Wanggo River by Mees (1964b: 33) and further to Koerik by Hoogerwerf. In addition, Hoogerwerf established the occurrence near Ransiki and in the Kebar Valley, Vogelkop, from where it has also been recorded by Gilliard & LeCroy (1970: 19), a remarkable westward extension of the range as previously known. I have examined a specimen from the Vogelkop, that I was unable to distinguish from birds collected in southern New Guinea. In spite of its extensive range, this species does not appear to show any geographical variation.

Manucodia ater ater (Lesson)

Phonygama ater Lesson, 1830, Voy. Coquille, Zool., 1: 638 — la Nouvelle-Guinée.

Material. — ♀, 3.IX.1959, Merauke, no. 161. Wing 187, tail 160, tarsus 35½, exposed culmen 32½ mm, weight 225.4 g. Sex?, same data, no. 162. Wing 185, tail 158, tarsus 39, exposed culmen 34 mm, weight 211.8 g. ♀,

4.XIII.1960, Koerik, no. 325. Wing 181, tail 152, tarsus 38½, exposed culmen 35½ mm, weight 205 g. ♀, 8.IX.1960, Koerik, no. 395. Wing 174, tail 144, tarsus 39¼, exposed culmen 36 mm, weight 200 g. ♀, 13.IX.1960, Koerik, no. 398. Wing 185, tail 153, tarsus 39¾, exposed culmen 38 mm, weight 239 g., ♀, 18.IX.1960, Koerik, no. 425. Wing 187, tail 156, tarsus 41, exposed culmen 34 mm, weight 229 g. Iris bright red-brown, stone-red, red or bright red, bill and legs black. No. 161 appears to shown moult in the primaries, the other specimens are not in moult.

Discussion. — It is perhaps significant that of the black birds of paradise, this is the only species that has been recorded from Merauke. The irregular geographical variation makes this a most unsatisfactory species from the systematist's point of view, an aspect that has been treated by Gilliard (1956).

Cicinnurus regius regius (Linnaeus)

[*Paradisaea*] *regia* Linnaeus, 1758, Syst. Nat., ed. 10, 1: 110 — in India orientali = Aru Islands (Berlepsch, 1911: 59).

Paradisaea (Rex) Scopoli, 1786, Del. Flor. Faun. Ins., 2: 88 — Nova Guinea (ex Sonnerat, 1776: 156, pl. 95) = Sorong district, Vogelkop.

Cicinnurus regius claudii Ogilvie-Grant, 1915, Ibis, Jubilee Suppl. 2: 16 — Parimàu, Mimika River.

Material. — ♂ in juvenile plumage, 13.X.1960, near Kaisa, Koembe River, no. 470. Wing 100, tail 56½, tarsus 26, entire culmen 20½, exposed culmen 14½ mm, weight 48 g. Iris dark brown, bill dirty olive yellow, legs bright slate. ♂ ad., 14.X.1960, same locality, no. 476. Wing 97, tail (without the two greatly elongated central rectrices) 28, tarsus 26¼, entire culmen 21¾, exposed culmen 10½ mm, weight 46 g. Iris brown-grey, bill light yellow, legs bright blue.

Discussion. — Since Stresemann's (1922, 1923) short revisions, six subspecies of *Cicinnurus regius* have been recognized. In a previous publication I mentioned my inability to distinguish in western New Guinea more than two subspecies in contrast to the five currently accepted (cf. Mees, 1964b: 34-35). No material was available of the sixth subspecies, *C. r. gymnorhynchus* Stresemann, but the characters ascribed to it are of the same kind as those on which the other subspecies have been separated and seem equally unconvincing.

As in the paper just referred to I did not go into particulars, I have once again studied our material so as to be able to present a better founded opinion. The characters on which subspecies have been based are: shape of the green spot above the eye; wing-length; length of the exposed culmen (reflecting variation in the part of the bill covered with short feathers); colour of the feathers on forehead and bill (dark red like the back, or more orange).

