CONTRIBUTION
TO THE ORNITHOLOGY
OF WESTERN SOUTH AFRICA

Results of the British Museum (Natural History)
South West Africa Expedition, 1949–50

by

J. D. MACDONALD

LONDON
PRINTED BY ORDER OF THE TRUSTEES
OF THE BRITISH MUSEUM
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FOREWORD

In 1954 the Trustees of the Museum called for reports on deficiencies in the Museum's collections and on ways to remedy them. The resulting surveys showed that some of the biggest ornithological gaps were in the northeast and southwest of the African continent, Damaraland being especially mentioned. On the general question of building up the vertebrate collections it was emphasised that material obtained by specialist collectors was incomparably more valuable than that brought back by general collectors or by zoologists primarily interested in other groups of animals.

Similar conclusions have been reached in a recently published survey,* where after a general consideration of the sources that have contributed significantly to the growth of museum collections it is concluded that:

'Special collecting trips are now the major source of addition in most museums. . . . This type of collecting, which permits biological observations and, simultaneously, occasional experiments, results in material of much greater biological value than the mere mechanical collecting of the past.'

There is added the very pertinent generalisation that:

'Most institutions do not have sufficient funds at the present either for purchasing private collections or for special collecting trips. . . .'

Mr. Macdonald has twice succeeded in surmounting the financial obstacles and making expeditions first to north-eastern Africa (Sudan) in 1938–39 and afterwards to South West Africa and Damaraland (1949–50). As an experienced ornithologist and a member of the staff of the Museum he brought vital knowledge to the task of enhancing the scientific value of the Museum's ornithological material. Collections were made in all the major ecological habitats of the areas visited and in the report that follows not only are the ecological associations of the birds recorded and discussed but certain previously accepted taxonomic conclusions are re-considered in the light of field observations and preliminary studies of the new material.

H. W. PARKER

Keeper of Zoology

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INTRODUCTION

The African avifauna is now fairly well known. The phase of discovering new species, except by taxonomic revision, has practically come to an end. But knowledge of distribution and variation, of life histories, and the general ecological and historical pattern of bird life throughout the continent is far from complete.

One of the areas whose birds have been given rather less attention than most is the arid western regions of South Africa. For various reasons it has been, and still is, an inhospitable country, in spite of the kindly disposition of its thinly scattered population. Its political history, at times somewhat turbulent; its desolate and fog-bound coastline, now made doubly inapproachable because of protective measures against illicit diamond prospecting; its vast hinterland of Kalahari Desert and Okavango swamp; and its own arid mountains and plains have discouraged travellers and ornithological pursuits.

Although the birds of this region have been studied relatively infrequently most of the species represented have been known for a long time. The first ornithological survey of any importance took place as early as 1783–5 when the French naturalist, Levaillant, made his second great journey ‘into the interior parts of Africa from the Cape of Good Hope’. Recent bird exploration, mainly by the late Dr. Austin Roberts of the Transvaal Museum; Mr. Walter Hoesch, a resident naturalist, and Dr. G. Niethammer, who worked in conjunction with him for a short time; and Dr. R. M. de Schauensee, of the Academy of Natural Sciences, Philadelphia, brought to light a number of interesting problems. In order to study some of these it became possible to visit the region during part of 1949–50. The party included Colonel F. O. Cave, who had many years’ experience of field work in Africa; Mrs. B. P. Hall, who had experience of servicing vehicles as well as a knowledge of African birds; and my wife who served as medical officer. We had modern transport and equipment designed for use in rough country. Generous friends provided financial assistance to supplement an official grant. Leave of absence was granted by the Trustees, and permission to visit the region was obtained from the South African Government and the Administration of South West Africa.

It was only possible to plan for about six months in the field and therefore it was decided to cover at least the period of the post-breeding moult when the transition from worn to fresh plumage shows the range of seasonal variation, which is important to know when measuring geographical variation. As the main objective was the study of distribution and variation it was necessary to visit as many different kinds of country as possible and to collect information on most of the species represented in each: it was difficult sometimes not to be diverted by the attractions of studying only a few species. However, collecting was selective; all coastal species were ignored, and a number of others which were least important for our purpose. Information was obtained
on 235 species out of the 432 listed by Hoesch and Niethammer (1940) for South West Africa. The following notes, therefore, consist of field observations and taxonomic notes only on the species observed and collected. Certain general points of interest are discussed separately.
ACKNOWLEDGMENTS

The official grant covered only part of the cost of the expedition. Much of the balance was provided by friends. I am grateful to them, and also to my companions, who dipped generously into their own pockets. In finding and equipping trucks we had the enthusiastic co-operation of the Ministry of Supply (Disposals). No pains were spared to provide the best available, and in the field we were seldom worried by mechanical troubles.

In South Africa we met with kindness everywhere. Government Departments granted many requests for special privileges. In South West Africa the Administrator and his staff showed a lively interest in our plans and gave us all the necessary freedom to carry them out. We were honoured by the personal interest of the Administrator, at that time Col. P. I. Hoogenhout, and the Civil Secretary, Mr. J. Neser. Among many other kind friends in the Government at Windhoek I would like to mention in particular Dr. J. S. Watt, Director of Agriculture, who was most helpful both officially and socially.

Willing co-operation was given by kindred institutions in South Africa. It was regretted that for domestic reasons a team from the Transvaal Museum was unable to join us in the field. During our stay in Pretoria at the end of the trip we were given the run of the bird room and the friendliest help from the director, Dr. V. FitzSimons, and from Mrs. T. Campbell and Mr. White. Mr. R. H. N. Smithers, director of the Rhodesian Museums, lent us one of his native skinners, and entertained us very hospitably during our short stay in Bulawayo. A second native Skinner was lent by Mr. Skead, director of the Kaffrarian Museum, Kingwilliamstown. In Cape Town Dr. K. Barnard, director of the South African Museum, helped us in many ways while we were fitting out.

South African ornithologists showed a great interest in our work and made us welcome wherever we had the good fortune to meet them. Perhaps our warmest thanks are due to the people who helped us on from day to day, particularly farmers in remote places. However dubious they may have been about our objectives (in a country where there are still much untapped mineral resources) they were in no doubts as to how to dispense hospitality. Grateful thanks are also due to Barclay’s Bank (D.C. & O.) whose managers throughout the country not only dealt with our small financial problems but coped with unusual requests, as finding suitable camping sites near towns and villages, and entertained us in their homes. Similar thanks are due to the South African police force whose officials went out of their way to help us. To some families in very lonely places we hope we brought a little bit of excitement.
HISTORICAL ACCOUNT

Some account of the history of bird exploration in South West Africa has been given by Hoesch and Niethammer (1940). These notes, therefore, are only a brief summary with emphasis on a few points not dealt with fully by them.

Levaillant laid the foundations of the ornithology of western South Africa by his expedition from the Cape to Great Namaqualand during the years 1783–5 (see Levaillant, 1796). It is worth mentioning that a few years before this, in 1779, Lieut. William Paterson, who was mainly interested in plants, was the first to describe and figure (1789) the Sociable Weaver and its distinctive communal nest; it is a bird which is only likely to be seen after crossing the Orange River to the north of Springbok. It is possible that both Paterson and Levaillant crossed the river somewhere between Goodhouse and Pella, which is still the most approachable section.

Levaillant went much farther north than Paterson, or at least he has recorded that he did. A case has been made out against him, mainly by Forbes (1930) who claimed that Levaillant plagiarised the experiences of genuine travellers to the country of the Great Namaqua. It seems true that there are many inaccuracies in his accounts, which were actually written by another some time after the events, but his references to a number of birds which only belong to north of the Orange River suggest that he did journey for some distance in that direction. Capt. C. H. B. Grant (in MS.)* shows that his route can be adjusted to a modern map with reasonable certainty in a number of details. Grant makes out that Levaillant’s journey was roughly west and east of the Karas Mts., the northern limit being about Keetmanshoop, and certainly not latitude 23° 23′ S. Grant’s conclusions are accepted here when attempting to determine the type localities of forms based on his specimens.

Andrew Smith visited Little Namaqualand during the years 1827–9. Unfortunately he did not publish any account of his travels and seldom stated on the labels of his specimens, or in his descriptions of new and unusual forms, exactly where they had been obtained. However, he left field notes and from them Roberts (1936 (b)) clarified a number of points.

Captain James Alexander left more exact information about his movements, but unfortunately few of his fine collection of 320 specimens are now in existence, so far as is known. Alexander set off from Cape Town in 1836, passed through Little and Great Namaqualand and finally reached Walvis Bay by way of the Naukluft Mts. and the Kuiseb River. His party nearly perished in the Namib sand dunes encroaching on the River course. We planned to follow his route on this section, for a track along the south bank is clearly indicated on most maps, but the route is as impracticable now as it was then. Three new species of birds based on specimens taken in this area were

Contribution to the Ornithology of Western South Africa

described by Waterhouse in an appendix to Alexander’s account of his journey (1838) and some notes on his types and type localities have been published recently (Macdonald, 1951).

Levaillant, Smith and Alexander explored these western regions of South Africa from the Cape, culminating in Alexander’s success in reaching Walvis Bay, and it was at Walvis Bay in 1850 that the Swedish naturalist, C. J. Andersson, entered the country with John Galton. Andersson probably made the greatest contribution to the ornithology of this region, and indeed had the opportunity to do so in the seventeen years he spent in the country. He was buried there, near Ovaquenyama, by his young Swedish assistant, Eriksson.

Andersson’s main headquarters were at Otjimbingwe on the Swakop River, where a large number of his specimens were collected. But he travelled about a good deal, to Windhoek, the Waterberg, twice overland to the Cape with cattle (there is an excellent map of his route in his Lake Ngami, 1856), to Lake Ngami and finally through Ovamboland to the Cunene River. He was a careful collector and his specimens, most of which are still in existence, were well preserved and labelled with adequate data. Among them are types of many new forms, described by Strickland and others, and although some of his localities are now rather obscure most of them can be traced, particularly with the help of his excellent biography written by Wallis (1936). It is unfortunate that Andersson did not live to prepare the full account of his birds which he had in mind to do. The publication edited by Gurney (Andersson, 1872) lacks many of the first-hand field observations which are so important. Eriksson, who accompanied Andersson on his last expedition, continued to collect specimens and there are a number of new forms to his credit, but his collections were never fully determined.

A more speedy and violent end than Andersson’s fell on another Swedish naturalist, J. A. Wahlberg, who entered the country at Walvis Bay in 1854 and was killed by an elephant near Lake Ngami in the same year. Andersson was at Cape Town at the time and apparently the two never met. Wahlberg made a few important contributions to the ornithology of the area, but most of his large collection of some 2600 specimens (now in the Royal Natural History Museum, Stockholm) came from other parts of South Africa. As in the case of Andersson it is regrettable that Wahlberg never lived to publish an account of his collections, for according to Gyldenstolpe (1934) he kept full and meticulous field notes; they have never been published.

After Andersson’s death in 1867 there followed a long period of relative inactivity in bird work. Dr. Edward Fleck visited South West Africa at the end of the century and wrote an account of its birds (1894). Some specimens from a collection made round Windhoek by Dr. Lübbert were described as new forms by Reichenow (1902); and others from the Etosha Pan area in 1914 by Dr. Fritz Jäger and Dr. Leo Waibel were reported on by Grote (1922).

After the First World War interest in the birds of this area revived. Between 1917 and 1921 Major C. G. Finch-Davies published a number of important observations (see References). In the 1920 decade the South African Museum organised a number of expeditions, one of which at least went as far as the Cunene River, but it seems that little attention was given to birds though a number were collected and were referred to later in notes published by Dr. Austin Roberts. In the same period Mr. R. D. Brad-
field, who was stationed near Okahandja, took up an interest in birds and became associated with Roberts at the Transvaal Museum. In the course of several years Bradfield collected much useful information and specimens which were recorded by Roberts, mainly in a paper published in 1928.

In 1930 Dr. R. M. de Schauensee, of the Academy of Natural Sciences, Philadelphia, made a rapid south-to-north traverse of the region, reaching as far as Spitzkopje and the Etosha Pan and leaving by the Ghanzi route across the Kalahari Desert to Rhodesia. He made a number of important contributions which are recorded in the account of his expedition (1932 (a)). A useful small collection of birds was made by another American, Mrs. L. O. Sordahl, who was stationed at Mt. Brukkaros. The collection, which is in the U.S. National Museum, was reported on by Dr. H. Friedmann (1933). Roberts visited the area on the Barlow Transvaal Museum Expedition of 1937, but unfortunately only a preliminary report of the birds was published (1937). It seems that he intended to write a full account in the Annals of the Transvaal Museum, and that a subsequent visit in 1941 was envisaged to fill in some details; but unfortunately he died before it could be completed.

In the same period birds were the special interest of Mr. Walter Hoesch, a farmer resident in the vicinity of the Erongo Mts. From time to time he sent specimens to various places, including the British Museum, and accounts of them were published in several journals. Hoesch’s activities reached a climax with the visit to the country of Dr. Gunther Niethammer and the publication by both of their valuable account of the birds of South West Africa (1940). It was in the same year that Roberts’s outstanding, though unfortunately rather abridged, work on the birds of South Africa appeared.

After the Second World War the region was visited by Col. R. Meinertzhagen, mainly in connection with his work on larks published in 1951.
ITINERARY

The route of the expedition is shown in Fig. 1 and details of localities visited are summarised below. Areas where special observations were made are indicated in large type in the summary and by dotted circles on the map.

The region visited is roughly twice the size of Britain. Its total white population was about 40,000, of whom at least half were in the main centres such as Springbok, Keetmanshoop, Windhoek and Swakopmund. In Little Namaqualand only a handful of people lived in country places scraping a poor living from parched soil, or from goats which make deserts of semi-deserts. Although many of the inland districts of South West Africa are equally desolate, conditions are suitable for Karakul sheep, which apparently do well in an annual rainfall of not more than about 6 in. As Karakul fur, at that time, was popular in world markets thriving sheep farms stretched to the margins of the deserts. An average farm was about 50,000 acres carrying about 2000 sheep and consisted of a comfortable homestead in a small green oasis of irrigated garden among the unfenced desolation of the surrounding countryside.

The thinly scattered homesteads were connected by tracks whose condition depended largely on the energy and skill of the farmer, or of several who had clubbed together to engineer some awkward section. The ramifications of these farm roads when they left some more important arterial track, often in much worse condition because of more frequent use, could be confusing to any stranger wishing to get across the country. Many miles could be added to slow and tortuous journeys by following tracks which ended at farm houses.

In the inland districts north of Windhoek cattle farms predominated though even there farmland covered relatively little of the country. Between the sheep and cattle farms and the sea there are vast deserts of sand and rubble stretching for over a thousand miles along the coast, from just north of Cape Town into Angola. Though desolate in the extreme they are not quite deserted for there are large diamond workings, at Alexander Bay and Pomona for instance, and the whole coast is regularly patrolled against illicit prospecting.

The general picture, then, is of a large tract of country greater than the area of Britain which is mainly desert or semi-desert, sparsely populated, but not unmapped or unexplored and with numerous rough tracks connecting one distant farm to another or leading out into the desert; it is not one in which it is readily possible to lose contact with other people for any length of time because one is either on farmland with the knowledge of the owner or in the desert and under the close surveillance of a very active police force. It is a country in which main roads are few and unsurfaced, and where there are many places seldom visited, except by those obliged to.
Fig. 1. Sketch map of western South Africa showing route of expedition and special localities in which birds were studied.
**SUMMARY OF ITINERARY**

1949:

<table>
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<tr>
<th>Date</th>
<th>Event</th>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>29 November</td>
<td>Cape Town to The Rest, Olifant’s Mts.</td>
<td>92</td>
</tr>
<tr>
<td>30 November</td>
<td>The Rest to wayside camp near Bitterfontein</td>
<td></td>
</tr>
<tr>
<td>1 December</td>
<td>Bitterfontein to Kamieskroon</td>
<td>292</td>
</tr>
<tr>
<td>1-6 December</td>
<td>Kamieskroon, 2500 ft.</td>
<td></td>
</tr>
<tr>
<td>6 December</td>
<td>Kamieskroon to Springbok</td>
<td>54</td>
</tr>
<tr>
<td>6-9 December</td>
<td>Springbok, 2700 ft.</td>
<td></td>
</tr>
<tr>
<td>9 December</td>
<td>Springbok to Grootderm, Orange River</td>
<td>169</td>
</tr>
<tr>
<td>9-19 December</td>
<td>Grootderm, 300 ft.</td>
<td></td>
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<td>19 December</td>
<td>Grootderm to Springbok</td>
<td>169</td>
</tr>
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<td>21 December</td>
<td>Springbok to Klipfontein</td>
<td>38</td>
</tr>
<tr>
<td>21-24 December</td>
<td>Klipfontein, 3000 ft.</td>
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<tr>
<td>24 December</td>
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<td>Violl’s Drift, 700 ft.</td>
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<td>Assenkjer, 500 ft.</td>
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<tr>
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<td>Assenkjer to Ai Ais, Great Fish River</td>
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</tr>
<tr>
<td>30 December-</td>
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<td>Kleinkaras to camp near Rooiwal</td>
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<td>11 January</td>
<td>Rooiwal to Keetmanshoop</td>
<td>115</td>
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<tr>
<td>11-15 January</td>
<td>Overhaul of stores and equipment in Keetmanshoop</td>
<td></td>
</tr>
<tr>
<td>15 January</td>
<td>Keetmanshoop to Seeheim, Great Fish River</td>
<td>36</td>
</tr>
<tr>
<td>15-21 January</td>
<td>Seeheim, 2500 ft.</td>
<td></td>
</tr>
<tr>
<td>21 January</td>
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<td>22 January</td>
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<td></td>
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<tr>
<td>23 January</td>
<td>Huns to Witputs</td>
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<td>12 February</td>
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<td>13 February</td>
<td>Maltahöhe to Voigtsgrund Dam</td>
<td>70</td>
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<td>13-17 February</td>
<td>Voigtsgrund, 4300 ft.</td>
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<td>Voigtsgrund to camp near Kalkrand</td>
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<td>18 February</td>
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<tr>
<td>19 February</td>
<td>To Windhoek</td>
<td>130</td>
</tr>
<tr>
<td>19-28 February</td>
<td>Overhaul of stores and equipment, etc., in Windhoek</td>
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1950:

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<td>Overhaul of stores and equipment in Keetmanshoop</td>
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<td>19 February</td>
<td>To Windhoek</td>
<td>130</td>
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<tr>
<td>19-28 February</td>
<td>Overhaul of stores and equipment, etc., in Windhoek</td>
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<tr>
<td>Date</td>
<td>Destination</td>
<td>Miles</td>
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<tr>
<td>1 March</td>
<td>Windhoek to camp near Friedental Farm</td>
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<tr>
<td>2 March</td>
<td>Friedental to Nauchas</td>
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<td>3 March</td>
<td>Nauchas to Abbabis Farm</td>
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<td>4 March</td>
<td>Abbabis to Tsondab Mund, Namib Desert</td>
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<tr>
<td>5 March</td>
<td>Tsondab Mund, 2700 ft.</td>
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<td>6 March</td>
<td>Tsondab Mund to Blesskranz, Naukluft Mts.</td>
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<tr>
<td>7 March</td>
<td>Blesskranz, 4500 ft.</td>
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<td>8 March</td>
<td>Blesskranz to Guab River</td>
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<tr>
<td>9 March</td>
<td>Guab River to upper Kuiseb River</td>
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<tr>
<td>10 March</td>
<td>Repairing trucks by Kuiseb River</td>
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<tr>
<td>11 March</td>
<td>Upper Kuiseb River to desert camp</td>
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<tr>
<td>12 March</td>
<td>Desert camp to mouth of Swakop River</td>
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<td>13 March</td>
<td>Held up at Swakop River</td>
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<td>14 March</td>
<td>Swakop River to Walvis Bay</td>
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<td>15 March</td>
<td>Walvis Bay to lower Kuiseb River</td>
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<td>16 March</td>
<td>Kúiseb River, 900 ft.</td>
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<td>17 March</td>
<td>Lower Kuiseb River to Walvis Bay</td>
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<tr>
<td>18 March</td>
<td>Walvis Bay to Swakopmund and camp near Arandis</td>
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<tr>
<td>19 March</td>
<td>Arandis to Spitzkopje</td>
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<tr>
<td>20 March</td>
<td>Spitzkopje, 3500 ft.</td>
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<td>21 April</td>
<td>Spitzkopje to Omaruru</td>
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<td>22 April</td>
<td>Omaruru to camp near Okumbaha</td>
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<td>23 April</td>
<td>Okumbaha to Brandberg Mts.</td>
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<td>24 April</td>
<td>Brandberg, 2000 ft.</td>
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<td>25 April</td>
<td>Brandberg Mts. to Sorris Sorris</td>
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<td>26 April</td>
<td>Sorris Sorris to Franzfontein</td>
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<td>27 April</td>
<td>Franzfontein to Outjo</td>
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<td>28 April</td>
<td>Outjo to Kamanjab</td>
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<tr>
<td>29 April</td>
<td>Kamanjab, 4000 ft.</td>
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<tr>
<td>30 April</td>
<td>Kamanjab to Onguati Farm</td>
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<tr>
<td>31 April</td>
<td>Onguati, 3400 ft.</td>
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<tr>
<td>1 May</td>
<td>Onguati to camp near Mohenstein Farm</td>
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<tr>
<td>2 May</td>
<td>Mohenstein to Outjo</td>
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<td>3 May</td>
<td>Outjo to Okahandja</td>
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<td>4 May</td>
<td>Okahandja to Windhoek</td>
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<td>5 May</td>
<td>Windhoek to camp near Seeis</td>
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<td>6 May</td>
<td>Seeis to Gobabis</td>
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<td>7 May</td>
<td>Gobabis, 500 ft.</td>
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<td>8 May</td>
<td>Gobabis to Ghanzi, Kalahari Desert</td>
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<td>9 May</td>
<td>Ghanzi to Maun, Lake Ngami</td>
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<td>10 May</td>
<td>Maun to Victoria Falls</td>
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<td>11 May</td>
<td>Victoria Falls to Bulawayo</td>
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<td>12 May</td>
<td>Bulawayo to Pretoria</td>
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PHYSIOGRAPHY

The northern part of Little Namaqualand is a plateau region lying at a fairly uniform altitude of about 3000–4000 ft. (see Fig. 2). The Kamiesberg Mts. mark the southern limit of the plateau, which continues northwards, gradually getting lower and ending in the desolate wastes of the Richtersveld Mts. These mountains give the impression, on the map, of having pushed the Orange River into a great northern loop, a tortuous and crinkled bend which gave rise to the local place name of Grootderm, or 'great gut'. The plateau region consists largely of numerous boulder-strewn mountains, interspersed with sandy valleys (see Pl. I A). It gives way on the east side to the slightly lower-lying barren plains of Bushmanland, and to the west by a sharp escarpment to a relatively narrow coastal plain of sand and scrub. The plateau is drained by several short watercourses in which open water is rarely present.

Little Namaqualand is separated from South West Africa by the lower reaches of the Orange River in which there is permanent water. The river breaks through a chain of mountains and consequently flows through numerous rocky gorges. The mountain chain, of which the Namaqualand plateau is the southern end, forms the backbone of the southern half of South West Africa. It rises higher on the north side of the Orange River than on the south, the Huns and Karas Mts. being about 5000–6000 ft., and gradually increases in height northwards to attain its maximum altitude of just over 8000 ft. in the Auas Mts. around Windhoek. North of the Orange River this mountain chain is not broken by any important rivers. It lies like the ridge on the bottom of an upturned saucer (see Fig. 2) containing on its landward side the immense plains of the Kalahari Desert, and on the west side dipping sharply to the sea. The inland plains of South West Africa are drained mainly by the catchments of the Great Fish River, which has its source in the Auas Mts., and to a lesser extent by the Konkiep River, which rises in the Tiraz Mts., and joins the Great Fish River near its confluence with the Orange River, on the landward side of the Huns Mts. It would seem that these great northern tributaries of the Orange River had eroded the land between the Huns and Karas Mts., and more recently, in geological time, they have gouged out deep trenches in the limestone rocks (Schwartzkalk) and even into the harder underlying granites. Below Seeheim the course of the Great Fish River lies in canyons whose precipitous sides are frequently 2000 ft. deep. At the present time these rivers are a trickle compared with what they must have been in earlier times. For a short season they carry flood waters which are seldom of such volume as, for example, to fill the floor of the canyon at Ai Ais (see Pl. II A); for the rest of the time they are merely river courses choked with sand or boulders and marked by dwindling pools of stagnant water.

The land between mountains and sea is largely desert. Coastal deserts in fact stretch from just north of Cape Town right into Angola. The largest tract of shifting dunes
Fig. 2. Cross-sections of contours of western South Africa at various latitudes.
lies between Luderitz and Walvis Bay. It is about 250 miles long and 80 miles wide; this is the true Namib Desert. The rest of the coastal belt is mainly rubble desert with patches of sand dune, and studded with 'inselberges' standing in the debris of their own disintegration, piles of massive boulders and cascades of sand.

The Auas Mts. project in a short north-eastern spur. They are separated by the upper drainage system of the Khan River, which joins the Swakop River near its mouth, from a lower and relatively short range lying south-west and north-east. The south-west end of this range is cut off from the rest by the Omaruru River to form the Erongo Mts. The main elevation in the north-eastern section is the Waterberg Mts. North-west of the Erongo Mts., and across the Omaruru River are the Brandberg Mts., a massive boss of intrusive granite rising impressively for about 5000–6000 ft. above the surrounding rubble plains. From these mountains north to the borders of Angola the country is mainly a plateau of about 3000–4000 ft. It is slightly raised at its western edge to form a shallow inland basin of which the Etosha Pan is the centre. The edge of the plateau is frayed by the erosion of numerous short water courses which now only carry surface water during seasonal rains. This water rarely reaches the sea but disappears in a wide belt of coastal sands whose treacherous shoals have earned for this region the name of 'Skeleton Coast'.
CLIMATE

The region lies roughly between 18° and 32° south latitude, about one-third of it therefore being within the tropics. A general description of its climate is that it is hot and dry and, on the whole, rather windy, particularly in the driest parts where there are the greatest ranges of diurnal temperatures. The drought is emphasised by the lack of surface water everywhere. Only the Orange River is perennial because its drainage system reaches to the east side of the continent where there is a high rainfall: its major tributary, the Great Fish River, which drains much of South West Africa, is reduced to a string of pools of varying size for the greater part of the year. But apparently there are good supplies of sub-surface water, and the constant winds provide power for the derricks of modern windmill pumps which are one of the most distinctive features of the country wherever there are human habitations.

The general picture of temperature throughout the region seems to be that the mean monthly maximum is reached in December and the minimum in July. Only in a very general way are the maxima higher in the north and lower in the south: the greatest range of temperature is experienced in the drier central areas. Adamson (1938) in writing about South Africa as a whole, described the summer and winter distributions of temperature: ‘In summer the hottest part is in the Kalahari, and the isothermal lines are arranged around a central area of about 93°F. West of this the successive isotherms run almost north and south and parallel to the coast’, the average coastal temperature being about 60°–65°F. ‘In winter the isotherms run in a general north-west and south-east direction but tend to be more north and south along the west coast’, where the average temperature is about 55°F. These averages convey little impression of actual temperatures, which vary considerably in time and from one place to another, often within relatively short distances of each other.

Over the greater part of the country the average annual rainfall is under 500 mm. or 20 in. The geographical distribution of average annual rainfall is illustrated in Fig. 3. On the whole there is a general increase in rainfall from south-west to north-east, except for a small area of high rainfall in the extreme south-west. A wide coastal belt extending from just north of Cape Town to Angola gets less than 100 mm. or 4 in.: it is almost entirely pure desert, much of it in the form of shifting dunes. Practically the whole of the part south of the tropics and a narrow belt running northwards get less than 200 mm., or about 8 in., of rain: the area, where it is not pure desert of shifting dunes, is mainly rubble or stones, much of it covered with short dry karroo scrub. Within the tropical area rainfall becomes more plentiful towards the north-east, along the Okavanga River, which flows eastwards into the Ngami swamps. Therefore it is only in the northern part of the region that there is a relatively quick transition from coastal deserts to places where the average rainfall is up to 600 mm. or about 24 in. At
Fig. 3. Isohyets of average annual rainfall in the western regions of South Africa: compiled from the references 'A. D. Lewis' and 'South West Africa'; details in extreme south-west Cape have been much simplified.
the southern end of the region a measurable effect of the high rainfall of the south-west Cape area extends north to the Orange River, and even beyond. The odd showers which spill over from the Cape give rise to the famous displays of Namaqua daisies when literally hundreds of miles of desert suddenly spring into a riot of colours.

Rainfall is seasonal. Its seasonal distribution in various parts of the region is illustrated in Fig. 4. The clock diagrams show monthly means as percentages of annual average amounts, and therefore inter se they have no quantitative significance. The radius of each circle is proportional to 25 per cent of the annual average rainfall at that place. In the north rainfall is concentrated in the summer months, December to March; in the south it occurs mainly in the winter months, from about May to August. Much of the rainfall in the north occurs as heavy thunderstorm showers; for example, an evening deluge which nearly washed out our camp at Windhoek in late February registered about 15 mm. In the rainy period the usually dry river courses may suddenly fill up with flood water for a few hours or days, seldom much longer.

The figure of average annual rainfall for a locality gives little indication of actual annual amounts. These vary considerably from year to year; in fact at most places with a fair annual average rain is hoped for but seldom expected each year. Rainfall figures for a good many years are required to obtain a reasonable average. In the rainfall records (see South West Africa, 1953) it is stated that ‘the percentage mean deviation of 10 and 20 years running averages for Windhoek were 7 and 3 per cent respectively. The maximum deviations of a single 10- and 20-year period were found to be respectively 21 and 7 per cent, showing that records for at least 20 years are required to give reasonably good averages’. This agrees with the verbal statements of several farmers that a season of heavy rain occurred about every 16 to 20 years. The 1949–50 season was the wettest for many years. Rainfall in the north was unusually heavy and prolonged, and the extent of its distribution greater than it had been for a long time. At many places along the desert margin there was rain after many years of drought. For example, at Tsordab Mund far out in the Namib Desert (Pl. IV A) there was a very unusual heavy rainstorm in early March. It is necessary to emphasise the fickleness of the occurrence of the annual rains in many places since presumably they are of vital importance to many bird species along the desert margins.

The patterns of geographical and seasonal distributions of rainfall are brought about by a number of external influences. Chief among these are the Benguella Current, the south-west trade winds and the east monsoon winds. The Benguella Current is a body of cold water which arises in Antarctic seas and flows northwards along the west coast of South Africa. The south-west trade winds (actually varying in direction from west to south) are moisture-carrying winds and bring the heavy winter rains to the south-west Cape. The amount of rain they deposit rapidly diminishes northwards, although it can be measured in very small amounts as far north as Great Namaqualand (see Fig. 3, and July month on diagram for Witputs, Fig. 4). The cause of this moisture deficit in the north, whose effect is the desert conditions of western South Africa, is the Benguella Current. In passing over its cold waters the temperature of the trade winds is reduced and their moisture precipitated. All that reaches the coast is a bank of cold fog. These fogs are a most distinctive feature of coastal districts. They bring no significant
Fig. 4. Average monthly rainfall expressed as a percentage of average annual rainfall at various localities in the western regions of South Africa, showing the change over from summer rains in the north to winter rains in the south.
amount of moisture to the land, but have the added disadvantage of being accompanied by high winds which obliterate the landscape in swirling sandstorms.

The westerly trade winds with much of their moisture precipitated by the cold Benguella Current are warmed up over the land and their relative humidity decreased. The high mountain ranges of South West Africa are not high enough to lower the moisture-carrying capacity again below precipitation point. In fact ‘the influx of these cool dry winds of however moderate force is an only too sure signal for the immediate retreat of the most promising and threatening thunderclouds for that day at least, or from day to day and week to week’ (Keet, 1949). These thunderclouds approach from the east and are the tail-end of monsoon winds arising in the Indian Ocean and blowing across the continent. They occur in the summer months. Although they also have been deprived of much of their moisture on the east side of the continent those which blow over the Okavango swamps are to some extent recharged and thus bring the highest rainfall to the north-east corner of the region. For its moisture, therefore, the region is ‘dependent on overflow rains; in the south partly on winter rains’ (Keet) whose effects are faintly evident as far as Great Namaqualand; and north of that mainly on summer rains, very meagre in amount, from winds crossing the semi-arid Kalahari Desert, but increasing northwards as winds blow over moister areas. The coastal deserts ‘and the desert fringe penetrating into the foothills, spurs and outliers of the western escarpment are dependent on the scanty precipitation left over from the inland plateaux’ (Keet).
SOIL AND VEGETATION

In the present context soil and vegetation are practically inseparable because the region is divisible into areas in which environments are predominantly soil types and others which are mainly vegetation types. These are connected by transitional zones in which both soil and vegetation have varying degrees of importance in determining the appearance of different landscapes.

The principal determining factor of these main divisions is rainfall. The extent to which vegetation covers the soil is roughly related to average annual rainfall (see Fig. 3). Where rainfall is highest, in the north-east corner, there are various kinds of woodlands: their limits are roughly marked by the 400-mm. isohyet. The area lying between the 200- and 400-mm. lines is mainly savanna, ranging from near-woodland formations to rather thin scrub-grass sparsely dotted with small acacia trees. The 100- to 200-mm. zone is largely scrub veld, a transitional area where vegetation thins out and for the greater part of the year the soil surfaces of stones, rubble or sand become dominant landscape features. Under 100 mm. vegetation is extremely sparse, except along watercourses, and the soil surface is sand or rubble with varying amounts of drought-resistant plants forming in some parts quite distinctive communities. The region, therefore, is predominantly desert and semi-desert, and the hot dry climate, with its wide ranges of temperatures causing disintegration of exposed rocks, and the high winds, have given rise to soils which are mainly sandy even in places where vegetation is relatively abundant.

The general direct correlation between rainfall and vegetation is modified by the effects of a number of other factors, the most important of which seems to be physiography, particularly drainage, and the geological structure of the soil-forming rocks. In its simplest form the general appearance of western South Africa is of a ridge of parent rocks, the mountainous backbone of little Namaqualand and South West Africa, pushing out from a great expanse of sand, that on the landward side being the basins of the Kalahari and Bushmanland deserts, and the other the coastal deserts of sand and rubble. The extreme northern part of the mountain range, for example, gives rise to the distinct soil-vegetation type known as the Berg Acacia Scrub Veld. (This and other soil-vegetation types have been taken from Keet, 1949, for South West Africa, and Adamson, 1938, for western Cape Province.) Other obvious physiographical modifications are due to the peculiarities of the drainage system. Watercourses, wet and dry (the latter with sub-surface water), carry the tree vegetation of moist areas sometimes far out into the arid deserts. These watercourses and their accompanying ‘Kameeldoring woodlands’ are highways for the dispersal of many bird species. Then, again, continuous evaporation from the soil, as in the Etosha Pan area, has a chemical effect which gives rise to a distinct plant community.
Fig. 5. Soil-vegetation types of western South Africa. The numbers correspond with the numbers in the text.
One of the outstanding effects of geological structure is found in the differences between soils produced by limestone-type and granite-type rocks. Limestone soils are found in the Karstveld, in the Outjo-Grootfontein area. They have a distinctive appearance and some influence on the kind of vegetation they carry. Limestone, apparently, is also an underlying rock of the Kalahari Desert and although for the most part it is deeply covered by an accumulation of wind-blown sand, at various places at the rim of the basin, notably between Gobabis and Keetmanshoop, it outcrops and forms a distinct soil-vegetation type, the Kalkrand. Very broadly, limestone soils are greyish in colour, while soils derived from weathered granite are some shade of reddish-brown. These differences are reflected in the coloration of many ground species.

These seem to be the most important factors in the fundamental differentiation of soil-vegetation types. A summary of the main types at present recognised is not out of place here for many of them can be correlated with various aspects of distribution and variation: this relationship is, in fact, a subject which would repay more detailed examination than has been possible here. Location of the soil-vegetation types, except woodlands of river courses, are shown in Fig. 5. Types (1) to (13) cover South West Africa and are condensed mainly from Keet, 1949: types (14) to (17) cover western Cape Province and are condensed mainly from Adamson, 1938. I have paraphrased or quoted freely without quotation marks from these authorities. Differences in the treatment of the subject by different authors may have over-emphasised differences in the types of country lying on either side of the Orange River. For example, Keet's 'Namib Sand Dune' (1), north of the Orange River, is continuous with Adamson's 'Coastal Succulent bush' (14), south of the Orange River; similarly, the 'Shrub-grass veld of the southern deserts' (4) is continuous with the 'Arid bush' (17). To what extent these northern and southern groups are clearly separable I do not know, but one impression we had in the field, for example, was that the vegetation around Witputs, on the north side was not very different from that of some parts of Little Namaqualand on the south side.

(1) The Namib dune sand and veld

For the most part the dune sand is finely weathered particles swept off the surrounding rubble deserts. Its fine texture, or possibly a constituent of the rock which breaks up most readily, gives the dunes a richer, tawny or ferruginous colour than the rather more drab-brown rubble plains. Short seasonal rivers, such as the Tsondab and Tsau-chab, have been blocked by the dunes far inland from the sea, and the Kuiseb River is in process of suffering the same fate, but they carry along their courses stragglng lines of trees and bushes. The blocked rivers when in flood form numerous lakes, as at Tsondab Mund and Tsossus Vlei, which have a transient existence. In places the dunes carry scattered clumps of spiky Aristida grass and occasionally Tsamma melon, especially along the lower Kuiseb. The infrequent rains bring on a sudden growth of other grasses.

(2) Rubble calcrete shelf

A belt of varying width along the coast consists of parent rock pulverised by the sun and swept by constant winds which gather the fine particles into the dunes of the
Namib or accumulate them as drift sand in various places. What is left is a fairly firm 
rumble-strewn surface. South of the Kuiseb these rubble deserts are browner, about 
wayal-brown, than the drift sand. North of the Kuiseb, in the plains of Omaruru 
District for example (except in the gypsum veld) they lack much of the reddish colour 
found farther south and appear a pale buffy colour. In a year of good (desert) rainfall 
wide expanses of this belt become temporarily covered with various grasses but 
for many successive years vegetation is extremely scanty.

(3) Namib gypsum veld

A relatively small area between Walvis Bay and Cape Cross has rock of white 
gypsum which produces a soil of distinctive colour. In crossing the rumble-strewn 
Tumas Flats between the upper Kuiseb River and Walvis Bay it was noticeable as we 
approached the coast that the soil became much whiter. Samples are a pale vinaceous 
buff. This area has a perennial vegetation of succulent halophytes which are extremely 
scanty and inconspicuous.

(4) Shrub-grass veld of the southern deserts

The country roughly south of Aus and Keetmanshoop (between 26°–27° south 
latitude) is perhaps distinguishable because on the whole it has many ‘vast arid 
stony wastes’, a sparse cover of low shrubs and succulent bush and a higher percentage 
of winter rainfall—when there is any at all. The sand and rumble plains of the undulating 
boulder-strewn landscape appear to vary little in colour from those of the rumble cal-
crete shelf, except that on the whole the buffs appear to be rather more vinaceous and 
pinkish, especially towards the Orange River. In the vicinity of the Great Karas Mts. 
there are stretches of dune sand, apparently outliers from the south-west Kalahari, 
which are as red as those of the Namib dunes. The rainfall varies from about 2 in. in 
the south-west to about 8 in. in the north-east and the vegetation shows corresponding 
increases in the variety of grasses, shrubs, and trees around the Karasburg Mts.

(5) Arid steppe of the Kaokoveld

Little is known about the soil and vegetation of this region which lies in the broken 
escarpment country of the Kaokoveld. It appears to be an arid steppe of grass with 
patches of mopani woodlands and larger belts of mopani scrub, with oases in river 
valleys and around pans, waterholes or fountains.

(6) Karstveld

The Karstveld occupies an area roughly 200 miles by 100 miles in and around the 
dolomite mountains whose western limits are approximately Otjo, Franzfontein and 
Kamanjab. The 16–20 in. rainfall of the eastern section decreases to about 12 in. in the 
west. The land immediately south of the Etosha Pan and lower Omurambo is level, 
with dolomite rock exposed on the surface, or covered with thin soil, waterlogged in 
the rainy season and powdery when dry. Otherwise the region has a varied topography 
of hill and mountain ridges rising to peaks of 7000 ft. over wide or narrow flat-bottomed 
valleys, or standing out like islands on the 3000—5000-ft. elevated plains. Soils over the 
greater part of the area have a chalky composition, sometimes with a covering of grey
Contribution to the Ornithology of Western South Africa

sandy-loam. In valleys the soil is fairly deep loam, dark grey to brown or black, depending on the degree of humus impregnation. The footslope soils are lighter coloured sandy-loams overlying the dolomite. High rainfall with very little surface drainage, variations in slope, aspect and soil and a mild climate have favoured the establishment of mainly woodland vegetation. The slopes of rough fissured rock with almost no soil covering are often well-wooded to their crests; the valleys are thickly wooded. Outside the hilly country the plain stretching northwards to the Etosha Pan carries woodland with short-stemmed mopani as its characteristic species, but towards the west there is more shrub than woodland. Where inselbergs intrude in the wide plains mopani is mixed with several kinds of acacia to form a fairly close tree-grassland savanna.

(7) Berg acacia-scrub

The central highland region lies approximately in the districts of Okahandja, Windhoek and Rehoboth, and at an elevation of 4000–6000 ft. with peaks of 6000–8000 ft. in the Auas Mts. The underlying rock is largely mica-schist with bands of white and red quartz. On the slopes of the mountains the soil is a gritty greyish-brown loam. On more level surfaces in the wider valleys the soil is deeper and is a bluish-grey, fine-grained sandy-loam, heavily impregnated with mica, and powdery on the surface. Mixed in the soil are angular quartz pebbles which tend to remain as a white carpet on the surface. In the high rainfall areas the deeper soil turns a brownish-grey. Berg acacia is not confined to this area, but it is more a scrub of these mountains than a tree of the plains. Other acacia species, although more conspicuous, are confined to the valleys and lower hills. The higher slopes are usually devoid of trees and replaced by shrubs and bushes scattered singly and in clumps. There is a fair covering of seasonal grasses.

(8) Swartrand scrub

West of the Great Fish River in the Maltahohe and Bethanie districts lies an undulating terrain of swartrand soils. It is in general appearance similar to the adjoining desert area to the west (4) with the characteristic ‘desert pavement’, frequently covered with large areas of milk-bush, Euphorbia gregaria.

(9) Kalkrand veld

On the east side of the railway-line from Kalkrand station south-east to Aroab lies the Kalk plateau belt of limestone which is part of the rim of the Kalahari sand basin. This limestone extends north to near Gobabis and east and south to near the border of South West Africa. It may at one time have been covered with sand, but the area is subject to high winds and there is much surface erosion giving rise to a rubble-strewn surface, whitish in colour. In shallow drainage depressions there is soil of no great depth and where it has been formed from disintegrating limestone it is a greyish and rather firm sandy-loam. The composition of the vegetation is much the same as in the Swartrand except that there is rather less scrub and bush.

(10) Thorn-tree savanna of Damaraland, and the limestone belt of the Kalahari

East of the Kalkrand and north to Gobabis the limestone rock is overlaid to varying extents by sand dunes, which have a reddish colour characteristic of sands of the
Soil and Vegetation

southern Kalahari. Where the limestone is exposed and where it occurs in troughs and pans the soil is leached to grey, or yellowish-red. Soils in the river depressions are grey to blue-grey sandy loams. The area is characteristically grass-covered and dotted with acacia-trees, particularly on old sand-dunes, while troughs between the dunes have a higher proportion of shrubs. This acacia-grass savanna also extends into the district of Otjiwarango, northern Okahandja and eastern Omaruru, in Damaraland. It seldom thickens to the density of bush. In the north-east of the Damaraland savanna area the country is gently undulating at between 4000–5000 ft., except for the sandstone massif of the Waterberg, and in the centre and south-west for granite inselbergs and low dolomite hills and mountains. A common type of soil has a grey humus-poor, sandy surface layer. In other parts the surface layer is rather more yellow than grey.

(11) Tree and bush savanna of the Kaukauveld*

North of Gobabis lies the compact central group of Kalahari sand soils. Viewed from the summit of the Waterberg this area stretches to the north-east, east and south-east as gently undulating country covered in tree and bush. The high rainfall of 16–20 in. and the influence of the dense vegetations have changed to various shades of grey the usual reddish colour of the Kalahari sand: it is darker or lighter grey according to the humus content and the degree of leaching. Limestones and calcarious soils are of frequent occurrence on the south-west part of the area.

(12) Woodlands of the northern Kalahari sand

This region lies roughly east of the Kaokoveld, between the Angola border and the Etosha Pan area, but in its eastern section extends south to about the latitude of Grootfontein. North of area (11) there are fewer limestone outcrops, and the thorn-tree thickets have a denser floor-covering of grasses and shrubs. Between the depressions of local drainage systems the ridges are typical Kalahari sand. These dunes often retain, on their crests only, much of the reddish colour typical of Kalahari sand, but more frequently the soil colour has been changed to grey, sometimes very light grey or white, on the surface layer. The whole eastern section of the area is covered with deciduous broadleaf forest, tree woodlands, or bush, except in the south-west where the dunes are not yet fully covered with trees. The Kalahari sand, in dune formation and well covered with trees, extends westward over the level base of the Ovamboland plain to the borders of the Kaokoveld, but in the centre of the region the dune formation has been broken, notably by the Etosha Pan. With the progressive drop in rainfall to 8–12 in. along the Kaokoveld escarpment grass thins out and salt and lime enduring shrubs increase. Pans and isolated clumps of trees become a dominant feature.

(13) Kameeldoring woodlands of river courses

River courses carry belts of woodland into all types of country, even into the most arid dune deserts. Kameeldoring, or Kamelthorn, an acacia tree, is the main constituent of these woodlands, which vary in width according to local conditions. They appear to have an important influence on bird distribution for they provide highways and lanes of dispersal for tree-loving species.