The measurements of our material (only males in full plumage were measured) are given in Table IX. An interesting point that shows is that individual variation in wing-length is small, in any one locality no more than 5 mm, or 5%. This means that in the present species more value may be attached

to differences of only a few mm between populations than in most species of birds. Accepting this, once can still wonder about the fact that Ogilvie-Grant (1915: 17) reported for his whole series of 69 specimens of the new subspecies *claudii*, males and females combined, a wing-length of exactly 100 mm! The table shows that Aru specimens are largest (if four specimens suffice to base a definite conclusion on), but that the difference in itself is not enough to justify subspecific separation. Note that Stresemann (1923: 36) recorded for specimens from the Aru Islands a wing-length of 100-105 mm, for mainland birds 97-103 mm. The length of the exposed culmen of Aru birds also tends to exceed that of other

TABLE IX

Measurements of *Cicinnurus regius*

C. r. regius

Aru Islands

wing 102, 102, 103½, 106.
exposed culmen 10, 10½, 11, 12½.

Misool

wing 97, 98, 98½, 98½, 99 (7×), 100 (3×), 101.
exposed culmen 8½-11½.

Salawati

wing 97, 99, 100, 100, 101, 101, 102, 102.
exposed culmen 7-9½.

Mainland (Vogelkop east to Lobo)

wing 97, 97½, 97½, 100 (4×), 100½, 101 (4×), 102.
exposed culmen 7½-9½.

South New Guinea (Van Weel's Kamp, Sabang)

wing 98, 99 (4×), 100, 100, 101½.
exposed culmen 8-11½.

Central New Guinea (Katem)

wing 103.
exposed culmen 9.

East New Guinea (Mt. Victoria)

wing 97, 98, 98, 102.
exposed culmen 9½-11.

C. r. coccineifrons

Japen

wing 101, 102, 102.
exposed culmen 6½-8½.

Idenburg and Mamberamo Rivers

wing 96, 101, 101.
exposed culmen 7½-8.

Near Humboldt Bay

wing 98, 98, 100.
exposed culmen 7-7¼.

populations, but it is significant that in this character I found far more individual variation than previous authors (10-12$^1/_2$ mm in Aru birds; 8-11$^1/_2$ mm in birds from southern New Guinea). Stresemann (1923) did not find more than 1 mm variation in each subspecies recognized by him (10-10$^1/_2$ mm in Aru birds; 8$^1/_2$-9$^1/_2$ mm in birds from southern New Guines).

As regards the colour of the frontal feathers, in this case also I found far more individual variation than Stresemann's revision would lead one to believe. From his work one gets an impression of a mosaic pattern of populations with orange-red foreheads and populations with red foreheads. In my material individual variation seems to cover almost entirely such differences, see also Mayr & Camras (1938: 467). I note that Stresemann refers to some of his subspecies as having the forehead orange-yellow (orangegelb); in none of the specimens examined by me could the forehead be called yellow.

There remains the shape of the dark green spot over the eye, which in birds from western and southern New Guinea, including the islands, is roundish, whereas in northern New Guinea it has the shape of a narrow vertical bar. Although I accept this character as justifying the name *C. r. coccineifrons* Rothschild for the birds from northern New Guinea, even this character shows some individual variation. Two of my small series of 12 specimens are aberrant: a bird from Japen (24.IV.1869) has the spot above the eye very small and roundish, one from Prauwenbivak on the Idenburg River (1.IX.1920) has it roundish and very similar to the nominate race.

One gets an impression that all these subspecies have been retained for so long because nobody since Stresemann has bothered to study the geographical variation of *C. regius*. Note that both Rand & Gilliard (1967: 492) and Gilliard (1969: 192, 200) merely list the six subspecies, without giving any information on subspecific characters; see also Forshaw's comments (in Cooper & Forshaw, 1977: 160). It is true that Dupond (1937: 41-44) provided a key to the subspecies, as well as a map of their distribution, but both are based on literature records, without any original contribution.

Finally a point about the distribution. Mayr (1941b: 176), Gyldenstolpe (1955b: 382), Rand & Gilliard (1967: 392), Gilliard (1969: 193) and Cooper & Forshaw (1977: 159, 160) all included the island of Batanta in the range. The basis for the Batanta record is found in Salvadori's (1881: 648) work, where it appears as follows: "? Batanta (*Beccari*)". Later authors have apparently overlooked the query. *Cincinnurus regius* is usually a common bird where it occurs and if it does inhabit Batanta it is surprising that it was not found by later collectors, such as Ripley's assistants Joseph and Saban in 1938, Bergman in 1949, Gilliard and Somadikarta in 1964. The query provided by Salvadori shows that the record was even then regarded as doubtful, probably being based on a trade skin imported from somewhere else; in the absence of any more recent evidence to support it, it should be rejected. The matter is of zoogeographical interest as Batanta and Waigeo share the endemic species *Diphyllodes respublica* (Bonaparte), which in spite of its different generic name and especially in the male sex strikingly different appearance, is a close relative of *C. regius*.

For completeness' sake it is necessary to mention that I have also compared females and males in the female plumage from different localities. No geographical variation in the plumage of the females has ever been recorded, and none was apparent to me.

Paradisaea apoda novaeguineae D'Albertis & Salvadori

Paradisea apoda, Var. *novae guineae* D'Albertis & Salvadori, 1879, Ann. Mus. Genova, 14: 96 — Fiume Fly (300-430 m).

Material. — ♀, ovary small, died 23.V.1962 after living in captivity since 1960, Kaisa, Koembe River, no. 726. Wing 174, tail 126, tarsus 41½, entire culmen 37, exposed culmen 30 mm, weight 173 g. ♂? juv., 3.VI.1962, Koerik, no. 736. Wing 178, tail 139, tarsus 46, entire culmen 41½, exposed culmen 35½ mm, weight 225 g. ♂? juv., same data, no. 737. Wing 186, tail 134, tarsus 44, entire culmen 39, exposed culmen 32½ mm, weight 222 g. ♀, ovary small, 10.VI.1962, Koerik, no. 753. Wing 165, tail 120, tarsus 43, entire culmen 36½, exposed culmen 31 mm, weight 170 g. Iris brown (no. 736), light yellow (no. 737), or olive grey (no. 753), bill light slate, legs dirty slate (nos. 736, 737), or dirty flesh colour (no. 753). None of the birds shows moult. Stomach contents fruit pulp and small seeds (nos. 737, 753), remains of a large soft insect (no. 736).

Corvus orru orru Bonaparte

C[*orvus*] *orru* Bonaparte, 1850, Consp. Gen. Av., 1: 385 — ex N. Guinea = Aidoema Island in Triton Bay (cf. discussion).

Material. — ♂, 25.IX.1960, Koerik, no. 442. Wing 340, tail 188, tarsus 63, culmen from forehead feathers 65, culmen from anterior point of nostril 44½ mm, weight 669 g. Iris pale blue, bill black, legs blackish. No moult.

Discussion. — The type locality given by Bonaparte (1850) is vague; in recent literature (Mayr, 1941b: 167; Vaurie in Blake & Vaurie, 1962: 275) it has been given as Lobo, Triton Bay, but this can be located more precisely, as the type-specimen is from Aidoema Island. The exact type locality had already been published by Schlegel (1859: 9 and 1867: 21) and Salvadori (1881: 483). Note also that Mayr and Vaurie gave the year of publication of *Corvus orru* as 1851, but that it is 1850 (cf. footnote on p. 146).

Corvus orru was recorded from the Merauke area as early as 1904 by Dr. Koch (cf. van Oort, 1909: 99, s.n. *Corvus orru*). Bangs & Peters (1926: 343) received two specimens, from the Wendoe Mer River and Prinses Marianne Strait, which they listed as *C. coronoides orru*, a trinomial then in use. In other words, the authors listed included birds from this part of southern New Guinea in the nominate race. This changed with Stresemann & Paludan (1935: 458), who discussed a specimen from Sepadim, a village on the coast little south-east of Merauke, and decided that it should be referred to *C. macrorhynchos cecilae*, or in

present nomenclature that it belonged to the Australian subspecies *C. orru cecilae.* Later Stresemann (1943: 133) transferred this same specimen without further explanation to *C. orru salvadorii*, to which Rand (1942a: 348) brought also specimens from the Fly River region.

Compared with the type-specimen, Hoogerwerf's bird differs by having the gloss more greenish blue, not purplish, the same character previously noted by Stresemann & Paludan (l.c.) and Rand (l.c.), but a skin from Adi Island not far from the type locality of *C. orru,* agrees very well with the specimen from Koerik. In spite of the statement to the contrary made by Stresemann & Paludan, my impression is that the colour of the gloss is at least partly a question of wear: as feathers become more worn, the gloss changes from blue through green to purple. Otherwise it would be difficult to explain why in several specimens of *C. orru*, the parts of feathers covered by other feathers shine blue, whereas the exposed parts of the same feathers shine green. I know better than to try and revise *C. orru* on the basis of the very inadequate material available here, but I do feel justified in concluding that the specimen from Koerik can be assigned to the nominate race. This bird has a longer tail than any of our other specimens of *C. o. orru*, but a bird from Merauke measured by Stresemann (1943: 133) had a short tail, so that this is evidently a matter of individual variation.