* Distinct from Kaokoveld: nomenclature after Keet, 1949.
(14) Coastal succulent bush

The coastal plains from about St. Helena Bay north to the Orange River is an arid frost-free belt. Temperature fluctuations are small, both diurnal and seasonal. Large, up to 3 ft. high, and small succulents are abundant on sandy soil and give an appearance of greater luxuriance than the amount of rainfall would lead one to expect.

(15) Succulent bush

Roughly typical of the coastal mountain ranges, an area which gets a slightly higher proportion of rainfall (see Fig. 3). In the drier part, the western slopes of the mountain up to about 3000 ft., the bushes are lower, up to about 12 in. but where moisture is a little more plentiful, above about 3000 ft., the bushes are taller, up to 3 ft. Although plant species vary considerably their form is very uniform, being low and dense or taller and more open, but both forms have swollen leaves. Non-succulent forms are present but less abundant. They give an appearance of relative luxuriance to a country-side which is essentially arid.

(16) Arid bush

The country inland from the coastal mountains contains open communities of small bushes without succulents. The rainfall is very irregular and there are large temperature changes with night frosts in winter. Three vegetation types are distinguished:

(a) Karroo bush. The Karroo bush community produces a characteristic type of landscape. In the more open portions the soil colour is more apparent than that of the plants, but where the growth is closer the predominating colour is the grey-green of the bushes. The soil is usually red. The vegetation is composed of shrubs with very small leaves, in the form of low bushes, under 12 in. high.

(b) Lycium community. Vegetation of this community is confined to the deeper soils which are usually less stony, and red or brown in colour, and the dominant plants Lycium spp. They are up to 3 ft. in height, branched and spinous. Owing to their taller habit and dark green leaves they give an appearance of greater luxuriance than Karroo bush. But they are often very thinly scattered and only cover a small percentage of the soil.

(c) Rhigozum community. The driest area of the arid bush with the characteristic plant Rhigozum trichotomum. It is a loose erect bush up to 3 ft. in height and very drought resistant. The country is a gently undulating plateau, and the soil, where it is derived from granite, is a coarse pink-coloured sand. Especially in winter the pink soil, dried up grasses and the sparse, erect, darker—almost black—bushes give a distinctive appearance to the landscape. There are several sub-communities within the area. Where there are rocky kopjes the soil is grey and the plants are different. One of the best marked soil types is the shifting sand which is an extension of the southern Kalahari. The sand is much finer than the pink granite soil and is of a deep red colour. These sand areas form systems of elongated dune ridges and bear a distinctive vegetation, mainly an open community of Aristida grass.

(17) Sclerophyll

The extreme south-west Cape carries one of the most distinctive types of vegetation. It is a bush type, made up of shrubs with evergreen leaves of small size and hard in texture. There is a winter rainfall of not less than 12 in.
DISCUSSION

Data on distribution and variation in relation to the taxonomy of species are recorded in the main section headed 'Notes on Species'. Here reference is made to some special patterns of distribution and variation, both intra- and inter-specific, in relation to the factors which appear to play an important part in bringing them about. These factors are mainly physiography, climate, soil and vegetation, whose principal features have been outlined in preceding sections. The matter will be discussed mainly from the point of view of cause and effect, although it is seldom easy to say that a particular characteristic of a species is determined by a particular factor, either directly or indirectly. It may not be so much a matter of which cause gives rise to which effect, as which of many contributory causes produces the most appreciable effect; whether, for example, changes in colour and colour-pattern of plumage are responses mainly to variations in climate or vegetation or soil, or some other factor (bearing in mind that many changes in soil and vegetation are themselves mainly effects of differences in climate, physiography and parent rocks). It seems a general rule, for instance, that 'Reddish or yellowish-brown phaeomelanins prevail in arid climates where the blackish eumelanins are reduced' (Mayr, 1942: 95: 'Gloger's Rule'), but in cryptic ground species blackish colours are likely to prevail on dark soils, response to the cryptic factor, presumably, being of higher survival value than response to the climatic factor.

Effects of physiography

The region is fairly uniform physiographically. It is largely an elevated plateau at about 3000—5000 ft. with few major features likely to have any important effect on distribution and variation, except perhaps the Orange River. This flows east to west cutting across the desert and semi-desert habitats which lie more or less north and south. A number of northern and southern desert species seem to come to a stop at or near the river, while in others the river apparently separates geographical races.

The river barrier is more than just a stretch of water a hundred yards or so in width. In some places it is flanked by rocky gorges and barren mountains. In others its banks are lined with dense groves of trees and bushes (see Pl. I B) which support a bird fauna distinct from that of the surrounding country. In places also there are broad stretches of nearly pure desert. All these features could be obstacles to the dispersal of various birds, especially those which do not usually range far afield; areas of scrubless desert, for instance, could restrict the dispersal of typically scrub species. Vegetational differences could also be brought about by differences in the soil-forming rocks; according to A. L. du Toit's geological map the country immediately south of the river consists
mainly of intrusive granites, while that on the north is mainly composed of limestones of the Nama System. A further point is that the river course lies in latitudes where winter rains of the south give way to the summer rains typical of the north (see Fig. 3). Although rainfall is both scarce and irregular it may be sufficiently important to affect breeding times and create a physiological barrier (see p. 32). It is difficult to assess the relative importance of these factors and to say which distributions and variations are due to the effects of the river and its associated features.

An example of a species with distinct races on each side of the river is the Spike-heel Lark, *Certhilauda albofasciata*. It is typical of the semi-deserts, its distribution lying roughly in the areas which receive between 100 and 400 mm. average annual rainfall (see Fig. 6). In western South Africa it extends from the northern part of western Cape Province to southern Angola. On both sides of the river near Upington birds are much alike, whereas near the mouth those on the south side, in Little Namaqualand, are distinctly different to those on the north side. The similarity of birds near Upington suggests that there is an interbreeding 'bridge', in that area. But farther down river the race *garrula* of Little Namaqualand apparently makes no contact with *arenaria* on the north bank.

Geographical variation in two other lark species of the same genus follows much the same pattern. The Karroo Lark, *C. alvesensis*, is more tolerant of pure desert than is the Spike-heel Lark, and in the sandy wastes near the mouth of the river is found right up to the marginal vegetation. From the Cape to the Kuiseb River, the latitudinal
Discussion

limits of its distribution, the species shows fairly gradual changes of colour and pattern except along the Orange River where there is a sudden change. Near the river mouth this change seems to take place not actually along the river course but in the 60 miles between Orangemouth and Port Nolloth. The races on the south side have heavily patterned upper parts while those on the north side are much plainer; also a 'grey' coastal form apparently does not extend north of the river. In the Long-bill Lark, *C. curvirostris*, there are also marked differences between populations on each side of the river. In the Fiscal Shrike, *Fiscus collaris*, the race *subcoronatus*, north of the river, has a distinct white eyestripe which is lacking in the nominate race south of the river. In the Cape Penduline Tit, *Anthoscopus minutus*, the nominate race of Cape Province has dark grey-brown upper parts and golden-yellow under parts while the race *damarensis* of South West Africa has distinctly lighter upper parts and lemon-yellow under parts.

If the barrier action of the lower Orange River is effective in giving rise to racial differentiation it is possible that some species may have become established. For instance, there are two species of bulbul which seem to have much the same distribution as the races *arenaria* and *garrula* of the lark, *Certhilauda albofasciata*. The Red-eyed Bulbul, *Pycnonotus nigricans*, like the lark race *arenaria* extends southward to the river and crosses it for some distance in the vicinity of Upington. It is also a common bird along the river at Grootderm. But in west Cape Province it is replaced by the Cape Bulbul, *P. capensis*, which has been found at least as far north as Springbok but not on the river. These two species appear to be alike in size and general biology although they differ quite markedly in that *nigricans* has a dark-coloured head and red eyes.

There are a number of species whose distributions stop at or near the river. The Ground Woodpecker, *Geocolaptes olivaceus*, a bird of the rocky hillsides of western Cape Province does not extend north of the river although there appear to be suitable habitats for it. Both the Double-collared Sunbird, *Cimyris chalybeus*, and the Malachite Sunbird, *Nectarinia famosa*, of Cape Province stop short along the lower section of the river, although they extend much farther north than this latitude on the east side of the continent. Other Cape species which are not found in South West Africa are the Cape Bishop-bird, *Emplectes capensis*, the Cape Weaver, *Plocus capensis*, and the Fairy Fly-catcher, *Stenostira scita*.

There are a number of northern species whose southern limits are at or near the lower Orange River. For example, both the Scimitar-bill, *Rhinopomastus cyanomelas*, and Brubru Shrike, *Nilaus brubru*, are new birds to anyone reaching the river from the south. Although found in very dry localities in South West Africa they seem to require tall bushes and trees, and these are on the whole more typical of the country just north of the river than just south of it. The Rosy-faced lovebird, *Agapornis roseicollis*, is a common bird of dry rocky hillsides on the north side but is unknown in similar habitats on the south side. Sometimes it is associated with another northern species the Sociable Weaver, *Philatarius socius*, whose communal nests it frequently uses. The occurrence of these nests is more or less determined by the availability of trees strong enough to support them and it has been noted by many travellers that tall acacias and kokoboom become more common soon after crossing the river into the Warmbad District.

Although the lower section of the river may restrict the movements of species
which belong mainly to the surrounding deserts it also provides a highway for the dispersal of species which require the conditions it provides, such as open water and thick vegetation. Typical water-loving species frequenting the river banks were the Grey Heron, \textit{Ardea cinerea}, Egyptian Goose, \textit{Alopochen aegyptiкус}, Hammerhead, \textit{Scopus umbretta}, and the Pied and Malachite Kingfishers, \textit{Ceryle rudis} and \textit{Corythornis cristata}. Species which are widespread in the less arid eastern and northern districts disperse west and south along the river, the latter arriving by way of its main tributary, the Great Fish River. For example, the Masked Weaver, \textit{Hyphantaornis velatus}, had its dome-like nests in trees overhanging the water on both the Orange and Great Fish Rivers but was seen nowhere else in the surrounding country. Similarly, the Swallow-tailed Bee-eater, \textit{Dicrocerus hirundineus}, and the Go-away Bird, \textit{Corythaixoides conceolor}, which apparently require tall trees were found only along the rivers in the south, the latter not south of Seehiem on the Great Fish River, although in the north they were common birds away from river courses.

**EFFECTS OF CLIMATE**

A general relationship between climate and avifauna was illustrated by Chapin (1932: 90) in his map of the ‘subdivisions of the Ethiopian Region as suggested by the ranges of many species and races of birds’, for it is also largely a map of climatic subdivisions, particularly rainfall which, according to Moreau (1950: 223) is ‘the dominant factor of the climatic year’ in Africa. One of Chapin’s subdivisions is the South-west Arid District which includes the region dealt with here.

Avifauna might be found to be as sensitive as vegetation as an indicator of climate if it were studied as closely in that connection. Some birds, for example, seem to be as typical of arid areas as are some plants. In these xerophylic birds it is their morphology rather than their taxonomy which is important, although it is true that certain families are more commonly represented in one climatic area than another; in Africa larks and chats are most numerous in variety of species in arid areas. Another aspect is that some wide-ranging species indicate the main changes of climate in the patterns of their variations. For instance, in the Tawny Prinia, \textit{Prinia subflava}, there is an equatorial belt of populations having a perennial, dark-coloured plumage, while populations in Chapin’s South-west and Sudanese Arid Districts have distinct breeding and non-breeding plumages; the different plumages are nearly identical in both districts, the non-breeding or dry season dress being paler, although they occur at opposite times of the year. It seems, therefore, that it should be possible to determine at least some of the more important aspects of the climate of a region from a reasonable sample of its avifauna.

But further discussion of this point is beyond the scope of these notes. Some aspects of the effects of climate are considered under the headings, (1) Rainfall and Distribution, (2) Humidity and Colour Change, (3) Rainfall and the Breeding Season.

**Rainfall and Distribution**

The distributions of a number of species in western South Africa are broadly related to the isohyets of average annual rainfall (see Fig. 3, p. 12). For example, the range of
the Karroo Bustard, *Heterotetrax vigorsii* (see Fig. 8, p. 61), lies fairly exactly in the area which receives an average of 100–200 mm. Another species, the Orange River Francolin, *Francolinus levallantoides*, is restricted to areas where the average annual rainfall is higher than 200 mm. Similarly, the geographical races of many widely distributed species can be related to rainfall belts. For instance, the dark race, *anderssoni*, of the Redcap Lark, *Tephrinychus cinerea*, extends westwards from the Transvaal in the rainfall area above 200 mm., while the paler race, *witputzj*, more or less fits the rain belt averaging less than 200 mm. There are many similar examples. Although the distributions of many species and races can be related to rainfall zones representing average annual amounts it is the components of these averages which are most likely to operate as limiting factors. Maxima and minima and cycle of periodicity are important for it is probable that there is a limit to the range of moisture tolerance, and particularly to the number of consecutive years of one extreme which a species can survive.

In species which are mobile there are frequently very close connections between their distributional fluctuations and the seasonal occurrence of rains. Some movements are noticeably determined by rainfall, particularly the local migrations of species commonly known as ‘rain-birds’, who are popular because they herald the approach of rains. For example, the Black Kite, *Milvus migrans*, only penetrates into the desert places of South West Africa as far as do the seasonal rains. In February 1950 we entered that season’s rain belt when travelling north from Aus and kites were suddenly found to be present in large numbers where rain was imminent or had just fallen; the local information was that neither kites nor rain had been much in evidence so far south for several years. Similarly, Quail, *Coturnix coturnix*, were plentiful in the exceptional ‘flush’ of grasses along the desert margins. Farmers said that Quail only came there in years of good rains, when of course the grass was only present in such relative luxuriance. In the birds taken the gonads were active, apparently more so than in other species, suggesting that favourable conditions stimulated a prolonged breeding season. Some species of cuckoo, noted particularly for wet season breeding, were also recorded rather later than usual. For instance, the Crested Cuckoo, *Clamator cafer*, was found about one hundred miles south of Windhoek in early March although this species has rarely been recorded in South West Africa, and then only in the far north, and in the wettest months, December and January: the bird was recorded by us in a period when heavy rainstorms occurred most days.

Information is scanty on the effects of rainfall on the distributions of sedentary species. Keast and Marshall (1954) made the point that in some arid districts of Australia a notable adaptation in desert species is a ‘high degree of mobility’. In western South Africa, where rainfall is extremely irregular, although there are a number of mobile species, yet several of the most xerophyloous kinds are very sedentary. Sedentariness would seem to be evident in a species in the extent to which it is polytypic in circumstances in which it might otherwise move to localities providing the most favourable breeding conditions. It is clear, for example, that the Namib dune race of the lark *Certhilauda alascens* does not leave the dune area to breed for if it did so it is unlikely that it would have become differentiated. Species which are truly sedentary in arid localities may be subject therefore to considerable fluctuations in population size and distributional limits as a result of sporadic rainfall. The effect of a succession of drought years
is likely to be shrinkage in both range and population and in wetter seasons of corresponding increases. However, in the most xerophyous species in western South Africa sporadic rainfall, the occasional shower in a period of several years, may not be as important a limiting factor in breeding as some other form of moisture, such as dew resulting from extremes of daily temperature. The requisite atmospheric humidity might also be derived from the fogs which are characteristic of the coast at certain times of the year, and the occurrence of dew and fog, therefore, and not rainfall would be critical breeding factors.

Another aspect of the effect of rainfall which can be referred to here is the occurrence of open water, for on it depends the distribution of water-loving species. Permanent open water is conspicuously absent from the region. Only the Orange River is perennial. Other rivers are seasonal, with running water or shrinking pools lasting for varying periods according to the amount of rainfall in their respective catchments. In a later section reference is made to the effects of the numerous man-made open water tanks which are a feature of the country, and particularly to the Voitsgrunds Dam which has been constructed in arid country between Maltahohe and Mariental.

Humidity and Colour Change

Among the numerous examples of colour changes in the species of the region there is one group that seems to fit, in part at least, Gloger's ecological rule as stated by Mayr (1942: 90), 'Reddish or yellowish-brown phaeomelanins prevail in arid climates where the blackish eumelanins are reduced'. In this group plumages become progressively paler towards the driest areas; the distributions of geographical races, for example, based on these changes are more or less related to rainfall zones. There is another group in which colours vary very closely relative to environment colour, particularly soil colours in exposed places. These are referred to in a later section, 'Effects of Soil Colour', but they are mentioned here because the very striking pallid colour of birds in the north-west seems to be due to a combination of both arid and cryptic factors, the latter being the whitish gypsum soils which lie in the country around Swakopmund and Walvis Bay, and also the clay pans of the Kalkrand farther north.

Plumages are lighter and darker in relation to rainfall zones in two main ways. In one the colours vary in tone; greens, for example, are lighter green or darker green, presumably in relation to the amount of black pigment visible in the colour-producing element. In the other there is variation in the relative sizes of black areas and white areas. In the former category there is, for example, the colour variation of the Yellow Seed-eater, Serinus flaviventris; in the south-west Cape the male has a dark olive-green back and a dull yellow rump, and the indication is that there is more blackish pigment in these colours than in the Damaraland male in which the back is bright green and the rump clear lemon-yellow. An exactly similar variation is found in the yellow rump of the White-throated Seed-eater, Poliostia albogularis. Also in the Huab River area, on the borders of the Kaokoveld, it was clearly noticeable in the field that the Turtle Dove, Streptopelia capicola, was much paler than in the Cape. Similarly, Roberts (1931: 239), found the Waterberg populations of the Speckled Pigeon, Columba guinea, to be appreciably paler than Cape populations, and a pale coastal form of the Double-banded Sandgrouse, Pterocles bicinctus, has been distinguished in the present collections.
Discussion

The same kind of variation is repeated in widely different species, in the Dikkop, Burhinus capensis, for example, in the Cape Rock Martin, Ptyonoprogne fuligula, the Grey Tit, Parus afer, Brown Eremomela, Eremomela ictopygialis, Pink-billed lark, Spizocorys conirostris, which spreads westwards from the Transvaal, and a number of others.

A similar trend is found in regard to the relative sizes of black areas and white areas in plumage. For instance, the Blackhead Canary, Alario alario, in southern Cape Province has a wholly black head and throat, but from Little Namaqualand northwards the size of this black area is reduced by the introduction of a white eyestripe and a white patch on the throat. (Sometimes these variants are regarded as valid species.) Presence and absence of a white eyestripe is also a feature of the Fiscal Shrike, Lanius collaris, in which the lower Orange River marks the boundary between the northern subcoronata in which it is present and the southern nominate form in which the white eyestripe is lacking. Similarly, in the Cape Robin, Cassypha caffra, the Little Namaqualand populations have a broader white eyestripe than do the populations around Cape Town. The pale ‘window’ in the wings of the Pale-winged Starling, Onychognathus nabouroup, a conspicuous feature in an otherwise wholly black bird, increases gradually in whiteness from south to north of the region. This gradation towards lightest coloured plumages in the areas of least rainfall in western South West Africa, especially coastal Damaraland, is one of the striking characteristics of the birds of this region.

Rainfall and the Breeding Season

In 1949–50 the time of breeding seemed to vary greatly in different parts of the country, even within the same species; there appeared to be a progressive retardation from south to north. Few species were actually found to be breeding in the observed period, December to May, but many were in general moult. This was a post-breeding condition because juveniles in their distinctive plumages were often present in the same localities, sometimes along with their parents in family parties. Also gonads were frequently in a flaccid regressive condition. Moreau (1950: 223) regarded the presence of dependent young along with general moult as valid ‘ancillary indications’ of breeding.

The extent of variation in the time of breeding is illustrated by some examples of post-breeding moult and juvenile plumages in different populations of the same species. A Chanting Goshawk, Melierax musicus, was in mid-moult in Little Namaqualand in December, a young bird was at nest-leaving stage near Witputs in mid-January and a similar juvenile was taken at Franzfontein in April. A Scimitar-bill, Rhinopomastus cyanomelas, was nearing completion of moult at Grootderm in mid-December, while a bird taken on the lower Kuiseb in late March was in very worn plumage, apparently only approaching moult. A Cardinal Woodpecker, Dendropica fuscesca, at Kamieskroon at the beginning of December was in the early stages of moult while a Kamanjab bird in late April was only nearing the end of moult. The Cape Wagtail, Motacilla capensis, was in much the same stage of moult and accompanied by juveniles both along the Orange River in December and in Damaraland in April. In the Red-eyed Bulbul, Pycnonotus nigricans, a bird taken on the Kuiseb River in late March was in similar moult condition as others had been along the Orange River three months earlier. There are numerous other examples.
Differences in time of post-breeding moult, and inferentially of breeding, were evident even over relatively short latitudinal distances. For example, in the Karroo Lark, *Certhilauda albescens*, specimens of the Namib race *erythrochlamys* taken near Aus in early February had nearly completed moult whereas in the sample taken at Tsondab Mund, about 200 miles farther north, they were only at the commencement of moult in early March. In species which were sampled fairly regularly between Little Namaqua-land and Damaraland there seemed to be evidence of regular retardation in the incidence of post-breeding moult. The gradation found in the Long-bill Lark, *Certhilauda curvirostris*, is illustrated in Fig. 7. It can be seen that in our slow movement north, indicated by 'observation period' and vertical lines, we appeared to move backwards in the breeding cycle. In the northern samples where moult is estimated the extremely worn plumages of the specimens were matched with others taken in localities in which there were also birds in moult.

The evidence of these examples from the 1949–50 season is supported by more direct information on breeding times in previous years. This was summarised by Moreau (1950). In the vicinity of Cape Town he estimated (p. 238) 'that very little breeding takes place before August and that there is a well-marked peak of activity in September and October'. For the whole of South West Africa he found that 'the vast majority of birds breed between October and March'; but in a northern district, Damaraland for example, the period seems to be restricted more to November–February, with peak activity apparently in December–January. Comparison of some breeding records is given in Table 1, where those for south-west Cape are from A. W. Vincent (1945–49) and for Damaraland from Hoesch and Niethammer (1940).

Rainfall seems to be an important factor in bringing about this considerable variation in breeding times. In south-west Cape most species conform to the spring breeding
habit usual in temperate regions. Rainfall is not obviously a proximate breeding factor; there are no clearly defined wet and dry seasons and the wettest months, May to August (see Fig. 4, p. 14), are over before breeding begins. It is claimed (e.g. Baker, 1938) that in temperate regions maturation of the gonads can be related to increase in day-length, and it is in September at the Cape that the mean daily rate is at its peak (Moreau, 1950: 227, fig. 2). In Damaraland, however, although the mean daily rate of increase in day-length is also at its peak in September the amount of increase is much less, Damaraland being some ten degrees nearer the equator. The small amount of increase in day-length

Table 1. Comparison of egg dates of various species in the Cape Region (after A. W. Vincent) and in South West Africa (after Hoesch and Niethammer).

<table>
<thead>
<tr>
<th>Species</th>
<th>Cape area</th>
<th>South West Africa</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Okahandja: 7–13 Jan.</td>
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<td></td>
<td></td>
<td>Okapanda: 6 Jan.</td>
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<tr>
<td>Nyroca erythrophtalma</td>
<td>8 Sept.; 23 Oct.</td>
<td>Osendeku: 5 March</td>
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<td></td>
<td></td>
<td>Naukluft: 8 Dec.</td>
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<td></td>
<td></td>
<td>Ukuib: 27 Feb.</td>
</tr>
<tr>
<td>Cercomela familiaris</td>
<td>22 Sept. nestlings</td>
<td>Naukluft: 13 Nov.</td>
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<tr>
<td></td>
<td></td>
<td>Bullsport: 4 Dec.</td>
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<tr>
<td></td>
<td></td>
<td>Osana: 20 Dec.</td>
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<tr>
<td></td>
<td></td>
<td>Okahandja: 1–12 Jan.</td>
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<tr>
<td></td>
<td></td>
<td>Ukuib: 6 Feb.</td>
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<tr>
<td>Lanius collaris</td>
<td></td>
<td>Haruchas: 11 Dec.</td>
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<td></td>
<td></td>
<td>Karibib: 30 Jan.</td>
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<td></td>
<td></td>
<td>Ukuib: 3 Feb.</td>
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<tr>
<td></td>
<td></td>
<td>Bullsport: 5 Dec.</td>
</tr>
</tbody>
</table>

either does not act at all as a gonad stimulator or the natural consequence of its effect is suspended by some inhibiting factor. In this instance delay in breeding is most likely to be caused by the prevailing drought, for September in Damaraland falls near the end of a long dry period, and to breed at that time would be disastrous to most species. The drought usually breaks about December (see Fig. 4, p. 14) and the fact that breeding in general commences about the same time suggests that in this area rainfall is the critical factor.

The possibility of gonads maturing several months before the onset of breeding is worth considering. Unfortunately, so far as is known, there is no reliable information on the condition of the gonads in Damaraland populations between September and
Contribution in particular would less the period and larks. What there are is selection in relation to ground colour, which can be related to changes in environment colour, particularly soil colour where soil is exposed, as in desert and semi-desert localities. The degree of similarity between soil colour and plumage colour seems to depend on birds’ habits for it appears to be greatest in sedentary ground species, such as some of the larks. The true significance of this colour matching in many desert species is not clear. What appears to be an obvious explanation is that those species whose survival from predation depends largely on ‘playing possum’ on open ground would be most liable to selection in relation to ground colour, while species with other avenues of survival, such as speed of flight and the adequate cover of thick vegetation, would be less affected. However, this is not generally accepted. For example, Buxton (1923) stated that ‘protective colouration cannot be accepted as a theory to explain the very remarkable

EFFECTS OF SOIL COLOUR

There are variations in plumage colour, distinct from the melanic variations referred to in relation to humidity, which can be related to changes in environment colour, particularly soil colour where soil is exposed, as in desert and semi-desert localities. The degree of similarity between soil colour and plumage colour seems to depend on birds’ habits for it appears to be greatest in sedentary ground species, such as some of the larks. The true significance of this colour matching in many desert species is not clear. What appears to be an obvious explanation is that those species whose survival from predation depends largely on ‘playing possum’ on open ground would be most liable to selection in relation to ground colour, while species with other avenues of survival, such as speed of flight and the adequate cover of thick vegetation, would be less affected. However, this is not generally accepted. For example, Buxton (1923) stated that ‘protective colouration cannot be accepted as a theory to explain the very remarkable
Discussion

33
colouration of desert animals’; and Bodenheimer (1934) said, ‘We have to be satisfied
with the statement that this “adaptive” colouration is primarily a physiological effect
of dry heat on the development of pigments.’ Perhaps the truth of the general rule which
these statements are intended to cover can be proved by the exceptional examples of
some bird species. Unless one can find some evidence of colour control by visual stimu-
lus (as suggested by Bodenheimer in the case of some desert insects) it is difficult to
explain the range of colour variation, in the Spike-heel Lark for instance, in a region
where there is a closely corresponding variation in soil colour, but, apparently, little
significant variation in heat and humidity. It is possible that the colouration of desert
species results from several factors; such as the direct effect of heat and humidity on
plumage pigments (for example, the fading of colours in hot dry seasons, corresponding
with the drying and fading of whatever sparse vegetation there may be), also visual
stimulus and selection by predation. If, for example, the effect of heat on a particular
bird’s pigments resulted in a colour which did not fit a desert environment’s colour
scheme, and there seems to be a fairly wide range of fit, then, presumably, that species
would not make a good coloniser. Many of the species which have successfully colon-
ised the deserts of western South Africa are cryptically coloured. A factor in their
survival is, surely, how invisible they may be to such predators as the Chanting Gos-
hawk, Melierax musicus, the two kestrels, Falco tinnunculus, and F. rupicoloides, and the
Lanner, F. biarmicus. The fact that these predators themselves survive in appreciable
numbers shows that the camouflage of their prey is by no means perfect, or that, as in
other fields of attack and defence, the predators’ offensive weapons, such as visual
acuity, are also being perfected by a process of selection.

Some examples of soil-matching colouration can be mentioned. On one occasion
a Karroo Bustard, Heterotetrax vigorsii, wanted as a specimen was marked down on a
wide plain of sand and rubble and sparse low scrub. When stalked the bird seemed
to disappear completely without being observed to run or fly away. It was concluded that
it must have squatted and remained ‘fixed’ and did not move although the ground was
beaten over in line abreast. Francolin in open country were found to behave in the
same way, and Hoesch and Niethammer (1940) refer to them remaining immovable
even when hunted with dogs. A well-camouflaged bird will keep in position until
about to be trodden on, or until it realises that it has been observed. It was noted on
several occasions that cryptic species seemed sensitive to the fact that they were the object
of attention; for instance it was possible sometimes to get quite close to a bustard in
open country by walking casually and not quite directly at it. Perhaps the physical
explanation may be that a bird which is not frightened by a moving object in its sur-
roundings views it mainly with monocular vision and is in consequence less aware of
gradual reduction in distance.

Among numerous examples of ground camouflage one in particular was noted on
the bare plains of the Reck Flackte just north of Witputs. The soil was mainly rubble
and carried a very sparse amount of minute succulents and short grass. It was without
cover of any sort over a wide area. There were scattered flocks of mixed Stark’s Lark,
Spizocorys starkii, and the Finch Lark, Eremopteryx verticalis. When birds were disturbed
they flew around and when they dropped to earth again they seemed to disappear right
into it. It was extremely difficult to locate them on the ground even with the aid of
binoculars or when one was within a few yards of them. Among the flock was a small party of Burchell’s Courser, *Cursorius cursor*, one of which was wanted as a specimen and when it was shot on the ground two Stark’s Larks were also picked up which had not been noticed in the line of fire. A point of interest is that these three species, Burchell’s Courser, the Grey-backed Finch Lark and Stark’s Lark, were remarkably and equally well camouflaged on the same patch of ground, yet they are not identical in colour pattern. The two larks are blotched or streaky on the upper parts while the courser is plain coloured. Stark’s Lark has mainly pure white under parts, while in the finch lark the under parts are black or black in the centre of the belly (male and female), and in the courser the breast is coloured like the upper parts while the belly is white. But the plain coloured upper parts of the courser and the basic colour of the two larks are much the same, being only slightly different shades of darkish fawn. This colour is a very close match with the basic soil colour. The inference, therefore, from this particular example is that birds on the ground can be well concealed when only the basic colour of the plumage matches the colour of the soil and that a number of different supplementary colour effects can be added when soils have a broken or mottled texture without the birds becoming conspicuous. Several striking colour differences between these species do not necessarily enter into the cryptic pattern; the white under parts of one lark and the black of the other, for example, are readily concealed in relatively short-legged birds when they squat, and it was noted that both species had crouching stances and mouse-like runs; the courser on the other hand is rather long-legged with an upright stance and in that position a breast coloured like the upper parts would be least conspicuous.

Although well camouflaged in the locality referred to, these three species show remarkably little variation in plumage colour and pattern throughout their distribution in western South Africa. The courser and the finch lark were recorded in various places from Little Namaqualand to the Brandberg Mts. Stark’s Lark was rather less widely distributed. But within that range several other cryptic ground species show a wide range of variation. The question arises why, in a group of cryptic species inhabiting the same region some should be variable and some not. It may be that the non-variable species have achieved an optimum colour pattern which gives concealment under a variety of conditions or that they are less subject to predation pressure. Both of the non-variable larks flock in the non-breeding season and flocking might give some communal protection and allow the use of a rather wider range of environment colour. The most significant fact seems to be that all three non-variable species are less sedentary than the variable species. It seems that species which are both cryptic and mobile would require to select their environments; with a choice of occupying adjacent soils of different colour it would be to their advantage to choose the one which matched their plumage best. Hoesch and Niethammer (1940) illustrate this selectiveness in larks which could not be chased from a soil-matching colour to one on which the birds would be conspicuous. Habitat selectiveness is referred to by Mayr (1942: 246) when he said that it is ‘unquestionably involved in the development of races that are adapted to specific soil colours. Such birds seem to seek definitely soils which agree with their own colours’. Response to environment colour may be well developed in mobile cryptic species in regions where environments are variable. This seems to be the case in the
Namaqua Sandgrouse, *Pterocles namaqua*. It is typically a desert species and although common and widely distributed in western South Africa it lacks any significant colour variation. Yet this bird can be exceptionally well hidden on open ground. One could be right on top of a covey before seeing the birds, or even pass within a few feet of it with the birds sitting close, or creeping away with bellies close to the ground. They were conspicuous only when congregated in large flocks at the desert edge, as they were seen on two occasions near Aus and near Tsondab Mund. It is likely that these were post-breeding birds flocking prior to dispersal for most species had finished breeding at that time. Although flocking and speed of flight could make sandgrouse less vulnerable to predation in the non-breeding season they are ground birds and would be vulnerable in the breeding season. Their awareness of concealing environment seemed to be illustrated on the occasion on which a covey of about a dozen birds was found sitting close on a patch of open bare ground on which they were very inconspicuous. One shot killed several; the remainder flew round in a wide high circle but came back and landed on almost exactly the same place. This behaviour was repeated several times after shots were fired and a possible explanation is that the place may have been one they were in the habit of resorting to—perhaps a nesting site—when protective ‘cover’ was required. It seems logical that they should ‘take cover’ in this way when the more orthodox kinds are not available.

The close similarity between soil colour and plumage colour is very marked in sedentary species. Typical of this group are the bustard, *Heterotetrax vigorsii*, and the three lark species of the genus *Certhilauda*. These birds show almost exactly the same pattern of variation, matching both the basic colour of the soil and the general ‘texture’ of the environment. Where they occur in Cape Province there is a relatively great amount of low scrub. In these surroundings the plumage of the bustard is blotchy and vermiculated and the larks are heavily patterned on their upper parts. The basic colour matches the reddish coloured soils, except in coastal districts where there is a belt of greyish sand and two of the larks occurring there have corresponding greyish coloured phases. North of the Orange River in places where the soil is more exposed plumages are not so heavily patterned; in one case, the Namib race of the Karroo Lark, *Certhilauda albescens*, the upper parts are almost as plain as the windblown sand of the dunes it frequents, and a very close match in colour. On the edge of the Kalahari the plumages of several ground species have the distinct pinkish tinge typical of the sands of that region. But where the underlying greyish limestone comes to the surface and forms a distinctive soil feature over a wide area, as in the Kalkrand, this greyish colour is found in the plumages of a number of species. Limestone soils predominate in the northern Karstveld and practically every ground species which has colonised the area has a grey form; for example, the grey race *pallidior* of the Orange River Francolin, *Francolinus levalliantoides*, the race *waibeli* of the Sabota Lark, *Mirafra sabota*; also *Certhilauda albofasciata erikssonii*, *Mirafra apiata damarensis* and others.

**EFFECTS OF VEGETATION**

Vegetation seems to influence the colour pattern of the plumages of cryptic ground species. This is illustrated by the colour variation of the *Certhilauda* larks and the Karroo
Bustard, *Heterotetrax vigorsii*, both of which have already been referred to above in connection with the effects of soil colour. In the Namib sand dunes, for instance, where the vegetation is mainly clumps of *Aristida* grass, the Karroo Lark, *Certhilauda albescens*, has plain upper parts matching the plain surface of the barren sands. Along the desert edge where there is a little vegetation the plain pattern of the plumage is broken by dark streaks; and where the soil is fairly well covered with vegetation, as in parts of Cape Province where the bird occurs, the plumage is heavily mottled. Similarly, the Karroo Bustard has least markings in its plumage along the edge of the Namib desert where vegetation is sparsest, while in eastern Cape Province where low scrub is more plentiful it is quite densely vermiculated. Plumage differences in two coursers which are more or less sympatric in distribution may be explained by appreciable differences in habitat preferences. The plain Cream-coloured Coursers, *Cursorius cursor rufus*, seems to frequent the open bare sandy places while the mottled Burchell's Courser, *C. africanus*, keeps to places where there is a fair amount of vegetation.

As vegetation gets more plentiful ground camouflage becomes less necessary, and bird plumages show greater diversity of colour and pattern interspecifically and frequently less variation intraspecifically. Vegetation cover reduces exposure to predation. Although ground species are still open to attack by terrestrial mammals, in western South Africa mainly foxes and jackals, few bird species which habitually feed on the ground roost there or stay there when frightened in habitats which offer the relatively greater security of bushes and trees. Species which are partially or wholly arboreal have less need to be cryptic, although a number, especially among nightjars and owls, have colour-matching patterns as highly specialised as any ground bird. This point seems to be illustrated by two species of francolin, the Orange River Francolin, *Francolinus levalliantoides*, and the Red-bill Francolin, *F. adspersus*. They are largely sympatric in distribution but *F. adspersus* keeps to wooded localities, the relatively thick woods in the Lake Ngami area, for example, and the line of trees along watercourses in otherwise dry country, while *F. levalliantoides* keeps to open country, such as the scrub-grass of the northern Kalahari and similar habitats. In many places the two species live in close proximity to one another, as for instance along the upper Huab River. Although *adspersus* feeds on the ground, sometimes wandering into open country, it was never seen far away from trees and would fly into them when disturbed, and apparently also went there to roost. In contrast *levalliantoides* sat close on the ground when frightened. Its camouflage was most effective and its reliance on it most tenacious. On one occasion a bird went to earth in a clump of thin dry grass in an open sandy runnel. It was wanted as a specimen and it was thought that a stone thrown at it from a distance would make it run across the bare ground where it would be an easy target. But no amount of stone throwing would dislodge it and in desperation the clump of grass, no more than about a yard square, was being systematically trodden down before the bird suddenly got up from under one's feet. These two species are quite different in colour. *F. levalliantoides* is mainly brownish-grey above heavily blotched with chestnut and streaked with creamy-white, and below creamy-white to pinkish-buff with varying amounts of chestnut and black mainly on upper breast and sides of neck: it has numerous geographical colour variations. *F. adspersus* is uniformly brownish-grey above (much the same colour as the basic colour of the upper parts of *levalliantoides*) and uniformly dark
grey below: it varies little in colour throughout its distribution. When *adpersus* is on the ground, in the open it is a more obvious bird than *levalliantoides*. Of these two closely related ground-feeding species, therefore, the one which has an arboreal escape is not cryptically coloured in relation to the ground, and it has a more or less stable colour pattern throughout its distribution. However, there is a partial exception to this, which seems to emphasise the point, in that the juvenile plumage of *adpersus* is quite different to that of the adult (see Pl. VII); it is very similar to the adult plumage of *levalliantoides*, the reason apparently being that young *adpersus* relies on ground camouflage.

Other examples of inter-specific colour variation in relation to vegetation were noted in the Witputs area. In a locality where there was a fair covering of low scrub (up to about two feet) on nearly bare sand were the lark, *Certhilauda albescens*, and the chat, *Oenanthe tristriga*. The two species lived within inches of each other, but for the most part the lark kept to the ground whereas the chat spent most of its time on the scrub. Although living so close together in open country, in which the Chanting Goshawk at least was at that time a common predator, the two species are quite different in colour, the lark matching the reddish soil and the chat the brownish-grey scrub. When shot

<table>
<thead>
<tr>
<th></th>
<th><em>P. maculosa</em></th>
<th><em>P. flavicans</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length of:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wing ♀</td>
<td>50-53</td>
<td>54-56</td>
</tr>
<tr>
<td>♀</td>
<td>49-50</td>
<td>52-53</td>
</tr>
<tr>
<td>Tail ♀</td>
<td>65-70</td>
<td>65-70</td>
</tr>
<tr>
<td>♀</td>
<td>60-65</td>
<td>61</td>
</tr>
<tr>
<td>Bill ♀♀</td>
<td>12-13</td>
<td>12-13</td>
</tr>
<tr>
<td><strong>Colour of:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bill</td>
<td>black</td>
<td>black</td>
</tr>
<tr>
<td>Legs</td>
<td>pinkish-brown</td>
<td>pinkish-orange</td>
</tr>
<tr>
<td>Iris</td>
<td>light brown</td>
<td>light brown</td>
</tr>
</tbody>
</table>

birds were placed in each other's territory they were much more obvious from a distance than when on their own. Throughout their distributions the plumage colour of the lark varies with the soil while that of the chat seems to vary with changes in the vegetation.

In the same locality were two birds with skulking habits, the tit, *Parus afer*, and the warbler, *Prinia maculosa*. They lived mainly in the scrub rather than on it and were very skilful, when alarmed, of keeping the greater part of a bush between them and danger, a habit sometimes exasperatingly evident to anyone wanting a specimen. In fact the different evasive action of the three groups, the lark on the ground, the chat on the scrub and the tit and warbler in the scrub, were clear to anyone hunting them; the lark ran and squatted under bushes and one could pass quite close to it, the chat kept out of range by flitting from bush to bush, while the tit and warbler skulked. Of the three probably the tit and warbler were most often overlooked and most frequently located by sound rather than sight. And yet the plumages of tit and warbler could hardly be regarded as cryptic,
and the two species are not alike in colour; nor does either vary much from one locality to another.

Although Parns affinis and Prinia maculosa vary little in plumage colour in their scrub habitats they, or species closely related to them, do vary appreciably when there is a distinct change of habitats. Both are represented in another part of their ranges by arboreal forms. The Grey Tit of the southern scrubs, where trees and bushes are relatively rare, becomes an arboreal bird in the north. Where the change of habitat takes place there is a slight but appreciable colour change, the scrub population being drab brown on the back while the tree birds are dark olive-grey. Some authorities regard these variants as different species but it seems that they may not yet have reached that status because the differences are so slight, there is some evidence of intergradation and populations are apparently allopatric. In the case of the warbler the scrub-frequenting Prinia maculosa is replaced by the tree-frequenting P. flavicans. They have distinct colour differences without intergradation but dimensionally they are nearly identical (Table 2) and therefore although they are clearly established as species it seems highly probable that they are of fairly recent origin.

EFFECTS OF HUMAN ACTIVITIES

One or two points can be mentioned under this heading. The sparseness of the human population suggests that there has been little disturbance except perhaps in the vicinity of Cape Town, where some species recorded by early travellers are now much less in evidence. In this region, as in other parts of the world, the larger species seem to suffer most as a result of human occupation of the land. The ostrich, for example, once widely distributed, is now more or less confined to a narrow belt along the Namib desert margin, sandwiched between the desert and the land parcelled out into farms. Other large species such as bustards and guinea-fowl are good to eat and offer tempting targets for gun and rifle. Although most of the bustards are protected by game laws and reserves, restrictions are not easily enforced.

Those effects on the debit side are possibly very small and perhaps balanced by what can be shown on the credit side. This consists mainly in the provision of open water for water-loving species and birds which require to drink regularly. The lack of natural open water has been emphasised as one of the most distinctive characteristics of the region. Only the Orange and Kunene Rivers, which are about 800 miles apart, flow perennially. The others are seasonal although the Great Fish River has a string of pools in its lower section during the rest of the year; there are also numerous seasonal lakes or pans, the largest being the Etosha Pan in the northern part of the region. Changes in the amount of open water, therefore, especially in the dry season, would affect the distributions of a number of species, directly and indirectly through changes in vegetation. Such changes are found in the increasing number of irrigation dams, town reservoirs and the open storage tanks which are a regular feature of every farm homestead. The water in these farm tanks is led into troughs for watering stock, and along channels to irrigate gardens. At these troughs and channels many birds get all the drinking water they require. At one outlying tank beside the dry bed of the Guab River observations were made over a period of several days. So far as was known there
was no other dry season open water for miles in any direction. Birds in considerable number and variety made regular daily visits to the tank, birds such as the Namaqua Sandgrouse, Rosy-faced Lovebird, Pale-winged Starling, and many others. If the tank ceased to supply water it is difficult to believe that the local populations of some species would not suffer depletion, either by the departure of birds to more favourable situations or by dying off. And, conversely, the presence of the water tank presumably encouraged local increases in populations. The cumulative effect of the numerous farm tanks scattered throughout the dry areas must surely be quite considerable.

One of the most spectacular effects on bird life produced by artificially formed open water is found at the Voigtsgrund Dam, situated north of the road between Maltahohe and Mariental. The headwaters of a tributary of the Great Fish River, apparently the River Zup, has been dammed to form a reservoir which extends for several miles into various bays and inlets. Although situated in a great waste of stony scrub-desert this dam was teeming with water-birds when visited in February 1950 (see list below). The waters of the dam irrigate a wide area of the valley and a secondary effect on bird life is the new habitats which the rich vegetation provides. It would be interesting to discover the extent to which these habitats have been colonised by non-endemic species.

**List of Species identified at the Voigtsgrund Dam in mid-February**

<table>
<thead>
<tr>
<th>Species</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Phalacrocorax carbo</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Phalacrocorax africanus</em></td>
<td>Fairly common</td>
</tr>
<tr>
<td><em>Anhinga rufa</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Ardea cinerea</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Casmerodius albus</em></td>
<td>A few identified</td>
</tr>
<tr>
<td><em>Egretta garzetta</em></td>
<td>Several identified</td>
</tr>
<tr>
<td><em>Mesophoyx intermedia</em></td>
<td>A few identified</td>
</tr>
<tr>
<td><em>Bubulcus ibis</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Nycticorax nycticorax</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Ciconia nigra</em></td>
<td>Three identified</td>
</tr>
<tr>
<td><em>Leptoptilos crumenifer</em></td>
<td>Two identified</td>
</tr>
<tr>
<td><em>Ibis ibis</em></td>
<td>Fairly common</td>
</tr>
<tr>
<td><em>Platalea alba</em></td>
<td>Six identified</td>
</tr>
<tr>
<td><em>Alopochen aegyptiaca</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Casarca cana</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Aythya erythropthalma</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Anas erythrorhyncha</em></td>
<td>One certain record</td>
</tr>
<tr>
<td><em>Anas capensis</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Dendrocygna viduata</em></td>
<td>One certain record</td>
</tr>
<tr>
<td><em>Fulica cristata</em></td>
<td>One flock of 10–12 birds</td>
</tr>
<tr>
<td><em>Actophilornis africana</em></td>
<td>One identified</td>
</tr>
<tr>
<td><em>Charadrius pecuarius</em></td>
<td>Fairly common</td>
</tr>
<tr>
<td><em>Hoplopterus armatus</em></td>
<td>At least one flock</td>
</tr>
<tr>
<td><em>Calidris minuta</em></td>
<td>Common</td>
</tr>
<tr>
<td><em>Actitis hypoleuca</em></td>
<td>Fairly common</td>
</tr>
<tr>
<td><em>Tringa totanus</em></td>
<td>One certain record</td>
</tr>
</tbody>
</table>
SUMMARY OF DISCUSSION

(1) Some special patterns of distribution and variation are considered in relation to such factors as physiography, climate, soil and vegetation.

(2) The lower section of the Orange River seems to act as a barrier to the distribution of some species, and to cause breaks in the interbreeding continuity of other species so that racial, and perhaps specific, differentiation takes place.

(3) The distributions of some species and races can be related to the distribution of average annual rainfall and to some of the main vegetation types determined by rainfall.

(4) There seems to be a positive relation between humidity, as illustrated by average annual rainfall, and the amount of black pigment visible in plumage (mainly according to Gloger’s Rule).

(5) Most birds in the southern parts of the region commence breeding in the early spring, and in the northern parts of the region at the beginning of the rainy season, which is several months later. The two extremes of breeding times in populations of the same species seem to be connected by a regular cline, but the way in which this gradation comes about and its effects are not clear.

(6) In some ground species in desert and semi-desert localities there is a close similarity between geographical variation in plumage colour and pattern and soil colour and texture, and it seems, therefore, that the theory of protective colouration and selection due to predation pressure is sometimes tenable.

(7) As is to be expected sedentary cryptic species, because of restricted gene exchange, are more variable than mobile species. Mobility apparently tends towards the development of a generalised cryptic pattern and possibly also greater selectivity of environments.

(8) Vegetation affects the plumage colour and pattern of many species living in exposed environments. As vegetation cover increases plumages appear to be less cryptic, more varied in colour and pattern interspecifically and less varied intraspecifically.

(9) In a region where there is little surface water the establishment of numerous small domestic reservoirs and large irrigation dams must have a considerable effect on bird life.
PALAEARCTIC MIGRANTS

Specimens of the Palaearctic species listed in Table 3 were identified or collected. The last date and position (degree of south latitude) at which they were seen is given: similar data for Okapanda in South West Africa was listed by Hoesch (1933 (d): 129–130). There was very little of what could be described as migration movement. The Golden Orioles at Tsondab Mund, a flock of about six birds, were present one day, but not the next, and it is possible that they had merely dropped in there, at an oasis in a waste of sand dunes, and then moved on northwards. But the Lesser Grey Shrike,

Table 3. Palaearctic migrants: last date and location (degree of south latitude).

<table>
<thead>
<tr>
<th>Species</th>
<th>Date</th>
<th>Latitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciconia nigra</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Charadrius pecuarius</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Recurvirostra avocetta</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Himantopus himantopus</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Calidris minuta</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Actitis hypoleucos</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Tringa totanus</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Tringa nebularius</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Apus apus</td>
<td>11 Feb</td>
<td>25° 50'</td>
</tr>
<tr>
<td>Hirundo rustica</td>
<td>14 Feb</td>
<td>24° 40'</td>
</tr>
<tr>
<td>Delichon urbica</td>
<td>16 April</td>
<td>20° 10'</td>
</tr>
<tr>
<td>Oriolus oriolus</td>
<td>7 March</td>
<td>24° 00'</td>
</tr>
<tr>
<td>Hypolais icterina</td>
<td>10 April</td>
<td>21° 10'</td>
</tr>
<tr>
<td>Muscicapa striata</td>
<td>4 April</td>
<td>21° 50'</td>
</tr>
<tr>
<td>Lanius minor</td>
<td>7 March</td>
<td>24° 00'</td>
</tr>
<tr>
<td>Lanius collurio</td>
<td>5 April</td>
<td>21° 50'</td>
</tr>
</tbody>
</table>

Lanius minor, was there in relatively large numbers during the period of our short visit, 5–9 March. Movement on a larger scale was noted at the Voigtsgrund Dam in mid-February when a large mixed flock of European Swallow, Hirundo rustica, Cliff Swallow, Petrochelidon spilodera, and the Indian Swift, Apus affinis (as far as determined) drifted across the dam continuously for several hours. The sky in every direction was peppered with these birds twisting and swooping but all the time drifting in one direction: it was not the direct and purposeful flight one associates with migrating birds and may have been merely a flocking before migration. Much later, in mid-April, we came across a very large flock of House Martin, Delichon urbica, between Franzfontein and Outjo. They were collected around a farm homestead and for a mile or so beyond it. They were not moving in any direction, but parts of the flock were rising and settling in a restless manner. The interesting point is the date, 16 April, for it is about that time the main parties of House Martin arrive in Britain. In that month at least, therefore, the
species must have been widely spread out in both hemispheres. Other species dilatory in leaving their winter quarters were the Icterine Warbler, Hypolais icterina, recorded on 10 April. Spotted Flycatcher, Muscicapa striata, on 4 April, and the Red-backed Shrike, Lanius collurio, on 5 April. One of the interesting problems relating to Palaearctic migrants is the extent to which they form breeding colonies in South Africa. A number of species have already established such colonies, but whether they are on the increase is not known because only a very small part of the country is covered by regular surveys. South African ornithologists are actively interested in the subject and in time sufficient data will be available to determine what changes are taking place. There was no indication in any of our specimens that they were southern breeders; indeed in the majority of cases the condition of the gonads and plumage moult seemed to be consistent with a northern breeding season.
NOTES ON SPECIES

The sequence of families and species in this section follows that of the Systema Avium Aethiopicarum, W. L. Sclater, 1930. The notes are listed under specific identifications, while racial subdivisions are discussed under 'taxonomic notes'. Authors' names and original references are given for all relevant scientific names.*

Struthionidae

(1) Struthio camelus Ostrich.

Field notes. Wild ostriches were first seen on the river flats just south of Konkiep, in late January. There was a small troop containing several half-grown juveniles. Farther west, on the other side of the Huib Plateau and along the desert edge to Aus, ostriches were quite plentiful. In late January and early February juveniles, distinctive in their grey plumage, were much in evidence, but nearly full grown and in separate flocks accompanied by one or two adults. Nothing more was seen of ostriches until the desert margin was again reached on the west of the Naukluft Mts. Northwards from there small troops were noted from time to time, particularly near the Brandberg Mts. The general impression was that wild ostrich only retained a foothold along the desert margin, sandwiched in between desert and farm land.

Podicipididae

(2) Podiceps ruficollis Little Grebe.
     Colymbus ruficollis Pallas, 1764, Vroeg's Cat. Vog. Adumbr. 6, Holland.

Specimens. 1♀ 1♂ 1 juv., 1♂ and 4 juvs. of same family and 1 ad. and 1 juv. of another family in spirit, Katemba Dam, Kamanjab (26 April).

Field notes. Four families with chicks were counted on the Katemba Dam, the only locality in which this species was identified. Young birds were in various stages of development, some being newly hatched, others nearly as large as their parents but still in juvenile plumage, while one of the specimens taken was a young bird in the last stages of moult into first adult plumage.

Taxonomic notes. The African representatives of this widely distributed species belong to the race capensis.

*Note. It is regretted that this publication is predated by the paper, 'Ornithological results of the Bernard Carp/Transvaal Museum expedition to the Kaokoveld, 1931'. Macdonald, J. D. & Hall, B. P., Ann. Trans. Mus., 22, 1 January 1957: 1-39. It was intended that it should follow on as a supplement but difficulties in timing publication upset calculations. Some of the statements in that earlier paper are based on conclusions arrived at in this one and a new race is referred to by name which for reference purposes should have appeared first in print here.
Contribution to the Ornithology of Western South Africa

Dimensions of 1♂: wing 107; bill 29. Colour of bill, ♀ mainly black, pale greenish at base, ♀ pale yellowish-brown with dark brown streaks, juv. white; legs, ♀ greenish-slate, ♀ yellowish-green, juv. slate; iris, dull brown in all.

Phalacrocoracidae

(3) Phalacrocorax carbo White-breasted Cormorant.
Field notes. Common on Voigtsgrund Dam in mid-February, when many of the birds were in juvenile plumage. Roberts (1940: 17) indicated very irregular breeding seasons throughout South Africa.

(4) Phalacrocorax africanus Reed Cormorant.
Specimen. 1♀ Voigtsgrund Dam (14 Feb.).
Field notes. Fairly common on the Voigtsgrund Dam in mid-February.
Dimensions of 1♀: wing 206; tail 146; bill 34. Colour of bill and bare skin of face, yellow, the bill being mottled with dark brown.

Anhingidae

(5) Anhinga rufa Darter.
Field notes. One seen on the Great Fish River near Seeheim in mid-January. Common on the Voigtsgrund Dam in mid-February. There were many nests in the trees of a small island. One nest had four chicks almost fully fledged. The chicks were mainly white with black primaries just beginning to show, and the rufous colour on crown and hind neck could be clearly seen at a distance.

Ardeidae

(6) Ardea cinerea Grey Heron.
Field notes. Fairly common at various localities on the lower Orange River during December, and along the course of the lower Great Fish River, at Ai Ais and Seeheim, in January. Common on the Voigtsgrund Dam in mid-February when birds seemed to be nest building and incubating.

(7) Ardea purpurea Purple Heron.
Specimen. 1♂ Ai Ais (1 Jan.).
Field notes. The specimen obtained, which was the only one identified with certainty, was flushed from a small reed bed. It was in fresh plumage, just completing full moult.
Dimensions of 1♂: wing 340; tail 116; bill 137. Colour of bill, yellow; legs and feet, yellow (front or upper parts of bill, legs and feet brownish); iris, pale yellow.

(8) Casmerodius albus Great White Egret.
Field notes. A few were identified in the company of other egrets and herons at Voigtsgrund Dam in mid-February.

   Field notes. A few identified on the Voigtsgrund Dam in mid-February.

    *Ardea garzetta* Linnaeus, 1766, Syst. Nat.: 237. Italy.
    Field notes. Several identified on the Voigtsgrund Dam in mid-February.

11. *Bulbulcus ibis* Cattle Egret.
    Field notes. Common on the Voigtsgrund Dam and irrigation flats nearby in mid-February.

12. *Nycticorax nycticorax* Night Heron.
    Specimens. 2♂ Seeheim (20 Jan.).
    Field notes. The two specimens were obtained from a group of three birds found near one of the large pools on the Great Fish River above Seeheim. They were in quite fresh plumage. Night Herons were common on the Voigtsgrund Dam in mid-February: on one occasion a very large flock was seen.
    Dimensions of 2♂: wing 297–8; tail 110–3; bill 78–82. Colour of bill, black, with some greenish-yellow at base of lower mandible; legs, yellow; iris, yellow.

    Field notes. One seen in a reed-bed beside a pool at Ai Ais on the Great Fish River in early January.

**Scopidae**

    Field notes. Single birds were seen from time to time along the Orange River at Violl's Drift and Assenkjer in December; one was identified on the Great Fish River at Ai Ais in early January, and three near Seeheim in mid-January.

**Ciconiidae**

15. *Ciconia nigra* Black Stork.
    Field notes. A party of three birds was seen flying along the course of the Great Fish River at Ai Ais early in January. Another party of three was seen on several successive days on a sandy spit on the Voigtsgrund Dam in mid-February. The Black Stork is stated to breed occasionally in South Africa and the condition of the gonads would have been interesting but the birds were very wary and it was difficult to get near them.
Contribution to the Ornithology of Western South Africa

(Note: The White Stork, *Ciconia ciconia*, is also reported to breed in South Africa. The wife of a farmer near Windhoek stated with confidence that a few White Storks had remained on a nearby dam throughout the previous southern winter. She was of German origin and knew the species quite well. She did not know if they bred there.)

(16) *Leptoptilos crumenifer* Maribou Stork.

Field notes. A flock of 36 birds was seen soaring high over the Great Fish River at Ai Ais early in January. They circled apparently with the intention of landing but were disturbed and moved off. Two were seen at the Voigtsgrund Dam in mid-February.

(17) *Ibis ibis* Wood Ibis.

Specimen. 1♂ Seeheim (20 Jan.).

Field notes. Small parties flew along the course of the Great Fish River near Seeheim, or fed along the margins of the small pools in the river bed. It was common on the Voigtsgrund Dam in mid-February; about 40 birds were counted in one party.

Dimensions of 1♂: wing 485; tail 160; bill, from edge of bare skin, 250. Colour of bill, bright yellow; bare skin adjacent to bill, red, with a narrow band of bright yellow next to bill; thighs, red; tarsus, greyish-brown; iris, bluish-black.

**Plataleidae**

(18) *Platalea alba* African Spoonbill.

Field notes. Six were identified on the Voigtsgrund Dam in mid-February.

**Anatidae**

(19) *Aythya erythrophtalma* African Pochard.

Field notes. This pochard was present on the Voigtsgrund Dam in considerable numbers in mid-February, though it did not appear to be quite so plentiful as the Cape Wigeon.

(20) *Anas sparsa* Black Duck.

Field notes. A single bird was seen on several occasions flying along the course of the Great Fish River at Ai Ais early in January. It was fairly common on the same river near Seeheim about the middle of the month.

(21) *Anas capensis* Cape Wigeon.

Specimens. 1♂ 2♀ Voigtsgrund Dam (13 Feb.).

Field notes. A single bird was seen near Barby in the Tiraz Mts. where there was a pool of water after recent rains. The Cape Wigeon seemed to be about the commonest species on the Voigtsgrund Dam in mid-February. It was usually in parties of 10-15
birds, but on several occasions large flotillas of young birds were out on the dam accompanied by a few adults. The young birds were just beginning to feel their wings; some managed to get off the water for a few seconds, but the majority paddled around in close formation. This duck must have nested at the dam about November. Incidentally, chicks may be subjected to predation by ‘barbel’ (catfish). The dam was teeming with these vicious fish, many being 3 ft. or more in length. A shot duck which fell on the water soon had its head nipped off.

Dimensions of 1♂ 2♀: wing, ♂ 185, ♀ 193-4; bill (from feathers), ♂ 38, ♀ 34-40. Colour of bill, plum, bluish-grey at tip, black at base; legs, yellowish-brown; iris, bright orange-brown.

(22) *Anas erythrorhyncha* Redbill Duck.


*Specimen.* 1♂ Seeheim (21 Jan.).

*Field notes.* The specimen obtained was taken from a flock of about 12 birds found beside a pool on the Great Fish River above Seeheim. Only one bird of this species was identified at the Voigtsgrund Dam in mid-February, but it seems probable that there were others.

Dimensions of 1♂: wing 215; bill (from feathers) 44.

(23) *Dendrocygna viduata* Whistling Teal.


*Field notes.* One was seen near the mouth of the Orange River early in December, and at least two birds were seen on the Voigtsgrund Dam in mid-February.

(24) *Sarkidiornis melanotos* Comb Duck.


*Field notes.* A flock of about 12 birds was seen on the Great Fish River at Ai Ais early in January.

(25) *Alopochen aegyptiaca* Egyptian Goose.


*Specimen.* 1♂ Seeheim (20 Jan.).

*Field notes.* About a dozen were seen on the river flats at Grootderm in mid-December. Two were seen at Ai Ais on the Great Fish River early in January, and a pair further up the same river, near Seeheim, in mid-January. Common in small parties on the Voigtsgrund Dam in mid-February, and a pair was seen on a small dam at Nauchas, early in March.

Dimensions of 1♂: wing 408; bill (from feathers) 50. Colour of bill, pinkish-white, blackish at tip; legs, pinkish; iris, dark yellow.

(26) *Casarea cana* African Shelduck.


*Field notes.* This bird was scattered about in much the same way as the Egyptian Goose. One was seen near the mouth of the Orange River in mid-December; three on the Great Fish River near Seeheim in mid-January; and it was fairly common, usually in small parties, on the Voigtsgrund Dam in mid-February.
Aegypiidae

(27) *Torgos tracheliotus*  Black Vulture.


Field notes. The Black Vulture was not observed frequently nor in large numbers. It was first seen in the desolate region west of the Konkiep River, when a party of five were identified near the farm of Nauchas late in January, and on the following day fifteen birds were counted north of Witputs. It was fairly common in the Aus area in early February, and a few birds were seen in the Tiraz Mts. about a week later. It was not seen again until the Namib Desert was entered at Tsondab Mund early in March. The only other records were on the border of the Kaokoveld, where several birds were seen near Kamanjab and in the Onguati area in mid-April.

Falconidae

(28) *Falcio biarmicus*  African Lanner.


Specimen. 1♀ 45 miles east of Swakopmund (30 March).

Field notes. The only certain record of the African Lanner was obtained east of Swakopmund in open grassy uplands with scattered trees. There were two lanners in a tree, the bird obtained and another which was identified as a juvenile because of its dark underparts. The female specimen was in the early stages of complete moult.

Taxonomic notes. The bird belongs to the nominate race.

Dimensions of 1♀: wing 345; tail 180; bill 31. Colour of bill, blue-grey, greenish-yellow at base; legs, bright yellow; iris, brown; cere and bare skin round eye, lemon-yellow.

(29) *Falcio tinnunculus*  Rock Kestrel.


*Falcio rupicolus* Daudin, 1800, Traité, 2: 135. Cape of Good Hope.

Specimens. 1♂ 1♀ Grootderm (14 Dec.); 1♂ 50 miles north of Witputs (28 Jan.).

Field notes. Both Grootderm specimens were hawking along the narrow belt of trees fringing the river. They were in the early stages of full moult. The bird from north of Witputs was sitting on top of a tree in a dry watercourse in open semi-desert country. Moulting in this specimen was rather more advanced than in the other two. The species was identified several times in the Aus area.

Taxonomic notes. The usual practice has been followed of regarding the Rock Kestrel of South Africa as a race of the European Kestrel. The race is *F. t. rupicolus* Daudin.

Dimensions of 2♂ 1♀: wing, ♂ 234-245, ♀ 240; tail, ♂ 144-156, ♀ ?; bill, ♂ 20-22, ♀ 22. Colour of bill, bluish-horn, nearly black at tip and yellow at base and on cere; legs, bright orange-yellow; iris, dark brown.

(30) *Falcio rupicoloidees*  Greater Kestrel.


Field notes. Probably most of the kestrels seen belonged to this species, but little attention was given them. The Tiraz Mts. specimen was taken in an open sandy plain between high hills. It was in the early stages of post-breeding moult. The second specimen, taken on the Tumas Flats south-east of Walvis Bay, was beating over rubble desert country. It was nearing completion of post-breeding moult.

Taxonomic notes. These birds belong to the nominate race. Smith’s type locality is the mouth of the Groene, or Groen River, which is apparently the terminal section of the river now better known as the Zwart Doorn. It is a short seasonal river lying on the south side of the Kamiesberg Mts. and reaches the sea at Kreefte Bay, about 30 miles south-west of Garies.

Dimensions of 2: wing 272 (one in moult); tail 145–161; bill 23–24. Colour of bill, bluish-horn, blackish at tip; legs and cere, yellow; iris, very pale yellow or fawn.

(31) Polihierax semitorquatus Pigmy Falcon.


Specimens. 1♂ 1♀ Kamanjab (23 April).

Field notes. A pair of these small falcons was seen on the course of the Great Fish River, near Seeheim, in mid-January. The species was identified several times in the Kamanjab area. The pair of birds secured were sitting on top of a tree in fairly dense tree savanna. The white under parts were conspicuous and tail bars and orange-coloured legs were clearly visible. They were nearing completion of full moult.

Taxonomic notes. The specimens belong to the nominate race.

Dimensions of 1♂ 1♀: wing, 114, 118; tail, 69, 73; bill 14. Colour of bill, pale bluish-grey horn, blackish at tip; legs and cere, orange; iris, dark brown.

(32) Milvus migrans Black Kite.


Field notes. Experience of this kite emphasised its reputation as a ‘rain bird’. There was no rain south of Aus during December and January. At Aus early in February there were one or two light showers. On leaving there on 6 February the sky to the north, in the direction of the Tiraz Mts., was dark and overcast, and about 30 miles north of Aus there was a large flock of Black Kites and soon after much evidence of recent heavy rain; washouts on the road and a fresh growth of young green grass. Kites were common all the way to Helmeringhausen, but they were not seen again further north during rainy periods in April and May. These birds in the Tiraz Mts. may have been southern migrants of the northern races migrans or tenebrosus rather than the southern breeding parasitus. No specimens were taken.

(33) Aquila verreauxi Verreaux’s Eagle.


Field notes. This eagle was first identified at Kamieskroon in early December, and was not recorded again until Spitzkoppe was reached, in early April, where three birds were seen. Two were seen on the Brandberg Mts. a week later.
(34) Aquila rapax  Tawny Eagle.


*Specimen.* $\varphi$ 53 miles east of Franzfontein (16 April).

*Field notes.* The specimen obtained was found in savanna country where small trees were fairly numerous. It was sitting about 20 ft. up in a small tree eating a snake. It was in the final stages of complete moult. Other birds of the tawny eagle kind were occasionally noted but certain identifications were not made.

Dimensions of $\varphi$: wing 550; tail 260; bill 62.

(35) Kaupifalco monogrammicus  Lizard Hawk.


*Specimen.* $\varphi$ Kunjas, west of Helmeringhausen (11 Feb.).

*Field notes.* The only record of this species was the specimen taken. The bird was perched high up on a dead tree at the edge of a small patch of fairly thick woodland in a broad valley leading into the Tiraz Mts. At first glance it appeared to be just another Chanting Goshawk but the broad black streak in the centre of the white throat clearly marked it as something different. This seems to be the first record of the Lizard Hawk in South West Africa. The species appears to favour well-wooded areas, even the edges of moist tropical forests, but has been recorded in drier places. It is significant that the valley in the Tiraz Mts. where the bird was found was relatively well timbered, and as it was just beginning post-breeding moult it seems that it may have bred there.

*Taxonomic notes.* Smaller size and wider black bars on the belly place this specimen with the Angolan race, merid.

Dimensions of $\varphi$: wing 208 (tips very worn); tail 24; bill 24. Colour of bill, black; cere, yellow; legs, orange; iris, reddish-orange.

(36) Circaetus pectoralis  Black-breasted Harrier-eagle.


*Field notes.* This unmistakable species was only identified in the Brandberg Mts. in early April.

(37) Terathopius ecaudatus  Bateleur.

*Falco ecaudatus* Daudin, 1800, Traité, 11: 54. Knysna District, Cape Province.

*Field notes.* Two Bateleur were identified near Onguati, in the upper Huab River area, in late April.

(38) Buteo rufofuscus  Jackal Buzzard.


*Field notes.* Two birds identified as this species were seen near Springbok in early December.

(39) Astrur badius  Banded Goshawk.


Notes on Species

Specimen. 1♀ Kamanjab (23 April).

Field notes. The specimen obtained was in fairly thick bush savanna. It was in fresh plumage, near completion of total moult. Three birds were also identified near Gobabis in early May, in fairly well-wooded country.

Taxonomic notes. The race to which the specimen belongs is *polyzonoides* Smith.

Dimensions of 1♀: wing 187; tail 143; bill 18. Colour of bill black; cere, orange; legs, orange; iris, bright orange.

(40) *Melierax musicus* Chanting Goshawk.


Specimens. 1♀ Klipfontein (21 Dec.); 1♂ juv. Huns Mts. (23 Jan.); 1♀ juv. Franzfontein (16 April).

Field notes. This Goshawk was recorded in most localities from Little Namaqualand north to the Kaokoveld. Birds usually occurred singly, perched on telegraph poles, trees or even low scrub in desert places. The young bird obtained in the Huns Mts. was on a nest in the form of a well-knit platform of twigs and about 20 ft. up in a small tree, one of a thin line along a dry watercourse. The adult female from Klipfontein was about halfway through complete moult.

Dimensions of 1♀: wing 380; tail 248; bill 35. Colour of bill, black; cere, adult orange, juv. black; legs, orange, paler in juv.; iris, lemon yellow in adult, greenish-yellow in juv.

(41) *Melierax gabar* Gabar Goshawk.

*Falco gabar* Daudin (ex Levaillant), 1800, Traité, 11: 87. Zwart River, Cape Province.

Field notes. Identified on several occasions in the bush and tree savanna region of the upper Huab River, in late May.

Turnicidae

(42) *Turnix sylvatica* Button Quail.


Specimens. 1♂ 20 miles north of Brandberg Mts. (13 April); 1♀ Onguati (21 April).

Field notes. Birds which might have been this species were flushed from long grass on numerous occasions, but sight identification was difficult and specimens were not obtained easily. North of the Brandberg Mts. in a grassy plain studded with bush, several were put up and one secured. The others would not flush a second time. The Onguati specimen was also taken on a grassy plain.

Taxonomic notes. Most of the button quails of southern Africa are identified as *T. s. lepurana* (Smith), but Stresemann (Orn. Monats., 1936: 26) stated that four specimens collected by Hoesch in the Erongo Mts. were sufficiently distinct to be described as a new race, *arenaria*. In these birds the cross bars on the feathers of the back are said to be lighter, more sandy-coloured, and the reddish breast colour to be paler in tone.
Hoesch and Neithammer (1940: 100) accepted this race. Roberts (1928: 295) said that South West Africa specimens seemed to be rather paler in every way. This would be consistent with the pattern of variation found in many species, but the two specimens collected just north of the Erongo Mts., although paler than most birds from localities outside South West Africa, are readily matched by others. The lighter variations of lepurana, therefore, are not confined to western localities though it may well be that the proportion of light to dark specimens there is very much higher than in eastern localities. It seems, therefore, that the acceptance of arenaria as a valid race is still questionable and the specimens are in the meantime identified as lepurana. Both specimens were in the final stages of moult and are mainly in fresh plumage.

Dimensions of 1♂ 1♀: wing, ♂ 73, ♀ 88; tail (♂ in moult) ♀ 41; bill, ♀13, ♀ 16. Colour of bill, bluish, blackish on culmen; legs, pinkish-white; iris, ♀ buffish, ♀ ivory white.

**Phasianidae**

(43) *Francolinus levalliantoides* Orange River Francolin.


**Specimens.** 1♀ juv. Onguati (21 April); 1♂ Kamanjab (24 April), 1♀ 35 miles ea.t of Ghanzi (16 May).

**Field notes.** First experience of this francolin was in the region of the upper Huab River, at Kamanjab and Onguati, where it seemed to be relatively common. Although one frequently caught glimpses of birds darting across lanes of open ground, they hid themselves very effectively in the long dry grass, which was more than usually abundant, and from which it was almost impossible to flush them. The species was readily identified by its peculiar tinkling note, transcribed by Roberts (1940: 72) as ‘kibitele’, but, to my ear, more correctly by Hoesch and Neithammer (1940: 88) as ‘diddli-ie, diddli-ie’. Many a fruitless hour was spent in trying to pin-point the source of calls. It was evident that this francolin kept to the dry bush and grass-covered slopes of the undulating stony countryside, whereas of the other two species in the same area the Red-bill favoured the thicker vegetation along the watercourses, and Hartlaub’s Francolin was entirely a bird of the kopjes. The species was found again to the east of Ghanzi where it was in open grassy plains thickly dotted with low scrub and occasional bushes and small trees. This place was not far from the Damara Pan where the Vernay-Lang Kalahari Expedition found it to be a common but most elusive species. Roberts (1935: 63) suggested that dogs would have been a help in securing specimens but Hoesch and Neithammer (1940: 88) stated that even good hunting dogs were of little use for they credited birds with sitting close to the ground and in such a manner that the lie of their feathers eliminated their scent. The juvenile female from Onguati was half-grown. It was in moult and the black gorgit is imperfectly formed. The adult female
from near Ghanzi although near completion of full moult had the ovaries still enlarged and very granular.

**Taxonomic notes.** A review of the taxonomy of this species has been published (Macdonald, 1933d). Briefly, agreement is found with Roberts (1936: 321) that Smith's description (1836: 35) of *Perdix levallioides* fits this species rather than *F. levallianti*. Three forms can be distinguished in South West Africa based mainly on general colour, the amount of red in the wings, and the size of the black-and-white gorget. These are *pallidior* Neumann, now restricted to the Tsumeb area, a more richly coloured form in the Windhoek-Rehoboth areas to which the name *wattii* has been given, and Roberts' *cunenensis*. Examination of the specimens on which *cunenensis* was based makes it quite clear that birds in the upper Huab River area belong to this form, and therefore that *stresemanni* Hoesch and Niethammer, based on birds from the same area, is synonymous with it. The Ghanzi specimen matches Roberts' *kalabarica*. Our specimens therefore belong to the following races:

   - Dimensions of ♂: wing 160; tail 72; bill 30. Colour of bill, brownish-black, whitish-horn at lower base; legs, pale dull yellow; iris, dull brown.

2. *F. l. kalabarica* (Roberts). Specimen from near Ghanzi.
   - Dimensions of ♂: wing 168; tail 75; bill 28. Colour of bill, blackish, yellowish at gape and base of lower mandible; legs, pale yellow; iris, rich brown.

(44) *Francolinus adspersus* Red-bill Francolin.


**Specimens.** 4 juv. Onguati (27–28 April); 1♂ juv. 50–60 miles south-west of Maun, Lake Ngami (18 May); 1 chick, 60 miles north of Maun (20 May).

**Field notes.** Little attention was given to this widespread, relatively common and non-variable species, except when there were opportunities to collect examples of immature stages. This occurred first in the Upper Huab River area in late April. There the Red-bill was a common species in its typical habitat, the relatively well-vegetated margins of dry and wet watercourses. Its harsh notes were unmistakable and it was readily seen when perched in trees, usually below about ten feet. Although the juvenile plumage differs remarkably from that of the adult and is apparently adapted for ground camouflage (see p. 37) quite young birds can take refuge in trees when disturbed. On one occasion some young Red-bill were shot out of a tree in mistake for young Guinea-fowl when a flock had been flushed. Their identity was established in the Lake Ngami area when family parties consisting of up to six or more juveniles in various stages of growth were frequently observed with adults. The youngest stage secured was a chick which was seen with an adult *adspersus* and then caught by hand.

**Taxonomic notes.** Attention has been drawn (Macdonald 1931) to the existence of the type of this species in the British Museum and the precise locality in which it was found by Captain (later Sir James) Alexander. Briefly, on the return journey of his 'Expedition of Discovery' Alexander left Walvis Bay on the 3 May 1837 and cut across the southern loop of the Kuiseb River. On the 12th he reached a tributary of the Kuiseb called 'Humaris'. This he followed down stream 'enclosed all the way with lofty cliffs'
to its confluence with the Kuiseb, where he found this species ‘running in considerable flocks under the bushes and grass of the river bank’. The position of this place is about 25° 15' S., 15° 52' E. We crossed the Kuiseb at the same place on 15 March 1950. But francolins were neither seen nor heard. Subsequent enquiries revealed that they are not known to occur in this spot now, mainly because much of the cover which is important to this species was washed away in the great floods of 1934. Further up river, where there is adequate cover, the bird is said to be common. R. M. de Schauensee’s race, *Francolinus hartlaubii*, from Lake Ngami (1931: 453) has not been generally accepted and our single specimen from the area does not confirm its validity. The characteristics of the growth stages are shown on Pl. VII. In the chick (a) the light areas of the upper parts are pale cinnamon-buff, and the dark areas dark brown to sepia. A thin dark streak behind the eye continues for about 1½ cm. then splits, the upper section continuing for about another 1½ cm. parallel to the dark back streak, but not meeting it, and the lower section continuing round the foreneck in the form of a rather indistinct ‘necklace’. The under parts are pale olive-buff. The bill is blackish-brown on top, legs pale dull yellow, iris dark brown. The chick moults into a juvenile plumage which is quite unlike that of the adult. Moult proceeds in a posterior-anterior sequence. In specimen (b) moult has reached the neck region, the body feathers being those of the juvenile while the head still has the characteristics of the chick. A feature of the juvenile plumage is the numerous trumpet-like white markings scattered about on both upper and under sides. The ground colour of the upper parts is fawn, there being a distinct pinkish tint in the primaries; there are numerous blackish spots on the body feathers and vermiculations on the wing feathers. Below, the ground colour is greyish-fawn. The bill is dark brown above and whitish-horn below. Legs are dirty yellow and iris grey-brown. Specimen (c) shows the final stages of moult into the juvenile plumage, remnants of chick feathers being still visible only on the crown. The general colour of the upper parts has become slightly greyer. Specimen (d) illustrates the complete juvenile plumage. The head is greyish and white trumpet-like markings are so numerous on the throat as to make it appear mainly white. The bill is blackish above and horn-coloured below; legs are pale brownish-white. Although specimens showing transition from juvenile to adult plumage have not been seen there is no doubt that these are growth stages of this species.

(45) *Francolinus hartlaubii* Hartlaub’s Francolin.


Specimens. 2♂ 4♀ Onguati (24–28 April).

Field notes. This rather rare species was found at Kamanjab and Onguati associated with the numerous kopjes typical of the Huab River area. They were particularly evident in the early mornings when they crowed from the highest point of the kopjes. Roberts (1940: 74) stated that the notes are a duet by cock and hen. Every kopje seemed to have a pair. They started to crow about ten minutes before sunrise. As they called the two birds shuffled round each other. Apparently this is not a mating behaviour for the specimens obtained were just completing post-breeding moult and gonads were inactive. Perhaps it had some territorial significance; there seemed to be only one pair
to a kopje. As the sun came up the pair moved slowly away from the summit crowing less and less and soon becoming silent.

Taxonomic notes. The species is based on two specimens obtained at Huilla, Angola, which are now in the Museo Bocage at Lisbon. Roberts (1928: 292–3) described two new races, *bradfieldi* on specimens from Waterberg, and *ovambensis* on specimens from Otavifontein. These two localities lie in the same arm of mountains to the north of Windhoek and are about 60 miles apart. Hoesch and Niethammer (1940: 93) considered that these races were not distinguishable and put *ovambensis* in the synonymy of *bradfieldi*. Stresemann (1939: 62) described a new race, *crypticus*, on specimens obtained by Hoesch at Onguati. These Onguati specimens are quite clearly different to the Waterberg specimens. *Inter se*, therefore, *bradfieldi* and *crypticus* are distinct forms, but it seems that neither has been compared with specimens of typical *hartlaubii*. Apparently Roberts based his recognition of *bradfieldi* on Bocage’s description. He said, among other things, that *bradfieldi* is darker than *hartlaubii*; and then Stresemann said that *crypticus* is lighter than *bradfieldi*. So it may be that *crypticus* is not very different from typical *hartlaubii*. It has not been possible to make the comparison which would decide this point. In the meantime the present specimens are identified as *F. b. crypticus*.


(46) *Pternistis swainsoni* Swainson’s Francolin.


Specimens. 1♂ Lake Ngami (17 May); 1♂ 1♀ 1 juv. 40–50 miles north of Maun (20 May).

Field notes. This species was only met with in north-east Bechuanaland, around Lake Ngami. It was seen frequently, often in the same environment as *F. adspersus*. Young birds were plentiful, usually little more than half-grown, and in parties up to about six in number. At that stage they appeared to be separated from their parents; only chicks were seen with adults.

Taxonomic notes. White (Ibis, 1952: 306) fuses the genus *Pternistis* with *Francolinus*. He has not made a convincing case for doing so, and there should be good reasons to justify the resultant nomenclatorial changes. Genera are frequently convenient assemblages of species and not necessarily phylogenetic groups. The genus *Francolinus* is an assemblage of over thirty species and one feels more inclined to find reasons for dividing it into two or more genera than for increasing its size. In Swainson’s Francolin Roberts distinguished several geographical forms, often on very scanty material. Three only need to be referred to; *damarensis*, based on a single specimen from Otjiwarongo, South West Africa, is described as having narrower black stripes on the under parts and paler and less striped cheeks than the nominate race; *chobiensis*, on a single specimen from Kabulabula, Chobe River, is said to be similar to *damarensis*, ‘but less rufous tinged in general and smaller’; while *gilli*, based on two specimens from Ondonga, South West Africa, is described as ‘even paler’ than *chobiensis*. Fourteen specimens have been
examined from the Transvaal, Bechuanaland and South West Africa, and it seems that the only significant geographical variation is one in which the Transvaal specimens have the general colour of the under parts darker and more richly coloured and with broad or dark central streaks on the feathers; whereas specimens from the Chobe River west to Damaraland are lighter coloured below with narrower dark central streaks on the feathers. Further subdivisions on slight differences in colour and size, evident in

Table 4. Dimensions of specimens of P. swainsoni arranged roughly from west to east: the last two specimens belong to the typical race.

<table>
<thead>
<tr>
<th>Locality</th>
<th>Males</th>
<th>Females</th>
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<tbody>
<tr>
<td></td>
<td>Wing</td>
<td>Tail</td>
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<tr>
<td>Cunene River</td>
<td>—</td>
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</tr>
<tr>
<td>Ondonga (Etosha Pan).</td>
<td>185</td>
<td>91</td>
</tr>
<tr>
<td>Onguma (Etosha Pan).</td>
<td>196</td>
<td>71</td>
</tr>
<tr>
<td>Otjiwarongo</td>
<td>204</td>
<td>83</td>
</tr>
<tr>
<td>Lake Ngami and Maun</td>
<td>196</td>
<td>70</td>
</tr>
<tr>
<td>Tsotsoroga Pan</td>
<td>198</td>
<td>76</td>
</tr>
<tr>
<td>Kabulabula</td>
<td>188</td>
<td>68</td>
</tr>
<tr>
<td>Limpopo River</td>
<td>203</td>
<td>77</td>
</tr>
<tr>
<td>Transvaal</td>
<td>195</td>
<td>77</td>
</tr>
</tbody>
</table>

Note: Figures in brackets are measurements of the culmen from the tip of the cere—apparently the measurement taken by Roberts—other measurements being from the base of the skull.

such a small sample, are unnecessary. The range of size, for example, shown in Table 4 does not indicate distinctive size groups. The present specimens, therefore, are named damarensis.*

(47) *Coturnix coturnix* Quail.


Specimens. 1♀ Koreib, north of Ababis (13 March); 1♂ west of Rostock, near Upper Kuiseb River (14 March).

Field notes. The Quail, in this instance the South African race usually known as the Cape Quail, was identified with certainty only where specimens were collected, namely on the desert margin just west of the Naukluft Mts. The rubble plains at the foot of the mountains normally carry very scanty vegetation, but in March 1950 they were covered with waist-high grass, a phenomenon, according to local farmers, which

* Since this was written Mrs. B. P. Hall has examined a larger series of specimens in connection with another publication and she is of the opinion that *gilli* can be accepted as a valid race: _The Ostrich_, 27, 1956: 99.
could only be expected about once in twenty years. Quail appeared to be fairly numerous; they would pop out of the grass, skim along the top for a short distance, and dive in again. The female collected had well-developed ovaries and eggs ready to be laid. This was an unusual condition as the majority of species in that area were at the end of the breeding season. Records of the Cape Quail so far north on the west side of South Africa are rare. It does not seem to have been recorded since Andersson (1872: 248) stated, under the name European Quail, that it was ‘not uncommon in middle and southern Damaraland’.

**Taxonomic notes.** The specimens belong to the race africana.

(48) Numida mitrata Helmet Guinea-fowl.


**Specimens.** 1♂ 30 miles north-west of Maltahöhe (17 Feb.); 1 juv. near Karibib (5 May).

**Field notes.** Small flocks came to drink at pools on the Great Fish River, near Seeheim (15–21 Jan.). They did this about one hour before sunset coming out of the woods and following a regular route to the water. This seems to be a fairly southerly record for guinea-fowl on the west side of the continent. Open water, no matter how small, is an important factor in its distribution. De Schauensee (1932: 172) first came across it just south of Rehoboth. Although Andersson (1872: 238) recorded it on the Orange River it does not seem to occur now on the river below Violls Drift. North of Maltahöhe guinea-fowl were commonly met with in suitable localities; for example, along the banks of the Tsondab River in the Naukluft Mts.; in the vicinity of Spitzkopje; in the upper reaches of the Huab River; and eastwards to Gobabis at the edge of the Kalahari. Flocks of juvenile birds were frequently seen, the peculiar zebra-stripping of the head being a striking feature.

**Taxonomic notes.** Roberts (1917: 2) separated the South West Africa guinea-fowl as a race, damarenis, of the species papillosa. Later (1940: 79) he put this race in the species mitrata. The latter seems to be correct for there is no apparent reason for recognising papillosa as a species; for example, it replaces mitrata geographically and both have similar barred margins to the secondaries and ligulate-shaped cheek wattles. Whereas in the species meleagris the edges to the secondaries are peppered with small spots and the wattles are much broader.

**Rallidae**

(49) Porzana pusillus Baillon’s Crake.


**Specimens.** 1♂ 1♀ Ai Ais (1–2 Jan.).

**Field notes.** Two of these crakes were flushed from beds of thick reeds at the edge of a pool on the Great Fish River at Ai Ais. They were seen skulking in and out of the reeds at the water’s edge and when flushed flew low for a very short distance. The male was in immature plumage and it seems likely that it had been bred here.
Taxonomic notes. The African race of this world-wide species is obscura Neumann. Friedmann (Ibis, 1928: 77) separated Transvaal specimens under the name intensa, but this form is not generally accepted.

Dimensions of 1♂ 1♀: wing, ♂ 85, ♀ 85; tail, ♂ 42, ♀ 42; bill, ♂ 18, ♀ 18. Colour of bill, jade-green; legs, olive-green; iris, orange.

(50) Fulica cristata African Coot.
   Specimen. 1♀ Voigtsgrund Dam (14 Feb.).
   Field notes. Among the many water-fowl on the Voigtsgrund Dam only one flock of about a dozen African Coot was identified. The birds were swimming together in a fairly close pack.

Otididae

(51) Choriotis kori Giant Bustard.
   Field notes. This widespread species was observed from time to time, from Kleinkaras in the south in early January to the Huab River at the edge of the Kaokoveld in the north in late April. Birds were usually single or in pairs and generally in the grassy areas of the dry savannas. They walked sedately with head held high and were reluctant to fly.

(52) Neotis ludwigii Ludwig’s Bustard.
   Field notes. There was no particular reason for obtaining specimens of this bustard. It was probably seen more often than it was identified for the semi-desert areas of South West Africa are its particular habitat, though it is not reported as being common anywhere. Two were recorded in the low desert scrub near Aus in late January, and others in the wide valley plains of the Tiraz Mts. in early February. Several were identified farther north at the desert edge on the wide plains of the Tsondab River where there was some vegetation.

(53) Heterotetrax vigorsii Karroo Bustard.
   Heterotetrax ruppelli Rüppell’s Bustard.
   (Note: I agree with Sclater (1930: 113) and others who regard these two forms as races of the same species, and give reasons below for this opinion. The nomenclature of the races is given in the summary of taxonomic notes.)
   Specimens. 1♂ 1♀ Kleinkaras (4–5 Jan.); 2♂ 1 juv. ♂ 1♀ near Konkiep (22 Jan.); 4♀ Witputs (26–27 Jan.); 1♀ Aus (31 Jan.); 1♂ 1♀ Helmeringshausen (6 Feb.); 3♂ 1♀ Barby (8–12 Feb.); 1♂ Maltahöhe (12 Feb.); 2♀ Nauchas (2–4 March); 2♂ Spitzkopje (30 March); 2♂ Okumbahe to Uis (8 April).
Field Notes. The Karroo Bustard was first seen in the Kleinkaras area. Two birds were found together in sparse low scrub, and one, a female, was collected, the other flying off some distance. The following day a male was obtained out of a group of three. Birds showed a reluctance to fly even when chased, and on the ground they were not easily distinguished from their environment. They did not seem to like entirely exposed surroundings but preferred a thin covering of scrub and grass apparently just high enough for them to see over. At Seeheim several were seen and numbers heard as they came in from the surrounding plains to drink at the river pools. The note is a deep harsh sort of bark which was recorded as ‘waa-ū-ū’. Parties of three birds were frequently seen on the wide sparsely vegetated plains of the Konkiep River south of Konkiep, and at the edge of the desert near Witputs. Difference in shade of colour between the members of a party were sometimes noted in the field. In one party of three, resting in the shade of a mimosa tree, one appeared rather darker, less brown, than the others. It was collected because it was thought to be immature, but on closer examination it was found to be adult. Along the edge of the desert from Witputs to Aus and up into the high valleys of the Tiraz Mts. this bustard was seen and heard regularly. It was common at Barby in the Tiraz Mts., and mornings and evenings as birds walked in from the surrounding hillsides to drink at the river pools their loud calls echoed across the valley, sometimes starting up with disconcerting suddenness near at hand. The call of the birds seemed to be very slightly different to that of birds farther south: instead of ‘waa-ū-ū’ we recorded the note here as ‘waa-wā-ū’. It was very difficult to localise birds by their call. Farther north a female, a pair and a male were collected on the flat country between Helmeringhausen and Maltahöhe. Several were seen (but heard less frequently than at Barby) in the vicinity of the Voigtsgrund Dam, west of Mariental; and again in the hills and plains south-west of Windhoek and right out to the desert edge, even following the vegetated course of the Tsondab River well out into the desert. In the foothills and plains around Spitzkopje and the Brandburg Mts. they were not uncommon, but contact with them was lost in the thicker savanna around Franzfontein.

Taxonomic notes. (Most of the details in these notes were prepared by Mrs. B. P. Hall.) Opinions are divided on whether or not Wahlberg’s Otis rüppellii should be regarded as a geographical race of Otis vigorsii. Roberts (1940: 92) and Hoesch and Neithammer (1940: 116) were in favour of retaining it as a species, although the latter suggested that together these two bustards formed a super-species. Roberts used much the same characteristics to distinguish races of vigorsii as he did to distinguish rüppellii from vigorsii, and it is significant that he described two new races, first (1932: 24) as belonging to rüppellii, and later (1937: 92) transferred them to vigorsii. Roberts based his conclusions on a very small sample of material: in 22 specimens he recognised two species and seven races. A sample of this size provided very little data from which to determine geographical variation in relation to developmental, sexual and seasonal variation. In the present investigation 24 specimens were obtained (with special permission), and numerous field-notes. In addition the specimens in the Transvaal Museum have been examined, 12 others in the British Museum, and a bird collected at Keetmanshoop kindly lent by the Berlin Museum. Even with this series it is felt only tentative conclusions can be made.
The characteristics on which species and races have been based are:

(1) General colour tone, mainly in relation to the amount of barring on the plumage and the degree of pinkness.
(2) The amount of black on head and neck.
(3) Size, as determined by wing length.