Birds observed at Merauke in 1957

From 29 April to 8 May 1957 I stayed in Merauke, a pleasant village rather than a town near the mouth of the Merauke River. Although not all my time could be devoted to making ornithological observations and an attack of malaria also interfered, I identified some 60 species of birds. Modest as this number is, I regard publication of a list as justified, as I observed a number of species not included in Hoogerwerf's collection, Therefore this list adds a little to knowledge of the avifauna of this part of New Guinea, as a supplement to Hoogerwerf's work.

Ardea picata
Butorides striatus
Egretta garzetta
Egretta intermedia
Egretta alba
Dupetor flavicollis
Threskiornis moluccus
Plegadis falcinellus
Anseranas semipalmata
Tadorna radjah
Anas superciliosa
Haliastur indus
Rallus philippensis
Irediparra gallinacea
Lobibyx miles
Numenius phaeopus
Limosa limosa
Caprimulgus macrurus
Dacelo leachii
Halcyon sancta
Halcyon macleayii
Merops ornatus
Eurystomus orientalis
Petrochelidon nigricans
Coracina novaehollandiae
Rhipidura leucophrys
Piezorhynchus alecto
Myiagra (ruficollis)
Cisticola exilis
Acrocephalus stentoreus
Malurus alboscapulatus
Pachycephala melanura
Dicaeum pectorale
Nectarinia jugularis

Tringa hypoleucos
Himantopus himantopus
Gelochelidon nilotica
Ducula spilorrhoa
Geopelia humeralis
Geopelia striata
Lorius lory
Eclectus roratus
Aprosmictus erythropterus
Cuculus saturatus
Cacomantis variolusus
Chrysococcyx malayanus
Centropus phasianinus
Nectarinia aspasia
Lichmera indistincta
Meliphaga (analoga)
Meliphaga versicolor
Entomyzon cyanotis
Philemon novaeguineae
Conopophila albogularis
Neochmia phaeton
Lonchura nevermanni
Mino dumontii
Dicrurus hottentottus
Artamus leucorhynchus
Corvus orru

The two species of which the specific name is placed in parenthesis, were identified on the basis of ecological probability (mangrove), rather than on morphology, as they have doubles from which I could not claim to be able to distinguish them in the field.

Only a few of the species listed require comment. Some of my observations have already been mentioned in the main text (*Limosa limosa*, *Gelochelidon nilotica*, *Halcyon macleayii*).

The observation of an individual of *Cuculus saturatus* on 3 May might seem late for a winter visitor from the Northern Hemisphere, but Bergman collected one at Sorong on 11 May 1949 (cf. Gyldenstolpe, 1955b: 249) and there are other records from May.

The occurrence of *Cisticola exilis* at Merauke, where it was common, had not at that time been recorded; it meant a westward extension of the known range in southern New Guinea from the Oriomo River. Hoogerwerf (1964: 157-158) has found the species in many localities in southern and western New Guinea, but he appears not to have collected material in southern New Guinea, although he obtained some specimens in the Vogelkop (cf. Hoogerwerf, 1971: 73). Hoogerwerf remarked on the fact that at Koerik this species was present in the ricefields, whereas, in contradistinction, in Java he never saw it in ricefields, which were the exclusive domain of *C. juncidis*. In this connexion I must mention that my own observations contradict those of Hoogerwerf, for in the years 1946-1949, when I lived in West Java, I have seen *C. exilis* in the paddyfields on numerous occasions, and as far as my experience goes, these formed its preferred habitat there. It occurred mixed with *C. juncidis*, but was less common.

Acrocephalus stentoreus was an addition to the known avifauna of Merauke. Whether the birds heard and seen were residents or migrants from Australia is a point that remains to be established. Although Rand (1938b) found this species nesting at Lake Daviumbu, which is not very far away from Merauke, the population may well be augmented by Australian migrants in the austral winter. In southern Australia, *A. stentoreus* is known to be migratory, and proof of long-distance migration was provided by an individual ringed at Willaroo, Vic., and recovered at Baramboo, Qld., over 2000 km to the north (Anon., 1969). Winter quarters of certain Australian populations might possibly extend as far north as

southern New Guinea. It should be possible to distinguish migrants from residents on the basis of size (cf. Mayr, 1948).

During my stay *Lonchura nevermanni* was one of the commonest species, found even in the streets of Merauke. I noted nest-building in clumps of grass.

Neochmia phaeton was seen almost daily around Merauke, in pairs or family parties. Van den Assem (1960) and Hoogerwerf (1964: 160) have recorded it as a common inhabitant of the lowlands from Merauke to Frederik Hendrik Island and the Mappi district.

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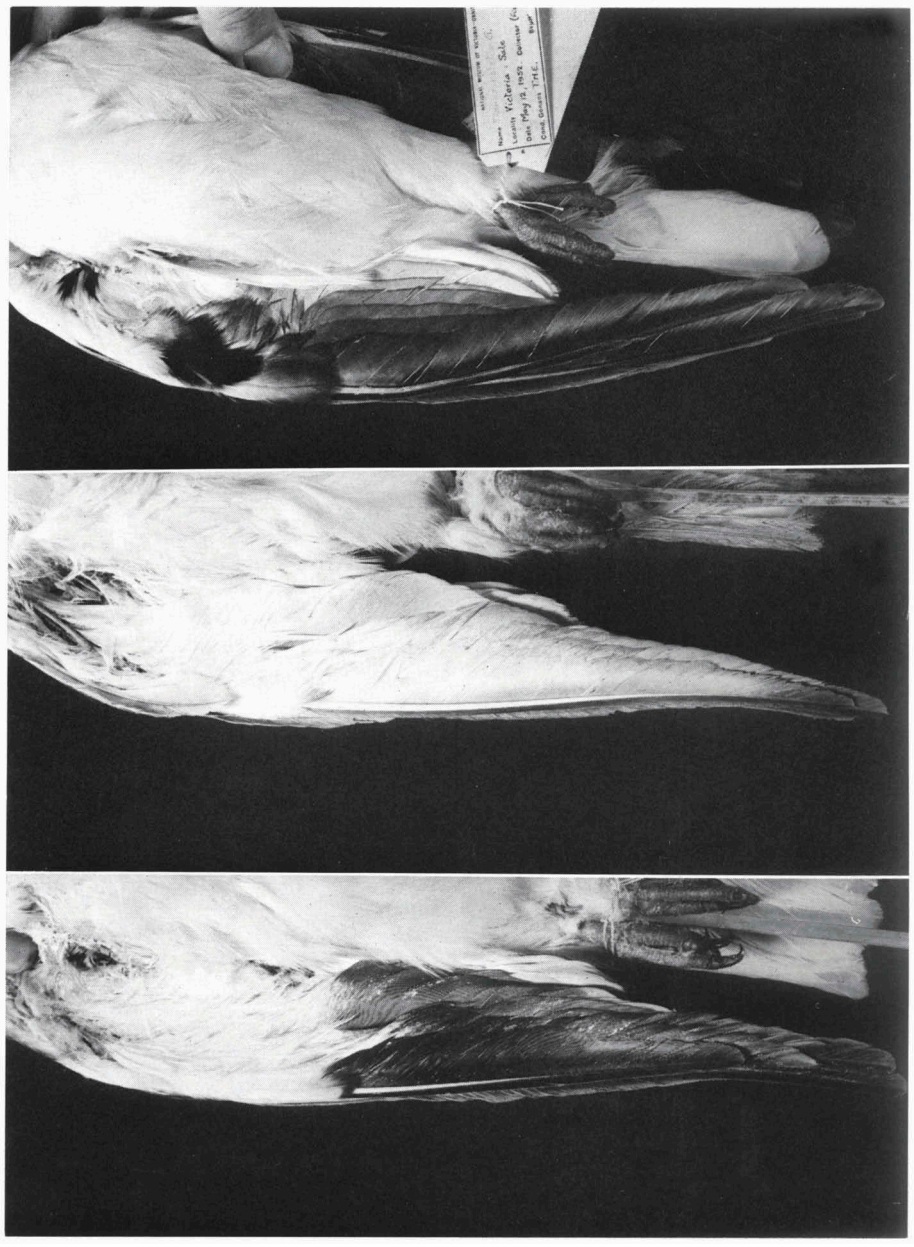
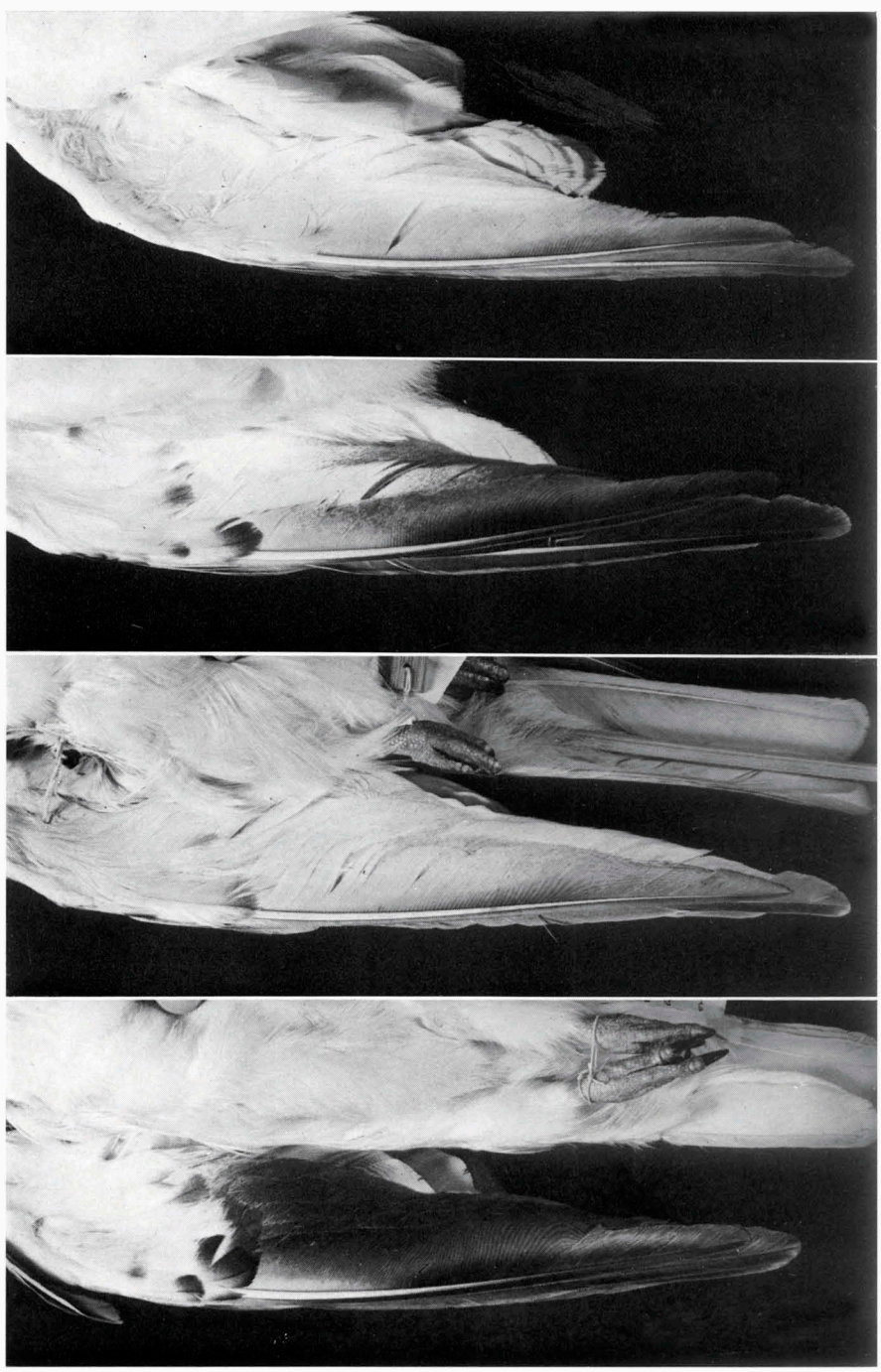
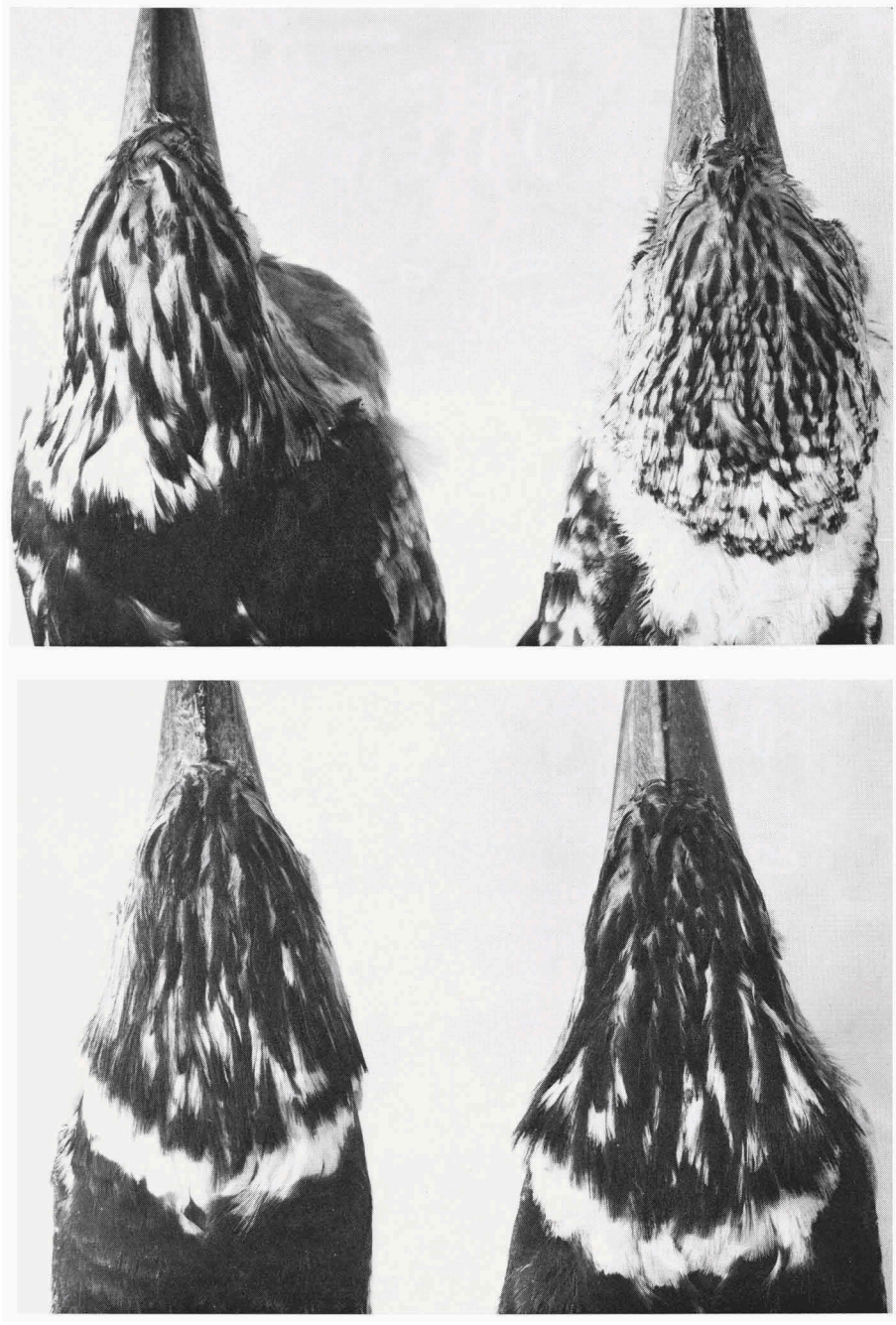