In the field colour variation in small parties of birds (usually three) was evident, but it was not possible to determine constant differences for sex or age. Geographically, there appeared to be much local variation in the tone of pink colour, birds taken within a few miles of each other being noticeably different in this respect, although plumage pattern seemed to remain constant over much wider areas. It was concluded that pinkness was probably related to local differences in soil and vegetation, and that wide geographical differences were to be found mainly in the basic pattern. The pattern is largely determined by the amount of the vermiculations on the plumage which are more numerous in the extreme south of the range than in the north. Birds from central Cape Province, for example, are so densely marked as to appear blackish-brown on the upper parts and the vermiculations extend over most of the under parts, except for a small patch in the centre of the belly. North of the Orange River the markings are much lighter, with a tendency to be lightest in specimens taken along the fringes of the desert, and markings on the under parts rarely extend beyond the breast, or breast and flanks. Another important general character is the colour of the neck and upper breast. This appears to be an equal mixture of brown and grey over most of the range, but in the extreme north, the range given by Roberts for *H. rüppellii*, males tend to lose most of the brown so that the neck and upper breast are predominantly grey. Variation in the amount of black in the head and neck also appears to be most clearly marked along the line of demarcation given by Roberts for the two species, birds in the north having rather more black than those in the south, but there is a tendency for the southern group to show a gradual increase in the area of black from south to north. In the extreme south, for example around Deelfontein, black is limited to patches at the back of the crown and on the throat, the latter sometimes extending into a short streak on the foreneck. North of the Orange River the throat streak is usually longer. Then roughly between Gibeon and Maltahohe on the east side and Aus and Helmeringhausen on the west side there is a fairly rapid increase in the amount of black, the streak on the foreneck becoming more definite and usually extending to and sometimes spreading out on the upper breast; a similar streak spreads down the back of the neck from the occiput patch; there is a more or less definite black moustachial streak and the ear-coverts are sometimes tipped with black.

Wing measurements, which are detailed under the races listed below, indicate that there are no clearly defined size groups. There is, however, a general tendency for southern populations to be rather larger than those in the north. Roberts based his race *H. vigorsii barei* mainly on the rather large size of a single male specimen. The wing is only 7 per cent longer than the next longest recorded, and might easily, therefore, lie within the normal range of size to be expected in a large sample.

Under 'field notes' has been recorded what appeared to be a slight difference in calls between the birds north and south of the line of demarcation mentioned
Fig. 8. Races and distribution of *Heterotetrax vigorsii*: (1) *vigorsii*; (2) *namaqua*; (3) *barlowi*; (4) *fitzsimonsi*; (5) *rüppellii.*
above: although the notes were similar there seemed to be a slight difference in pronunciation.

Variation in these bustards therefore, does not show a clear division into two species. The pattern appears to be consistent with what occurs within a group generally accepted as species. There are clines in several characters with, apparently, a relatively big step or ‘fault’ between races (2) and (4) listed below. This ‘fault’ may indicate where the species is in process of splitting because of some check in gene flow. Therefore, *Osis rüppellii* Wahlberg is regarded here as a race of *Osis vigorisii* Smith. The races which are recognisable are summarised below: distributions are shown on the accompanying sketch map (Fig. 8).

(1) *Heterotetrax vigorisii vigorisii* (Smith)

General appearance blackish-brown and brown, due to dense dark brown vermiculations on the back. Vermiculations extend over all the under parts except a small patch in centre of belly. The black streak on the foreneck is either absent or not more than an inch in length. Wing, ♂ 350-364, ♀ 330-360.

(2) *H. v. namaqua*


Lighter in general colour tone. Vermiculations on upper parts are finer, and on the under parts do not extend on to the belly, which is therefore whiter. Black streak on foreneck usually present and varying up to about two inches in length. Wing, ♂ 330-360 (type of *barei* 385), ♀ 308-330.

(3) *H. v. barlowi*


Specimens from along the edge of the Namib Desert near Aus, appear to be lighter in tone than birds from farther inland; the vermiculations are finer and less distinct and almost completely absent from the flanks as well as the belly. Black streak on foreneck as in previous race. Wing, ♂ 351-360, ♀ 325-334.

(4) *H. v. fitzsimonsi*


Differs from previous races mainly in the greater amount of black on head and neck. Black on foreneck usually extends on to the upper breast where it may spread out into a patch of black, especially in males. There is often a black moustachial streak, ear-coverts may be tipped with black, and black patch on occiput may extend into a short streak down back of neck. In males the non-black areas of neck and upper breast tend to be mainly pale grey, instead of evenly mixed brown and grey. Wing, ♂ 320-340, ♀ 300.

(5) *H. v. rüppellii*

A distinctly lighter variation of the previous race. Wing, ♂ 316-335, ♀ 303-323.
Notes on Species

(6) *H. v. picturata*


Only the type has been examined. In general appearance it is more stone coloured than brown. Otherwise it is similar to the previous race. (This Angola race is not shown on the distribution map.)

(54) *Lophotis ruficrista* Red-crested Bustard.


*Specimens.* 1♀ Franzfontein (14 April); 1♂ juv. 1♀ juv. near Kumanjab (18–21 April); 1♀ near Outjo (29 April).

*Field notes.* Common in the bush and long grass savanna areas at the edge of the Kaokoveld. It was seen frequently around Franzfontein, Outjo and Kamanjab, being readily identified in the air by its curious habit of tumbling down from about 30 feet almost to ground level, just as if it had been badly wounded. Roberts (1940: 93) described this as a courtship display, but it was performed by adults in post breeding condition, with moult in progress and gonads subsided.

Dimensions of 1♂ 29: wing, 271, ♀ 257–260; tail, ♀ 141, ♀ 134–147; bill, ♀ 43, ♀ 41–43. Colour of bill, black above and very pale greenish-yellow below; legs, pale yellowish-white; iris, pale fawn.

(55) *Afrotis afras* Black Bustard.


*Specimens.* 1♂ Maltahohe (12 Feb.); 1♀ (♀ juv.) Okumbahe (7 April); 1♂ juv. 1♀ Sorris Sorris (12 April).

*Field notes.* First encountered a few miles east of Maltahohe on to the north end of the Swartrand. At this point the sudden transition from the rubble and sand plains with its sparse vegetation to the stone-strewn hilly country with its fairly dense tall scrub and grass (the Swartrand Scrub Region), was emphasised by a number of bird species seen for the first time. The harsh notes of the Black Bustard were much in evidence, and also its peculiar display flight in which it proceeded in the laboured manner of an early type of aeroplane the bird's croaking voice, sounding like an engine just ticking over, and its legs hanging down as if a sudden landing was imminent. This noisy flight is typical of males of this species and as in the case of the previous species, it was performed by birds at the end of the breeding season. The behaviour might enable family parties to keep together in the thick scrub and grass.

*Taxonomic notes.* Roberts (1940: 93) kept *afras* and *afrasoides* as different species. Although in the specimens examined there is no gradation in the amount of white on the primaries there is in the proportion of black to white on the upper parts; this is greatest in the southern limits of the range and least in the north-west. The race *etoschae* from Ovamboland is whiter than typical birds from South Africa and in between there is a gradation of fairly regular changes. Roberts named many of them, and Hoesch and Neithammer (1940: 124) added another, *böhmeri*, from near the Brandberg Mts.
Insufficient material has been available with which to review their conclusions. Our specimen from Maltahohe matches closely Roberts' type of *damaresis* from the Omutako Flats, but it is equally similar to a Smith specimen (stated to be the type) of *afraoides*. Hoesch and Neithammer (1940: 123) also found *damaresis* similar to *afraoides*. Our juvenile specimens are racially indeterminate.

Dimensions of 1♂: wing 280; tail 131; bill 40. Colour of bill, pinkish-red with tip of upper mandible red, tip of lower mandible white, yellow around nostrils; legs, bright yellow; iris, very dark brown; eyelids, yellowish.

**Jacanidae**

(56) *Actophilornis africana* Jacana.


*Field notes.* First observed on the Oliphants River, near Citrusdal, 30 November, which seems to be an interesting southern record, though not the most southerly. The general opinion among South African ornithologists is that the species is gradually spreading southwards. One was seen among the thick vegetation of a small island on the Voigtsgrund Dam (14–17 Feb.).

**Charadriidae**

(57) *Charadrius pecuarius* Kittlitz's Sand-plover.

*Charadrius pecuarius* Temminck, 1823, Pl. Col. livr. 31: pl. 183. Cape of Good Hope.

*Specimens.* 2♂ 1♀ Grootderm (12–14 Dec.); 1♂ 1♀ Voigtsgrund Dam (14 Feb.).

*Field notes.* Small parties of this plover, up to about a dozen birds, were fairly common on the wide mud flats and open sandy beaches of the Orange River at Grootderm. They were not observed higher up at Assenkjer and Violls Drift, probably because the river was constricted between high banks with dense vegetation. This species seems to require bigger stretches of water and more open conditions generally than the Treble-banded Sand-plover. The only other place in which the bird was seen was at the Voigtsgrund Dam where it was in much smaller numbers, usually one or at most two or three birds, and always close up to the edge of the water. The December specimens were in worn plumage but showing early stages of moult; the February birds were in fresh plumage.

*Taxonomic notes.* These specimens belong to the wide-spread nominate race.


(58) *Charadrius tricollaris* Treble-banded Sand-plover.


*Specimens.* 1♂ 1♀ Grootderm (12–13 Dec.); 1♂ Kanabeam, 20 miles north-east of Assenkjer (30 Dec.).

*Field notes.* This little plover with its plaintive cry was seen regularly wherever there was open water, even pools of a few square yards in extent. On the Orange River flats
at Grootderm it seemed to be less common than the Kittlitz, and was usually seen singly. It was noted farther up the river at Assenkjer, but not at Violls Drift though it is possible that it occurred there on suitable banks. Most pools along the Great Fish River at Ai Ais, and farther north at Seeheim, had one or two pairs. At Ai Ais a breeding pair was found with a nest and two eggs in a fissure of a rock jutting into a small pool. The eggs agreed with the description given by Roberts (1940: 101). The nest was very exposed and in this locality at this time, the height of the summer, it was very hot. The temperature was rarely below 100° and during the day reached 120° or more. It was uncomfortable to put one’s hand on the rock beside the nest. In these conditions it would seem that the main preoccupation of the parents must have been to keep the eggs cool enough to incubate. The parents frequently changed places on the nest, scarcely leaving the eggs uncovered when exposed to direct sunlight. They were not easily frightened off the nest and showed great anxiety to get back again. When the nest was in shadow it was vacated for longer periods. This species was not identified among the waders at the Voigtsgrund Dam, but it was seen again in suitable localities farther north, as in a valley in the Brandberg Mts. where there was a small trickle of water, and beside a stream at Kamanjab.

**Taxonomic notes.** The specimens belong to the nominate race.


(59) *Stephanibyx coronatus* Crowned Plover.  
*Charadrius coronatus* Boddaert, 1783, Tabl. Pl. Enlum: 44. Cape of Good Hope.

Specimen. 1♂ Kleinkaras (10 Jan.).

Field notes. The Crowned Plover was first observed in semi-desert country east of Kleinkaras in January. It was beside a small pool in a river-bed in otherwise very desolate country. It was not identified again until the Spitzkopje area was reached early in April. Fairly large scattered flocks were common on open ground, especially near farm homesteads, in most localities up to the edge of the Kalahari at Gobabis.

Dimensions of 1♂: wing 197; tail 89; bill 35. Colour of bill, black at tip, rose-red at base; legs, rose-red; iris, yellow.

(60) *Hoplopterus armatus* Blacksmith Plover.  
*Charadrius armatus* Burchell, 1822, Travels, 1: 501. Klaarwater, Cape Province.

Specimens. 1♂ 1♀ Voigtsgrund Dam (14 Feb.); 1♀ Katemba Dam, Kamanjab (25 April).

Field notes. At least one flock of nine birds was seen on a sandy spit on the Voigtsgrund Dam. The specimens obtained were just completing moult in mid-February. Several birds were seen at the Katemba Dam. The specimen secured was not from a flock: the ovaries were fairly well developed, but probably subsiding; there was no sign of moult and plumage was fairly worn. By the end of April, therefore, birds at Katemba were not so advanced in the breeding cycle as birds at Voigtsgrund Dam in mid-February.
Recurvirostridae

(61) Recurvirostra avosetta  Avocet.

Field notes. A party of three birds was identified on the Voigtsgrund Dam (14–17 Feb.). It was impossible to say whether these were African or European breeders.

(62) Himantopus himantopus  Black-winged Stilt.

Field notes. A few Black-winged Stilts were seen on the Voigtsgrund Dam (14–17 Feb.). They were very difficult to approach and it was impossible to determine if they belonged to the South African breeding population, which has been distinguished as a separate race, or whether they were non-breeding visitors on the way to the northern hemisphere.

Scolopacidae

(63) Rostratula benghalensis  Painted Snipe.

Specimen. 1♀ Ai Ais (2 Jan.).

Field notes. On January 1 at Ai Ais the remains of a bird were readily identified as those of the Painted Snipe. On the following day a search of the reeds bordering a pool of open water resulted in the flushing of a bird, which was secured. It was not in breeding condition. Andersson (1872: 313) recorded it as an uncommon species in Great Namaqualand, the lack of suitable swamp ground, however small, being the principal limiting factor. It is stated to be common farther north.

Dimensions of 1♀: wing 130; tail 48; bill 47. Colour of bill, dark greyish-olive, paler at the base; legs, pale olive; iris, very dark brown.

(64) Calidris minuta  Little Stint.

Specimens. 2♀ Voigtsgrund Dam (14 Feb.).

Field notes. Only identified on the Voigtsgrund Dam where small flocks were common round the water’s edge. Of the two specimens collected one was in non-breeding plumage with moult just commencing, the other had nearly completed the transition from non-breeding to breeding plumage.


(65) Actitis hypoleucos  Common Sandpiper.

Specimens. 1♀ Seeheim (18 Jan.); 1♀ Voigtsgrund Dam (14 Feb.).

Field notes. This common non-breeding visitor to South Africa was first identified by the pools of the Great Fish River at Seeheim. It was more common at Voigtsgrund Dam where single birds or small parties were seen fairly frequently round the shores.
(66) Tringa totanus  Redshank.

Field notes. One bird was identified on the Voigtsgrund Dam (14–17 Feb.). The red legs were clearly seen through binoculars. Like many other birds on the dam it was very wild and difficult to approach. It is said to be a rare non-breeding visitor.

(67) Tringa nebularis  Greenshank.

Field notes. A party of three Greenshanks was seen on several occasions, probably the same one, by pools on the Great Fish River near Seeheim (15–21 Jan.). They were readily identified by their piercing whistle and hurtling flight and other distinctive features. On the Voigtsgrund Dam (14–17 Feb.) they were relatively common and in parties of about a dozen birds.

Glareolidae

(68) Cursorius cursor  Cream-coloured Courser.


Specimens. 1♂ 1♀ near Kleinkaras (10 Jan.); 1♀ near Konkiep (22 Jan.); 2♂ 3♀ Witputs (25–27 Jan.).

Field notes. The South African form of this courser, usually known as Burchell’s Courser, was first observed on the arid sandy flats among the hills between Springbok and Steinkopf. A flock of five birds was rather wild and fruitless efforts were made to secure a specimen, this being the type locality of Meinertzhagen’s theresae. North-east of Kleinkaras a few birds, probably a family party for specimens were in various stages of post-breeding moult, were on almost bare sand where the sparse scrub thinned out. This seemed to be the usual micro-environment and parties of 3–5 birds were seen in such places along the desert edge from Witputs to Spitzkopje. Near Witputs they were found in close company with Stark’s Lark, Spizocorys starkii, and the Grey-backed Finch Lark, Eremopteryx verticalis. This courser was well camouflaged on the ground but when flushed the black-and-white wings were conspicuous. Although it is a cryptic species and widely distributed it shows remarkably little colour variation. The Two-banded Courser which is also found in this region is variable. A study of the ecology of both species would be of interest.

Taxonomic notes. It now seems generally agreed that Burchell’s Courser and the Cream-coloured Courser are conspecific. Although their differences are relatively great they appear to intergrade. The only named variation is Meinertzhagen’s theresae (1949: 104) from the Springbok-Pofadder area which is said to be paler. De Schauensee (1932: 175) also noted that a specimen from the Ghanzi area seemed to be paler, but did not name it. There is an appreciable amount of seasonal colour variation. Most of our specimens are in post-breeding moult and it is clearly evident that the new feathers are darker and more richly coloured than the old. All are identifiable with what is considered to be typical rufus.

Dimensions of 3♂ 5♀: wing, ♂ 133–140, ♀ 133–142; tail, ♂ 50–57, ♀ 52–55; bill,
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27–29, ♀ 25–28. Colour of bill, blackish-horn; legs, white, or near white; iris, dark brown.

(69) Rhinoptilus africanaus Two-banded Courser.


Specimens. 1♀ Aus (1 Feb.); 1♂ Ababis (8 March).

Field notes. Although widely distributed this courser was only identified north of Aus. It was usually found in environments similar to those of Burchell’s Courser, or perhaps where the scrubby vegetation was on the whole rather thicker: the two species were not seen together. It was recorded near Aus, on the wide stony flats along the course of the Tsondab River, on the plains around the Brandberg Mts., in the upper Huab River area and at Gobabis. Birds were well camouflaged on the ground and it is quite likely that the species was frequently overlooked.

Taxonomic notes. Erlanger (1905: 59) gave the distribution of his race sharpei as south-east Africa, and Grant (Ibis, 1915: 61) designated Deelfontein as its type locality. Sclater (Bull. B.O.C., 1921: 132) pointed out that Erlanger stated on page 60 of his note that he gave the name to pale specimens from the arid deserts of Damaraland. Therefore Sclater regarded Damaraland birds as typical africanus and made sharpei a synonym of that name; he gave a new name granti to the Deelfontein birds. It seems reasonable to accept that Erlanger intended the name sharpei for Damaraland birds: it may be that ‘south-east’ Africa, on page 59, was a mistake for south-west. The name granti therefore stands for birds from eastern Cape Province. In my opinion they are doubtfully distinct from the nominate form. Specimens from Deelfontein are closely matched by a specimen from Klipfontein in Little Namaqualand, by Transvaal specimens, and by Andersson specimens from near Maltahohe and Otjimbingwe. In fact an Otjimbingwe specimen is as dark as the darkest specimen in the Deelfontein series. But two specimens from Matchless Mine (an Andersson locality near Otjimbingwe) are much paler. They are almost identical with our specimen from Aus, while the bird from the desert west of Ababis is even paler. In the northern part of the country an Andersson specimen from Ondonga and two Hoesch specimens from the Etosha Pan are also pale birds. Three other specimens, two from the extreme south-west Transvaal and the other from the middle of the Bechuanaland Protectorate, are appreciably paler than typical africanus. It seems, therefore, that the general pattern of colour variation is one in which a widely distributed dark form tends to become slightly paler along the southern edge of the Kalahari Desert, and appreciably paler along a narrow fringe of the Namib Desert. There is also what appears to be an altogether whiter population in the Etosha Pan area. The widespread darker bird is the nominate race of which granti is a synonym. The paler Etosha Pan group I propose to regard as sharpei; but to my mind the apparently paler Kalahari and Namib populations are not clearly enough defined to warrant separate names. Our two specimens are provisionally identified as the nominate form.

Dimensions of 1♂ 1♀: wing, 160, ♀ 154; tail, 69, ♀ 70; bill, 20, ♀ 18.

(70) Rhinoptilus chalcopterus Bronze-wing Courser.

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Specimens. 1♂ Friedental, 40 miles south-west of Windhoek (1 March); 1♀ Brandberg Mts. (10 April).

Field notes. The Bronze-wing Courser seemed to frequent ground better covered with vegetation than did either Burchell’s or the Two-banded Courser. It was found in fairly thick bush and grass country on the uplands south-west of Windhoek, in relatively thick grass in a dry valley at the foot of the Brandberg Mts. (whereas the Two-banded Courser was in the nearby plains), and in fairly grassy localities in the upper Huab River area. It is quite likely that the bird was much more common than it was recorded for, like the Dikkop, it seemed to be rather sluggish during the day and difficult to flush unless rudely disturbed.

Taxonomic notes. The only form recognised in South Africa is obscurus.

Dimensions of 1♂ 1♀: wing, 176, 175; tail, 85, 82; bill, 25, 24. Colour of bill, black at base of lower mandible, gape salmon-pink; legs, dull pinkish-mauve; iris, dark brown; eyelids, coral-red.

Burhinidae

(71) Burhinus capensis Dikkop.


Specimens. 1♀ Grootderm (10 Dec.); 1♀ lower Kuiseb (27 March); 3♀ Brandberg Mts. (10 April).

Field notes. The dikkop was recorded for the first time near the Orange River at Grootderm. Birds were seen near the river on sandy flats studded with sparse low scrub and rocks. In late March it was recorded on the banks of the lower Kuiseb and Swakop Rivers where scrub and bush vegetation was relatively thick. Several were noted in the grassy flats of dry watercourses emerging from the Brandberg Mts., and again in the upper reaches of the Haub River, at Kamanjab and Onguati. The abundance of the dikkop was demonstrated by the frequency with which it occurred as a road casualty: in some places dikkop remains must have averaged about one per mile for long stretches.

Taxonomic notes. Reichenow (1900-5: 3: 801) noted that birds from South West Africa had the ground colour of the upper parts paler and greyer, and gave them the name damarensis. This distinction has been generally accepted. The dark areas of the feathers are less extensive than in Cape Province birds, and the paler areas are correspondingly greater. It has not been possible to determine where in western areas capensis ends and damarensis begins. Our single specimen from the lower Orange River seems rather intermediate but probably nearest damarensis. It and the other specimens are all identified as this race.

Dimensions of 5♀: wing 230-242; tail 121-126; bill 42-47. Colour of bill, black at tip, lemon-yellow at base; legs, lemon-yellow, with blackish-brown on the scales at the front of the legs; iris, bright yellow; eyelids, yellow.
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Laridae

(72) Larus dominicans  Southern Black-back Gull.
    Larus dominicans Lichtenstein, 1823, Verz. Doubl.: 82. Coast of Brasil.

Field notes. Two gulls identified with reasonable certainty as this species were seen at Grootdern near the mouth of the Orange River early in December.

(73) Chlidonias leucophaea  Lake Tern.

Specimens. 1♂ 1♀ Voigtsgrund Dam (13 Feb.).

Field notes. There were flocks of several hundred birds on the Voigtsgrund Dam. It is an unusual species on the west side of the continent obviously because of the lack of sufficiently large areas of open water. The specimens, obtained in mid-February, were moulting into breeding plumage presumably prior to migrating to their nesting grounds in the northern hemisphere.

Dimensions of 1♂ 1♀: wing, 206, 193; tail, 71, 70; bill, 30, 28.

Pteroclididae

(74) Pterocles namaqua  Namaqua Sandgrouse.

Specimens. 1♀ Kamieskroon (5 Dec.); 1♂ Klipfontein (22 Dec.); 1♂ 1♀ Kleinkaras (17 Jan.); 1♂ 1♀ juv. 30 miles west of Ababis (5 March).

Field notes. The Namaqua Sandgrouse is one of the most typical birds of the desert regions of western South Africa. It has achieved successful adaptation to extremely arid conditions and survives in great numbers, especially north of the Orange River. At a camp in the dry bed of the Guab River where water was pumped into an open tank large flocks of sandgrouse came there to drink every day soon after sunrise and at dusk. The evening drink was taken at dusk and the morning one almost exactly one and a half hours after sunrise. The time of the morning drink was so regular, here and elsewhere, that if a brace or two were required for the pot (and sandgrouse are excellent eating) it was possible to time one's arrival at a likely pool. A bird taken immediately after drinking gave up an amazing amount of water. Along the dry course of the Koichab River north of Aus great flocks of Namaqua Sandgrouse dotted the desert for miles around. It was an amazing sight in such a desolate place to see so many birds. The reason for this congregation was not apparent, but it must be a usual habit for flocks of comparable size were seen in other places. There was no vestige of vegetation and the birds were clearly visible from a long distance, which was most unusual as Namaqua Sandgrouse are generally on ground against which they are very well camouflaged. The desert fringe seemed to be the particular habitat of this species. Where vegetation became fairly thick it became less common, and in the mountain areas was rarely seen or heard. For example, on the rubble flats where the Tsondab River entered the desert it was present in enormous numbers whereas a few miles farther inland, where this river passed through the Naukluft Mts. and where there was thick scrub and relatively luxuriant vegetation, there was no sign of the bird at all. In the scrub veld
of the north and north-east we saw little of this species. Its place seemed to be taken by either the Spotted or Double-banded Sandgrouse.

**Taxonomic notes.** The species is very constant in colour and pattern throughout its range, which is surprising in a bird that can be extremely well camouflaged on the ground. De Schauensee (1931 (b): 441) found a female from the Etosha Pan and a male from Lake Ngami to be paler than the main populations and gave them the name *ngami*. Hoesch and Neithammer (1940: 106) noted that a male and two females from Onguma, Etosha Pan, were very slightly paler but not enough to be regarded as a distinct form. This difference is not evident in two males and two females from the same locality which are in the British Museum collection. It seems, therefore, that the presence of a pale race in the north-east of the range of the species is still open to doubt.

Dimensions of $3\varnothing 2\varphi$: wing, $\varnothing$ 169–177, $\varphi$ 162–165; tail, $\varnothing$ 111–115, $\varphi$ 73–89; bill, $\varnothing$ 18–20, $\varphi$ 18. Colour of bill, blackish-brown; legs, pale buff to very light grey; iris, blackish-brown.

(75) *Pterocles burchelli* Spotted Sandgrouse.


**Specimens.** $1\varnothing 1\varphi$ juv. Oliphants Kloof (12 May).

**Field notes.** This Sandgrouse was only identified with certainty on the occasion when the specimens were collected. They were found in thick scrub and grass veld just inside the Bechuanaaland Protectorate near the remote police post of Oliphant’s Kloof. They gave themselves away by running out from the thick grass on to the sandy road track. The chick disgorged a large amount of water, which must have been fed to it by its parents for there was no open water within miles.

**Taxonomic notes.** The Spotted Sandgrouse is confined to the dry bush and tree savanna areas of central South Africa from Griqualand to the Makarikari Pan in the eastern Kalahari and the Etosha Pan in northern South West Africa. It remained a monotypic species until Roberts (1932: 24) distinguished specimens from Nkate, at the eastern side of Makarikari Pan, as being generally paler, to which he gave the name *makarikari*. The type and five topotypical specimens have been examined and the differences seem to be very slight indeed. Roberts (1935: 80) did not bring this pale race farther west than Maun, and considered specimens from Gemsbok Pan, near Ghanzi, to be the darker nominate form. Our specimens from Oliphant’s Kloof, west of Ghanzi, are as pale as any of the Nkate specimens, and indeed so also are a series of specimens from Onguma, at the eastern margin of the Etosha Pan. It seems, therefore, that if the race of *makarikari* is to be recognised all the populations in the northern limits of the species should be included. As the race is doubtfully distinct our specimens are included with the nominate form for the time being.

Dimensions of $1\varnothing 1\varphi$: wing, $\varnothing$ 169, $\varphi$ 167; tail, $\varnothing$ 71, $\varphi$ 70; bill, $\varnothing$ 17, $\varphi$ 17. Colour of bill, black; legs, yellowish-brown; iris, dark brown; bare skin round eye, bright yellow.

(76) *Pterocles bicinctus* Double-banded Sandgrouse.


* Subsequent selection (Macdonald 1954: 7), but Grant (*The Ostrich*, 1957) concludes that Levaillant may not have gone so far.
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Specimens. 1♂ 1♀ Spitzkopje (2 April).

Field notes. First identified with certainty in the Spitzkopje area and recorded as a fairly common species in most western localities north of that. It was usually found in pairs. The first specimen obtained was a single male bird squatting in the shade of a bush and the other was one of a pair found in a grassy plain.

Taxonomic notes. Variation in this species has been discussed in a special paper (Macdonald 1954). There seems to be an east to west cline from darker to paler populations, a pattern of variation which is found in a number of species. The palest form was unnamed and has been given the name elizabethae.

Columbidae

(77) Columba guinea {Speckled Pigeon.
{Rock Pigeon.

Specimen. 1♂ Grootderm (10 Dec.).

Field notes. This pigeon was first noted at Grootderm where a few parties of three or four birds, probably families, frequented a small patch of blue gums. It was known locally as Bush Dove. It was a common species throughout South-West Africa mainly in rocky places along the arid margins of the desert as far north as the borders of the Kaokoveld.

Taxonomic notes. It is now generally agreed that the South African Speckled Pigeon is a geographical variant of the widespread African species originally described from the Guinea coast of West Africa. The only subdivision of the South African form was made by Roberts (1931: 239) when he found that birds from the Waterberg area of South West Africa were paler than birds from the Cape Peninsula, and gave them the name bradfieldi. Hoesch and Neithammer (1940: 101) identified their South West Africa specimens as this race. Friedmann (1933: 3) found a bird from Mt. Brukkaros to be indistinguishable from phaeonotus. Our specimen from Grootderm also matches typical phaeonotus.

Dimensions of 1♂: wing 218; tail 112; bill 24.

(78) Streptopelia capicola Turtle Dove.

Columba vinacea capicola Sundevall, 1837, K. Sv. Vet-Akad. Handl.: 54. Cape Town. (Races are summarised at the end of this note.)

Specimens. 1♀ Grootderm (12 Dec.); 1♀ Onguati (25 April).

Field notes. Text-books give this species the name Ring-necked Dove, but in South Africa it is commonly called Turtle Dove, though it is specifically distinct from the European bird of the same name. It is a widespread species and was recorded in most localities. Its notes and those of the Laughing Dove are sounds familiar to people over the greater part of Africa. They are sounds perhaps more typically African than the roaring of lions and the laughing of hyaenas. The notes of the Turtle Dove are vari-
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turally transcribed and interpreted; the usual ‘cū-cūk-cū’ of text-books is frequently transformed into ‘tell fāthēr, tell fāthēr’, and by us into ‘cascārā, cascārā’.

Taxonomic notes. Mackworth-Praed and Grant (Ibis, 1936: 602) selected Cape Town as the restricted type locality of the species and regarded all populations in western South Africa, as far north as the Cunene River, as belonging to the nominate form. But it was found that birds in the Onguati area were distinctly paler, even in the field, than those farther south, and even the Grootderm specimen is appreciably paler than birds from the south-west Cape. It seems, therefore, that the dark form is limited to a relatively small area around Cape Town. The pale group is widespread, except in a narrow coastal belt of Damaraland where there is an even paler form. This pattern of colour variation is found in many species in this region. The widespread pale form takes its name from *Turtur damarensis* Finsch and Hartlaub, which is based on an Andersson specimen from Otjimbingwe. The type was very kindly lent by Dr. H. Duncker, of the Bremen Museum, together with a specimen collected in 1952 by Dr. Abel at Eckenberg Farm, which is a close match with our very light coloured Onguati specimen. This very pale form is named below. The races in western South Africa can, therefore, be summarised as follows:

(1) *S. c. capicola*

*Characteristics.* Darkest race. Upper parts sepia-brown with very little evidence of blue-grey; below dark vinous grey-brown: relatively very little white on throat and hardly any pale colour on forehead: crown very dark blue-grey.

*Distribution.* Cape flats, as far east as Knysna.

(2) *S. c. damarensis*


*Characteristics.* Appreciably paler: much of the sepia colour of *capicola* is replaced by blue-grey, and is particularly noticeable on wing-coverts and rump: under parts also paler blue-grey, but there is a fairly strong wash of sepia on breast: crown mainly blue-grey: there is rather more white on throat, and forehead noticeably pale.

*Distribution.* Little Namaqualand north to the Cunene, except the Kaokoveld, and eastwards to Bechuanaland (the Natal and Transvaal specimens seem to be slightly darker).

(3) *S. c. onguati* new race.

*Characteristics.* Appreciably paler than *damarensis*: sepia colour on upper parts reduced to a light wash on mantle and inner wing-coverts: blue-grey is the predominating colour; below, breast lilac-grey; throat white, and forehead pale blue-grey.

*Distribution.* Kaokoveld of South West Africa.


(79) *Stigmatopelia senegalensis* Laughing Dove.


(a) *S. s. aequatorialis.*
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Specimen. 1♂ Kamieskroon (3 Dec.).

Field notes. Like the Turtle Dove this species was seen or heard in most localities, although sometimes one was more common than the other. Its distinctive burbling notes, sometimes transcribed as 'Ugurututu', have been translated into the phrase, 'You too are pretty'.

Taxonomic notes. Populations in South Africa appear to be fairly constant in appearance and can be identified with the Abyssinian race, aequatorialis.

(80) Oena capensis Namaqua Dove.


Specimens. 1♂ 1♀ Grootderm (12 Dec.).

Field notes. The Namaqua Dove was common in scrub country and seemed to be much less dependent on tall bush and tree vegetation than either the Turtle or Laughing Doves. It was frequently seen on the ground. A nest with eggs was found at Okumbahoe on 7 April. It was a typically rough platform of twigs and about eighteen inches off the ground in a four-foot high thorn-bush. The species is readily identified by its mournful notes.

Taxonomic notes. Populations throughout the African mainland belong to the nominate race.

Dimensions of 1♂ 1♀: wing, ♂ 108, ♀ 105; tail, ♂ 130, ♀ 129; bill, ♂ 15, ♀ 14. Colours of bill, ♂ base very dark crimson and tip bright yellow, ♀ reddish-black; legs, ♂♀ very dark crimson; iris, ♂♀ black.

Cuculidae

(81) Clamator glandarius Great Spotted Cuckoo.


Specimens. 1♂ Blesskranz (10 March); 1♂ juv. Kamanjab (21 April).

Field notes. Found in relatively well-wooded localities. The adult male obtained in the Naukluft Mts. was feeding near the base of a solitary small tree on the mountain-side at about 5000 feet. The specimen taken at Kamanjab, a juvenile in its distinctive plumage, was in the centre of a small patch of tall bush in fairly thick bush and grass savanna. The southern distribution of this species coincides with the rains and these rather late records were probably due to the unusually extended wet season.

(82) Clamator cafer Crested Cuckoo.


Specimen. 1♂ 40 miles south-west of Windhoek (1 March).

Field notes. This species, which was only once recorded, is considered to be quite rare in South West Africa. Hoesch and Niethammer (1940: 169) found it farther north, but only in December and January. As with most other cuckoos its occurrence is usually associated with rains and in late February and early March there were exceptionally heavy thunderstorms in the mountains around Windhoek. Andersson recorded (1872:
that 'it always appears in pairs, and is of a rather shy and retiring disposition', but the bird we saw appeared to be alone and was making a great noise while fluttering about on the top of a tall bush in open woodland.

(83) Lampronumpha caprins  Bronze Cuckoo.


Specimens. 1 ♀ Bleskranz (10 March); 2♂ juv. Kamanjab (22–23 April).

Field notes. The plaintive notes of this cuckoo are very distinctive. In the Sudan they are frequently interpreted as 'ed-i-in-kasarat' (my hand is broken): Roberts (1940: 143) recorded the notes phonetically as 'dee-dee-deederik'. There were several birds in the wooded valley at Bleskranz. The specimen collected had an egg ready to be laid. Hoesch and Niethammer (1940: 169) recorded it only between September and February, and Andersson (1872: 228) regarded it as a very rare bird in South West Africa. Its occurrence in the Naukluft Mts. in early March, and in breeding condition, was therefore of interest; as with other cuckoos late rains were probably the cause.

Musophagidae

(84) Corythaixoides concolor  Go-away Bird.


Specimens. 1 ♀ Seeheim (16 Jan.); 1♂ Naukluft Mts. (10 March); 1♂ Kamanjab (20 April).

Field notes. A party of about six Grey Louries frequented a patch of tall acacias at the Seeheim camp on the Great Fish River. They were feeding on the little yellow 'pom-pom' flowers. This appears to be the most southerly record of this species on the west side of the continent. It seemed to be generally associated with fairly large trees and those maintained by the seasonal waters of the Fish River probably attracted the bird southwards. The canyons through which the river flows below Seeheim possibly make a gap in the continuity of the trees too large to be bridged, otherwise the Lourie might extend as far south as and along the banks of the Orange River where trees are plentiful. North of Seeheim the species was recorded frequently wherever there was moderate tree growth, for example at Bleskranz in the Naukluft Mts., Spitzkopje and Kamanjab.

Taxonomic notes. Birds on the west side of the continent differ from those on the east in having a more distinct patch of dark olive green on the upper breast; they are named C. c. pallidiceps Neumann.

Dimensions of 2♂ 1♀: wing, ♂ 217–218, ♀ 210; tail, ♂ 250, ♀ 242; bill, ♂ 23–24, ♀ 22. Colour of bill and legs, black; iris, dark grey-brown.

Psittacidae

(85) Poicephalus ruppellii  Brown Parrot.


Specimen. 1♂ Onguati (25 April).
Field notes. Only recorded with certainty where the single specimen was obtained on the upper Huab River. It was found in tall trees bordering the dry river bed when its presence was betrayed by a monotonous short sharp note transcribed as ‘quaw’. Andersson (1872: 214) recorded this parrot as frequenting wooded localities. He collected a number of specimens at Otjimbingwe which is probably about the southern limit of the species. It seems to have a rather restricted distribution in Damaraland and southern Angola.

Taxonomic notes. The type locality has not been determined with certainty. Gray based the species on a specimen which had been kept alive in the Zoological Gardens, London. He said ‘it is believed to have been brought from the river Nunez’. There is a river of this name in French Guinea but the species does not occur there naturally. It may have been taken there from some place on the Angola-Damaraland coast or Gray may have been misinformed. Three Andersson specimens in the British Museum collection have on their labels the data Damaraland (Nunez River), but this information was not supplied by Andersson, nor is there, so far as I know, a river of this name in Damaraland. Sharpe thought Andersson collected the type (see Cat. Bds. B.M. 20, p. 376), but Gray’s description appeared in 1848, two years before Andersson arrived in Damaraland and four years before his specimens of this species, obtained at Otjimbingwe, came to London: they were in the first batch of specimens which he sent to London with Galton who left Walvis Bay in January 1852 (see Kirby, 1939–40). It seems probable that ships using Walvis Bay, as they frequently did, or some port in southern Angola, took on live specimens of Brown Parrot, and one of these came to the London Zoological Gardens about 1847. It is suggested, therefore, that the type locality, Nunez River, should be dropped. Andersson apparently found the species fairly common at Otjimbingwe on the Swakop River, and it is likely that natives took live birds from the woods along the lower Swakop to trade with sailors on ships at Walvis Bay. Therefore it would be appropriate to restrict the type locality to the Swakop River.

(86) Agapornis roseicollis Rosy-faced Lovebird.

Specimens. 1♂ 1♀ Tsawissis, Kleinkaras (4 Jan.).

Field notes. Although Levaillant found this small parrot on the Orange River it does not appear to occur now at Grootderm, Assenkjer or Violl’s Drift. Its occurrence near Kleinkaras was of sufficient interest to be remarked on by local people. Along the Guab River, about ten miles north of Kleinkaras, the species was fairly common, small flocks were frequently seen going to and from an open water storage tank at the side of the dry river bed. They skimmed with amazing speed and dexterity in and out of the trees: one caught flashes of their reddish fore-parts as they approached, and glimpses of their blue rumps as they disappeared. It is probable that they had come to water from the surrounding rocky cliffs of the Little Karas Mts. Birds were seen going in and out of holes in cliff faces on Spitzkopje, and it was a common species high up in the Brandberg Mts. It was also found nesting or roosting in the enormous communal nests of the Sociable Weaver.
Notes on Species

Taxonomic notes. The species has a limited distribution in South West Africa and southern Angola. Populations in the latter area have recently been separated as a distinct race. The type locality of the species has remained rather vaguely after Vieillot as ‘interior of the Cape of Good Hope’. This can be narrowed down to some locality on the Orange River where Levaillant states quite clearly (1796, vol. 2, p. 209) he saw it for the first time. It seems that he must have reached the river some way above Violl’s Drift, probably at Raman’s or Pellas’ Drift, and therefore it is suggested that Goodhouse (near Raman’s Drift) should be accepted as the type locality.

Coraciidae

(87) Coracias caudata Lilac-breasted Roller.


*Specimen.* 1♂ Omaruru (5 April).

*Field notes.* The Lilac-breasted Roller was frequently seen in the tall bush savanna in the Omaruru District and around Outjo and Kamanjab. It is a bird of striking appearance both on the wing and when occupying some exposed stance high up in a tall bush or small tree. The last record of it was at Gobabis where the species seemed to be rather less plentiful.

*Taxonomic notes.* The specimen belongs to the nominate race which is widely distributed in the southern tropics.

Dimensions of 1♂: wing 167; tail 120; bill 35. Colour of bill, black; legs, olive; iris, dark brown.

(88) Coracias naevia White-naped Roller.

*Coracias naevia* Daudin, 1880, Traité, ii: 258. Senegal.

*Coracias mosambicus* Dresser, 1890, Ibis: 386. Zambesi.

*Field notes.* Only recorded in the upper Huab River, around Onguati, where birds were identified on four occasions. The specimen obtained was making a great deal of noise right at the top of a tall tree in the dry bed of the river.

*Taxonomic notes.* It is generally agreed that *C. naevia* and *C. mosambicus* are racial forms of the same species, *naevia* being mainly north of the equator and *mosambicus* south of it.

Alcedinidae

(89) Ceryle rudis Pied Kingfisher.


*Field notes.* This kingfisher was seen from time to time along the banks of the Orange River at Grootderm and Violl’s Drift, in December. As the species is well known, widely distributed and apparently lacking in variable features, no specimens were collected.
(90) Corythornis cristata  Malachite Kingfisher.
_Aledeo cristata_ Pallas, in Vroeg., 1764, Cat. Adumb.: No. 55, pl. 1. Cape of Good Hope.

*Field notes.* Identified on several occasions in the thick marginal vegetation of the Orange River at Violl's Drift.

(91) Halcyon leucocephala  Grey-headed Kingfisher.

*Specimens.* 1♀ Onguati (25 April); 1♀ Katemba Dam (26 April).

*Field notes.* The first of the two specimens collected was in a tall tree by the wooded banks of a dry watercourse, leading into the Huab River. There was no open water within miles. It seemed a most unlikely situation for a kingfisher, but it is well known that this species feeds largely on insects. The second specimen was found perched on a tree overhanging the waters of the Katemba Dam. Both birds were near the final stages of moult.

This is a northern species which extends into South West Africa about as far as the limits of the tree and bush savanna. Andersson (1872: 57) found it at Ondonga. The most southerly record is that of Hoesch and Neithammer (1940: 183) from Ombujomatetema just south of the Waterberg Mts. Roberts (1940: 163) recorded it as a breeding visitor from October to March; Hoesch and Neithammer recorded it in February. It is interesting, therefore, that the present specimens were obtained in late April. Probably departure was delayed by the prolonged rainy season of 1949–50.

*Taxonomic notes.* These and other specimens from South West Africa match the Angola race, _pallidiventris_, of Cabanis.

Dimensions of 1♂ 1♀: wing, 104, ♀ 98; tail, ♀ 55; bill, ♂ 45, ♀ 36. Colour of bill, mahogany red; legs, brownish-red; iris, dark brown.

(92) Halcyon chelicuti  Striped Kingfisher.

*Specimen.* 1♀ Gobabis (10 May).

*Field notes.* The only certain record of this species is the specimen collected. It was found in open bush and tree savanna with sparse grass on sandy soil. As with the previous species the Striped Kingfisher is mainly insectivorous and can live far away from water. It spreads into Damaraland from the north and does not appear to penetrate very far south. Its biology in Damaraland was dealt with very fully by Hoesch (1933: 65–69).

*Taxonomic notes.* Strickland and Sclater (1853: 153) described an Andersson specimen from Damaraland as a new species _Halcyon damarensis_ solely because they found it to be larger than _H. chelicuti_. Sharpe (1868–71: 184) made it conspecific with _chelicuti_ and since then it has sometimes been accepted as a valid race and sometimes not.
Dimensions of 1♀: wing 85; tail 49; bill 36. Colour of bill, black above, red below; legs, brown; iris, dark brown.

Meropidae

(93) *Dicrocercus birundineus* Swallow-tailed Bee-eater.


*Specimens.* 1♀ Assenkjer (29 Dec.); 2♂ Seeheim (16 Jan.); 1♀ juv. Naukluft Mts. (12 March); 1♀ juv. lower Kuiseb River (24 March).

*Field notes.* This species does not appear to have been recorded south of the Orange River on the west side of the continent. It was first seen at Assenkjer and identified frequently thereafter as far north as the Huab River and east to the edge of the Kalahari at Gobabis. It was never very common, there being rarely more than a few birds in any one locality. It seemed to prefer places with a fair amount of tall trees, such as those along wet or dry river courses. Usually it took up a high stance on the edge of the trees and hawked about in the surrounding open country. It was relatively common in the open woodland along the course of the lower Kuiseb. The fact that young birds were obtained in the north but not in the south suggests that the breeding cycle for this species, as also in many others, is a good deal later there.

*Taxonomic notes.* The specimens belong to the nominate race.

Dimensions of 2♂ 1♀: wing, ♀ 93–95, ♀ 90; tail, ♀ 94–102, ♀ 95; bill, ♀ 36, ♀ 32. Colour of bill and legs, black; iris, blood red.

Bucerotidae

(94) *Tockus erythrornynchus* Red-billed Hornbill.


T. *e. damarensis* (Shelley) 1888, Ibis: 66. Otjimmingwe.

*Specimen.* 1♀ Onguati (25 April).

*Field notes.* The only record of this hornbill was the specimen obtained at Onguati. Although it seemed to be uncommon the species has been recorded in various localities as far south as Windhoek and the Swakop River.

*Taxonomic notes.* The species is widely distributed in the wooded savanna of the northern and southern tropics. The northern populations belong to the nominate race and the southern mainly to one race, *rufirostris*. The race *rufirostris* is distinguished by the greater proportion of black in the pied plumage. In the outermost tail feather, for example, the distal half is white with a broad black bar in the centre of the white area, whereas in the nominate form the distal three-quarters are white without black markings or, at most, a very small patch of black, usually on the outer web (see Fig. 9). Similarly, *rufirostris* has a broad area of black on the otherwise white 5th and 6th secondaries, whereas in the nominate form these feathers are entirely white. The characteristics of *rufirostris* are found in specimens from various localities in the Transvaal, the northern
Kalahari Desert, and the north-east corner of South West Africa. Birds from Ondonga, for example, are not appreciably different to Transvaal birds: Roberts (1932: 25) based his race ngamiensis on a size difference which does not appear to be significant. But west and south of Ondonga in South West Africa (see Fig. 10), there is a relatively sudden decrease in the amount of black in the plumage which corresponds roughly with decrease in the amount of average annual rainfall (see Fig. 3), and a corresponding decrease in woodland to wooded savanna vegetation. The most southerly populations have the outer tail feathers wholly white and in other parts of the plumage there are greater amounts of white; they are recognised as a distinct race, damarensis (see Fig. 9), based on an Andersson specimen, possibly from Otjimbingwe. The characteristics of damarensis are apparently found in specimens from near Windhoek and Okahandja (Transvaal Museum) and Otjiwarongo (de Schauensee): these specimens have not been examined. Specimens from Reitfontein and Otjosongombe, in the vicinity of the Waterberg, were also identified as damarensis by Hoesch and Niethammer. Through the kindness of Professor A. van Jordans, of the Bonn Museum, their specimens have been examined and they seem to be more allied to rufirostris than damarensis. The specimen from On- guati is not like rufirostris nor damarensis, but in its proportion of black and white seems

Fig. 9. Pattern of left outermost tail feather of Tockus erythrorhynchus: (A) from Senegal; typical of nominate race; (B) from Transvaal; typical of rufirostris; (C) from Kaokoveld of South West Africa; apparently nearer (A) than (B); (D) from Otjimbingwe; typical damarensis.
to be more allied to the typical form of the northern tropics. It may indicate a link with West Africa, perhaps now broken, but little seems to be known about the occurrence of this species along the western seaboard of the central tropics. The distributional relationships of the three forms in northern South West Africa are indicated in Fig. 10.

![Fig. 10. Distribution of the races of Tockus erythrorhynchus in South West Africa: (A) erythrorhynchus; (B) rufirostris; (C) damarensis.](image)

(95) *Tockus flavirostris* Yellow-billed Hornbill.


*Specimens.* 1♂ ad. 1♂ 1♀ juven. Brandberg Mts. (10–11 April); 1♀ Onguati (24 April).

*Field notes.* This species appears to spread farther into the drier savanna areas than the Red-billed Hornbill. It was first recorded on this occasion at the mouth of a narrow valley leading out of the Brandberg Mts. Here, where the dry river course was sparsely wooded, this hornbill was fairly common. Two of the three specimens collected were young birds in their first full plumage. The adult was approaching completion of post-breeding moult. The adult male from Onguati in the upper Huab River was also completing moult. The last record was at Gobabis at the western edge of the Kalahari Desert. The breeding biology of this species in South West Africa was dealt with by Hoesch (1933 (d): 97–106).

*Taxonomic notes.* Our specimens clearly belong to the widespread South African race, *T. f. leucomelas*. There are no indications of intergradation with the Angola race *T. f. elegans* Hartlaub, in which the outer tail feathers have a different pattern of black and white.

Dimensions of 2♂: wing 198–210; tail 210–228; bill 85–87. Colour of bill, yellow,
with dark brown at tip and along cutting edges; legs, black; iris, pale yellow; bare skin, pinkish-mauve. In the young birds there is more brown and less yellow on the bill; iris, pale grey, and bare skin, pinkish-white.

(96) *Tockus bradfieldi*  
Bradfield's Hornbill.  
*Specimen* 1♂ Maun (19 May).

*Field notes.* In South West Africa this species has only been found around the Waterberg Mts. and from there it probably spreads eastwards through the woodland areas bordering on the Okavango River for it occurs again by Lake Ngami, where the present specimen was taken. It was found in thick woodland savanna interspersed with grassy valleys.

*Taxonomic notes.* This species was discovered and named by Roberts in 1930, and was found independently and redescribed the following year by de Schauensee (1931 (a): 5) as *Lophoceros williaminae*, which he based on a pair of birds obtained near Lake Ngami. Although de Schauensee subsequently (1932 (a): 179) put his name into the synonymy of *bradfieldi* he published another note in the same year (1932 (b): 203) pointing out that Roberts considered birds from Lake Ngami to be racially distinct from those from Waterberg: the Ngami birds would therefore be *L. b. williaminae*. Roberts (1935: 98) gave a full description of this race, but in the specimens examined, six western and five eastern birds in the British Museum and the series in the Transvaal Museum, there does not appear to be any significant difference between the eastern and western populations.

Dimensions of 1♂: wing 255; tail 220; bill 96.

(97) *Tockus monteiri*  
Monteiro's Hornbill.  

*Specimens.* 3♂ (2 ad. 1 juv.) Kamanjab (23–24 April).

*Field notes.* In the thick bush and tree savanna of the upper Huab River this hornbill appeared to be fairly common. It was usually observed where trees were most abundant. It was readily identified by a note which was recorded as a rather low-pitched 'tok-tok'. Young birds were about at this time, and both adult males were showing early stages of post-breeding moult.

*Taxonomic notes.* This species, which is peculiar to the regions from Damaraland to south Angola, was split by Bradfield (1935: 1) when he described a race, *marjoriae*, from Quickborn, near Okahandja as being 'paler, the secondary flight feather and tail more white'. The type of *marjoriae* has not been seen but the birds collected are a good match with a topotypical specimen and also birds from the Waterberg Mts. Bradfield thought that the latter belonged to the nominate race from Angola and apparently based his new race on birds from that area. On these grounds the race would be invalid (it was not accepted by Roberts (1940: 175)) but the South West Africa birds are distinguishable from Angola birds although not in the way described by Bradfield. Typical *monteiri* has the general colour of the back a grey-brown or drab colour, whereas in the
South West Africa birds the back is more fawn. This colour difference is quite apparent in various parts of the plumage and in various stages of wearing. There is adequate reason therefore to separate the South West Africa birds and their name must be \textit{T. m. marjoriae}.

Dimensions of 2\(\text{\`}{\text{\`}}\): wing 212; tail 225–230; bill 114–122. Colour of bill, mahogany-red; legs, black; iris, dark reddish-brown. In the juvenile the bill is a dirty reddish-brown, rather yellower at the base of the upper mandible and blacker at the base of the lower; the iris has an inner brown rim with an outer grey rim; bare skin round the eye, pale lemon yellow.

\textbf{Upupidae}

(98) \textit{Upupa africana} African Hoopoe.

\textit{Upupa africana} Bechstein, 1811, Kurze Uebers, iv : 172. Congo to the Cape.

\textit{Field notes.} This hoopoe was seen regularly in most localities north of Little Namqualand. It was rather more common in the north than in the south, and in some places when driving along sandy road tracks, particularly where there was fairly thick roadside vegetation, a hoopoe was flushed every hundred yards or so. Like the \textit{Certhioides lunde} larks they seemed to like open soft ground in which to pick for ants and other insects.

\textbf{Phoeniculidae}

(99) \textit{Rhinopomastus cyanomelas} Scimitar-bill.


\textit{Specimens.} 1\(\text{\`}{\text{\`}}\) Grootderm (13 Dec.); 1\(\text{\`}{\text{\`}}\) 1 juv. \(\text{\`}{\text{\`}}\) Seeheim (17–18 Jan.); 1\(\text{\`}{\text{\`}}\) Barby, Tiraz Mts. (10 Feb.); 1\(\text{\`}{\text{\`}}\) 1 juv. \(\text{\`}{\text{\`}}\) Naukluft Mts. (10–11 March); 1\(\text{\`}{\text{\`}}\) Lower Kuiseb River (24 March).

\textit{Field notes.} Not identified until the Orange River was reached. At Grootderm it frequented the trees fringing the river, usually flitting from one tree-top to another when its distinctive black appearance and white wing-bar were ready means of identification. Also very distinctive was its loud high-pitched, plaintive and rather irritating note. The species was found wherever there were trees, such as along wet or dry river courses, and not necessarily where trees were in great number. Although widespread only one or two birds were recorded in any locality. The Grootderm specimen was nearing completion of moult; the Seeheim adult was in very fresh plumage; the Tiraz and Naukluft Mts. specimens were just completing moult; while the Kuiseb River specimen was least advanced in the breeding cycle, being rather worn with no sign of moult and with testes fairly large but probably subsiding. It is an interesting point that young birds have a broad grey-brown tip to the primaries and that adults appear to develop this condition seasonally by loss of pigment for adults in moult show new feathers without pale tips and old feathers with pale tips. The breeding biology of this species in Damaraland was dealt with very fully by Hoesch (1933(a) : 33–37).

\textit{Taxonomic notes.} Birds on the west side of South Africa have appreciably shorter
tails and less white on the tips of the outer feathers, occasionally without white. All the specimens collected conform with this pattern. The name of this species is based on a specimen obtained by Levaillant. It is unlikely that he saw this bird until he reached the Orange River, probably somewhere between Goodhouse and Pella. It is suggested, therefore, that the type locality could be restricted to Goodhouse.

Dimensions of $i\sigma$: wing 107–111; tail 123–129; bill 45–49. Colour of bill and legs, black; iris, blackish-brown.

**Strigidae**

(100) *Otus leucotis* White-faced Owlet.


*Specimen.* $i\sigma$ Lower Kuiseb River (25 March).

*Field notes.* The specimen was obtained from a tree in the well-wooded course of the Kuiseb River about 40 miles from its mouth.

*Taxonomic notes.* The southern Africa populations belong to the race *granti*. Erlanger (J. Orn., 1910: 233) first recognised the difference between northern and southern populations, but he wrongly assigned the southern birds to the nominate form. They were renamed *erlangeri* by O. Grant (Ibis, 1906: 660) but this name was pre-occupied, as Kollibay pointed out. Erlanger (op. cit. 234), however, listed a Lubbert specimen from Windhoek as typical of southern birds and therefore Windhoek can be accepted as type locality.

Dimensions of $i\sigma$: wing 191; tail 91; bill 26. Colour of bill, greyish-horn, becoming yellowish-horn towards the tip; iris, orange, with an inner rim of bright yellow.

(101) *Bubo africana* Spotted Eagle Owl.

*Strix africana* Temminck, 1823, Pl. Col.: book 9, pl. 50. Cape of Good Hope.

*Specimens.* $i\sigma$ Kamieskroon (1 Dec.); $i\varphi$ Seeheim (18 Jan.); $i\varphi$ 40 miles east of Windhoek (6 May).

*Field notes.* The male taken at Kamieskroon was flushed from a small patch of bush on a rather bare rocky hillside. It was found again in similar habitats north of Witputs in January although its more usual haunts seemed to be the trees along dry river courses. In such places it was found in the Tiraz Mts., on the course of the Kuiseb River near Walvis Bay, at Spitzkopje, the Brandberg Mts., and east of Windhoek. On several occasions there were parties of three birds, possibly two adults and fully-grown offspring.

*Taxonomic notes.* Of the three specimens collected the one from Seeheim is strongly suffused with a buffy-brown colour while the other two are mainly dark grey and white. This species, in common with a number of other owls, has a brown and a grey phase. They do not appear to have any geographical significance. Roberts (1940: 144) and Hoesch and Neithammer (1940: 177) recognised the race *trotae* (*B. ascalophus trotae* Reichenow, Orn. Monatsb., 1906: 10) based on a specimen collected at Keetmanshoop. It is said to be smaller, paler, and browner than the nominate form. Two specimens in
the Transvaal Museum identified as *trothae* were not separable from those listed here and the series in the British Museum does not confirm that *trothae* is a recognisable form.


Caprimulgidae

(102) *Caprimulgus rufigena*  Rufous-checked Nightjar.


Specimens. *1♂ Tsawissis, Kleinkaras (6 Jan.); 1♀ Seeheim (18 Jan.); 1♀ Naukluft Mts. (10 March).

Field notes. Both males were flitting about in the shade of the trees on river banks. They had fairly large testes. In the March female, obtained in open bush savanna country, the ovaries were small.

Taxonomic notes. South African birds belong to the nominate race.

Dimensions of *2♂♂ 1♀*: wing, ♂ 160–164, ♀ 160; tail, ♂♀ 122; bill, ♂ 17, ♀ 19. Colour of bill, black; feet, mauve-brown; iris, brownish-black.

(103) *Caprimulgus tristigma*  Freckled Nightjar.


Specimens. *1♀ Grootderm (11 Dec.); 1♀ Assenkjer (28 Dec.).

Field notes. This nightjar was only recorded along the banks of the lower Orange River. It has been found in a number of localities in South West Africa though Andersson (1872: 45) considered it to be a scarce but widespread species. One of the birds collected was flushed at dusk from a rocky kopje and the other was flushed from sandy ground at the edge of the thick undergrowth on the river bank.

Taxonomic notes. These specimens match the southern race *lentiginosus*. They must be nearly topotypical for it was somewhere near the lower Orange River that Andrew Smith obtained the two specimens on which the race was based.

Dimensions of *2♀*: wing 180–183; tail 126–130; bill 23–24. Colour of bill, black; feet, greyish-mauve; iris, brown.

Micropodidae

(104) *Micropus apus*  European Swift.


Specimen. *1♂ Aus (30 Jan.).

Field notes. The specimen was taken from a large flock hawking around the kopjes near Aus. It was just completing moult. Other large flocks of what appeared to be European Swifts were also seen near Barby, Tiraz Mts., in early February.

Taxonomic notes. The specimen clearly matches the European form of this species.
(105) *Apus barbatus* Cape Swift.


**Specimens.** 1♂ 2♀ Blesskranz, Naukluft Mts. (10 March).

**Field notes.** The Mottled Swift was present in large numbers beside the huge limestone cliff, whose appearance provides a name for the locality of Blesskranz in the Naukluft Mts. (see Pl. IV B). In all the specimens obtained the gonads were small. The Great Swift was also present but in fewer numbers. They usually flew higher.

**Taxonomic notes.** The specimens are a very close match with the type of Roberts' *Micropus bradfieldi*, which is in the Transvaal Museum. Roberts continued to recognise this swift as a separate species, while Hoesch and Niethammer (1940: 204) rather doubtfully associated it with the species *aequatorialis*. Peters ('Birds of the World', IV: 1940: 246) listed it as a geographical race of the widespread *aequatorialis* and this seemed correct until Lack (Ibis, 1956: 52) showed its affinity with the Cape Swift. It is much paler than the nominate form.


(106) *Apus affinis* Indian Swift.

*Cypselus affinis* Gray, 1830, in Gray & Hardwicke’s Illutr. Indian Zool. 1, pt. 2: pl. 35. India.

**Specimens.** 2♀ Voigtsgrund Dam (14 Feb.); 1♀ Katemba (26 April).

**Field notes.** On 14 February a very large scattered flock of swifts and swallows spent several hours in the vicinity of the Voigtsgrund Dam. Specimens were obtained of the Indian Swift, European Swallow and Cliff Swallow. The two male Indian Swifts had rather small testes, but a female obtained on 29 April from a large flock flying low over the Katemba Dam had large ovaries with nearly fully formed eggs.

**Taxonomic notes.** The African representatives of this species are sometimes separated from Indian populations as a distinct race, *A. a. abessynicus* (Streubel). There seems to be no valid morphological reason for doing so. Meinertzhagen (1949: 105) considered that a pair of birds which he obtained at Brandvlei, Cape Province, were pale enough to be regarded as a distinct race, which he named *theresa*.


(107) *Apus melba* Great Swift.


**Specimens.** 2♂ Seeheim (18–20 Jan.); 1♀ Witputs (23 Jan.); 1♂ Spitzkopje (31 March).

**Field notes.** The Seeheim specimens were taken from a flock found dipping over the pools on the Great Fish River. Fairly large flocks were seen on three occasions in this area. The Witputs specimen was taken from a flock of fifteen birds hawking low over the ground. Other flocks were identified near Aus, and again at Blesskranz in the Naukluft Mts. early in March where they were in company with the Mottled Swift, but in smaller numbers and usually flying higher. The last we saw of this species was at Spitzkopje where flocks were common around the rocky precipices. In the January
specimens the gonads were relatively small and there was some evidence of body moult, but the male taken at Spitzkopje on 31 March had greatly enlarged testes. The breeding and non-breeding distributions of this species are not clearly known. The only breeding record for South West Africa seems to be that of Bradfield (1935) who found the species nesting and remaining throughout the year in the Waterberg Mts.

**Taxonomic notes.** Bradfield (op. cit.) found the Waterberg birds to be paler than the widespread *africanus* and gave them the name *marjoriae*. Although this is a usual pattern of colour variation in species widespread in western South Africa it does not appear to be clearly evident in the Great Swift.

Dimensions of 3♂ 1♀: wing, ♂ 206–209, ♀ 202; tail, ♂ 77–80, ♀ 78; bill, ♂ 18–19, ♀ ?

### Coliidae

(108) *Colius colius* White-backed Mousebird.


**Specimens.** 1♂ Kamieskroon (3 Dec.); 1♂ Seehim (16 Jan.); 1♂ Tiraz Mts. (6 Feb.); 1♀ juv. Spitzkopje (31 March).

**Field notes.** The White-backed Mousebird was first identified at Kamieskroon. Other parties were seen regularly as far north as Spitzkopje and the Brandberg Mts. Recording this species was largely a matter of luck for it seemed to wander about a good deal; a party might be seen only once in several days in one locality. It was not recorded in the thicker bush and tree savanna country north of Franzfontein and east of Windhoek. Although a species of the drier desert margins it was usually found where there were patches of bushes, or trees along dry river courses. It was sometimes found in company with the Red-faced Mousebird which seemed to be rather less common. The specimen taken in Little Namaqualand in early December was just commencing moult of the primaries, and a specimen taken by Hoesch in March, near the Erongo Mts., was just completing moult, so that this species, in common with many others, illustrates the south to north retardation of the breeding cycle which is discussed on p. 29.

**Taxonomic notes.** In the relatively small area occupied by this species Reichenow (J. Orn., 1899: 418) found Damaraland specimens to be rather paler, especially on the crown, and gave them the name *damaensis*. Although this variation is consistent with what is found in a number of other species it is not clearly evident in the White-backed Mousebird.


**Specimens.** 3♂ lower Kuiseb River (25–27 March); 1 juv. Spitzkopje (4 April).

**Field notes.** First seen in the trees and bushes along the banks of the Orange River at Grootderm. It was rather less common there than the White-backed Mousebird, and also in other localities in South West Africa. The two species are readily distinguished
in the field, the mixed colours on the lower back of the previous one and the patch of bright red bare skin round the eye of this one being distinctive features. The specimen taken at Spitzkopje is a young bird just out of the nest, so that again in this species the breeding season in the north is apparently much later than it is in the south.

**Taxonomic notes.** Sharpe (op. cit.) found that Damaraland birds were paler than those from the Cape, and had creamy-white instead of tawny-buff foreheads; he named them *lacteifrons*. Our specimen show this difference quite clearly. It is possible to restrict the type locality of *lacteifrons* to Otjimbingwe, Damaraland, because Sharpe based his description on seven Anderssen specimens in the British Museum. Of these five are stated to have been taken at Otjimbingwe and it is possible that the others were also, but they lack collector's labels.

Dimensions of 3♂: wing 95–97; tail 235–243; bill 15–16. Colour of bill, pinkish-crimson at base, black at tip; legs, pinkish-carmine; iris, dark brown; bare skin round eye, bright red.

**Capitonidae**

(110) *Tricholaema leucomelas* Pied Barbet.

*Bucco leucomelas* Boddaert, 1783, Table Pl. Enlun.: 43. Cape Flats (see below).


Specimens. 1♂ 1♀ Kamieskroon (1–2 Dec.); 1♀ Springbok (6 Dec.); 2♂ Grootderm (11–12 Dec.); 1♂ Kleinkaras (4 Jan.); 1♀ Tsondab Mund (7 March); 1♂ Spitzkopje (31 March); 1♂ Brandberg Mts. (10 April); 1♂ Onguati (25 April).

**Field notes.** The Pied Barbet was found to be widely distributed but never common anywhere; on any day's outing one seldom recorded more than one or two birds. It seemed to be a typical species of the dry desert margins wherever there were moderately sized bushes. Its preference for the drier localities was evident in the north for in places where vegetation was relatively thick, as along river courses, the Pied Barbet was usually in the adjacent bush savanna.

**Taxonomic notes.** Roberts (1924: 82) cast some doubt on Sclater's race, *namaqua*, which is distinguished by having black spots on the white under parts, when he said that Sclater may have re-described the typical form. But that is clearly not so because the figure on which the species is based is shown with plain white under parts. The distribution of *namaqua* is rather unusual. It extends as far north as the Orange River and our two Grootderm specimens seem to show that it stops there for one is fairly lightly spotted while the other is quite plain. Hoesch and Niethammer (1940: 205) identified *namaqua* as far north as Keetmanshoop but our specimen from Kleinkaras, south of Keetmanshoop, is clearly not *namaqua*. Friedmann (1933: 4) identified specimens from Mt. Brukkaros as the typical race. The race *namaqua* extends southwards to the Olifants River but not on to the Cape Flats where birds again lack spots on the under parts. In a series of specimens in the South African Museum (kindly lent by Dr. Barnard) a bird from Clanwilliam is rather less heavily marked on the under parts than in birds from farther north. Roberts (1931: 240) referred to similar markings on a bird from Klaver. The only authentic specimen from the Cape Flats which has been seen was taken at Middleburg; it has unmarked white under parts. Similarly, specimens with
the characteristics of the nominate race have been found in localities east of the Cape Flats, in south and east Cape Province, linking up with populations north of the Orange River. At Deelfontein, in central Cape Province, some specimens show a few scattered spots on the flanks, as Sclater pointed out. Two Verreaux specimens in the British Museum labelled 'Cape of Good Hope' have the characteristics of namaqua, and it seems, therefore, that they could not have been taken in the vicinity of Cape Town. It seems reasonable to restrict the type locality of the species to the Cape Flats where it is known that birds with plain under parts occur.

Roberts (1932 : 26) found differences in Transvaal birds and separated them from the nominate form under the name centralis. Later (1940 : 177) he included South West Africa in the distribution of this race. Hoesch and Niethammer identified their birds taken north of Keetmanshoop and Bethany as centralis. In the specimens from South West Africa which have been examined it is not possible to distinguish the characteristics given for this race and our specimens are, therefore, identified as follows:

(1) **T. l. leucomelas.** One specimen from Grootderm, and all others taken north of the Orange River. Dimensions of 5♂ 1♀: wing, 79-85, ♀ ?; tail, ♂ 46-52, ♀ 47; bill, ♂ 18-20, ♀ 20.

(2) **T. l. namaqua.** One specimen from Grootderm and others from Kamieskroon and Springbok. Dimensions of 2♂ 2♀: wing, ♂ 83-85, ♀ 81-83; tail, ♂ 51-52, ♀ 49; bill, ♂ 19, ♀ 18-19.

**Indicatoridae**

(111) **Indicator minor** Lesser Honeyguide.


*Specimen.* 1♂ Blesskranz, Naukluft Mts. (11 March).

*Field notes.* The single specimen recorded was found in a small patch of thick wood in a dry watercourse high up on the mountain side. It was well advanced in moult.

*Taxonomic notes.* Roberts (1928 : 308) separated birds taken in the Okahandja District from the nominate race as being paler on the crown and with males lacking the dusky moustachial streak; he gave them the name *damarensis*. When examining the type in the Transvaal Museum it was noted that Damaraland specimens appeared to be rather paler than those from near the Cape, but this was not confirmed by material in the British Museum. In seven specimens taken between the Swakop River and the Waterberg Mts. the dusky moustachial streak is present, and there is no constant appreciable difference in the colour of the crown. Therefore, the specimen is identified as the nominate race until more data are available.

Dimensions of 1♂: wing 95; tail 57; bill broken.

**Picidae**

(112) **Geocolaptes olivaceus** Ground Woodpecker.


*Specimens.* 1♂ 1♀ Grey's Pass, Olifants River Mts. (29 Nov.); 1♂ Kamieskroon (5 Dec.); 1♂ 1♀ Springbok (7 Dec.).
Field notes. A pair of Ground Woodpeckers was obtained at the foot of Grey's Pass in the Olifants River Mts. This species is typical of dry boulder-strewn hillsides and was fairly common in such places at Kamieskroon and Springbok. It has a characteristic habit of crouching on boulders and peeping over the top, in much the same way as some woodpeckers peep round tree-trunks, it has a loud harsh cry, consisting of a series of single notes. The specimens are in various stages of post-breeding moult, and the two birds taken at Grey's Pass were from what seemed to be a family party of five birds.

Taxonomic notes. The Ground Woodpecker remained a monotypic species until Meinertzhagen (1949: 105) distinguished a pair of birds obtained near Springbok as a new race, theresa. The present series, some from the type locality, suggests that the characteristics of theresa may not be geographically significant. There are appreciable seasonal changes. For instance, in the very fresh plumage of a specimen just completing moult the feathers of the upperside of the head are tipped with brownish-grey so that the colour of the crown is not in marked contrast to the colour of the rest of the upper parts. In older plumage the brownish tips are worn off and the general colour of the head becomes distinctly greyer. The difference between the old and new feathers of the mantle is clearly shown in our two Springbok specimens: the new feathers are dark brownish-olive with a slight tinge of yellowish on the margins and show up as dark patches among the drab brown old feathers. These and other slight differences which are apparent seem to cover the main points of difference between theresa and the nominate form. However, it may be that theresa will be accepted on other grounds for in all the birds I have examined those taken around Cape Town appear to be slightly darker than comparable specimens from elsewhere. The tendency for populations to be darker in the wetter south-west Cape is apparent in a number of species.

Dimensions of 3♂ 2♀: wing, ♂ 132-135, ♀ 125-129; tail, ♂ 84, ♀ 84-86; bill, ♂ 38-41, ♀ 40. Colour of bill, black; legs, olive; iris, pink.

(113) Campethera bennettii  Bennett's Woodpecker.


Specimen. 1♂ Gobabis (10 May).

Field notes. Only identified at Gobabis. The bird was in a small tree about 12 feet high, in a bushy plain in which there were scattered small trees, and sparse grass on sandy soil.

Taxonomic notes. The specimen has the characteristics of the typical race although it was taken close to the area in which capricorni is known to occur. Strickland and Selater's Campethera capricorni (1853: 155), now accepted as a race of bennettii, is distinctive in having only a few dark specks on the under parts, mainly confined to the breast, and an appreciably greater amount of golden-yellow colour on the under parts. It seems possible to restrict the type locality of capricorni to the farm of Omanbonde, about 50-60 miles north-east of Waterberg. There is an Andersson specimen with locality Omanbonde in the British Museum and although the type, which is in the University Museum, Cambridge, has no collector's label it seems highly probable that it was taken at the same place. According to Wallis (1936: 87) Andersson and Galton were at Omanbonde from 4-12 April, 1851.
Dimensions of 1♂: wing 114; tail 53; bill 28. Colour of bill, blackish-brown; legs, olive; iris, grey-brown.

(114) Campethera abingoni  Golden-tailed Woodpecker.


Specimen. 1♂ Onguati (25 April).

Field notes. The specimen collected was found in fairly thick tall bush savanna in the upper Huab River area.

Taxonomic notes. The specimen matches fairly closely the type of anderssoni which Roberts separated from smithi (whose type locality he fixed at Marico in western Transvaal) mainly because of the greater amount of black on the throat. The characteristics of anderssoni occur in specimens from about Lake Ngami west to Damaraland and north to Huila in south Angola. Topotypical specimens of annectens from Benguella, Angola, seem to be indistinguishable from smithi.

Dimensions of 1♂: wing 121; tail 68; bill (broken). Colour of bill, black; legs, dark olive; iris, deep pink.

(115) Dendropicos fuscescens  Cardinal Woodpecker.


Specimens. 1♂ Kamieskroon (2 Dec.); 1♂ juv. Grootderm (15 Dec.); 1♂ Seeheim (19 Jan.); 1♂ 1♀ Tsondab Mund (7 March); 1♂ 1♀ lower Kuiseb River (24–25 March); 1♀ Kamanjab (20 April).

Field notes. This is the commonest and most widespread woodpecker of western South Africa and it was identified regularly in ones and twos in most localities. It seemed to be equally at home in thick woods along the margins of river courses and in the thinly scattered trees or tall bush in arid places. It occurred in the rocky valleys of the Kamiesberg Mts., in Little Namaqualand, along the courses of the Orange and Great Fish Rivers, in an isolated patch of dying mimosa woodland in the heart of the Namib Desert, and in the tall bush savannas of the Kaokoveld. The Kamieskroon specimen was in very worn plumage and showed early stages of moult, which is consistent with the Grootderm specimen being a juvenile in its first adult dress. The Seeheim bird was also in early moult, the Tsondab River and Kuiseb River birds in half to full moult, and the Kamanjab bird was nearing completion of moult.

Taxonomic notes. White (1947 a)) went a long way in clarifying the racial pattern of this variable species. He had little material from the west side of the continent so that this series helps to fill in the picture in that region. The series can be divided into two groups, one in which the dark streaks on the under parts are very pronounced, represented by specimens from Little Namaqualand to the Kuiseb River; and another group in which the dark streaks are much less pronounced, represented by the single specimen from Kamanjab. Within the broad-spread group there is some variation in the
amount of golden-yellow colour in the plumage but it does not appear to be racially significant. And even although the group as a whole seems to have rather less golden-yellow than nearly typical specimens collected by Atmore at Eland's Post the difference is so slight and the two groups match so well in other respects that it is undesirable to separate them as different races. Therefore, birds in the west of the continent as far north as the Kuiseb River (and, according to a Bradfield specimen, probably as far as Okahandja) can be identified with the nominate race. The Kamanjab specimen, with the lighter streaks on the under parts, seems to fit Grote's *stresemanni* from Okaukejo, about 70 miles north-east of Kamanjab. Angola birds are much more distinctly coloured with golden-yellow on the upper parts and are identified as a separate race. Identifications are therefore:


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**Alaudidae**

(116) *Mirafra passerina* Monotonous Lark.


Mohapoani, Witfontein Mts., West Transvaal.

*Species.* 1♂ Isabis, 92 miles south-west of Windhoek (2 March); 4♂ 3♀ Spitzkopje (31 March–2 April); 1♀ Okumbeha (8 April); 3♂ 1♀ juv. Onguati (25–27 April).

*Field notes.* The first specimen of this species was taken in the high plateau region south-west of Windhoek but it was commonest in the Spitzkopje area where it frequented sandy patches well covered with long grass and dotted with occasional tall bushes. It was readily identified by its distinctive notes which are musical and pleasant but rather limited in range. The notes have been variously transcribed, by Roberts as ‘chloritwe’ and Hoesch and Neithammer as ‘aquavit’, although ‘for syrup is sweet’ and ‘there’s plenty to eat’ seemed more like the rhythm. The song was uttered while the bird was perched high up in a bush or small tree, or when it was in the air and usually an accompaniment to a flutter-and-glide flight. In the flutter there were rapid wingbeats with little forward movement, and in the glide the wings were held about 45° above the horizontal. The birds flew in fairly large circles seldom rising above about 50 ft., and at the end of the flight dropped suddenly to the top of a bush or to the ground. All the specimens were in rather worn plumage and had fairly large gonads. There was no sign of moult, but at Onguati in late April there were young birds about and therefore it seems likely that the breeding season was nearly over. Andersson (1872: 175) and others confused this species with the Sabota Lark; it has also been misidentified as Botha’s Lark, but it is readily distinguished from both by the presence of dark rufous-brown on the outer webs of the primaries and its wholly white outermost tail feathers.

Dimensions of 8♂ 5♀: wing, ♂ 83–86, ♀ 77–80; tail, ♂ 54–58, ♀ 48–53; bill, ♂ 14–15,
♀ 13–14. Colour of bill, blackish-horn above, whitish below and along edge of upper mandible; legs, pale pink; iris, medium brown.

(117) *Mirafra africana*  Rufous-naped Lark.


Specimens. 1♂ 10 miles north-east of Franzfontein (14 April); 1♀ Fort Reitfontein, Kalahari (13 May); 1♂ Ghanzi, Kalahari (14 May).

Field notes. The grassy savanna areas lying north and east of the semi-deserts seem to be the habitat of this lark. Where found the impression was that it was an uncommon bird, but closer study of its habits might have led to more frequent identifications. It was found in open grassy plains where the grass was in sparse tufts knee-high and the plains dotted with low bushes and occasional small trees. The mid-April bird was in rather worn plumage and had enlarged testes, and the mid-May birds had nearly completed post-breeding moult.

Taxonomic notes. This is a rather variable species and numerous races have been described. Of the three specimens the Franzfontein bird has a good deal of rufous colour in the brown under parts and differs from the two Kalahari birds which are both mainly pale fawn and brown. The Franzfontein specimen is a very close match with the type of *pallida*, an Andersson specimen from Elephant Vley, north-east of the Etosha Pan. It is also similar to a specimen in the Transvaal Museum from Okahandja, although another Okanhandja specimen, the type of White's *okahandjae* (Bull. B.O.C. 65, 1945 : 48) is rather richer rufous brown. The slight difference between two birds from the same locality gives some measure of individual variation and it seems doubtful if White's race is really separable from *pallida*. The two Kalahari specimens are nearly topotypical *ghansiensis* from Gemsbok Pan and are a fairly close match with the type.

The specimens are therefore identified as follows:

(1) *P. a. pallida* Sharpe. From near Franzfontein. Dimensions of 1♂ : wing 98; tail 65; bill 21.

(2) *M. a. ghansiensis* Roberts. From Fort Reitfontein and near Ghanzi, Kalahari. Dimensions of 1♂ 1♀ : wing, 96, 91; tail (in moult); bill, 20, 19.

(118) *Mirafra apiata*  Clapper Lark.


Contribution to the Ornithology of Western South Africa


(Note: Corypha adendorffi, listed by Roberts (1940: 194) as a species but originally described by him as Mirafra apiata adendorffi, is also included in this species.)

Specimens. 1♂ 19 miles south-west of Windhoek (1 March); 1♀ 43 miles east of Oliphant’s Kloof (12 May); 1♂ 1♀ Ghanzi (15 May).

Field notes. This comparatively rare, or at least very elusive, species was observed and collected on few occasions. It was first found in rolling highland country south-west of Windhoek, in knee-high grass and scattered scrub. The other three specimens were found in the Kalahari grass-scrub. It was found that birds would not flush easily but crept about on the ground, rather mouse-like, and were rather difficult to mark when they stopped moving. The specimen taken south-west of Windhoek was in very worn plumage and the gonads were subsiding; those taken near Ghanzi about the middle of May were completing moult.

Taxonomic notes. The taxonomy of the clapper larks has presented some difficulty largely because of the limited amount of material and data available. For the present study a fairly varied sample of about fifty specimens was examined at one time together with notes on the specimens in the Transvaal Museum. Examination followed immediately after the study of several other lark species which share roughly the same distribution, such as Mirafra sabota, Mirafra africanoides and Certhilauda albifasciata. These are cryptic species with more or less similar colour variations related mainly to geographical changes in soil colour. It seemed that the various species of Clapper Lark fell into much the same geographical pattern, namely, drab grey in the Cape area, russet in the Orange Free State and Transvaal, buffy in Great Namaqualand and Damaraland, and light greyish-buff in the Etosha Pan area and the northern Kalahari, and that these colour variants were more likely to be races of the same species than separate species. A more detailed study (Macdonald, 1952b) gave reasons for regarding the species listed at the head of this note as races of *Mirafra apiata*. There are a number of other valid races originally described under one or other of these species. Of the specimens collected the bird taken south-west of Windhoek is tentatively identified as *M. a. deserti* and the Ghanzi specimen with greater certainty as *M. a. kalabarica*.

\[(119)\] Mirafra africanoides Fawn-coloured Lark.

Specimens. 1♂ near Maltahohe (13 Feb.); 2♂ 1♀ near Kalkrand (17 Feb.); 1♂ 55 miles south-west of Windhoek (2 March); 1♂ 1♀ juv. between Sorris Sorris and Franzfontein (16 April); 3♂ 1♀ juv. Kamanjab (19–20 April); 2♂ Onguati (26–27 April); 6♂ 1♂ juv. 1♀ juv. 1♀ Gobabis (8–9 May); 1♂ 30 miles east of Sandfontein (12 May); 1♂ 6 miles
west of Fort Reitfontein (13 May); 1♂ 1♀ near Ghanzi (14–15 May); 3♂ 1♀ 5–10 miles north of Tsororoga Pan (21 May).

Field notes. First identified in the acacia scrub veld south of Windhoek where it was fairly numerous on long grassy ridges of reddish-brown sand sprinkled with bushes: sandy localities with varying densities of grass and scrub with occasional small trees seemed to be its favourite environment. On this first occasion a display flight was noted in which birds soared up to about a hundred feet then plunged down to earth: the plunge was usually in two stages with a short halt and rise between each. Birds were frequently seen foraging on the ground. They took to flight immediately they were alarmed, flying a short distance to perch on bush or scrub, usually about half-way up a bush. This habit was noted repeatedly and used as a fairly certain method of distinguishing this lark from the Sabota Lark, which almost invariably flew to the highest point of a bush. The highest we recorded this lark in bush or tree was a male in full song at dawn; he was not in an exposed position but hidden in the topmost foot or so. Short bursts of song were not unlike those of sabota. The flight of africanaoides is rather jerky, and the mainly black tail and rufous wings are readily seen. Also when perched the white under parts are conspicuous. The birds taken in mid-February south of Windhoek had enlarged gonads and worn plumage. From mid-March in the Franzfontein area to early May at Gobabis birds in juvenile plumage were plentiful and adults were in extremely worn plumage. A Gobabis specimen taken on 9 May was fairly well advanced in moult, while many of the Kalahari specimens taken within a week later were near completion of moult and mainly in fresh plumage.

Taxonomic notes.* Like many other larks this species is rather variable and many races have been described. In its southern limits it is found in eastern Cape Province, and it is somewhere there or just north of the Orange River that Andrew Smith obtained his specimens. There are five Smith specimens in the British Museum and all are relatively dark birds (two in fact are appreciably darker than the other three, but no localities are given). Specimens collected by Atmore at Hopetown and by Barrett-Hamilton at Griqualand West, Kuruman and Kimberley District, are rather less dark, more chromatic, and it seems probable therefore that Smith's specimens were obtained somewhere between Graaff Reinet and Colesberg (see Kirby, 1939–40: map); it may be useful to restrict the type locality of the species to Colesberg, and not to Hopetown as suggested by Roberts (1917 (b): 258). The nominate race, therefore, is a dark variation occupying what seems to be a relatively small area mainly in eastern Cape Province. (Dark variations in this area are found in other species with similar general distributions; for example, in the Karroo Bustard.) The general colour of the upper parts is about Verona-brown, with rather broad diffuse streaks of a much darker brown—about bistre colour. Farther north, in the Kuruman area, the lighter ground colour is rather more extensive in relation to the dark streaks and is of a lighter tone, about sayal-brown. This variation remains fairly stable about as far north as Windhoek (see Fig. 11), except for a specimen from Hopetown and a Bradshaw bird (probably from Upington) which are rather less heavily streaked. This variation takes Roberts' name harei, based on a Windhoek specimen. In the country north and east of Windhoek birds are rather more richly coloured, more chromatic—about Mikado brown and rather less heavily streaked—

* White had the gist of this information when he published his note in Bull. B.O.C., 1956, 7: 54–57.
a difference well illustrated by a series of specimens in very fresh plumage taken by Hoesch in the Waterberg. In the present specimens from Gobabis, which are in very worn post-breeding moult, the new feathers coming in are a very good match with the fresh plumages of the Waterberg series. Birds from these two localities, therefore, seem to be representatives of a distinct race; it takes its name from Roberts' gobabiensis.

Between the area occupied by this race and the coast, and north-west of harei, populations are consistently paler, less rufous and rather more yellowish, and seem to form a fairly clearly defined coastal group. Its distinctiveness is most marked in juvenile plumages. The name available for it is Roberts' omaruru from the locality of that name. Hoesch and Niethammer's isseli (1940: 215) from Okahandja may be synonymous. What seems to be a very clearly defined race lies roughly north and east of a line joining the Etosha Pan and Lehututu in the centre of the Kalahari. Specimens from this region are paler than any of those so far mentioned, the basic colour of the plumage

**Fig. 11.** Distribution of the races of *Mirafra africanoides*: (1) africanoides; (2) harei; (3) gobabiensis; (4) omaruru; (5) sarwensis.
being a rather dark vinaceous-buff. The general colour appearance remains fairly constant throughout the area indicated on the map (Fig. 11) and the race takes Roberts’ name *sarwensis*. There are slight variations within the *sarwensis* group, for example populations east of Lake Ngami which seems to be a slight shade grayer in tone and birds from Sandfontein and Lehututu are a shade whiter (the latter probably associated with the basic limestone of the Kalahari which is often exposed on the surface in that area) but these differences do not appear to be clearly defined. Roberts was not very confident about his *ovambensis* and *tsumebensis*, and it is probable that they are not distinct from *sarwensis*. In summary, therefore, it seems that in the area under consideration there is a north-eastern pale group and a south-western richly-coloured group, the latter being split further into more or less clearly defined races which are darker in the south and paler in the north. The specimens collected are identified as follows:

(1) *M. a. barei*. Specimens from south of Windhoek.


Colour of bill, dark brown above, whitish below; legs, grey-brown to flesh colour; iris, light brown.

(2) *M. a. gobabiensis*. Specimens from Gobabis.


(3) *M. a. omarurum*. Specimens from Franzfontein and Kamanjab.


(4) *M. a. sarwensis*. Specimens from east of Gobabis.

Dimensions of 6♂: wing 88–90; tail 57–63; bill 14–15. Colours much as in previous race except that the legs appear to be more often pale grey-brown and the iris reddish-brown.

(120) *Mirafra sabota* Sabota Lark.


*Specimens*. 2♂ 1♀ Tsawissis, Kleinkaras (6–7 Jan.); 3♂ 2♀ Barby and Helmeringhausen, Tiraz Mts. (6–7 Feb.); 3♂ near Maltahöhe (12–13 Feb.); 3♂ 1(?). juv. Naukluft Mts. (3–12 March); 4♂ 2♀ 3♂(?). juv. Spitzkopje (30 March–4 April); 4♂ 1(?). juv. Brandberg (9–12 April); 2♂ 1♀ juv. near Franzfontein (13–14 April); 1♂ 6♀ 1♀(?) juv. Kamanjab area (19–26 April); 1♂ Lake Ngami (17 May).

*Field notes*. The Sabota Lark was first observed in the Kleinkaras Mts. It was found in the sandy valleys, sparsely studded with scrub, and among the stones of the rocky hillside. It was plentiful in similar situations in the Tiraz Mts. and although it foraged a good deal on the ground it readily perched on scrub and bushes, and even on telegraph wires. Birds on the ground were well camouflaged. In the Naukluft Mts. this lark was quite common on the dry, stony hillside. It was there, in early March, that young birds were first noted. Previous to this only adults in worn plumage had been
found. In early April in the Spitzkopje area, where this was one of the commonest species, and parents were actively feeding young. Similar activities were recorded in the Brandberg area and in and around Kamanjab, where a high proportion of the specimens collected were juveniles. The last record was at the south end of Lake Ngami where two birds were seen perched on the open scrub at the edge of a grassy pan.

**Taxonomic Notes.** White (1948 a) recorded his opinions on the valid races of this lark.* The species was named on specimens collected by Smith who gave its distribution as, 'between Latakoo (Kuruman) and the Tropics'. All the Smith specimens examined belong to the small-billed group found in the Transvaal and it seems therefore that he collected them in the more northerly areas he visited (see map in Kirby, 1940, vol. 2). Smith spent a good deal of time in the country around Rustenberg and a small series from that locality in the British Museum collected by Lucas are indistinguishable from Smith's birds. It seems, therefore, that the type locality might well be restricted to Rustenberg. It is not clear how far south-west of the Transvaal the nominate race extends, but in Griqualand and eastern Cape Province birds are slightly larger and have a rather differently shaped bill. In this group several specimens from eastern Cape Province are rather darker than a number from Griqualand. The pattern of variation seems to be similar to that found in *Mirafra africanaoides*, namely that birds in eastern Cape Province have broader and more diffuse dark centres to the feathers, but north of the Orange River the dark centres are rather narrower and more clearly defined. These darker birds from eastern Cape Province take the name *bradfieldi* which was given by Roberts (1928: 316) to birds from De Aar, although he based the race largely on characteristics which are not evident in the specimens examined; the most distinctive features of this race are darker colour combined with larger bill. The rather lighter coloured birds from Griqualand are readily matched with specimens taken throughout the greater part of South West Africa, as far as the Kaokoveld. There seems to be little variation for example in specimens from Griqualand, Tiraz Mts., Windhoek, and Kamanjab. Windhoek is the type locality of Roberts' *herero* (1936 a: 262). A buffy coloured variation with rather lighter coloured streaks seem to be typical of the low-lying areas west of Windhoek, for example, Usakos, Erongo and Otjimbingwe. This variation can be identified with the race *naevia* based by Strickland (1852: 152) on an Andersson bird. Roberts (1936 a: 262) restricted the type locality of this race to Ondongo apparently on the evidence of data given by Andersson (1874: 196) under *Mirafra sabota*. But Andersson said of *naevia* (p. 194) that it 'is a very common bird about Otjimbingwe'. It seems that Andersson did not distinguish between *M. sabota* and *M. passerina* and the Ondongo birds to which he refers (1872: 195) may either have been the latter species or the greyish form of *sabota*. All Andersson specimens of *sabota* are the brownish variety but there are some *passerina* from Ondonga. Through the courtesy of the Cambridge University Museum Strickland's type of *naevia* has been examined and it is identical with other Andersson specimens from Otjimbingwe. Otjimbingwe, therefore, is a more appropriate type locality of *naevia* than Ondonga. The race *erongo* of Hoesch and Niethammer (1940: 218) is, it seems, synonymous with *naevia*. Several Hoesch specimens from Ukuib, just west of Otjimbingwe, a few of the present Spitzkopje specimens and those from the Brandberg and Franzfontein area, are not quite so

* See also White, 1936, Bull. B.O.C., 76: 4.
buffy as typical *naevia* and not quite so dark brown as *herero*. It seems, therefore, that there is very little reason for regarding them as a separate race, but the name *uis* of Hoesch and Niethammer (1940: 218) is available from the locality of that name, it may well be maintained until more data are available. The dark brown *herero* race can be identified as far north as Okahandja, Otjiwarongo, Outjo and Kamanjab. From Otjiwarongo it seems to follow the line of mountains towards Tsumeb, where specimens show colour characteristics intermediate between *herero* and the drab-coloured populations in the north-east.