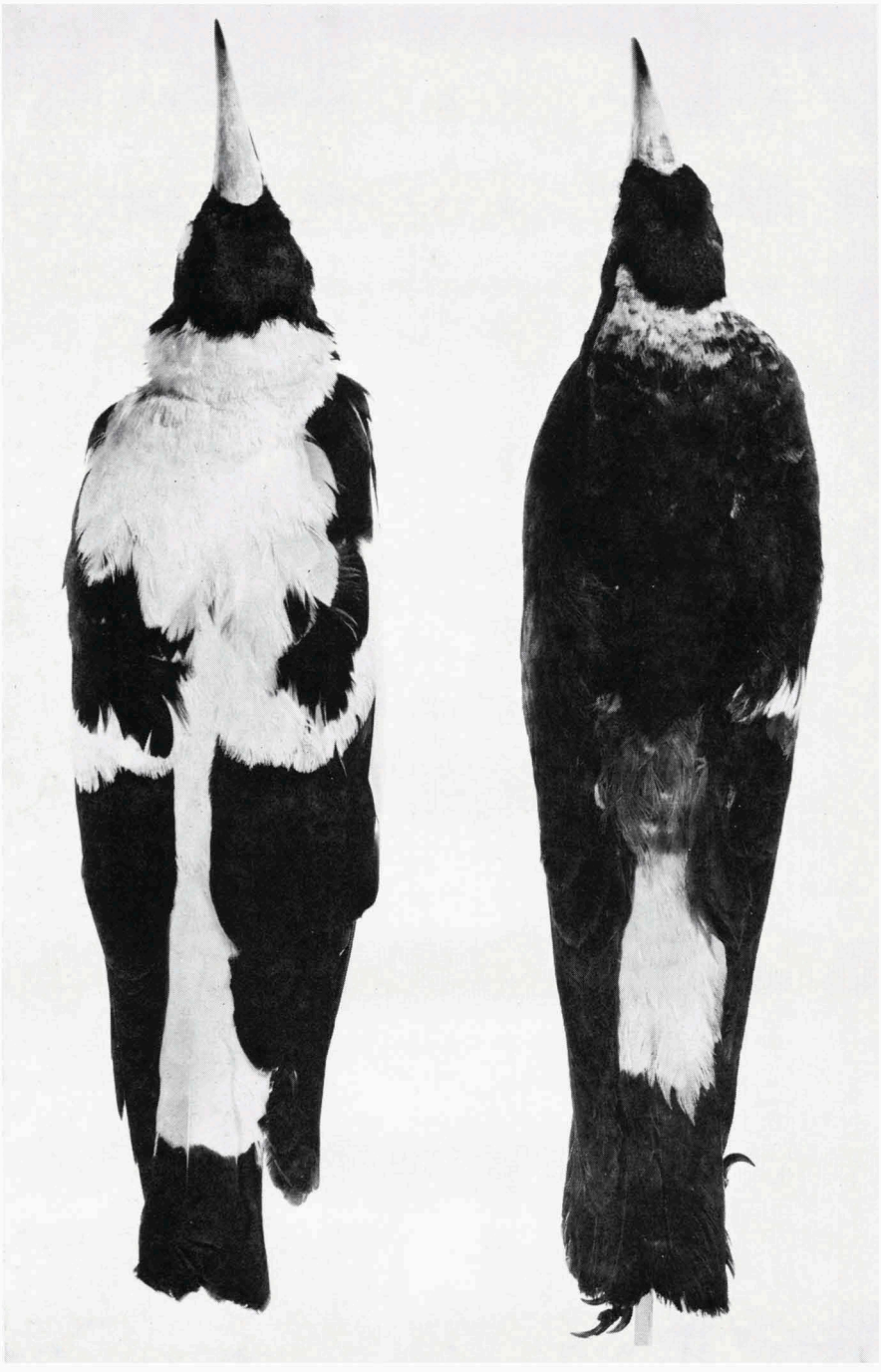
Under surface of wing of *Elanus*, from left to right: *E. c. hypoleucus* from New Guinea (♀, Hoogerwerf no. 722), *E. c. hypoleucus* from New Guinea (♂, Hoogerwerf no. 691), *E. c. notatus* from Victoria (♂, ZMA no. 12576).



Under surface of wing of *Lilanus caeruleus hypoleucus*, from left to right: darkest specimen from Sumatra (♀, RMNH cat. no. 36), palest specimen from Sumatra (♀, ZMA no. 13728), darkest specimen from Java (♀, RMNH cat. no. 106), palest specimen from Java (♂, RMNH cat. no. 79).



Heads of *Dacelo leachii*: top left *D. l. superflua* (♂, syntype, BM no. 1911.12.20.803), top right *D. l. superflua* (♀, syntype, BM no. 1911.12.20.801), bottom left *D. l. intermedia* (♂, Hoogerwerf no. 510), bottom right *D. l. intermedia* (♀, Hoogerwerf no. 389).



Gymnorhina tibicen papuana: left ♂ ad. (RMNH no. 30137), right ♂ im. (Hoogerwerf no. 353).