Three races have been described from the Etosha Pan area. Grote (1922: 46)

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**Fig. 12.** Distribution of races of *Mirafra sabota*. Type localities of valid and invalid forms are shown by square dots. (1) *sabota;* (2) *bradfieldi;* (3) *herero;* (4) *naevia;* (5) *uis;* (6) *waibeli;* (7) *sabotoides.*

described *waibeli* from Okaukwe, Namutoni, Obab and Gaigosaub; Stresemann (1939: 62) described *hoeschi* from Waltersdorf, about 30 miles south-east of Grootfontein; and Hoesch and Niethammer (1940: 217) described *elfriedae* from Onguma. All these places are within about 100 miles radius of Onguma. In his description of *hoeschi* Stresemann compares the characteristics of his new race with those of *naevia* and not with those of *waibeli*, a form lying much nearer geographically. And Hoesch and
Niethammer in their description of *elfriedae*, which included a review of the other two races, did not make any direct comparison between *hoeschi* and *waibeli*. Topotypical specimens of *elfriedae* are in the British Museum collection and through the kindness of Dr. Stresemann of the Berlin Museum it has been possible to compare them with topotypical specimens of *waibeli* and *hoeschi*. All three lack the warm brown colours of the more southerly races. The feathers of the upper parts have broad blackish-brown centres which are flanked by varying amounts of pale buff and grey, the whole giving a general appearance of mottled dark drab and pale buffy-grey. The only differences evident in the few specimens examined is that in *hoeschi* the buff-grey areas are very slightly more buffy than in *waibeli*, and in *elfriedae* these areas are slightly paler grey. In the broad pattern of variation throughout the species these differences are relatively small (smaller for example than the differences between *naevia* and *uis*) and may be accounted for by seasonal changes. The conclusion is, therefore, that *hoeschi* and *elfriedae* should be regarded as synonyms of *waibeli*. A single specimen obtained at the south end of Lake Ngami is rather paler than most specimens of *waibeli* which have been examined, except for one in the Transvaal Museum from 26 miles south of Okaukwejo, which it matches very closely.

One final remark on specimens from the central Kalahari is that birds from Gemsbok Pan and Lehutututu are practically indistinguishable in general colour from *berero* but their bills are small, like those of the nominate race. Roberts' name *sabotoides* (1932: 28) based on specimens from Gemsbok Pan is available for this form. Races are summarised on Fig. 12.

The specimens collected are identified as the following races:


(2) *M. s. nis* Hoesch and Niethammer. Specimens from Spitzkopje, Brandberg and Franzfontein.

Dimensions of 11♂ 2♀: wing, ♂ 86–90, ♀ 83–84; tail, ♂ 54–56, ♀ 50–53; bill, 18–20, ♀ 17–18.

(3) *M. s. waibeli* Grote. Specimen from Lake Ngami.

Dimensions of 1♂: wing 86; tail 53; bill 16.

(121) *Pinacorys nigricans* Dusky Bush-lark.


**Specimens.** 1♂ 2♀ Kamanjab and Onguati (20–25 April).

**Field notes.** This rather rare lark was only found in the bush and tree savanna areas of the upper Huab River. Parties of about four to seven birds were noted, usually on open ground among the scattered tall thorn bushes, but sometimes also perched on trees and bushes. At Onguati small flocks were frequently noted in the compounds where sheep and goats were penned at night: the open ground was black with droppings and in that environment this dark-coloured lark was well camouflaged. Flocks were also
seen on the dry, sandy course of the river, but although conspicuous at a distance they were wary and difficult to approach. The specimens obtained were just completing moult so that the parties seen consisted of post-breeding birds. It is evident therefore that the species flocks in the non-breeding season and the impression was that these flocks wandered a good deal. In fresh plumage the feathers of the upper parts are margined with white and pinkish-buff, most of which disappears as the plumage gets older. Roberts (1940: 194) remarked on the thrush-like appearance and habits of this lark: in our limited field experience of the species it was difficult to believe that the bird was not a thrush.

Dimensions of 1♂ 2♀: wing, 122, ♀ 110–113; tail, 77, ♀ 73–74; bill, 18, ♀ 16. Colour of bill, blackish-horn, whitish at base below; legs, dark grey; iris, dark brown.

(122) *Certhiulauda curvirostris* Long-bill Lark.


**Specimens.** 1♀ 1♀ Groodterm (16–17 Dec.); 1♂ Richtersveld (16 Dec.); 1♀ Assenkjer (29 Dec.); 1♂ 2♀ near Ai Ais (30 Dec.–3 Jan.); 2♂ 1♀ Kleinkaras (7–10 Jan.); 1♂ 1♀ 30 miles east of Kleinkaras (10 Jan.); 1♂ Keetmanshoop (14 Jan.); 2♂ 1♀ Seeheim (16–18 Jan.); 2♂ 1♀ Konkipe (21–22 Jan.); 2♂ 2♀ Witputs (24–26 Jan.); 1♂ 1♀ 35 miles north of Witputs (28 Jan.); 4♂ 1♀ Aus (30 Jan.–3 Feb.) 3♂ 1♀ Barby (6–10 Feb.); 1♂ 25 miles north of Helmeringhausen (12 Feb.); 1♂ 1♀ juv. Nauchas (3 March); 1♂ 1♀ Arandis (30 March); 2♂ 1♀ Spitzkopje (31 March–2 April); 3♂ 1♀ 1♀ juv. Brandberg (10–11 April).

(These notes are condensed from Macdonald, 1952 (a.).)

**Field notes.** The Long-bill Lark was found to be a relatively common desert-margin species: in western South Africa it occurs in localities receiving less than 200 mm. average annual rainfall (Fig. 3). It is curiously absent from Little Namaqualand except on the coastal flats. Its particular environment preference seems to be stony localities, rubble and stone plains, and stony and boulder-strewn hillsides, but with patches of soft sand in which it can probe for insects with its long bill. Although essentially a ground bird this lark readily perched on scrub and bushes. It had a peculiar whistle, a loud clear ‘phee-e-eow’, usually uttered during a display flight in which the bird climbed sharply to about twenty feet, closed its wings and dropped close to the ground before opening them again. The whistle was a very apt accompaniment to this plummet dive. Birds behaving in this way were in late breeding condition; specimens collected were commencing moult though gonads were still quite large. Other notes recorded were transcribed as, ‘phee-e-eo’, ‘trr-rr phee-e-e’ and the reverse, ‘phee-ee trr-rr’ and ‘trr-r-r r whr-r-r-r’, the last being a churring note. The numerous examples of this species collected in various localities provided useful data for illustrating the latitudinal variation in the breeding cycle, a subject which is discussed on p. 30.

**Taxonomic notes.** The specimens are readily separated into two groups on the general colour of the upper parts. From the Orange River to Helmeringhausen, just north of Aus, the upper parts are dark cinnamon-brown; from Nauchas to the Brandberg Mts.
they are distinctly lighter cinnamon-brown, the three Brandberg specimens being the
darkest of this pale group. The darker southern group is readily identified with Sharpe’s
bradshawi from Upington and the northern paler group with his damarensis from Tjobis,
Otjimbingwe. Bradfield (1944) described a race kakoensis from near the Brandberg
Mts. but its validity is uncertain. The specimens are therefore:

(1) *C. c. bradshawi*. Specimens from the Orange River to the Tiraz Mts.
Dimensions of 21♂ 13♀: wing, ♂ 101–112, ♀ 92–99; tail, ♂ 79–90, ♀ 68–75; bill,

(2) *C. c. damarensis*. Specimens from Naukluft Mts. to Brandberg Mts.
Dimensions of 6♂ 3♀: wing, ♂ 106–111, ♀ 94–96; tail, ♂ 77–83, ♀ 68–72; bill,

(123) *Certhilauda albofasciata* Spike-heal Lark.
*Certhilauda albofasciata* Lafresnaye, 1836, Mag. de Zool.: pl. 58. Cape of Good
Hope (sensu lato).
*Certhilauda kalabariae* O-Grant, 1912, Ibis: 375. Lehututu.

*Specimens.* 1♂ 16 miles east of Port Nolloth (19 Dec.); 6♂ 2♀ Steinkopf and Klip-
fontein (19–21 Dec.); 1♂ 1♀ 7 miles west of Kleinkaras (5 Jan.); 3♂ 3♀ 30 miles north-
east of Kleinkaras (10 Jan.); 2♂ 7♀ Witputs (24–26 Jan.); 1♂ 1♀ 30 miles south of Aus
(28 Jan.); 1♂ 1♀ Aus (28 Jan.–2 Feb.); 3♂ 2♀ 40 miles north of Aus (6 Feb.); 7♂ 14♀
1(?) juv. Barby, Tiraz Mts. (9–11 Feb.); 1♂ 25 miles west of Mariental (17 Feb.); 4♂ 2♀
20–100 miles south-west of Windhoek (1–3 March); 3♂ 4♀ Ebony (30 March); 4♂ 2♀
3(?) juv. Okumbahce (7 April); 1(?) juv. 25 miles Sorris Sorris (12 April); 7♂ 4♀ Kaman-
jab (18 and 28 April); 2♂ 3♀ Gobabis (7–10 May); 1♂ 1♀ Fort Reitfontein (13 May);
1♂ 1♀ 32 miles north of Fort Reitfontein (13 May).

(These notes are condensed from Macdonald 1953 b.)

Field notes. The Spike-heel was the most widely distributed of the three *Certhilauda*
species. It seemed to have a greater range of vegetational tolerance, from the thinnest
covering of prostrate succulents along the desert edge to the fairly dense grass-scrub
of the north Kalahari. But it was almost invariably on plains of soft sand or chalk, as
in the Karstveld, and never in rocky or stony places. There was something distinctive
about spike-heel country and one readily got an ‘eye’ for it though it is not easily
described. The bird is a sedentary ground species which sits close and is difficult to
flush. When disturbed it ran rather than flew, but usually ended a short burst of running
by climbing on to a low prominence like a stone or tuft, and occasionally jumped on to
low scrub. It had some connection with holes in the ground though what exactly was
not established. Several wounded birds intentionally made for holes in the ground and
disappeared down them, as they would to a known place of refuge. When flushed they
flew low for a short distance and, at the time observed, when they were in family parties,
uttered a subdued low ‘chirrup’. In flight the short, white-tipped black tail was a
conspicuous feature.
Taxonomic notes. The Spike-heel Lark is a cryptic ground species with a wide range of colour variation. In western South Africa populations can be sorted into a number of distinct geographical colour groups which have a broad general relationship with soil-vegetation types. Some of these groups are further distinguished dimensionally. The specimens collected represent five of these groups. Those from Little Namaqualand belong to the race *garrula* which takes its name from *Certhilauda garrula* Smith. It has been possible to restrict the type locality of this race to Van Rhynsdorp. This dark-coloured race is replaced to the north of the Orange River by a browner form which extends throughout the mountainous country of South West Africa as far as Windhoek and takes its name, *arenaria*, from a description by Reichenow of a specimen from Rehoboth. In the semi-arid plains of Swakopmund, Karibib and Omaruru districts birds are distinctly smaller and paler than *arenaria*. This variation was described almost simultaneously by De Schauensee and Roberts from localities within a few miles of each other, that of the former, *boweni*, from Spitzkopje, having priority over *namibensis* from Ebony. On the chalky soils of the Karstveld in the Outjo and Övampo districts much of the warm brownish tones have been lost and birds are a pale grey-brown or light drab, quite distinct from *boweni*, though averaging much the same in size. Northeast of Windhoek and in the Kalahari region the pattern of variation is much more obscure. Birds from as far east as Gobabis can be identified with the race *arenaria* but specimens taken farther east than that have a vinaceous tint, found also in other cryptic species represented on some of the Kalahari sands, and appear to be larger. They are a fairly close match with the type of *kalahariae* from Lehutu.

(124) *Certhilauda albescens* Karoo Lark.

*Alauda albescens* Lafresnaye, 1839, Rev. Zool.: 259. Blaauberg Beach, Table Bay.


*C. a. cavi* Macdonald (op. cit.). Witputs, Great Namaqualand.


Specimens. 3♂ 1♀ 1♂ juv. Kamieskroon (2–4 Dec.); 2♂ 2♂ juv. 1♀ Springbok (6–7 Dec.); 7♂ 1♀ Grootderm (11–13 Dec.); 1♂ north of Port Nolloth, 3♀ east of Port Nolloth (19 Dec.); 1♂ 1♀ Klipfontein (22 Dec.); 6♂ 2♂ juv. 7♀ 3♀ juv. Witputs (23–27 Jan.); 2♂ 4♀ 30 miles north of Aus (31 Jan.); 8♂ 4♀ Aus (1–2 Feb.); 11♂ 6♀ 1♀ juv. Tsondab Mound (5–6 March).

(These notes are condensed from Macdonald 1953 (c.).)

Field notes. The Karoo Lark seemed to be rather more of a desert species than the other two *Certhilauda* species; it was almost entirely confined to localities with less than 100 mm. average annual rainfall. It occurred along the margins of the coastal deserts, usually where scrub became sparse and stunted and the soil loose and sandy. It appeared to be the only species endemic to the Namib dune country where it lived in association with spiky *Aristida* grass. It is, therefore, a ground species, and rather than fly it would crouch, or creep about like a mouse, or run ‘like a hare’ over the sand. Plumage
colours matched environments very closely and birds were easily overlooked unless searched for. Occasionally, birds would jump on to scrub but after a flight would land on the ground. The flight of a disturbed bird was short and low and gave the appearance of being rather laboured. A song flight was more sustained: birds climbed to about 100 ft. then fluttered horizontally for a short distance uttering a pleasant short phrase which was recorded as ‘chek-chek-chek-chek-tae’: they would drop 10 or 20 ft., flutter again for a short distance, then drop suddenly to earth, and run. A variation of this note was sometimes uttered by a bird standing in or on a clump of grass; it was recorded as ‘tchee-tchee-chr-r-r’. This flight behaviour and song took place at the end of the breeding season when birds were at the beginning of post-breeding moult and juveniles fully grown. Populations were in much the same post-breeding condition in all localities, and showing, therefore, a retardation in the breeding cycle of about three months in about six degrees of latitude.

**Taxonomic notes.** Sedentary habits in exposed environments are related in this species with numerous colour variation; so much so that for a long time it was thought that there were at least two apparently clearly defined groups, sometimes considered to be distinct genera, the Karroo Lark of Cape Province and the Red-back Lark of the Namib dunes. Roberts (1940: 191), for example, recognised two species of Karroo Lark in one genus, and one species of Red-back Lark in another genus. The colour characteristics of the previously known examples of these groups were indeed very different and readily gave rise to confusion, but the series of specimens obtained here between the Springbok area in Little Namaqualand and the Aus area in South West Africa show clearly that the two groups intergrade in colour, and an examination of the dimensions of various features shows that there is no significant divergence. There seemed to be a sound case for regarding all forms as colour variations of a single species. Most colour variants form stable geographical groups. The specimens belong to the following races:

5. *C. a. erythrochlamys*. Specimens from the sand dune localities north of Aus and from Tsondab Mund.

(125) **Ammomanes grayi**  
Gray’s Lark.  

Specimens. 5♂ 3♀ near Tsondab Mund (7–8 March); 4♂ 8♀ Tumas Flats, between upper Kuiseb River and Walvis Bay (17–18 March); 6♂ 2♀ between Walvis Bay and Swakopmund (18–21 March).

**Field notes.** Gray’s Lark is found only in the bare rubble deserts north of Aus, and is possibly more restricted in distribution than the rare plant *Welwitschia Bainesii* which is found in the same area. It was missed at Aus, where Roberts found it, and was seen for the first time on the rubble flats of the Tsondab River where they stretched out into the Namib Desert. Birds were fairly common though in scattered parties and because of their soil-matching coloration were readily overlooked. When flushed they flew over
the ground for a short distance and on alighting flicked their wings, like *Cercomela familiaris*, but in a rather less distinctive manner. The white throats and breasts were readily visible in facing birds, but when the birds turned away it was most difficult to keep them marked. Like most cryptic species they were fairly easily approached. It was frequently noted that birds alighting from a short flight gave a high-pitched double whistle and that disturbed birds gave a treble 'cheep-cheep-cheep'. Parties of Gray's Lark were again found in similar desolate environments on the Tumas Flats between the upper Kuiseb River and Walvis Bay (see Pl. III B) and Walvis Bay to Swakopmund. All the specimens collected between 7 and 21 March were in complete moult, presumably post-breeding, though none were identifiable as juveniles. This fits in with the breeding cycle of other species though Roberts (1940: 201) found Gray's Lark breeding in July near Swakopmund.

Dimensions of 15♂ 13♀: wing, ♂ 80-86, ♀ 74-82; tail, ♂ 47-52, ♀ 43-48; bill, ♂ 14-16, ♀ 14-16. Colour of bill, light horn or bluish-grey, blackish at tip; legs, greyish-pearl; iris, dark brown.

(126) *Ammomanes burra* Red Lark.


**Specimen.** 1♂ 8 miles east of Kleinkaras (10 Jan.).

**Field notes.** This rare species was met with unexpectedly on the north side of the Orange River. Hitherto it had only been known from the Bushmanland area to the south of the river. Little Namaqualand is probably just outside its western limits. The bird was seen on a ridge of red sand dune between the Little and Great Karas Mts. It was running about under low bushy scrub. It was not identified as *burra* at the time for it looked and behaved very much like the Karroo Lark. The bird was well advanced in complete moult.

**Taxonomic notes.** The species had the name *A. ferruginea* until Bangs (op. cit.) pointed

**Table 5. Dimensions of specimens of *Ammomanes burra*.**

<table>
<thead>
<tr>
<th>Locality</th>
<th>Male</th>
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<th>Female</th>
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<tr>
<td></td>
<td>W.</td>
<td>T.</td>
<td>B.</td>
</tr>
<tr>
<td>(Type of Smith's <em>A. ferruginea</em>)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brandvlei (type of <em>P. barei</em>)</td>
<td>104</td>
<td>79</td>
<td>19</td>
</tr>
<tr>
<td>30 miles E. of Brandvlei</td>
<td>102</td>
<td>79</td>
<td>17</td>
</tr>
<tr>
<td>Brospan, E. of Brandvlei</td>
<td>101</td>
<td>77</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>103</td>
<td>79</td>
<td>18</td>
</tr>
<tr>
<td>15 miles E. of Brandvlei</td>
<td>103</td>
<td>80</td>
<td>18</td>
</tr>
<tr>
<td>25 miles E. of Brandvlei</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>25 miles E. of Brandvlei (type of <em>P. b. aridula</em>)</td>
<td>103</td>
<td>80</td>
<td>18</td>
</tr>
<tr>
<td>8 miles E. of Kleinkaras</td>
<td>103</td>
<td>78</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>104</td>
<td>81</td>
<td>17</td>
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out that it was preoccupied. The name *Alauda ferruginea* was given independently by both Lafresnaye and Smith in the same year, 1839. Smith’s ‘Bushman Flats’ can be accepted as the type locality. A more restricted one may be required for there is evidently a good deal of colour variation, though so far too few data are available to determine its extent. Roberts (1937: 95–96) split the group into two species, *Pseudammomanes burra* and *P. barei*, the latter based on a specimen taken at Brandvlei. In *P. burra* he recognised two races, the typical form and *P. b. aridula* from Van Wyk’s Vlei. Dimensions of specimens of this group which have been examined are shown in Table 5.

In the present specimen the plumage is very worn and faded except in the head region where new feathers are showing and these are appreciably paler than in the type of Smith’s *A. ferruginea*. In the meantime it is attached to *A. burra*.

Colour of bill, blackish-horn, paler below; legs, greyish-brown; iris, brown.

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(127) *Calendula magriirostris* Thick-bill Lark.


**Specimens.** 3♂ 1(?), juv. Springbok (6–8 Dec.); 1♂ 1♀ Steinkopf (21 Dec.); 2♂ Klipfontein (19–22 Dec.).

**Field notes.** The Thick-bill Lark was a relatively common species at collecting localities in Little Namaqualand. It was found among the scrub on the rocky hillsides and in the sandy valleys. Usually it skulked on the ground but readily perched on the scrub. All the adults were well advanced in post-breeding moult.

**Taxonomic notes.** The specimens belong to the nominate race.


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(128) *Eremopterix verticalis* Grey-back Finch-lark.


**Specimens.** 1♂ Klipfontein (22 Dec.); 1♂ Violl’s Drift, Orange River (28 Dec.); 1♂ west of Kleinkaras (5 Jan.); 2♀ 15 miles north of Witputs (27 Jan.); 1♂ 1♀ 6 miles west of Aus (30 Jan.); 1 (?), juv. Brandberg Mts. (14 April).

**Field notes.** In the rolling uplands at Klipfontein this Finch-lark was a fairly common species in the thin scrub which was the main vegetational feature of that locality. It was seen in greatest numbers along the edge of the deserts from Witputs northwards as far as the Brandberg Mts., frequently in association with other larks species, notably Stark’s Lark, *Spizocorys starki*. In an area north of Aus where both were common it was noted that although there were mixed parties of the two species the Finch-lark kept more to places where there were scattered tufts of scrub on otherwise bare sand, while Stark’s Lark preferred places where there was a very thin covering of grass. The Finch-lark was recorded far out in the shifting dunes of the Namib, but always flying over as if moving from one distant place to another: sometimes the ‘cheep’ of Finch-larks flying over at about 100 ft. or so were the only sounds in the eerie stillness of the
dunes. Usually they were seen in large flocks on the rubble deserts. Their characteristic appearance and flight made identification easy. The specimens taken at Klipfontein and Violl's Drift in December were well advanced in post-breeding moult. All the other specimens taken farther north were in fresh post-breeding plumage, and the general impression both from the condition of the specimens and the congregation of birds into flocks was that breeding was over. The flightless young bird taken near the Brandberg Mts., in the middle of April, may have belonged to an unusually late brood.

**Taxonomic notes.** Roberts (1931: 243) found birds from Gobabis and Windhoek to be paler in the grey parts of the plumage than birds from the western Transvaal and gave them the name *damarensis*. Colour variation in the Finch-lark in fact follows a common pattern found in several widely distributed species. There is a colour cline from darkest birds on the east side of the continent to lightest birds on the west side. The palest of the western birds are those along the Namib desert margin. In the specimens examined Little Namqualand birds are indistinguishable from Gobabis specimens and examples from Griqualand, Wolmoranstad, Klerksdorp and the central Kalahari are intermediate between light and dark forms. Therefore it seems reasonable to regard all the west coast populations as *damarensis*. The recognition of a widely distributed pale race makes it advisable to check which variation Smith had when he described the species. Smith's illustration (1849: pl. 25) and a single Smith specimen in the British Museum match the darker eastern birds. The distribution given by Smith, usually quoted as the type locality, is 'country on both sides of the Orange River' and refers to the area between Colesberg in eastern Cape Province and Philippolis in the Orange Free State (see Kirby, 1939-40) or in the vicinity of Hopetown farther to the north-west. It is suggested that Colesberg be selected as the restricted type locality.

Dimensions of 4♂ 3♀: wing, ♂ 80-84, ♀ 79-81; tail, ♂ 44-46, ♀ 43-46; bill, ♂♀ 11-12. Colour of bill and legs, pearl-grey to light horn; iris, brown.

(129) *Eremopterix australis* Black-eared Finch-lark.


**Specimen.** 1♀ Barby, Tiraz Mts. (10 Feb.).

**Field notes.** The single specimen taken is all the information obtained on this species. It was found on stony ground at the edge of a plain of red sandy soil covered with short scrub. The colour of the upper parts were a close match with the soil but when observed closely the stripes on the breast were clearly seen. The bird was running on the ground among the scrub. It is a gregarious species but this seemed to be a lone bird and it may have been out of its range, for the species had not previously been recorded so far west.

**Taxonomic notes.** As in the Grey-back Finch-lark it seems possible to restrict the type locality of this species. Smith found both in much the same area on the same expedition. He said that it 'inhabits the country along the Orange River, but extends farther south' and seems that Colesberg would be a suitable type locality for this species also.

Dimensions of 1♀: wing 76; tail 43; bill 10.
(130) *Tephrocorys cinerea* Red-cap Lark.

*Alauda cinerea* Gmelin, 1789, Syst. Nat. 1, pt. 2: 798. Cape of Good Hope (Cape Flats).


**Specimens.** 2♂ 3♀ Klipfontein (21–22 Dec.); 4♂ 3♀ Witputs (25–26 Jan.); 2♂ Aus (3 Feb.); 2♂ 2♀ Swakopmund (18–21 March); 1♀ Brandberg Mts. (12 April); 6♂ 2♀ Gobabis (9–10 May); 2♂ 2♀ Ghanzi (15 April).

**Field notes.** The Red-cap was first identified in barren scrubby plains north of Springbok. At Klipfontein large flocks were fairly common, and usually located on the sandy and stony margins of old cultivation or scattered about in the scrub, with birds sometimes standing on rocks and stones and others sheltering under bushes. On the whole they were rather shy and difficult to approach. A protective advantage in flocking was evident when one tried to approach birds on the ground. They were difficult to mark because of their camouflage pattern, but when one did spot a bird by its movement it was usually well in the middle of the flock and on stalking it others much nearer which had not been seen got up, which was a signal for the whole flock to move. One sometimes stalked birds in this way to the point of exasperation and exhaustion. When marked on the ground and studied closely the rufous crown and breast patches and the white eyestripe and throat were clearly distinguishable. The crown feathers could be erected into a miniature crest. When birds rose into the air they usually made a thin chirping cry. All the Klipfontein specimens were just completing moult. In the very fresh plumage the feathers are tipped with pale colour so that both the rufous crown and breast patches are not so obvious in the field as they are in birds with older worn plumage. The species was seen again in the Witputs area, frequenting the scrub at the edge of the desert. Specimens were in the same plumage condition as those taken in Little Namakaland, namely just at the end of post-breeding moult. Flocks were found in similar surroundings and in similar condition farther north at Aus and near Walvis Bay. Small parties of Red-caps and Namib Chats were fairly common along the road connecting Walvis Bay and Swakopmund and the flats bordering the Swakop River. Birds were noticeably paler than those south of the Namib. They were usually in pairs and in very worn plumage without any sign of moult, and the indication is that they were still in the breeding period. No juveniles were seen. Farther north a small flock was found on the grassy plains near the Brandberg Mts., and the single specimen obtained was a female in moderately worn plumage with no sign of moult. It is much darker than the Swakopmund birds and is only slightly paler than the birds found at Gobabis and Ghanzi. The Gobabis birds were obtained out of a flock of about 12–15 birds which were on relatively bare sandy ground with scattered clumps of bush and scrub. The birds were in a scattered flock which repeated a manoeuvre of flying up several hundred feet but apparently not in any co-ordinated formation, then dropping lower and suddenly diving to earth. This restless activity was reminiscent of birds preparing to migrate, and when this is coupled with the fact that several specimens obtained at Gobabis and later at Ghanzi were very fat the conclusion is that there may be regular and fairly considerable migratory movements.


Notes on Species

**Taxonomic notes.** The specimens collected vary a good deal in colour. In a recent revision of the species Grant and Praed (Bull. B.O.C., 59, 1936: 136) concluded that colour variation in southern Africa was polymorphic and they recognised only one race there. But each of the present population samples is more or less constant in colour, except for small seasonal differences due to abrasion and fading. A study of all available material was made the subject of a special paper (Macdonald, 1952 (d)) and it seems that there is a fairly clearly defined geographical pattern of colour variation. The conclusions are summarised here in so far as it affects the specimens of Red-cap collected in western South Africa:


2. *T. c. spleniata*. Specimens collected on the banks of the Swakop River near Swakopmund. A very pale fawn-coloured race limited to a narrow coastal belt in this region, and also represented by similarly coloured birds in the Etosha Pan area of Ovampoland.

3. *T. c. anderssoni*. Specimens collected at Gobabis and Ghanzi. The single specimen from near the Brandberg Mts. is included with this race although it is rather greyer.

(131) *Spizocorys conirostris* Pink-billed Lark.


*Specimen*. 1♂ 40 miles east of Sandfontein, Bechuanaland Protectorate (13 May).

*Field notes.* This relatively little-known species was only recorded at the first camp in the Kalahari Desert. There in the thick low scrub and grass a bird was flushed which was mistaken for a Stark’s Lark for it behaved rather like it in the air.

*Taxonomic notes.* Variation follows the common pattern in which birds on the west side of the continent are paler than those on the east. This species matches the paler form to which Roberts gave the name *damarensis*. Three specimens in the British Museum from the north-east Transvaal (Pietersburg) are appreciably paler than typical *conirostris* but not so pale as *damarensis*.

(132) *Spizocorys starki* Stark’s Lark.

*Calandrella starki* Shelley, 1902, Bds. Afr. 3: 135. Wilson’s Fountain, near Otjimbingwe. (This Andersson locality is now probably the farm Wilsonfontein, about 30–40 miles south-west of Otjimbingwe.)

*Specimens*. 3♂ 1♀ between Little and Great Karas Mts. (10–11 Jan.); 1♂ Witputs (26 Jan.); 4♂ 2♀ 15 miles north of Witputs (27 Jan.); 5♂ 30–40 miles south of Aus (28 Jan.); 1♂ 1♀ Aus (30 Jan.–3 Feb.); 1♀ by Tiraz Mts. (9 Feb.); 1♀ Tsondab Mund (6 March); 2♀ Spitzkopje (1 April); 1♀ 33 miles south-west of Kamanjab (26 April).
Field notes. Stark’s Lark was a relatively common species in the rubble deserts north of the Orange River. In the rolling country between the Little and Great Karas Mts., a few large flocks were seen on stony slopes where vegetation was very sparse. It was a difficult bird to stalk for when a flock landed among the stones and low scrub it ‘disappeared’. If one did mark a bird there were certain to be others nearer which would be disturbed and set the whole flock into the air. Even in more open ground near Witputs, and particularly in bare flats between Witputs and Aus it was extremely difficult to mark birds. It was in this region they were found in greatest numbers, usually in thin scattered flocks flying about rather wildly and dropping very suddenly to the ground. They might easily have dropped into the ground for one strained one’s eyes trying to locate them. On one occasion a Burchell’s Courser was shot on the ground and two Stark’s Larks were quite unexpectedly found in the bag. Flocks of the Finch-lark, *Eremopteryx verticalis*, often accompanied them. Although essentially a ground bird Stark’s Lark was occasionally seen perched on low scrub and bushes. This species and the Finch-lark were seen in the Namib desert dunes but the impression was that both were stragglers there and not residents like the Karroo Lark. It was a fairly common species in the Spitzkopje area, and the last bird found was flushed in a plain of thick knee-high grass in the upper Huab River near Onguati. In most of the specimens the gonads were rather small and as the plumage was fairly fresh (there was no sign of moult) the conclusion was that the breeding season was just over. In this respect they seemed to be consistently rather in advance of most other species in these regions.

Taxonomic notes. This species is remarkably stable in its colour characteristics which is unusual in a cryptic ground species. For example, Stark’s Lark and Spike-heel Larks were found in exactly the same environment at Witputs and at Spitzkopje, but whereas the Spike-heels are very different in colour the Stark’s Larks are practically identical, and yet in both localities both species were equally difficult to mark on the ground.


(Note: It is usual to record the species as only occurring north of the Orange River, but Mr. J. M. Feely sent me a specimen which he obtained at Nieuwoudtville, Calvinia District, on 22 June 1951. This is an interesting extension of distribution.)

(133) *Spizocorys sclateri*  Sclater’s Lark.


*Specimens.* 2♂ 1♀ Seeheim (18 Jan.).

*Field notes.* This apparently rather rare species was only recorded once when a flock of about half a dozen birds was found watering at a pool in the course of the Grate Fish River. Sclater’s Lark is based on two specimens collected by Andersson on the Hountop (now Huput) River, a small tributary of the Great Fish River. According to the account of his travels given by Wallis (1936) Andersson spent some time on the Huput River very close to the present Maltahöhe, and it seems preferable, therefore, to restrict the type locality to the better known place. The present specimens were obtained on the same river system but about 130 miles farther south. The type was not taken at Otjimbingwe as stated by Meinestzhagen 1949: 106.
Notes on Species

Dimensions of ♂ 1♀: wing, ♂ 80–85, ♀ 84; tail, ♂ 41, ♀ 42; bill, ♂♀ 14–15. Colour of bill, brownish-horn; legs, light brown; iris, coffee-brown.

Motacillidae


Specimens. 2♀ 1(? ) juv. Grootderm (11–15 Dec.).

Field notes. Both this and the Cape Wagtail were common along the banks of Orange River at Grootderm, Violl's Drift and Assenkjer. They frequented open parts of the bank and mud flats, usually feeding by the edge of the water and flying higher up the bank, sometimes perching on trees and bushes up to about 10–15 ft. All the specimens were in rather worn plumage with moult just beginning.

Taxonomic notes. These specimens are nearly topotypical of the species for Levallant said that he only found these birds along the Orange River, which he reached probably somewhere above Goodhouse. They have the dark flanks of the nominate race.

Dimensions of 2♀: wing 87–88; tail 90; bill 18. Colour of bill and legs, black; iris, dark brown.

(135) Motacilla capensis  Cape Wagtail.


Specimens. 1♂ 1♀ (both juv.) Grootderm (10–11 Dec.); 2♂ 1♀ Ai Ais (30 Dec.–1 Jan.); 1♂ Seeheim (17 Jan.); 1♀ juv. Brandberg Mts. (9 April); 1♂ Katemba Dam, near Kamanjab (26 April).

Field notes. Much more common and widespread than the Pied Wagtail and found wherever there was open water. They were numerous at Ai Ais on the Great Fish River where they frequently congregated along the channelled outflow from a hot spring. The adults were in various stages of post-breeding moult.

Taxonomic notes. Birds on the west side of the continent belong to the nominate race and all the specimens are a reasonably good match with Cape birds. The juvenile plumage is distinctly browner on the upper parts than the adult, and there is an appreciable amount of seasonal fading which is evident from the mottled appearance of birds in moult. One of the specimens taken on the Orange River is of an aberrant colour. It lacks most of the normal pigment and is a rather pale washed-out brown on the upper parts. It was taken along with normally coloured birds which were probably its parents for it is a juvenile.

Dimensions of 4♂ 1♀: wing, ♂ 81–85, ♀ 81; tail, ♂ 85–91, ♀ 81; bill, ♂ 17–18, ♀ 16. Colour of bill and legs, black; iris, dark brown.

(136) Anthus similis  Long-billed Pipit.


Specimens. 1♂ Kamieskroon (3 Dec.); 1♂ Barby (7 Feb.).

Field notes. The Kamieskroon specimen was found at the edge of a stubble field;
the other on stony ground in the Tiraz Mts. Both were in rather worn plumage with no sign of moult. This, and the fact that the testes were fairly large, suggests that the birds were at the nesting stage of the breeding cycle.

**Taxonomic notes.** For a long time this species was known as *Anthus sordidus* but it is now considered to be conspecific with the older *A. similis* of India. It is usual to regard Damaraland birds as a distinct race *leucoraspedon*, but the differences between it and the widespread South African form *nicholsoni* have not been clearly defined since it was originally compared with *Anthus leucophrys* and not with any form of *similis*. The British Museum series from South Africa shows Transvaal and Natal birds to be rather more richly coloured above and buffier below, with heavy spotting on the breast, while those from South West Africa tend to be duller above, whiter below, with less heavy spotting on the breast. Gradation between the two extremes is shown by specimens from northern Cape Province, those from Deelfontein being heavily spotted, but paler below than eastern birds, while those from Little Namaqualand match the South West Africa series. It seems that *leucoraspedon* can be maintained as a good race on these characters, and though a series from west to east in northern Cape Province would probably show intermediates between it and *nicholsoni* a division can be made somewhere to the west of Deelfontein. All the specimens are therefore identified as the western race *A. s. leucoraspedon*.

Dimensions of 2♂: wing 91–96; tail 75–75; bill 18–19.

(137) *Anthus novaeseelandiae* Richard’s Pipit.


**Specimens.** 1♀ Franzfontein (14 April); 1♀ 1(?juv. Kamanjab (28 April); 1♀ Fort Reitfontein (13 May); 1♂ 1(?juv. Lake Ngami (17 May).

**Field notes.** The first record of Richard’s Pipit was a bird flushed on a sandy track in fairly thick bush and grass savanna near Franzfontein. It was just completing moult. Several family parties were found on an open short grass plain just south of Kamanjab, and the two specimens collected were an adult female in very worn plumage and a young bird in the early stages of post-juvenile moult. At Fort Reitfontein on the Bechuanaland border a female in fresh adult plumage was taken from a low bush at the edge of a clay pan. A similar hard clay pan, with short dry grass, near the south end of Lake Ngami provided another adult in fresh plumage and a juvenile in early moult.

**Taxonomic notes.** It seems to be fairly generally agreed that *Anthus richardi* is conspecific with *A. novaeseelandiae*. Many African forms have been described. It is not easy to distinguish significant geographical variation in a species which has sometimes been confused with the rather similar sympatric species *similis* and *leucophrys*. The confusion is gradually clearing but much still remains. The race widely distributed in South Africa is now named *rufuloides* (see White, Ibis, 1951: 464). In Damaraland and Angola it is replaced by the paler *bocagii*. White (Bull. B.O.C., 67, 1946: 8) found it ‘a very striking race’, but in the series examined it seems that the paler colour is only just apparent. It is possible to match individual specimens from north and south although in the aggregate a slight colour difference can be seen. The species is not recorded from Little
and Great Namaqualand and it seems reasonable therefore to regard the birds south of this blank area as the generally darker *rufuloides* and those to the north as the generally paler *bocagii*. All the specimens, even those taken as far east as Lake Ngami, are identified as *A. n. bocagii*.

Dimensions of $3\vartriangle 3\vartriangle$: wing, $\vartriangle 85-88$, $\vartriangle 80-84$; tail, $\vartriangle 63-66$, $\vartriangle 59-64$; bill, $\vartriangle 16-17$, $\vartriangledown 15-16$.

(138) *Anthus vaalensis*  Plain-backed Pipit.


**Specimens.** 1♂ near Franzfontein (14 April); 1♂ 1♀ Kamanjab (19–20 April).

**Field notes.** The Franzfontein specimen was found on the same day as Richard’s Pipit and on the same strip of sandy road track running through bush and grass savanna. It was in fresh plumage. One of the two birds taken at Kamanjab was found in an open grassy patch in tall bush savanna and the other was perched on top of a bush. Both were in fairly fresh plumage.

**Taxonomic notes.** The specimens can be identified with the race *chobiensis* Roberts. The Plain-backed Pipits are split into two species *leucophrys* and *vaalensis*, and a case for recognising this arrangement was made out by White (1948). He made *A. leucophrys neumanni* a synonym of typical *vaalensis* although it is possible that it may be more nearly allied to *chobiensis*. This is a complex group and much more data are required.

Dimensions of $2\vartriangle 1\vartriangle$: wing, $\vartriangle 94-99$, $\vartriangle 96$; tail, $\vartriangle 72-75$, $\vartriangle 73$; bill, $\vartriangledown 16-17$.

**Timaliidae**

(139) *Turdoides bicolor*  Pied Babbler.


**Specimens.** 1♂ 1♀ Okahandja (1 May).

**Field notes.** The only records obtained were the two collected specimens, almost certainly a pair, which were found in fairly thick bush country near Okahandja. Both birds were approaching final stages of complete moult, which suggests that they had just finished breeding.

Dimensions of 1♂ 1♀: wing, $\vartriangle 114$, $\vartriangle 110$; tail, $\vartriangle 115$, $\vartriangle 111$; bill, $\vartriangle 26$, $\vartriangle 25$. Colour of bill and legs, black; iris, brownish-orange.

(140) *Turdoides gymnogenys*  Bare-cheeked Babbler.


**Specimens.** 1♂ 1♀ 1(?*) juv. Garubib Farm, Huab River (14 April); 1♂ 1♀ Katemba, near Kamanjab (21 April); 1♂ 3♀ Onguati (25 April).

**Field notes.** This rare species appeared to be relatively common in the upper waters of the Huab River. When camped near Franzfontein an excursion was made to the Huab River at about the farm of Garubib. Here a number of small parties were found in the tamarisk thickets bordering the river. The birds were very noisy and behaved like typical babblers. In the Katemba–Onguati area farther up the same river they were
found in the trees bordering dry courses or in relatively thick tall bush savanna (see Pl. VI A). To begin with they were confused with the Wattled Starling, *Creatophora carunculata*, whose general appearance at a distance bears a close resemblance to the Bare-cheeked Babbler, but there is a marked difference in the habit of flight. The babblers are more leisurely in their movements, drifting slowly from one bush to another in a very extended follow-my-leader fashion, and usually keeping below about 20–30 ft. The starlings on the other hand are much more lively, moving about in a fairly close pack in a sudden flurry of wings and keeping, as a rule, fairly high up in trees. On several occasions Bare-cheeked Babblers were seen in company with the Buffalo Weaver, *Bubalornis albirostris*. At fairly close range the curious pattern of the face of the babbler, thin stripes of white feathers across bare black skin, is a character which readily attracts attention. The appearance is of a barred cheek, and it seemed that it would be more appropriate to call this species 'Bar-cheeked' than 'Bare-cheeked'—perhaps it was originally intended to be so. The specimens collected were in post-breeding and post-juvenile moult and illustrate, therefore, the transition from juvenile to adult plumage and from adult worn to fresh plumage.

**Taxonomic notes.** Delacour (l'Oiseau, 1946: 20) included this babbler in the genus *Turdoïdes* instead of keeping it in the monotypic genus *Aethocichla*, whose only generic character, the bare skin on the cheek, is of doubtful significance. The Bare-cheeked Babbler was first described on a specimen obtained by Monteiro in Benguela, Angola. The type has been examined, and also another specimen collected by Ancheta in approximately the same area. These two specimens illustrate extremes of seasonal variation, the type being a bird in quite new plumage, while the other is in extremely worn plumage and showing the beginning of total moult. In the worn condition the under parts are pure white; in the fresh condition the foreneck and upper breast are barred with dusky markings. Similarly, the upper parts of fresh plumage are dark blackish-brown, while in the old plumage they are a lighter grey-brown, also the fresh feathers of the crown are tinged with grey-brown which apparently soon wears off leaving the feathers pure white. These points are important because Roberts (1937: 100) made a new race, *kaokoensis*, of birds from the upper Huab River mainly because the under parts of his specimens from that area showed no traces of barring on throat and breast. His specimens, collected in June, are fairly worn, but the present specimens from the same locality, taken in early April, are in transition from worn to fresh plumage and show a good deal of dusky barring or speckling, though not quite so pronounced as in the type. It seems, therefore, that Roberts described a seasonal difference (which he had no means of determining) and not a geographical one. The same argument applies to his *tsumebensis* (1937: 101) from Tsumeb. The juvenile plumage differs from the adult only in that the under parts appear to be pure white, without dusky markings, and the crown is darker, being grey-brown and rusty coloured.

Dimensions of $\hat{\text{g}}$, $\hat{\text{g}}$'s: wing, $\hat{\text{g}}$ 105–108, $\hat{\text{g}}$ 109–114; tail, $\hat{\text{g}}$ 199–200. Colour of bill, legs and bare skin on face, black; there appears to be a sexual difference in the colour of the iris, that of the male being brownish-grey and the female pale lemon-yellow.

(141) *Achaetops pycnopygius* Damara Rock-jumper.

Specimens. 1♂ Brandberg Mts. (10 April); 2♂ 3♀ 1 spirit specimen, Kamanjab (19–23 April).

Field notes. First acquaintance with this comparatively rare species was in the Brandberg Mts., where a new bird was noted in a tree in the only valley explored. It was its pleasant warbling song which particularly attracted attention. The disturbed bird flew immediately to the boulder-strewn slopes of the valley and there led us a strenuous chase as it flew from rock to rock. Possibly it is as typical a species of this bare boulder-strewn mountain as it is of the Erongo Mts. It is also typical of the kopje country of the upper Huab River area (see Pl. V B). It seemed that each kopje had at least a family of Rock-jumpers and a family of Hartlaub’s Francolin, Francolinus hart-laubii. Usually the easiest way to find the Rock-jumper was to watch the ‘skyline’ of rocks and boulders and sooner or later the bird would show up in silhouette. In this area one bird was carrying a mouthful of insects and the presence of nestlings in mid-April fits in with Hoesch’s record (Hoesch and Niethammer, 1940: 259) of nests in the Waterberg Mts. in March. It seems, therefore, that the Rock-jumper breeds rather later than most other species in this area.

Taxonomic notes. There are some doubts as to the proper systematic position of this species which has a rather restricted distribution in northern South West Africa and southern Angola. It is usually placed near another rock-jumper which inhabits the mountains of Cape Province east to Natal. Sometimes they are kept in the same genus, Chaetops, although Roberts’ arrangement of putting them in two adjacent genera Chaetops and Achaetops is more generally followed. It is usual to put these two genera in the family Timaliidae, but Delacour (l’Oiseau, 1946) in his review of this family removed Achaetops pycomygias to the warblers, near Melocichla, and Chaetops frenatus to the thrushes. No morphological reasons are given for this arrangement and in these notes the species is kept in the Timaliidae.

It is possible to restrict the type locality to the Erongo Mts. The species was based on specimens in the first collection sent to England by Andersson with Galton in 1852. Up to that time Andersson had been little farther afield in Damaraland than the Erongo Mts. and it seems highly probable that he collected the birds there. Most of the localities listed in his book (1872: 117) are in the vicinity of these mountains. As the species becomes better known significant differences may be found in its isolated populations.


Pycnonotidae

(142) Pycnonotus capensis Cape Bulbul.


Specimen. 1♂ Cape Town (21 Nov.).

Field notes. This bulbul was identified as far north as Springbok. Its northern limit is somewhere between there and the Orange River where its place is taken by the Red-eyed Bulbul.

Taxonomic notes. Although this and the Red-eyed Bulbul have distinctive features
they have many similarities in common, suggesting recent divergence from a common stock. They appear to be a good example of two components of a super-species. A parallel case is found in the Yellow-vented and White-vented Bulbuls of the Sudan.

(143) *Pycnonotus nigricans* Red-eyed Bulbul.


**Specimens.** 2♀ Grootderm (12–15 Dec.); 1♂ 1♀ Violl’s Drift (26–27 Dec.); 1♂ Seeheim (16 Jan.); 1(?) juv. Naukluft Mts. (11 March); 1♀ lower Kuiseb River (24 March).

**Field notes.** This bulbul was common along the Orange River at Grootderm, Violl’s Drift, and Assenkjer. In the irrigation flats at Grootderm it was troublesome because of its attacks on ripening figs and other fruits. North of the Orange River the Red-eyed Bulbul was fairly common except in the very driest areas. But even in desert localities, wherever the course of a stream permitted the growth of tall bushes and trees, or in the few acres of garden around farm-houses this bird was almost certain to be found. Most of the adult specimens were in post-breeding moult. The fresh plumage shows up much darker against the very worn and faded plumage. The Seeheim bird had not commenced moult and the testes were large. The Kuiseb River bird, taken in late March, was at much the same stage in the breeding cycle as specimens on the Orange River three months earlier.

**Taxonomic notes.** The species was based on Levaillant’s description of ‘Le Brunior’ which he found abundant in the vicinity of the Orange River, probably in the vicinity of Goodhouse, and it is proposed that the type locality should be restricted to that well-known place. There does not appear to be any geographical variation throughout South West Africa. The race *barterti* from southern Angola, described by Zelditz in the species *P. barbatus* without reference to *nigricans*, is doubtfully distinct.


**Muscicapidae**

(144) *Muscicapa striata* Spotted Flycatcher.

*Motacilla striata* Pallas, 1764, in Vroeg’s Cat. Adumbrat.: 3. Holland.

**Specimens.** 2♂ Grootderm (16 Dec.); 1♀ Assenkjer (28 Dec.); 2♂ Spitzkopje (31 March–4 April).

**Field notes.** The Spotted Flycatcher was a familiar species in unfamilar surroundings. It behaved in exactly the same way as it does in Britain, perching on some low vantage point in bushes and trees and darting out to catch insects. A point of particular interest was the identification of this species in the Spitzkopje area in early April, at a time when other members would be arriving in Britain. Thus the probable distribution of the species at that time was from at least about 22° south latitude to at least about 50° north latitude. Both birds were in full fresh plumage; one had large testes but in the other they were quite small and the bird seemed to be a juvenile of the previous year.

**Taxonomic notes.** The specimens belong to the nominate race.

Dimensions of $4♂ 1♀$: wing, $♂ 84–90$, $♀ 84$; tail, $♂ 61–65$, $♀ 63$; bill, $♂ 16–17$, $♀ 16$. 

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(145) Parusoma subcaerulea Tit-babbler.


*P. s. cinerascens* Reichenow, 1902, Orn. Monatsb., 10: 77. Windhoek (see below).

**Specimens.** 2♂ 1♀ Kleinkaras (4–6 Jan.); 2♂ 1♀ Seeheim (16–18 Jan.); 1♀ Barby, Tiraz Mts. (9 Feb.); 1♂ Blesskranz, Naukluft Mts. (11 March); 2♂ 1♀ lower Kuiseb River (24–25 March); 1♂ Spitzkopje (3 April); 1♂ 1♀ Kamanjab (20 April).

**Field notes.** This is one of a pair of complementary species, like the Cape and Red-eyed Bulbuls which more or less replace each other geographically, and although similar in many ways have distinct morphological differences. *P. subcaerulea* is a northern species extending into eastern Cape Province, and has a preference for trees and tall bushes, extending with this vegetation along watercourses into the treeless scrub area. On the west side of the continent our most southerly record was on the Guab River near Kleinkaras. The adjacent scrub in the same locality was frequented by *P. layardi* which belongs particularly to the scrub regions of western Cape Province. *P. subcaerulea* was a rather secretive bird usually keeping well under cover about the base of trees and bushes: it was not recorded above about 15–20 ft. The specimens collected were in various stages of post-breeding moult showing the usual pattern of retardation in the breeding cycle from south to north.

**Taxonomic notes.** The race *cinerascens* was based on Lubbert specimens from Windhoek, which can be accepted as the type locality. The point is important because Hoesch and Niethammer (1940: 287) distinguished another race, *ombuensis*, in the Erongo Mts., 120 miles north-west of Windhoek. Topotypical material of *ombuensis* has not been examined but the specimens from the lower Swakop River and Spitzkopje are indistinguishable from *cinerascens*. The pattern of variation in these regions is fairly constant, populations in the south and east having most brown in the brownish-grey upper parts and in the extreme north-west least brown: the latter extreme in this species is indicated by the race *ansorgei* of Angola. The intermediate stages of the colour clime are usefully indicated by the race *cinerascens*.


(146) Parisoma layardi Layard’s Tit-babbler.

*Parisoma layardi* Hartlaub, 1862, Ibis: 147. Zwartland, Malmesbury District, C.P.

**Specimens.** 3♂ 1♀ 1(?), juv. Kamieskroon (1–5 Dec.); 1♂ Klipfontein (23 Dec.); 2♂ 1♀ Kleinkaras (4–8 Jan.); 1♂ Witputs (26 Jan.); 1♂ 1♀ Brandberg Mts. (10 April).

**Field notes.** This is mainly a scrub species, unlike *P. subcaerulea* which seems to keep entirely to bushes and trees. Both species, for example, occurred in the Kleinkaras area, but *subcaerulea* was only found on the Guab River course where trees and bushes were plentiful, while *layardi* kept to the scrub away from the river. In general morphology and habits, and even in colour appearance, except for the reddish-brown under tail coverts of *subcaerulea*, the two species are very alike, and the fact that they replace each other in different habitats suggest that they are a fairly recent bifurcation of a common stock. An indication of this affinity might be the similarity of the rather unusual iris colour which is bright pale creamy-white. Other examples of complementary species
are noted elsewhere. Layard’s Tit-babbler was a common species of the Little Namaqua-
land scrub, and during December was usually found in small family parties. The striped
throat and white-tipped outer tail feathers were readily observed. North of the Orange
River it was fairly common in the Kleinkaras area and in suitable habitats along the
desert margins from Witputs to the Brandberg Mts. All adult specimens were in post-
breeding moult many showing new feathers rather greyer than the old. Young birds can
be distinguished by their rather browner plumage, both above and below, and almost
complete absence of streaks on the foreneck and upper breast.

**Taxonomic notes.** This was a monotypic species until Vincent (Bull. B.O.C., 68, 1948:
145) recognised Basutoland birds as a distinct form to which he gave the name *barnesi.*

Dimensions of $8\pi^3$ 3$\pi$: wing, $\delta$ 64–69, $\varphi$ 63–65; tail, $\delta$ 60–66, $\varphi$ 61–63; bill, $\delta$ 13–14,
$\varphi$ 12–13. Colour of bill and legs, black; iris, ivory-white to pale lemon-yellow.

(147) *Bradornis mariquensis* Marico Flycatcher.

River, Transvaal.

**Specimens.** 2$\delta$ 1$\varphi$ 3(?) juv. Kamanjab (19–22 April); 1(?) juv. Gobabis (9 May).

**Field notes.** Although this species has been recorded as far south as the Naukluft
Mts. and Rehoboth it was first observed in the Kamanjab area, where it was quite com-
mon. It seems to require more bush and tree vegetation than the Chat Flycatcher, *B.
infuscata,* and to some extent, therefore, they replace each other. As with several other
flycatchers we found that it kept to the lower branches of trees and bushes, rarely
going above about 6–10 ft. In April and May parents were feeding full grown young
in typical speckled plumage. The adults were in various stages of post-breeding moult.

Dimensions of 3$\delta$ 1$\varphi$: wing, $\delta$ 85–86, $\varphi$ 89; tail, $\delta$ 76–79, $\varphi$ 78; bill, $\delta$ 16–17, $\varphi$ 18.
Colour of bill and legs, black; iris, dark brown.

(148) *Bradornis infuscata* Chat Flycatcher.

*Saxicola infuscata* Smith, 1839, Illustr. Zool. S. Afr., Aves: pl. 28. Little Namaqua-
land.

**Specimens.** 3$\delta$ Kleinkaras area (3–5 Jan.); 1$\varphi$ Witputs (25 Jan.); 1$\varphi$ 1(?) juv. Nauchas
(3 March); 1$\varphi$ Okumbaha (7 April); 1(?) juv. Uis (12 April).

**Field notes.** The frequent records of this species along with the bush *Euphorbia gre-
garia* may have meant no more than that the bushes provided suitable stances, for the
birds usually perched right on top. It may be, however, that they fed on some insects
associated with the *Euphorbia.* Although the species occurs in Little Namaqualand it
was first seen north of the Orange River. First impressions were that it was a chat. It was
easily identified by its nondescript appearance, characteristic stance on top of a bush
and long broad tail. It was found fairly regularly but never in large numbers in most
collecting areas north of the Orange River. Around Kleinkaras specimens were in worn
breeding dress, probably with young still in the nest for juveniles were not seen, but
farther north post-breeding moult was well advanced and young birds in speckled
plumage were moving about with their parents.

**Taxonomic notes.** White (1951) and Vaurie (1952) contributed recent taxonomic
notes on this species. White seems correct in distinguishing a South West Africa form
intermediate in colour and distribution between the blackish-brown nominate race of north-west Cape Province and the paler birds which are typical of Angola. It was found that the nominate race extends across the Orange River, for specimens from Witputs can be identified with it. But at Kleinikars, east of Witputs and across the canyons of the Great Fish River, birds are appreciably paler and browner and remain more or less consistently so throughout South West Africa as far north as the Omaruru District, but apparently with a slight gradation towards a paler tone in the north than in the south. This group in turn is browner above and more dusky below than all but one of the Angola birds. The majority of Angola birds, apparently from coastal localities only, are slightly greyer on the upper parts and whiter on the under parts. There is also an appreciable size difference. The presence of greyer and browner races in Angola and South West Africa was first recorded by Ogilvie-Grant (Ibis, 1913: 633), but unfortunately the way in which he separated them has given rise to some confusion in their nomenclature. Ogilvie-Grant found that a cotype of Sousa's benguellensis in the British Museum matched specimens from Damaraland which were browner than a series of specimens from Huxc and Catumbella, Benguella Province. He reasonably assumed that the type was similar to the cotype and therefore that the name benguellensis was applicable to the browner group and gave the greyer birds the new name ansorgii. If the type is a 'grey' bird then the name ansorgii becomes a synonym of benguellensis and the cotype may be regarded as a 'sport' showing the characteristics of a form typical of another area; this seems to be the argument adopted by Vaurie. If the type is a 'brown' bird like the cotype then the possibility of their being two similar 'sports' in what is a relatively small sample of Angola birds is unlikely. The explanation may be that there is a brown population of limited distribution and related to some environmental factor in close proximity to or within the distribution of the grey bird; or, as White concluded, it may be that Anchieta collected the specimens inland in Angola, not in Benguella town as is supposed, and that there is an inland connection with the Damaraland populations. This pattern of variation, a widespread browner form replaced by greyer populations in coastal localities, is found in other species from western districts of southern Africa. But the position at the moment is that there is nothing to show that such a connection exists, that the gap is very wide, and that the name benguellensis is fixed to a form which is typical of South West Africa, from Damaraland to approximately the Orange River, and whose type locality lies, in consequence, in an area in which all other collected specimens belong to a distinctly different group. It seems that this is a case in which nomenclature hamstrings taxonomy, and that until more data become available, particularly specimens from inland districts of Angola south to Ovampoland, and they can be examined in conjunction with the type, which unfortunately is not readily accessible in the Museo Bocage in Lisbon, the best course to adopt is to regard the name benguellensis as applicable to the greyer Angola birds with ansorgii as a synonym, and to give a new name to the browner birds of South West Africa, as follows:

**Bradornis infuscata namaquensis** New race.

*Description.* Upper parts fawn-brown, as distinct from the drab-brown of the nominate form and the light-drab of benguellensis. On the under parts the breast and flanks are
vinaceous-buff whereas in the nominate form these parts are light-drab, and in _benguellensis_ the whole of the under parts are nearly white with only a slight amount of dusky on breast and flanks. Wing-lengths are: ♂ 109–118 (8), ♀ 98–108 (5), compared with _infuscata_ ♂ 115–117 (4), ♀ 110–114 (4), and with _benguellensis_ ♂ 101–107 (5), ♀ 96–104 (6).


Our specimens are identified therefore as follows:

(1) _B. i. infuscata._ Specimen from Witputs.

Dimensions of ♂ 1♀: wing 115; tail 86; bill 23.

(2) _B. i. namaquensis._ Specimens from Kleinkaras to Usis.


(149) _Batis pririt_ Pirit Flycatcher.


_Specimens._ 2♂ 1♀ Grootderm (14–15 Dec.); 2♂ Assenkjer (28–29 Dec.); 2♂ 1(? juv. Seeheim (16 Jan.); 1♂ 1♀ Barby, Tiraz Mts. (9 Feb.); 1♂ 1(? juv. Maltahöhe (13 Feb.); 1♂ 1♀ Blesskranz, Naukluft Mts. (11 March); 2♀ 1(? juv. lower Kuiseb River (24–25 March).

_Field notes._ The Pirit Flycatcher was found only in trees and tall bushes. In the savannas of the north it was widespread and common but its distribution in the drier area was related to the occurrence of trees along watercourses, or groves of bushes in the vicinity of wells. Grant (see Selater, 1911: 425) found it at Klipfontein in Little Namaqualand but the present first records were on the Orange River where we were attracted to it by its distinctive note, a series of loud clear whistles beginning on a high note and descending regularly and slowly, in a rather mournful manner. The notes were surprisingly loud for such a small bird. Birds usually kept to the lower parts of trees and bushes rarely going above about 15 ft. They were in pairs, or family parties with fully fledged young still being fed. Various stages of plumage were represented in the series collected, including adults in post-breeding moult and juveniles moulting into adult dress. The juvenile male is like the adult female in having the breast vinaceus-cinnamon instead of black. There is little difference in the stage of the seasonal cycle between the birds collected in mid-December along the lower Orange River, and mid-March along the Kuiseb River.

_Taxonomic notes._ The type locality is usually quoted as ‘Lower Orange River’, but Levaillant’s statement is ‘commune aux deux côtés est et Ouest d’Afrique; d’un côté sur les bords de la grande rivière des Poissons et dans tout le pays des Caffres, et de l’autre, dans celui des Grands Namaquois, et notamment dans les bois de mimosas qui bordent la Grand Rivière . . .’. Vieillot gives much the same information. With a monotypic species the matter is of relatively little importance, but it would be more correct to place the type locality in eastern Cape Province: it could be restricted to some well known place such as Somerset East, near the Fish River, which lies close to the route followed by Levaillant.
Notes on Species

Dimensions of 103 8: wing, 3 57-60, 2 55-58; tail, 3 44-48, 2 42-45; bill, 3 14-15, 2 13-14. Colour of bill and legs, black; iris, bright pale yellow or ivory white.

(150) Stenostira seita Fairy Flycatcher.
Specimens. 103 12 Kamieskroon (1-4 Dec.); 12 Klipfontein (19 Dec.).
Field notes. This small flycatcher was first seen in Little Namaqualand where it did not appear to be common. It was usually found on scrubby hillsides, flitting from one bush to another. It was rather like some of the warblers with its long tail which was frequently spread and bobbed. The white outer tail feathers, white wing bar, and white eye-stripe are conspicuous features. One of the specimens was in post-breeding moult.

Taxonomic notes. A monotypic species. The selection of the 'Lower Orange River' as the type locality, as in the case of the Pirit Flycatcher, is almost certain to be questioned sooner or later. Levaillant's statement is 'on trouve cette espèce dans le pays des Caffres' (the only place given by Vieillot); and then goes on to say that it is also abundant along the Orange River. It is therefore more correct to restrict the type locality to some place in eastern Cape Province.

Dimensions of 203 12: wing, 2 50-53, 2 50; tail, 2 52-55, 2 5; bill, 2 12. Colour of bill and legs, black; iris, very dark brown.

Turdidace

(151) Turdus olivaceus Olive Thrush.
Specimens. 103 Kamieskroon (4 Dec.); 22 Grootderm (10 Dec.); 10 Assenkjer (28 Dec.); Seeheim (16 Jan.).
Field notes. The Olive Thrush seemed to be particularly associated with the thick vegetation along the banks of the Orange River and also on the Great Fish River. Although apparently fairly common at Grootderm and Assenkjer it was a shy bird and had to be looked for. At Grootderm it was first seen along with the Red-eyed Bulbul raiding the ripening figs in the fruit gardens. The Kamieskroon specimen indicated that the species was not confined to the river course though the numbers frequenting the more arid localities must be very small, possibly not more than about one family wherever there is a trickle of open water and a small patch of relatively dense vegetation. Its occurrence on the Great Fish River is an interesting link with the Orange River fauna. It was first recorded there by Hoesch and Niethammer (1940: 238) at Hardap, north of Seeheim.

Taxonomic notes. These specimens are readily identified as the race smithii which is based on Smith's Merula obscura. Smith (1836: 45) recorded that this bird 'inhabits the country towards the sources of the Orange River'. Kirby (1939-40: map) shows that Smith first crossed the upper Orange River between Colesberg and Philippolis. Apparently the race smithii, although descending to sea-level on the lower Orange River, occupies the
Contribution to the Ornithology of Western South Africa

122 elevated continental plateau, while the nominate form follows the relatively low-lying and narrow coastal belt into Natal and the south-east Transvaal. There are no Smith specimens of *smithii* in the British Museum, and the nearest locality to his Orange River crossing from which examples have been seen is Bloomfontein. It seems reasonable, therefore, to restrict the type locality of *smithii* to Philippolis, about 100 miles south-of west Bloomfontein and close to the Orange River.


(152) *Monticola brevipes* Short-toed Rock Thrush.


Gamsberg, south-west of Windhoek (see Macdonald, 1951).

*Specimens.* 1♂ Naukluft Mts. (10 March); 1♂ 1♀ upper Huab River, at Kamanjab and Kakatswa (19-27 April).

*Field notes.* Although many rocky localities were visited few rock thrushes were seen. The first was on the slopes of the Naukluft Mts. above Blesskranz when a bird attracted attention by its loud clear whistle and conspicuous chestnut under parts. But it was rather restless and wary and not easily approached as it moved about on the rocks and bases of bushes. It was a male in rather worn plumage and fairly large testes, but not in moult, and possibly therefore at a late stage in the breeding period, probably with young. The two specimens from the upper Huab River area were both young birds in first adult plumage, but still showing a few of the characteristic speckled juvenile feathers. One was taken on the rocks of a kopje and the other on top of a dead tree stump among rocky kopjes.

*Taxonomic notes.* Meinertzhagen (Ibis, 1951: 455) made *brevipes* conspecific with *saxatalis* but without giving reasons. Here, therefore, it is kept as a species. It was named on specimens obtained by Alexander at a locality about 50 miles north of the Naukluft Mts. The present specimen from the Naukluft is a fairly close match with the type and a number of Andersson specimens from Otjimbingwe in the same area, but those obtained from the Huab River are appreciably different. The difference is not developmental because it is also apparent when the Huab birds are compared with a specimen in similar plumage collected by Hoesch in the Waterberg Mts. It seems that there may be a distinct geographical form in this corner of South West Africa and it is named as follows:

*Monticola brevipes kaokoensis* New race.

*Characteristics.* In the male the grey of the throat, head, and back is clearer, less brownish, than in typical *brevipes*; and in the female the brown of the crown and back is appreciably greyer.

*Distribution.* Only known so far from the basin of the upper Huab River, South West Africa.

*Type.* A male in fresh first adult plumage from Kamanjab: 19° 34’ S., 14° 48’ E., alt. 4000 ft. Collected by the British Museum South West Africa Expedition (1949-50) on 19 April 1950. Register Number 1950.50:343. Wing 101; tail 63; bill 23. Bill and legs, black; iris, dark brown.
Remarks. A female in the same plumage condition was taken at Kakatswa, about 30 miles south-west of Kamanjab.

(153) Oenanthe monticola Mountain Chat.


Specimens. 1♂ 2♀ Kamieskroon (2–3 Dec.); 1♂ Springbok (7–8 Dec.); 1♀ Assenkjer (29 Dec.); 2♂ Kanabeam, north of Assenkjer (30 Dec.); 3♂ 1♀ Ai Ais (31 Dec.); 4♂ 1♀ Kleinkaras (4–9 Jan.); 1♀ Seeheim (16 Jan.); 2♂ Barby, Tiraz Mts. (7–8 Feb.); 1♂ Spitzkopje (3 April).

Field notes. The Mountain Chat is a high veldt species which extends northwards in the rocky localities of the dry parts of South West Africa. It was found to be fairly common in all collecting localities from Kamieskroon in Little Namaqualand north to the Brandberg Mts. It was not recorded in the kopje-savanna areas farther north. Although associated with stony mountainous localities and frequently observed perched or running about on rocks it was also found foraging on the ground in open sandy places and perched in scrub and trees. Most of the specimens were in late breeding and early post-breeding condition. Birds taken in early February in the Tiraz Mts. were no further advanced in the breeding cycle than birds taken in Little Namaqualand two months earlier. Various stages of post-breeding moult show the transition from worn to fresh plumage and it is evident that there is a considerable amount of fading in the black pigments.

Taxonomic notes. Variation in this species has perplexed taxonomists for a long time. Small samples were taken regularly in the hope of contributing some new facts, but so far as can be seen there is nothing to add to the generally accepted conclusions that the species is highly polymorphic without being polytypic. Sclater in his revision (Bull. B.O.C., 1928: 11) recognised three races, the one in Damaraland, atmorii, being slightly smaller, and the grey phase of the male distinctly paler, than the widely distributed nominate form; and the race in Angola, albipileata, having a female of a consistently much paler colour. Hoesch and Niethammer (1940: 242) regarded atmorii as doubtfully distinct, but it seems that birds from the Swakop River north to the Kaokoveld are consistently smaller. The specimens are therefore named as follows:

(1) O. m. monticola. All specimens from Kamieskroon to Tiraz Mts.


(2) O. m. atmorii. The specimen from Spitzkopje.

Dimensions of 1♂: wing 104; tail 69; bill 19.

(154) Oenanthe tractrac Layard’s Chat.

Oenanthe albigans Snowy Chat.

Motacilla tractrac Wilkes, 1817, Enc. Londinensis, 16: 89. Uniondale, C.P. (restricted type locality—see notes below).
**Contribution and** 213.


**Specimens.** 4♂ 1♀ Grootderm (10–18 Dec.); 1♀ Annisfontein, Richtersveld (13 Dec.); Steinkopf (21 Dec.); 2(? ) juv. Kleinkaras (3 Jan.); 1♂ 40 miles north of Kleinkaras (10 Jan.); 4♂ Witputs (24–25 Jan.); 4♂ 1♀ Aus (30–31 Jan.); 2♂ Tsondab Mund (5 March); 3♀ 1♂ juv. Tumus Flats (17–18 March); 3♂ 2♂ juv. Swakopmund (21 March); 1♂ 1♀ lower Kuiseb River (20 March); 2♂ 40–50 miles east of Swakopmund (30 March).

**Field notes.** First seen just north of Springbok, where it seemed to be less common than on the coastal plains. At Grootderm it was fairly common and there it was regarded as a typically ground bird, the flats by the river being notably bare of scrubby vegetation. Around Kleinkaras and Witputs Layard’s Chat seemed to be confined more to scrub areas and to be a scrub-frequenting rather than a ground species. One particular observation was made near Witputs where there was a fairly thick covering of low scrub on a rich reddish-brown sandy soil. Layard’s Chat was found along with the Karroo Lark, *Certhilauda albecens*, and the Spike-heel Lark, *C. albofasciata*. They lived close together but the larks generally kept to the ground and the chat to the scrub. The Karroo Lark crept about on the ground, only rarely, and then usually when pursued, jumping on to the scrub; the Spike-heel also favoured the ground but was more lively, flying short distances low over the bushes and perching frequently; but Layard’s Chat kept much more to the scrub than either of the larks, although it could and did run fast on the ground. In this area it was possible to count about six to ten Layard’s Chat perched on top of scrub within easy visual range. There was a connection between the habits of these species and their plumage colour. The general colour of the two larks matched the rich reddish-brown colour of the soil and that of the chat the dull grey-brown of the rather dead-looking scrub. A rough test was made with collected specimens of each showing that the chat was conspicuous on the ground but difficult to locate when placed on the branches of a bush; the reverse was true for the two larks.

A similar observation was made north of Aus where there was a more marked difference in the environment preference of Layard’s Chat and the Karroo Lark. The desert race of the latter frequented the reddish Namib dunes which it matched in colour and texture of its upper parts. At the edge of the dunes, along the dry course of the Koichab River were scattered clumps of large straggling bushes frequented by numbers of Layard’s Chat. They flew about among the grey and dead-looking stumps and branches and in their grey-brown plumage were remarkably difficult to locate. At Witputs and Aus, therefore, this chat seemed to be mainly a scrub species and the colour of its plumage was well suited to the colour of the vegetation it frequented in these localities, but much less so to the reddish-coloured soils. The birds at Grootderm were certainly not conspicuous on the ground but the sands there were more fawn-coloured and nearer their plumage colour. North of Aus the scrub-frequenting Layard’s Chat disappeared and was replaced by the ground-frequenting Snowy Chat. It seemed clear that the latter was merely a variation of the former (see Meinertzhagen, 1950). They appear to be conspecific and although the Snowy Chat clings to the fringes of vegetation it has penetrated far into the desert and is mainly soil-matching in colour. The northern rubble deserts are much paler than those in the south, particularly in coastal districts north of
the Kuiseb River, where the Snowy Chat is commonest and where weathered gypsum makes the sands a light greyish-brown. The Snowy Chat was first seen in the wide rubble plains of the Tsondab River and in the dry pans at Tsondab Mund. It was common on the Tumas Flats near the Kuiseb River and between Walvis Bay and Swakopmund. Of an adult and juvenile collected near the Kuiseb River it was recorded that the adult hovered for a short time, about 6 ft. from the ground, then dropped down a short distance away. The young bird came out from a hole under a stone. It was still unable to fly. The species was last seen about 50 miles inland from Swakopmund. The adult specimens from the various localities are in the final stages of the breeding period. The March specimens from around Swakopmund are no further advanced than December specimens from Little Namaqualand. There is an appreciable difference between worn to fresh adult plumages.

*Taxonomic notes.* The description of the species is based on Levaillant’s ‘Le Tractrac’ (1796–1812, pl. 184, fig. 1). He recorded that it inhabited the country of the Auteniquoi, which is the high country lying behind Knysna, southern Cape Province; therefore a place in southern Cape Province, like Uniondale, about 30 miles inland from Knysna, and very close to the route followed by Levaillant on his first expedition, would be an appropriate type locality. The point may be important because three specimens from Deelfontein seem to be rather darker than comparable specimens from Little Namaqualand. The difference is too slight to warrant more than mention but a study of large series, particularly from more southerly localities, may reveal racial differences. Twenty specimens from Little Namaqualand taken in seven different months give a fairly clear picture of seasonal variation. In August birds are very worn and by December they are in post-breeding moult when the darker feathers of the new plumage, about hair-brown in colour, show up in quite strong contrast to the much lighter and faded colour of the old feathers. Specimens at Witputs and Kleinkaras, north of the Orange River seem to match those from Little Namaqualand, but in the vicinity of Aus they are appreciably paler. Roberts (1937: 102) separated Aus birds as a distinct pale race, *barlowi*. He based it on specimens taken in late July and early August and the type is moderately worn and faded. The race was not accepted by Hoesch and Niethammer (1940: 243) but the data here obtained seem to confirm it as a recognisable form, for both in worn and fresh plumages it is paler than specimens from farther south. The Aus area was the northern limit of the species until Meinertzhagen (1950) found the Snowy Chat to be a pale form of Layard’s Chat. We formed the same opinion in the field largely because of similarity of habits; when looking for Layard’s Chat north of Aus the only bird resembling it was the Snowy Chat. Examination of specimens confirmed this impression for in addition to the emargination of the second primary mentioned by Meinertzhagen the black and white patterns of the tails are identical and dimensions fit into a regular cline (see Table 6).

Our specimens are therefore identified as follows:


(Nota: The race *barlowi* is quite like the nominate race of *O. schlegelii* both in colour and size, and as they occur in adjacent geographical areas they are readily mistaken as
Table 6. Mean dimensions of Oenanthe tractrac.
(Figures in brackets refer to number of specimens measured.)

<table>
<thead>
<tr>
<th></th>
<th>tractrac</th>
<th>barlowi</th>
<th>albicans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing</td>
<td>(13) ♂ 85 (8) ♀ 83</td>
<td>(6) ♂ 88 (1) ♀ 81</td>
<td>(8) ♂ 92 (10) ♀ 88</td>
</tr>
<tr>
<td>Tail</td>
<td>(12) ♂ 52 (8) ♀ 51</td>
<td>(6) ♂ 53 (1) ♀ 50</td>
<td>(8) ♂ 52 (9) ♀ 50</td>
</tr>
<tr>
<td>Bill</td>
<td>♂ ♀ 18</td>
<td>♂ ♀ 18</td>
<td>♂ ♀ 19</td>
</tr>
</tbody>
</table>

In all the races of the same species. The most distinctive dimensional feature is the tail and specific identity in a mixed lot of specimens is readily obtained by separating them into groups of longer and shorter tails."

(3) O. t. albicans. Specimens from Tsondab Mund to Swakopmund.

(155) Oenanthe schlegelli Schlegel’s Chat.


*Saxicola pollux* Hartlaub, 1866, P.Z.S., for 1865: 747. Traka, C.P.

*Specimens.* 2♂ 2♀ (♀) juv. Springbok (6–8 Dec.); 2♀ 1(♀) juv. Richtersveld (16–17 Dec.); 3♂ Steinkopf (21 Dec.); 2♂ Kleinkaras (3–6 Jan.); 1♂ 1(♀) juv. Keetmanshoop (15 Jan.); 2♂ 1♀ 3 juv. south of Konkiep (22–23 Jan.); 1♀ Aus (1 Feb.); 1♂ Barby, Tiraz Mts. (8 Feb.); 1♂ 3♀ Naukluft Mts. (3–12 March); 1♂ 1♀ Karub, 60 miles east of Swakopmund (30 March).

*Field notes.* Schlegel’s Chat appeared to be rather less a desert bird than Layard’s Chat. In Little Namaqualand, for instance, it was only found in the plateau areas around Springbok and in the higher parts of the Richtersveld and not in the coastal plains and along the lower Orange River, where Layard’s Chat was relatively common. Where it occurred in Little Namaqualand there was usually a fair amount of scrub and small bushes and the usual habit of the bird was to perch right on top: there was often a good deal of agitated fluttering while it got its balance. When firmly perched the bird was not easily seen, except in silhouette; as soon as it took to the wing the white base of the tail became conspicuous. It was also noted that it perched on rocks and fed on the ground, and ‘twinkled’ its wings like *Cercomela familiaris*. North of the Orange River both chats were found in the Kleinkaras area, though not actually together, and farther west it was the common species in the wide flats of the Konkiep River, but not at the edge of the desert near Witputs. Both species were recorded at Aus, but again not in the same habitats. On the whole Schlegel’s Chat seemed to prefer higher country and rather more vegetation. This preference was even more marked farther north where it
was recorded in the Tiraz and Naukluft Mts. while Layard's Chat was on the rubble deserts west of the mountains, and again it was farther inland from Walvis Bay and Swakopmund. It was not recorded in inland localities north of the latitude of Swakopmund. That it does continue northwards in coastal districts seems evident from its occurrence in Angola.* The series illustrates the transition from breeding to non-breeding plumage. Birds were usually in family parties, young birds in juvenile plumage being plentiful. Specimens taken near Swakopmund in late March were no further advanced in the breeding cycle than those taken in Little Namaqualand in mid-December.

Taxonomic notes. Roberts (1922: 230) made Saxicola pollux Hartlaub (now regarded as a geographical race of Erithacus schlegelii Wahlberg) the type species of a new genus Karrucinela which he based entirely on the very slight emargination of the second primary. This is a doubtfully significant generic character. At any rate it should not be separated generically from Layard's Chat (whether this should be in the genus Oenanthe is another matter) for both are very alike in general morphology and they could almost be described as complementary in an ecological sense. A point of special interest is that the dimensional clines in wing lengths of the two species are in inverse ratio on the same north and south axis (see Fig. 13), and the sum of the sizes at any latitude add up to a fairly constant figure. This may be fortuitous, but the south to north increase in size in tractrac is rather unusual, being the reverse of Bergmann's Rule and it may have arisen because of some intimate connection between the two species.

The name of Schlegel's Chat is based on a description by Wahlberg of a specimen taken at Onanis, about 70 miles inland from Walvis Bay. Wahlberg had specimens of this chat and also of the Snowy Chat at the same time and his descriptions quite clearly show the difference. The type has not been examined but there is in the British Museum a series of Andersson specimens from Otjimbingwe, about 50 miles north-east of Onanis. With these can be grouped a series by Hoesch specimens from the Erongo Mts. and the present birds from Karub. This coastal series shows the extent of seasonal variation. The Hoesch specimens were taken in May when the birds were still in fairly fresh plumage, which is rather darker, more grey-brown, than the faded plumage of the Andersson specimens taken mainly in August. The present specimens in moult illustrate


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![Fig. 13. Comparison of dimensional clines in average wing lengths of males of O. tractrac and O. schlegelii.](image-url)
both kinds of plumage on the same bird. Sclater (Bull. B.O.C., 1928: 15) gave the name *namaquensis* to a darker form of this species from Great Namaqualand. He based it on an Andersson specimen which is without a locality, the original label being missing. However, it is identical in appearance and make-up with another specimen localised by Andersson at a place called Aamhoup. On the map in his book ‘Lake Ngami’ Andersson spelt the name Amhup and the location of this place corresponds with the farm named on modern maps Amhup. It lies just north of Bethanie on the Bethanie to Helmeringhausen road. Therefore, Bethanie can be made the restricted type locality of *namaquensis*. All the specimens from the Konkiep flats, Keetmanshoop, Aus, and Kleinkaras appear to fit this race. Specimens from the mountains south-west of Windhoek, are intermediates geographically, and also in colour and dimensions, between typical *schlegelii* and *namaquensis*, though perhaps rather more like the latter. South of the Orange River the specimens from Little Namaqualand belong to the darkest race.

*Table 7. Mean dimensions of Oenanthe schlegelii.*

(For figures in brackets refer to number of specimens measured.)

<table>
<thead>
<tr>
<th></th>
<th><em>schlegelii</em></th>
<th><em>namaquensis</em></th>
<th><em>pollux</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing</td>
<td>(4) 95</td>
<td>(9) 102</td>
<td>(5) 108</td>
</tr>
<tr>
<td></td>
<td>(8) 89</td>
<td>(5) 95</td>
<td>(12) 101</td>
</tr>
<tr>
<td>Tail</td>
<td>(3) 66</td>
<td>(9) 70</td>
<td>(4) 78</td>
</tr>
<tr>
<td></td>
<td>(9) 62</td>
<td>(5) 67</td>
<td>(11) 72</td>
</tr>
<tr>
<td>Bill</td>
<td>(4) 17</td>
<td>(9) 19</td>
<td>(6) 19</td>
</tr>
<tr>
<td></td>
<td>(8) 16</td>
<td>(5) 18</td>
<td>(12) 18</td>
</tr>
</tbody>
</table>

*pollux*. The species illustrates a regular and fairly considerable increase in size from north to south (see Table 7), in accordance with Bergmann’s Rule. In summary the identifications are:

1. *O. s. schlegelii*. Specimens inland from Swakopmund.
3. *O. s. pollux*. Specimens from Little Namaqualand.

*(Note: For comments on similarity between the nominate race and the race *barlowi* of *O. schlegelii*, see under previous species (p. 125).)*

(156) *Oenanthe pileata* Capped Wheatear.


*Specimens.* 1♂ 1♀ Kamieskroon (1–3 Dec.); 1♂ 1♀ juv. Springbok (6–21 Dec.); 1♂ 1♀ Witputs (25–26 Jan.); 1♂ Aus (1 Feb.); 1♂ upper Kuiseb River (17 March); 1♂ 50 miles east of Swakopmund (30 March); 1♂ Gobabis (8 May).

*Field notes.* The Capped Wheatear was not common anywhere but was recorded from time to time, particularly along the margins of the deserts, from LittleNamaqua-
land north to Swakopmund and east to Gobabis. At Kamieskroon it was on derelict cultivation, usually perched on low mounds or snags on very open ground, or on boulders on the rocky hillsides. In the Witputs area it perched on low scrub. Near the upper Kuiseb River there was a family party on a low rocky outcrop. At Gobabis at the edge of the Kalahari birds frequented open sandy ground in wooded country. The specimens illustrate the transition from worn to fresh plumage following the breeding season.

**Taxonomic notes.** Variation in this species was made the subject of a special note (Macdonald, 1952 (c)). Populations in northern South West Africa were found to be appreciably and constantly paler than the nominate race and *livingstoni*, and were given the name *neseri*.

(157) *Cercomela familiaris* Familiar Chat.


*Specimens.* 1♂ 1(?)* juv. Kamieskroon (2–3 Dec.); 1♂ Springbok (8 Dec.); 1♂ 3♀ Grootderm (11–16 Dec.); 1♂ 1(?)* juv. Richtersveld (16–17 Dec.); 1♂ Klipfontein (22 Dec.); 1♂ 1♀ Violl’s Drift (24–26 Dec.); 1♀ Assenker (28 Dec.); 1♂ Kanabeam, north of Assenker (30 Dec.); 1♂ 30 Dec.); 1♀ Ai Ais (2 Jan.); 1♂ Kleinkaras (7 Jan.); 1♀ Seeheim (19 Jan.); 1♀ Witputs (26 Jan.); 1♂ Barby (9 Feb.); 1♀ 1(?)* juv. Tsondab Mund (7 March); 1♂ Naukluft Mts. (9 March); 3♂ lower Kuiseb River (24–27 March); 1♀ Spitzkopje (2 April); 1(?)* juv. Brandberg Mts. (10 April).

*Field notes.* The Familiar Chat was a common species nearly everywhere, frequently coming about camps as boldly as robins in gardens in Britain. The habit of twinkling the wings was very pronounced. Birds would run about on the ground and climb on mounds or stones, and stretch up on their long legs. Or they would perch somewhere quite high up in trees or low scrub or on rocks. They seemed to have a preference for open country, or bushes and trees in, or at the edge of, open country. In Little Namaqualand in December birds were in post-breeding moult with young birds about. Specimens show the transition from worn to fresh plumage, the difference being quite marked. The populations in Damaraland four months later were no further advanced in the breeding cycle.

**Taxonomic notes.** Variation in this species in South Africa has been the subject of a special paper (Macdonald, 1953 (a)). The type locality was restricted to the ‘Cape Flats’, but Dr. J. M. Winterbottom wrote to say that the bird occurs only on Table Mountain, where Levaillant probably collected his specimens and this locality is given here. The specimens from Little Namaqualand and north of the Orange River as far as Witputs and Kleinkaras are greyer than the nominate race from the Cape Flats and darker and greyer than Damaraland birds. They were given the name *richardi*.

(1) *C. f. richardi.* Specimens from Kamieskroon to Witputs and Kleinkaras.

Dimensions of 7♂ 5♀: wing, ♂ 85–90, ♀ 77–82; tail, ♂ 62–64, ♀ 58–64; bill, ♂ 18–19, ♀ 17–18.
(2) *C. f. galtoni*. Specimens from Seeheim and Tiraz Mts. north to Spitzkopje and Brandberg Mts.


(158) *Namibornis herero*  Herero Chat.


*Specimens.* 1♂ 2♀* 1 juv.  Spitzkopje (2–4 April).

*Field notes.* Little can be added to what de Schauensee published on this rare species; and also Hoesch (1938 a): 173–176. It was found in the tall acacia bushes close to the base of the enormous bare rocks of the Spitzkopje. It was extremely shy, and only one member of the party was fortunate in finding it. Usually birds kept well inside bushes, and on one occasion a bird known to be in such a place did not show itself although the bush was closely watched for half an hour. It was found eventually by getting right underneath the bush when the bird was then seen keeping to branches close to the trunk, and hopping round the trunk to avoid detection. On several occasions birds flew from cover to exposed positions on the tops of bushes and flitted from one bush top to another when pursued. The white eye-stripe was very noticeable and birds ‘twinkled’ their wings to a slight extent. The specimens collected were in transition from breeding to post-breeding plumage, and one specimen was in transition from juvenile to adult plumage. It is evident that the juvenile plumage was speckled.

*Taxonomic notes.* This species was placed by de Schauensee among the flycatchers in the genus *Bradornis*. Bradfield (1935: 131) found it to have several chat-like characteristics and considered it to be closely related to *Cosypha dichroa*. Hoesch and Niethammer (1940: 249) recorded that Steinbacher confirmed its relationship with the Turdidae from the examination of a spirit specimen and they listed it next to *Cercomela familiaris*. There is nothing to add to this except that the speckled juvenile plumage suggests that it is not a *Bradornis*, in which the juvenile plumage is streaked. Dr. L. Auber made a microscopic examination of the feathers. Samples of feathers, as from an unnamed species, were sent to him together with similar feathers from typical species of the families Turdidae, Muscicapidae and Sylviidae. He could not place the species with certainty in any of these families but the structure of barb sections suggested affinities with the Turdidae rather than either of the other two families. Change of family has raised the question of a suitable common name. De Schauensee gave it the name ‘Herero Brown Flycatcher’ which Roberts abbreviated to ‘Herero Flycatcher’. Perhaps ‘Herero Chat’ is now more appropriate.

Dimensions of 1♂ 1♀: wing, ♂ 95, ♀ 92; tail, ♂ 72, ♀ 74; bill, ♂ 19, ♀ 20.

(159) *Myrmecocichla formicivora*  Ant-eating Chat.

*Oenan the formicivora* Vieillot, 1818, N. Dict. d’Hist. Nat. 21: 421. Sunday River, eastern C.P.


*Specimen.* 1♂ Spitzkopje (1 April).

*Field notes.* Until properly acquainted with this species it may have been confused

* H205, an April ♀ exchanged with Transvaal Museum for a September ♀ from Okumbahe, near Omaruru.
with some of the other chats, especially colour phases of the Mountain Chat. Its most distinctive feature, the concealed white patch in the wing, is conspicuous when the bird is in flight. The first certain records were made near Windhoek where it was found mainly on open scrub veld with a fair amount of scattered bushes. In such habitats it was identified from time to time north of Windhoek and eastwards across the Kalahari, but always in small numbers. A very characteristic habit was that of hovering, usually near a bush. The axis of the body, with tail pointing downward, was dropped about 50°-60° from the horizontal and the wings flapped vigorously. This position could be maintained for about a minute or so. A single specimen collected was in moult.

**Taxonomic notes.** Roberts separated birds from the Ghanzi area, north-west Kalahari, as smaller and darker than typical birds from eastern Cape Province and gave them the name _minor_. Hoesch and Niethammer (1940: 253) accepted this division of the species, the only one. The difference seems very slight indeed in a species which is otherwise remarkably uniform. The single specimen is identified as _M. f. minor_.

Dimensions of 1♂: wing 98; tail 60; bill 20.

(160) *Cosypha caffra* Cape Robin.

_Motacilla caffra_ Linnaeus, 1771, Montessa Plant: 527. Cape of Good Hope.


**Specimens.** 1♂ Cape Town (22 Nov.); 1♂ Kamieskroon (5 Dec.); 3♂ Grootderm (10–15 Dec.); 1(?) juv. Assenkjer (28 Dec.); 1♂ 1(?) juv. Seeheim (16–17 Jan.).

**Field notes.** The only natural open water at Kamieskroon was a very small pool in a boulder-strewn valley. Beside it, in a patch of thick bushes, was what seemed to be the only family of Cape Robins in the area. In the thick vegetation along the banks of the Orange River the species was fairly common. Its occurrence along the Great Fish River, apparently first noted by Hoesch and Niethammer (1940: 254), is an interesting link between the Great Fish and Orange River birds. The Kamieskroon bird was just completing post-breeding moult. The Orange River birds were adults in extremely worn breeding dress and juveniles in speckled plumage. The Seeheim adult was well advanced in moult.

**Taxonomic notes.** Sclater based the race _namaquensis_ on a single specimen obtained by Grant at Klipfontein, Little Namaqualand, which had a greater amount of white above the eye than birds from nearer Cape Town. It is a difference which is appreciable though not very marked in all specimens.

(161) *Erythropygia coryphaeus* Karroo Robin.

_Sylvia coryphaeus_ Lesson, 1831, Traité d’Orn.: 419: Levaillant, Ois d’Afr., pl. 120, fig. 1. Uitenhage, C.P.


**Specimens.** 1♂ Kamieskroon (1 Dec.); 1♂ Grootderm (15 Dec.); 1♀ near Port Nolloth (19 Dec.); 1♂ 2♀ Kleinkaras (4–6 Jan.); 2♂ Seeheim (16–18 Jan.).

**Field notes.** The Karroo Robin is very common in the scrub areas of Little Namaqualand, both in the high country around Springbok and along the coastal flats from Port Nolloth to the mouth of the Orange River. North of the Orange River it was
common at Kleinkaras, but rather less common at Witputs on the edge of the desert where scrub cover was rather inadequate. It became gradually less common northwards, its place being taken by the Scrub Robin, *E. poena*, a bird of similar dimensions and similar habits but with distinct differences in colour and pattern, and frequenting the taller bush-scrub which replaces the short karroo-scrub in areas with a slightly higher rainfall. It was last recorded at Seeheim, although the most northerly record seems to be from near Mariental. The Karroo Robin is a lively and noisy bird, and although frequenting semi-arid country is rather secretive, seldom climbing above the base of the low scrub it frequents. It can run fast and is difficult to flush. One of the Little Namaqua-land specimens taken in December was just commencing post-breeding moult and the other was nearing completion of moult. All the specimens from north of the Orange River were in the early stages of moult.

**Taxonomic notes.** Lesson based his name of this species on ‘Le Coriphée’ of Levaillant. Fig. 1 of pl. 120 is said to represent a male, and fig. 2, which has certain distinctive colour differences, a female. There is no appreciable difference between the sexes. In a recent paper (Macdonald 1952 (c)) it has been shown that the difference illustrated by Levaillant is a geographical one, populations in extreme western localities, from the Cape to the mouth of the Orange River, being distinctly greyer than the rest.

Both forms are represented in the collection, namely:


(162) *Erythrogygia poena* Scrub Robin.

**Specimens.** 1♀ Maltahöhe (13 Feb.); 1♂ Windhoek (1 March); 1(?juv. Nauchas (3 March); 1♂ Tsondab Mund (7 March); 2♂ Franzfontein (14–16 April); 1♂ 1♀ Kamajjab (20 April); 2♂ Gobabis (8–9 May).

**Field notes.** The Scrub Robin was common in the tall scrub and bushes of the northern parts of the region. It seemed to replace the Karroo Robin, which was last seen at Seeheim although it has been recorded as far north as Mariental. They replace each other geographically and ecologically, for the Scrub Robin keeps to the taller bush-like vegetation while the low scrub is frequented by the Karroo Robin. In this respect they may be termed complementary species; evidence of close affinity is found in similarity of size and proportions, although there are striking differences in their colour patterns. The first Scrub Robin was seen in the fairly thick berg-acacia scrub, like open thickets, which occur as a distinct vegetational feature on the Swartland just east of Maltahöhe. From there north to Kamajjab and east to Gobabis it was recorded wherever there was a suitable patch of bushes, even far out in the desert at Tsondab Mund. This species was usually seen at the base of bushes or running about on the ground nearby. It was a noisy bird frequently erecting its tail and displaying it fanwise. Only occasionally was it recorded fairly high up in thorn trees and then generally moving slowly up the tree apparently feeding on the way. Of the birds taken in February and
March one is a juvenile and the others were adults in post-breeding moult. Those taken in April and May had practically completed post-breeding moult.

**Taxonomic notes.** All the specimens match Harttert's *damarensis* which is an appreciably paler bird than the nominate race from farther to the south-east.


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**Sylviidae**

(163) *Hypolais icterina*  Icterine Warbler.


*Specimen.* 1♂ Brandberg Mts. (10 April).

*Field notes.* The Icterine Warbler does not appear to reach farther south than Damaraland. It seems to keep to fairly well-wooded areas and the Brandberg Mts. was an unusually dry locality in which to find it. The bird was taken very late in the season, when other members of the species would have reached Europe. It was a bird of the previous year and the testes showed little signs of developing and perhaps, therefore, it lacked the urge to move north.

Dimensions of 1♂: wing 78; tail 52; bill 16.

(164) *Acrocephalus baeticata*  African Reed Warbler.


*Specimens.* 1♂ 2♀ Ai Ais (30–31 Dec.); 1♂ 1♀ juvenile Brandberg Mts. (11 April).

*Field notes.* This species is smaller than the Cape Reed Warbler and, judging by records of its occurrence, rather more common. It seems to be able to survive in smaller patches of thick vegetation in moist places and is less confined to them. At Ai Ais it was found away from the large patch of reeds in the main pool. A family had nested in the reedy vegetation of a moist ditch connected with the outflow of the hot springs and the parents were flying between the reeds and a few small thorn trees feeding noisy and flightless young birds. Adults obtained in this locality were in worn plumage with no sign of moult. The specimen secured in the Brandberg Mts. was taken in a patch of reeds along the course of a stream in the Tsisab Gorge. It was in fresh plumage. The juvenile was found on its own just outside a patch of reeds; it was unable to fly.

*Taxonomic notes.* These specimens are identified as the nominate race.

Dimensions of 2♂ 2♀: wing, ♂ 58, ♀ 60-62; tail, ♂ 47-52, ♀ 53-56; bill, ♂ 17, ♀ 16. Colour of bill, blackish above, pale horn below; legs, pale horn; iris, brown.

(165) *Euryptila subcinnamomea*  Cinnamon-breasted Warbler.


*Specimens.* 2♂ Kamieskroon (2 Dec.).

*Field notes.* One reason for halting at Kamieskroon for a few days was to obtain toptotypical specimens of this warbler. The boulder-strewn hillsides were its haunts though few were seen. At first perhaps they were overlooked among the commoner
Cape Buntings, but once the warbler was identified it was easily known by its behaviour; for example, buntings would alight in prominent positions on rocks, whereas the warblers usually landed in much less conspicuous positions and ran, or crept, about the face of rocks. They were not confined to rocks and boulders but were rather more easily seen there than in bushes. Both specimens taken were in rather worn plumage in early stages of post-breeding moult, which agrees with Smith's observations (see Roberts, 1936 (b): 306) that they build their nests 'in the bushes during the month of August'.

**Taxonomic notes.** The species is monotypic.


(166) **Calamocoeter gracilirostris**  Cape Reed Warbler.


*Specimens.* 1♂ 1♀ Ai Ais (2 Jan.).

*Field notes.* A small patch of thick reed beds on the river pool at Ai Ais held several of these birds. They were usually seen clambering about among the reeds at water level, sometimes climbing up to the top of the reeds to call and sing. In the specimens taken the gonads were small and the plumage very worn with moult just commencing.

**Taxonomic notes.** These specimens belong to typical *gracilirostris*. Hoesch and Niethammer (1940: 265) listed the specimens taken by Andersson at Omanbonde under the race *zyluensis* although Bannerman (Ibis, 1937: 300) considered that they were typical *gracilirostris*. Grant and Praed (Bull. B.O.C., 61, 1941: 39) gave reasons for not accepting *zyluensis* as a valid race. This record of the Reed Warbler on the Great Fish River seems to be only the second for South West Africa. Andersson noted that it was common at Omanbonde.

Dimensions of 1♂ 1♀: wing, ♂ 76, ♀ 73; tail, ♂ 70, ♀ 67; bill, ♂ 20, ♀ (broken).

(167) **Calamonestes fasciolata**  Barred Warbler.


*Specimens.* 2♂ Kamanjab (23 April).

*Field notes.* The only occasion on which this warbler was identified was when the specimens were collected. They were found in thick bush and tree savanna about five miles north of Kamanjab. The birds were in a bush and were flitting their long tails which were fanned out over their backs. One was a fully grown juvenile judging by the condition of its skull and testes and is very like the adult except for a slight wash of yellowish on the breast. The adult was in fairly fresh plumage. It seems, therefore, that the breeding season was over and post-breeding moult completed.

**Taxonomic notes.** The two specimens and a Hoesch specimen from the Waterberg Mts. seem to be appreciably darker than a series of Andersson specimens from Otjimbingwe which are readily matched with topotypical birds. This difference may be a seasonal one due to fresher plumage.

Notes on Species

(168) **Sylvietta rufescens** Long-billed Crombec.


**Specimens.** 1♂ 1♀ Violl's Drift (23 Dec.); 1♂ Ai Ais (2 Jan.); 1♂ Aus (2 Feb.); 1♂ Barby (9 Feb.); 1♀ lower Kuiseb River (27 March).

**Field notes.** Crombecs were never common, but were seen regularly in suitable localities along the edge of the desert from the Springbok area north to Kamanjab. They were usually associated with tall bushes or trees rather than low scrub. The two birds taken at Violl's Drift were found in a rocky and extremely barren gorge sprinkled with a few rather desiccated tall bushes. Namaqua Sunbirds were the only other birds recorded there. The crombecs darted from bush to bush where they explored the lower branches, sometimes stopping to sing. The species was not identified in the thick vegetation along the river. Behaviour was similar in the birds at Ai Ais, where crombecs were found in the scattered acacias in the dry sandy valley of the river course (see Pl. II A). A bird would fly to the base of a small tree and quickly forage, in the manner of a tree-creeper, up to about 10 ft., then dart off to the base of another tree. Most of the specimens taken were in late stages of post-breeding moult.

**Taxonomic notes.** All the specimens are similar in appearance and match the nominate race.


(169) **Eremomela icteropygialis** Brown Eremomela.


**Specimens.** 1♀ Ai Ais (31 Dec.); 1♀ Tsawissis, Kleinkaras (16 Jan.); 1♀ Blesskranz (9 March); 1♂ 1♀ lower Kuiseb River (24 March); 1♀ Spitzkopje (1 April); 1♂ Gobabis (10 May).

**Field notes.** In the south to north transection of the country the first acquaintance with the Brown Eremomela was at Ai Ais and Kleinkaras. At Kleinkaras also the last record was made of the Green Eremomela which had been common farther south. Both species were found within a few hundred yards of each other, not actually together. On the west side of the continent, therefore, the two species appeared to replace each other geographically. They had different ecological preferences for the Brown Eremomela kept to bushes and trees, apparently following these southward along river courses, whereas the Green Eremomela kept to scrub. Similar 'complementary' species are the Black-breasted and Karroo Prinias. The Brown Eremomela taken at Ai Ais was found in thinly scattered tamarisk bushes growing on sand dunes, and the one from Tsawissis was diligently exploring an acacia tree from bottom to top. Farther up the Great Fish River, at Seeheim, birds were found in a fairly thick patch of tall acacias, while at Keetmanshoop the only specimen taken there was in scattered bush, but not far from tall acacias. Similar data were recorded in other localities. The specimens were in various stages of post-breeding moult, the May bird from Gobabis and the January bird from Ai Ais being about the same stage of fresh post-breeding plumage. This fresh plumage is appreciably darker brown than the worn breeding plumage.
**Taxonomic notes.** The Brown Eremomela is widely distributed and numerous geographical variations have been described. In western and central South Africa there is a paler group north of the Orange River, extending from South West Africa to the western Transvaal, and a darker and less extensive group in central and eastern Cape Province. It is important to establish which of these is the nominate form because the type locality is given as the Orange River which lies roughly between them. The type is in the Museum of Comparative Zoology, Cambridge, Mass., and Mr. J. C. Greenway selected, from a series of specimens sent him, an Andersson bird from Otjimbingwe as being the closest match with it, thus confirming the paler group as the nominate form. He said that there is inscribed on its label, in Lafresnaye’s handwriting, the words ‘des Elephants’ which was crossed out and the words ‘d’Orange’ added. Lafresnaye in his description says ‘said to have come from the Orange River’. It is quite unlikely that the bird was taken on the Olifants River and it is doubtful if the species occurs along the Orange River anywhere much below Upington. The specimen was probably collected by Levaillant and it might easily have been taken from within the present known range of the species north of the Orange River where Levaillant claims to have travelled. All our specimens are identified as the nominate form.

Dimensions of $3^55^5_2$: wing, $54-55$, $52-55$; tail, $35-36$, $32-34$; bill, $11-12$, $11$. Colour of bill, blackish-horn, paler below; legs, very dark grey; iris, brown.

(170) *Eremomela gregalis* Green Eremomela.


**Specimens.** $2^5$ 2♀ Richtersveld (13–16 Dec.); 1♀ Grootderm (18 Dec.); 1♂ 1♀ near Kleinkaras (3 Jan.); 1♀ Tsawissis, Kleinkaras (8 Jan.); 2♂ Witputs (25–26 Jan.); 1♀ Aus (30 Jan.).

**Field notes.** On the west side of the continent the Green Eremomela frequented karroo scrub, being replaced by the Brown Eremomela where scrub gave way to bushes and trees. Both species were found in these distinctive habitats within a few hundred yards of each other at Kleinkaras. First acquaintance with the species was made in the desolate mountains of the Richtersveld. Occasional small family parties industriously explored one bush after another and kept up a high-pitched chirping. One could hear them more often than see them, for they kept well hidden and slipped quickly from one low bush to another. The bird taken at Grootderm was one of two in very sparse scrub on a rocky hillside not in the thick vegetation of the river bank. It was also in sparse low scrub that they were found north of the Orange River where the species was fairly common along the edge of the desert both at Witputs and Aus. All the specimens were in various stages of post-breeding moult.

**Taxonomic notes.** The Green Eremomela more or less replaces geographically the widespread Brown Eremomela in the south-western regions of South Africa. Both have been recorded in the same localities (though in our limited experience they never occur actually together) at Deelfontein in eastern Cape Province and Kleinkaras in Great Namaqualand. Their characteristics are clearly defined, there being no indication of
interbreeding, and there seems to be no reason to regard them as other than two distinct species. However, they have a number of similarities and the indication is that they diverged recently from a common stock. There seems to be no valid reason why Roberts should put the Green Eremomela in a separate genus *Eremomeloides*. It was only recently that Roberts (1944: 226) drew attention to Smith's description of this species in the 'South African Commercial Advertiser'. A precise type locality is not indicated but as there is only one form in Little Namaqualand the point is relatively unimportant. All the specimens are identified with this form, the nominate race. Hoesch and Niethammer (1940: 269) identified specimens collected by them at Aus as *damarensis*, a rare form only known from Oosop on the Swakop River farther north. Dr. A. van Jordans, of the Bonn Museum, very kindly lent some of Niethammer's specimens. They are similar to the Aus specimen and seem to be identical with typical *gregalis*.


(171) *Camaroptera brevicaudata*  Grey Bush Warbler.


*Specimens.* 1♀ Ugab River, near Brandberg Mts. (11 April); 1♂ 1♀ Kakatswa, near Onguati (27 April).

*Field notes.* Although called a bush warbler this species was usually found in the heavier types of vegetation, such as tall trees along river courses. The specimens were just completing moult and mainly in fresh plumage.

*Taxonomic notes.* The species is widely distributed throughout Africa and is divided into a number of geographical races. The South West Africa birds were originally put under the name *C. sundevalli* Sharpe, a new name for *C. olivacea* Sundevall, but Zedlitz (Journ. Orn. 1911: 342) pointed out that *C. olivacea*, and therefore *C. sundevalli*, applied to a different species, the Green-backed Bush Warbler, which already had the name *C. brachyura* (Vieillot). He gave them the name *C. griseoviridis* (now *brevicaudata*) *sharpei*. The specimens are therefore identified as *C. b. sharpei* Zedlitz.

Dimensions of 1♂ 2♀: wing, ♂ 55, ♀ 52–54; tail, ♂ 42, ♀ 40; bill, ♂ 14, ♀ 14–15. Colour of bill, black; legs, fawn; iris, light brown.

(172) *Cisticola aridula*  Desert Cisticola.


*Specimens.* 1♂ 17 miles south-west of Windhoek (1 March); 3♂ Kamanjab (22–26 April).

*Field notes.* This cisticola was found in arid localities of the north where there was a fair covering of seasonal grass. The specimen taken south of Windhoek, at about 6700 ft., was on a grassy hillside with scattered bushes. Lynes (Ibis Supplement, 1930: 124) recorded it at Rehoboth. It appeared to be quite common on the plains in the Kamanjab area in dry grass standing about 3–4 ft. Birds fluttered up to about 20 ft. dived to near grass height, then dropped into the grass. The March specimen was taken in very worn
breeding plumage, which is quite distinct from the more streaky non-breeding plumage of the other three specimens.

**Taxonomic notes.** The specimens belong to the race *kalabari*.


(173) _Cisticola subrubicapilla_ Wailing Cisticola.

_Drymoica subrubicapilla_ Smith, 1843, Ill. Zool. S. Afr.: pl. 76, fig. 2. South-west Cape Province.

_Drymodytes subrubicapilla karasensis_ Roberts 1937, The Ostrich. 8: 103. Great Karas Mts.

**Specimens.** 1♂ 2♀ Kamieskroon (1–4 Dec.); 2♂ Springbok (21 Dec.); 1♂ Richtersveld (17 Dec.); 1♂ Aus (3 Feb.).

**Field notes.** Fairly common in Little Namaqualand where its typical habitat appeared to be dry valleys among the barren hills wherever there was a sprinkling of bushes. Sometimes birds were found in low scrub, but then usually where it was patchy and where isolated bushes were not far away. The birds taken were in various stages of post-breeding moult. The fresh plumage is appreciably darker than the worn breeding plumage.

**Taxonomic notes.** Lynes (Ibis Supplement, 1930: 216) regarded Little Namaqualand birds as a distinct geographical race which he named _C. s. namaqua_ with type locality Klipfontein. The specimen from south of the Orange River fits this race. Lynes at that time had not seen examples from north of the Orange River. Roberts obtained specimens in various localities in South West Africa in 1937 and subsequently (1937: 103) described three new races, *karasensis, barbiensis* and *windboekensis*. Hoesch and Niethammer (1940: 274) telescoped these three into one race under the name *karasensis*, and the single specimen from north of the Orange River, near Aus, is put under that name. Friedmann (1933: 6) identified specimens from Mt. Brukkaros as *namaqua*.


**Specimens.** 4♂ Garies, near Kamieskroon (1 Dec.); 1♂ Springbok (21 Dec.); 2♂ Witputs (24–25 Jan.); 2♂ Aus (30 Jan.).

**Field notes.** Just north of Garies the road winds up on to the plateau of the Kamiesberg Mts. where low heather-like Karroo scrub is a distinctive vegetation. Rufous-eared Warblers frequented this scrub; they were flitting about from bush to bush and flitting their long tails. The rufous cheeks were plainly seen. Low thick scrub was the invariable habitat of this species in Little Namaqualand and north of the Orange River at Witputs and Aus. Birds were usually in small parties, apparently family parties. All the specimens taken were in early stages of post-breeding moult.

**Taxonomic notes.** There is no restricted type locality but Smith found the species on his Little Namaqualand expedition in 'the Karoo country to the north of the Oliphants River.' The species can be divided readily into a widely distributed dark brown group
and a distinctly lighter brown group which is typical of the Kalahari scrub region. The latter, Sharpe’s *malopoensis*, can be identified as far west as Maltahöhe in South West Africa although birds from Witputs and Aus are clearly the darker nominate form. A further subdivision in the dark group was made by Roberts which seems to be quite valid. The races can be summarised as follows:

(1) *P. o. ocularis.*
*Characteristics.* Slightly paler and greyer than *bewitti* but much greyer and browner than *malopoensis.*
*Distribution.* Little Namaqualand north through coastal districts to Aus.

*Characteristics.* Slightly darker and rather more richly coloured than *ocularis.*
*Distribution.* Eastern Cape Province through Orange Free State to western Transvaal.

(3) *P. o. malopoensis.*
*Characteristics.* Much paler than either of the previous races.
*Distribution.* Molopo River north to central Kalahari and Maltahöhe district of South West Africa.

The specimens collected are identified as the nominate race.
Dimensions of 63: wing 49–51; tail 66–75; bill 12–13. Colour of bill, black; legs, flesh-coloured; iris, light brown.

(175) *Prinia flavicans*  Black-breasted Prinia.

*Specimens.* 3♂ 1♀ juv. Ai Ais (6–9 Jan.); 1♀ Seeheim (16 Jan.); 3♂ Tsondab Mund (6–7 March); 1♀ juv. Spitzkopje (3 April); 1♂ Brandberg Mts. (9 May).

*Field notes.* The Black-breasted Prinia, like the Brown Eremomela, seemed to keep mainly to trees and bushes and to replace ecologically and geographically the Karroo Prinia frequenting dry scrub. It was found as far south as Ai Ais on the Great Fish River (where also the first record was made of the Brown Eremomela). It was found on tree and bush vegetation, sometimes along watercourses extending right out into the desert; for instance, it was a fairly common species at Tsondab Mund in the Namib Desert. Sometimes birds were seen to wander into low bushes and even grass in the vicinity of trees, but never far from them. When recorded they were in parties, apparently family parties, of up to about four or five birds. They were rather noisy, and one note, possibly an alarm note, was rather like a cheap clock being wound up. This distinctive note and the conspicuous black breast of mature birds were obvious and unmistakable characteristics. Birds in juvenile plumage were numerous and the adults taken were in various stages of post-breeding moult. Moult was further advanced in the birds taken at Ai Ais in late December than in those taken in the Brandberg Mts. over three months later. The fresh adult plumage is quite appreciably darker brown than the old plumage of the breeding season.

*Taxonomic notes.* This is a monotypic species. On distribution the type locality should
be somewhere north of the Orange River. Levaillant gives ‘la rivière de l’Épine-Noire jusque sous le tropique’, but a river of that name has not been located.


(176) Prinia maculosa Karroo Prinia.
Cape of Good Hope.

Specimens. 2♀ 1(?)) juv. Kamieskroon (2–3 Dec.); 2♂ Grootderm (15 Dec.); 1♀ Richtersveld (16 Dec.); 1(?)) juv. Ai Ais (2 Jan.); 1♂ Witputs (26 Jan.); 1♀ Aus (3 Feb.).

Field notes. The Karroo Prinia replaced the Black-breasted Prinia in the scrub areas, which is mainly south and west of the tree savannas, and in this respect has a similar relationship to it as the Green has to the Brown Eremomela. Apart from this ecological difference and the streaky breast of the Karroo Prinia the two species are otherwise much alike and it may be that they have only recently diverged from a common stock. The Karroo Prinia was usually found in very dry scrub far from water, but occasionally in trees and bushes near water. Favourite places were rocky hillsides with a fair amount of bush and scrub, as at Kamieskroon. Similar environments were found as far north as Aus and this seems to be the northern limit of the species on the west side of the continent. Birds were noisy and usually kept well hidden in vegetation. The specimens represent adults in various stages of post-breeding moult, and juveniles. The fresh adult plumage is much darker than the old plumage of the breeding season.

Taxonomic notes. The specimens belong to the nominate race.


Hirundinidae

(177) Hirundo rustica European Swallow.

Specimens. 1♀ Grootderm (10 Dec.); 1♂ 1♀ Voigtsgrund Dam (14 Feb.).

Field notes. The European Swallow was identified on a number of occasions in Little Namaqualand in December. On the banks of the Orange River at Grootderm it hawked over maize fields in company with the Cape Sand-Martin, Hirundo paludicola. It was recorded in fairly large numbers at Voigtsgrund Dam in mid-February. Large scattered flocks consisting mainly of European Swallows and Indian Swifts, Apus affinis, drifted across the dam on one occasion for several hours on end. Possibly the swallows were making their way northwards. Andersson (1872: 50) found it common in the rainy season, even along the coasts. Although there was rain for another month or six weeks we did not see this swallow again. Records of the European Swallows along the west side of the African continent are of interest because African records give the impression that the species keeps mainly to the east side.

(178) Hirundo dimidiata Pearl-breasted Swallow.
Specimen. 1♂ Onguati (26 April).
Field notes. The single record of this species was the specimen obtained at Onguati which was one of the two hawking over a grassy patch in tree savanna.
Dimensions of 1♂: wing 103; tail 51; bill 10. Colour of iris, dark brown.

(179) Hirundo cucullata  Striped Swallow.
Specimen. 1♀ Barby (8 Feb.).
Field notes. Two birds were seen hawking about high up on the mountains above the farm of Barby. It was the only occasion on which this species was identified with certainty.
Dimensions of 1♀: wing 121; tail 95; bill 11. Colour of iris, dark brown.

(180) Petrochelidon spilodera  Cliff Swallow.
Specimens. The only record of this species was the single specimen taken out of a very large flock of mixed European Swallows, Hirundo rustica, and Indian Swifts, Apus affinis, by the Voigtgrund Dam. It is a young bird about half way through moult into full adult plumage. Records from South West Africa are not numerous.

(181) Riparia paludicola  Cape Sand Martin.
Specimens. 1♂ 2♀ Grootderm (10 Dec.).
Field notes. This species was common along the Orange River at Grootderm where flocks were frequently seen hunting over cultivated fields on the river flats or apparently following each other in procession low over the riverside bushes. The flight appeared to be rather slow. It was not identified in any other locality and apparently this species has never been recorded in South West Africa north of the Orange River. It occurs in Angola.
Taxonomic notes. These birds belong to the nominate race.

(182) Ptyonoprogne fuligula  Cape Rock Martin.
Specimens. 1♂ Kamieskroon (1 Dec.); 1♂ 1♀ Grootderm (13 Dec.); 1♂ Violl’s Drift (27 Dec.); Kleinkaras (9 Jan.).
Field notes. The Rock Martin was seen in most localities, from the Kamiesberg Mts. of Little Namaqualand, the banks of the Orange River and the canyons of the Great Fish River, to the wastes of the deserts at Tsondab Mund, and the savannas of the north. It was rather less common in the north than in the south. It did not seem to be particularly associated with rocky localities and it was never seen in great numbers. All the
specimens were in moult, the new feathers in the wings showing up much darker against the old feathers.

**Taxonomic notes.** Populations from Little Namaqualand north to Angola are appreciably paler than the nominate form and the specimens are therefore named *P. f. anderssoni*. This race was described on a specimen taken by Andersson at a place called Dairip on 27 October 1860. This locality has not been traced, but it seems that it must have been somewhere near Otjimbingwe. According to Wallis (1936: 238) Andersson left Cape Town on 6 October 1860 for Walvis Bay and spent some time transferring his store from Matchless Mine to Otjimbingwe.

(183) *Delichon urbica*  House Martin.


**Specimens.** 1♂ 1♀ near Franzfontein (16 April).

**Field notes.** A few miles beyond Franzfontein on the road to Outjo there was an enormous flock of House Martins. The air was alive with them and this was the only occasion on which this species was identified. It seems that the House Martin has very rarely been recorded in these western areas of South Africa. A point of interest is the date on which they were seen for it is about 16 April that the main body of House Martins begin to arrive in Britain. Roberts (1940: 210) mentioned that this species probably breeds in South Africa though there does not appear to be any evidence of it on record. Both specimens were in the last stages of complete moult, which is appropriate for northern breeding birds for Witherby (*Handbook of British Birds*, 1938, vol. 2, p. 238) recorded that complete moult takes place between January and April.

**Dicuridae**

(184) *Dicrurus adsimilis*  Fork-tailed Drongo.


**Specimens.** 1♂ juv. Naukluft Mts. (13 March); 2♀ juv. Kamanjab (22–26 April).

**Field notes.** The Fork-tailed Drongo belongs to well-wooded savanna country and in the upper Huab River, around Kamanjab and Onguati, and again around Gobabis, where vegetation of this type occurs, it was a fairly common species. Its occurrence in the wooded valley of the Tsondab River at Blesskranz is an interesting southerly record, and on a par with the occurrence of the Chat-Shrike, *Lanioturdus torquatus*, which is also a bird more commonly associated with the bush and tree savanna of the north. All three specimens were young birds nearing completion of moult from the dull brown fluffy juvenile plumage to the first adult plumage which is distinguished by most of the feathers of the under parts being white-tipped.

**Taxonomic notes.** These birds belong to the nominate race.

Dimensions of 1♂ juv. 2♀ juv.: wing, ♂ 128, ♀ 123; tail, ♂ 121, ♀ 109–111; bill, ♂♀ 22–23.
Laniidae

(185) Lanius minor  Lesser Grey Shrike.
   Lanius minor  Gmelin, 1788, Syst. Nat. 1, pt. 1: 308. Italy.
   Specimens. 1♂ 1♀ Tsondab Mund (5–7 March).
   Field notes. This Shrike appeared to be fairly common in the small area of dying acacia woods at Tsondab Mund far out in the Namib Desert. A number were seen perched in prominent positions on trees and bushes and may have been birds on their way to the northern hemisphere to breed. The two specimens taken were nearing completion of moult into fresh plumage; a number of old feathers are conspicuously faded pale brown against the softer greys of the new feathers.

(186) Lanius collaris  Fiscal Shrike.
   Specimens. 1♂ juv. Kamieskroon (2 Dec.); 1♂ juv. Grootderm (17 Dec.); 1♂ Tsawissis, Kleinkaras (9 Jan.); 1♂ 1♀ juv. Barby (9 Feb.).
   Field notes. Fairly common and widely distributed the Fiscal Shrike was identified in most of the areas visited. It was particularly in evidence just north and south of the Orange River and birds in juvenile dress were as numerous as adults.
   Taxonomic notes. On the west side of the continent it seems that the Orange River marks the boundary between the southern nominate form, which lacks a white stripe above the eye, and the northern race subcoronatus, which has a white eye-stripe. This eye-stripe is evident in both juvenile and adult plumages. Our specimens from Kamieskroon and Grootderm match the nominate race and those from Kleinkaras and the Tiraz Mts. match subcoronatus.

(187) Lanius collurio  Red-backed Shrike.
   Specimens. 1♂ Blesskranz, Naukluft Mts. (11 March); 1♀ near Karibib, Swakopmund District (5 April).
   Field notes. The male bird taken at Blesskranz was found in trees by a stream high up in the mountains. The female was taken inland from Swakopmund and was in thick bush savanna. It had been feeding on beetles and was in fresh plumage and in rather a fatty condition. Roberts (1940: 299) and others mention the possibility of this shrike breeding in the southern hemisphere. Andersson (1872: 136) thought that it bred in the Okavango. It may be a point in confirmation of this theory that the male bird was just finishing complete moult and in this condition was like adults of many other species taken at the same time which were known to be post-breeding.

(188) Laniarius atrofuscicinens  Crimson-breasted Shrike.
   Specimen. 1♀ Spitzkopje (4 April).
**Field notes.** The southern boundary of this handsome shrike is usually given as the Orange River, but it was not recorded on the lower reaches below Violl’s Drift. It was first seen near Seheim on the Great Fish River where occasional glimpses of its striking colours were caught in a clump of trees on the river bank (Pl. III A), and its loud whipping whistle was occasionally heard. North of Seheim it was commonly met with everywhere except in desert areas.

(189) *Teleborus zeylonus*  
Bokmakierie.  


**Specimens.**  
1♀ juv. Springbok (6 Dec.); 1♂ Barby, Tiraz Mts. (7 Feb.); 1♀ 1♂ juv. Spitzkopje (3–4 April).  

**Field notes.** Seen or heard almost everywhere, even in very dry areas, and adults were usually accompanied by juveniles. The female taken at Spitzkopje in early April had a fully developed egg in its oviduct.

**Taxonomic notes.** When Hartert described the race *phans* of Angola he said that populations between south-west Cape Province and Angola might differ from the nominate form and *phans*. Roberts (1928: 310) identified birds from Swakopmund as *phans* and Friedmann (1933: 8) took the race as far south as Keetmanshoop. In spite of these determinations the present specimens can be identified with the nominate form.

(190) *Eurocephalus anguitimens*  
White-crowned Shrike.  


**Specimen.** 1♂ juv. 30 miles south of Franzfontein (13 April).  

**Field notes.** Although widespread in the northern part of the country this shrike was only identified with certainty in the thick bush savanna around Franzfontein.

(191) *Nilanus afer*  
Brubru Shrike.  


**Specimens.** 1♂ Grootderm (14 Dec.); 1♂ 1♀ Assenkjer (29 Dec.); 1♀ Seheim (16 Jan.); 1♀ Tsondab Mund (6 March); 1♀ lower Kuiseb River (24 March); 3♀ 2(?) juv. Kamanjab (22–23 April); 1♀ Gobabis (10 May).  

**Field notes.** On the west side of the continent the lower Orange River seems to be the southern limit of this shrike, where it was recorded in the belt of trees flanking the river. It seems to require a fair amount of tree growth and, therefore, in the southern parts of its distribution it is usually confined to river courses where trees are reasonably plentiful. In this respect it is like a number of other species; for instance, it was noted that where the Pirit Flycatcher was seen or heard the Brubru Shrike could usually be found—and the latter was the more elusive species. The Brubru had a habit of keeping well into the foliage of tree or tall bush. A pair of birds in an isolated medium-size tree with even moderately thick foliage was very difficult to locate, even though the birds were calling regularly. The whistling notes, typically shrike-like, appeared to be a
combination of notes from both male and female. Pairs were frequently 'duetting' although they were in post-breeding moult. All the specimens taken from the various areas were approximately in the same moult condition, although it was only in the Kamanjab area that adults were feeding fully fledged juveniles.

**Taxonomic notes.** The southern variant of this widespread African shrike is sometimes regarded as a distinct species, *Nilanus brubru*. Agreement is found with those who make *brubru* and *minor* conspecific with *afer*, and the specimens are therefore identified as *N. a. brubru*. This form derives its name from Latham’s *Lanius brubru* which is based on Levaillant’s illustration, pl. 71, in his ‘Ois d’Afr.’. In the text Levaillant said that he first saw this bird on the banks of the Orange River. This is the lower Orange which he crossed on his second expedition probably somewhere near the present Goodhouse. It seems reasonable, therefore, to restrict the type locality to Goodhouse, Orange River. Small samples were collected throughout South West Africa but no appreciable variation was evident.


(192) *Lanioturdus torquatus* Chat-Shrike.


*Specimens.* 3♂ 1♀ 2♂ juv. Bleskranz (9–12 March); 1♂ juv. Spitzkopje (3 April).

*Field notes.* First seen in the Naukluft Mts. where Alexander discovered it in 1837 (see Macdonald 1931). Bleskranz is the name of the farm adjoining Bullsport and lying in the pass of the Tsondab River along which Alexander travelled to get through the mountains. The wider parts of the valley are well wooded along the course of the river, the woods being flanked with a fairly thick cover of tall bushes. This kind of vegetation, which is typical of the moister areas of the north, is unusual so far south except along such sheltered watercourses. In the woodlands around Outjo and Kamanjab for instance, the Chat-Shrike was quite common, up to about a dozen being recorded in a single low bush at one time. The Tsondab River, therefore, or perhaps even the Sossus River, about 40 miles farther south, possibly marks the southern limits of this species. At Bleskranz adults were usually accompanied by juveniles clamouring to be fed. Flight is fairly direct and rather laborious, and in our experience of the bird not long sustained. Notes are varied, usually harsh and loud, but there is also a shrike-like whistle.

*Taxonomic notes.* The taxonomic position of this species has not been determined with certainty. It has features reminiscent of the *Batis* flycatchers, although in the field it seemed to be rather like a shrike.

Paridae

(193) Parus afer  Grey Tit.

*Specimens.* 1♂ Kamieskroon (2 Dec.); 1♂ 40 miles east of Port Nolloth (19 Dec.); 2♂ 2♀ 1♀ (?) juv. Richtersveld (17 Dec.); 1♀ 10 miles north-east of Kleinkaras (10 Jan.); 1♀ Keetmanshoop (15 Jan.); 2♂ Witputs (25 Jan.); 1♀ Tsondab Mund (5 March); 3♀ Kuiseb River (25–27 March); 1♂ Kamanjab (23 April).

*Field notes.* At Kamieskroon in the Kamiesberg Mts. small parties of Grey Tit frequented the stunted scrub on rocky hillside. It was seen fairly frequently throughout Little Namaqualand in similar environments. In the eerie stillness of the Richtersveld Mts. it was one of the few signs of life and its sharp whistling notes carried a long way. North of the Orange River, at Witputs, it was found again in the same kind of country, namely low scrub at the base of rocky hillsides. But at Kleinkaras, Keetmanshoop, and other localities in South West Africa, the Grey Tit was found more in association with bushes and trees. It frequented trees at Tsondab Mund, along the lower Kuiseb and in thick bush and tree savanna at Kamanjab. It was recorded of the Kamanjab bird that its notes seemed to be rather different to those of the birds in Little Namaqualand. These differences in habitat can be correlated with slight changes in plumage colour, a matter which is referred to below. Both the Kamieskroon bird and the one from the coastal plains were in fresh post-breeding plumage, while the five taken in the Richtersveld illustrate the transition from worn to fresh plumage: the new feathers on the mantle show up quite appreciably darker against the old worn and faded feathers. A pair of adults in post-breeding moult were accompanied by a young bird in post-juvenile moult. The two Witputs birds were just completing moult, while the Kamanjab bird, taken near the end of April, was not so far advanced in post-breeding moult as the specimen taken in Little Namaqualand in early December.

*Taxonomic notes.* Little Namaqualand birds are dark drab brown on the back with the pale areas of the under parts vinaceous buff, while those from northern South West Africa are dark olive-grey on the back and much the same colour on the under parts. Opinions differ as to whether these two forms should be regarded as different species or variations of the same species. It is difficult to find any very convincing reason for deciding one way or the other. It is mentioned above that morphological differences can be related to differences in habitat, the Little Namaqualand birds living in karroo scrub and Damaraland birds in bushes and trees, with the northern limits of the scrub marking, more or less, the northern limits of the brown form. This relationship is found elsewhere, for instance Levaillant noted that he obtained the grey birds (on which Vieillot based his name *Parus cinerascens*) in mimosa trees along the Candeboo River in the Graaff Reinet district whereas the brown form occurs at Deelfontein where the principal vegetation is karroo scrub. The relationship is also found in other species, notably the Green Eremomela (scrub) and Brown Eremomela (trees); and the Karroo Prinia (scrub) and Black-breasted Prinia (trees). The components of these Eremomela
and Prinia groups can quite clearly be regarded as species, although speciation probably took place in relatively recent times. It seems, however, that in the tits speciation is rather less far advanced, specimens from Witputs, Kleinkaras and Keetmanshoop, for instance, seem to show some intermediate characteristics, although those from Witputs clearly belong to the brown group and the others to the grey group. Clearly, more information is required and in the meantime these forms are regarded as conspecific, and the species are identified as follows:

(1) *P. a. afer*. Little Namaqualand and Witputs in Great Namaqualand.


(2) *P. a. cinerascens*. Specimens from South West Africa, except Witputs.


In both races bill and legs are black, and iris blackish-brown.

(Note: Vieillot gave this name to the ‘La Mésange Grisette’ of Levaillant (1796–1812: 3, pl. 138), who apparently recorded this bird on his first expedition, for he says: ‘Je n’ai trouvé cette Mésange grise que dans les bois mimosas du Candeboo.’ The country of the Candeboo (or Camdeboo) is shown on the map included in the English edition of his travels (1796) to be approximately in the position of the present province of Graaff Reinet whose northern boundary, the picturesque escarpment of the ‘Sneeuv Bergen’, is indicated on Levaillant’s map. The position and shape of these mountains, the lie of the rivers, and the fact that there is a Camdeboo River in the province makes the matter reasonably certain.)

(194) *Parus niger*  Black Tit.


Specimens. 2♂ 1♀ juv. Kamanjab (19–23 April).

Field notes. The Black Tit was relatively common in the bush and tree savannas of the upper Huab River area. It was usually seen in small parties, flying from tree to tree and feeding among the lower branches. Of the specimens taken one of the males was just completing post-breeding moult, the other male had just completed moult from juvenile plumage, and the juvenile is in post-juvenile moult.

Taxonomic notes. Two groups of Black Tit are widely distributed in savannas throughout Africa apparently replacing each other geographically. Opinions are divided as to whether or not they are conspecific. On the west side of the continent there seems to be some intergradation. Specimens from the Kaokoveld of South West Africa clearly belong to the northern *leucomelas*, but a specimen from the Waterberg and another from Otjimbingwe on the Swakop River seem to have some of the characteristics of the southern *niger* as well as the northern form. It may be that on the east side of the continent there is a sharper distinction between the two groups justifying their recognition as separate species, as did Grant and Praed (Bull. B.O.C., 1942: 44) and Benson (1951: 107), but on the west side the characters seem to intergrade. Angola birds belong to
the northern leucomelas group but have been separated from it as a distinct form, insignis. The Kamanjab specimens are not quite like typical insignis but they are attached to this race until more data are available.

Dimensions of 2♂: wing 81–82; tail 69–70; bill 11–12.

(195) Anthoscopus minuta Cape Pendule Tit.


(Note: In the list of localities given by Reichenow the place Ovaquenyama, which is near Ondonga, is the first and can be selected as the type locality.)

Specimens. 1♀ Kamieskroon (2 Dec.); 2♂ Springbok (38 Dec.); 1♂ 4 miles east of Maltahöhe (13 Feb.); 1♂ 1♀ Blesskranz (10 March); 1♀ Kamanjab (20 April).

Field notes. This tiny bird seemed to be fairly common in Little Namaqualand. At Kamieskroon and Springbok small flocks were seen on several occasions; they crossed one’s path unexpectedly, and were usually chittering like mice. An occupied nest was found at Blesskranz in the Naukluft Mts. in early March. The elaborate felt structure was hung low in a bush beside the dry course of a mountain stream. A pair of birds was watched going in and out. The entrance was permanently closed but when a bird landed in a certain position the aperture opened and the bird popped in. (See also Hoesch (1933 [e]: 1–4) for description of nest of A. caroli.) The nest contained three fledglings. This stage of the breeding cycle was not consistent with what we found in the majority of other species in the same areas and the possibility that this was an unusually late brood was suggested by the advanced stage of wing moult in the parents.

Taxonomic notes. On the western side of the continent populations north and south of the lower Orange River have quite marked colour differences. The southern birds are darker on the upper parts, and the yellow of the under parts is golden, or honey-coloured. This group extends eastwards to about as far as Deelfontein and is the nominate race. The lighter coloured group extends from South West Africa to the Transvaal and Orange Free State. It is usual to regard eastern and western populations of the northern group as different races, those in the east as smithii of Jardine, and those in the west as damarensis of Reichenow. The former does not appear to be a valid race, and in any case the name smithii is not available for eastern birds. It was first given to specimens from Verloren Vley, only 30 miles south of the type locality of minuta in western Cape Province (see Macdonald, Bull. B.O.C., 1932: 72), and is therefore a synonym of minuta. The specimens are identified as follows:

(1) A. m. minuta. Specimens south of the Orange River.

Dimensions of 2♂ 1♀: wing, ♂ 47, ♀ 49; tail, ♂ 32–34, ♀ 35; bill, ♂♀ 11–12. Colour of bill, blackish, pale at curving edge; legs, dark bluish-grey; iris, blackish-brown.

(2) A. m. damarensis. Specimens from South West Africa.

Oriolidae


Specimens. 2♂ (1 juv.) Huab River (14–25 April).

Field notes. Both specimens were obtained along the well-wooded course of the Huab River, and it is only there that the species was identified. Apparently it is common on the Cunene and Okavango Rivers and extends south with the wet seasons.

Taxonomic notes. The specimens belong to the southern race, notatus.

Dimensions of 2♂: wing 138–144; tail 84–85; bill 26–28. Colour of bill in the adult, mahogany, and in the juvenile, black; legs, grey; iris in adult, blood-red, in juvenile, dark brown.

Corvidae

(198) Corvus albus  Pied Crow.


Field notes. Recorded occasionally from Little Namaqualand, where it was more common than the Cape Rook, and as far north as the Kuiseb River.

(199) Corvus capensis  Cape Rock.


Specimen. 1♂ juv. Aus (28 Jan.).

Field notes. The Cape Rook was recorded occasionally from Little Namaqualand, where it was rather less common than the Pied Crow, and as far north as Tsondab Mund. It was relatively common along the edge of the desert from Witputs northwards, but was observed much less frequently elsewhere. Birds were usually in twos and threes. The specimen collected is a young male in post juvenile moult. In the area in which it was taken, just south of Aus, there were small mounds about two feet high scattered about in undulating sand and thin low scrub. These mounds were used as stances by Cape Rooks and were white with their droppings.

Taxonomic notes. The specimen is identified with the nominate race.
Contribution

Damaraland.

399.

867.

294.

819.

(200) Creatophora carunculata Wattled Starling.


Specimens. 1♂ 1♀ juv. Karibib (5 April); 1♂ Okumbohe (7 April).

Field notes. First seen in the relatively thick bush and tree savanna inland from Swakopmund, and from Karibib northwards it was fairly often, usually in noisy and restless parties of about a dozen or so birds. Andersson recorded (1872: 162) that it moved south into Great Namaqualand during the rainy season. The adult and young bird taken near Karibib in early April were just completing moult and the adult from Okumbohe was in fresh plumage. The wattles were not developed but the birds had bare skin round the eyes and on the sides of the throat.

Dimensions of 2♂: wing 103–107; tail 60; bill 21.

(201) Cinnyricinclus lewogaster Plum-coloured Starling.


Specimens. 1♂ Spitzkopje (3 April); 1♀ Brandberg Mts. (11 April).

Field notes. Although this starling is readily identified by the brilliant colour of the male little was seen of it, possibly because the rainy season in northern South West Africa was nearly over. The male collected in early April had quite large testes and it was accompanied by at least two birds in female-type plumage, probably adult female and juvenile. The female taken in the Brandberg Mts. was first seen on a bush and was 'twinkling' like a Cercomela. It hopped on to the ground and foraged among the gravel of a dry watercourse. The species was identified in the Kamanjab area in late April and at Gobabis early in May.

Taxonomic notes. Our specimens are identified as the southern race verreauxi.

Dimensions of 1♂ 1♀: wing, ♀♂ 101; tail, ♂ 61, ♀ 57; bill, ♀♂ 17.

(202) Lamprocolius nitens Cape Glossy Starling.


Spreo bispecularis Strickland, 1852, Centr. Orn.: Damaraland.


Specimens. 3♂ 2♀ Springbok (6–8 Dec.); 1♂ 1♀ Brandberg Mts. (10–11 April); 1♂ 1♀ Kamanjab (20–22 April).

Field notes. Seen from time to time around Springbok. Several small flocks of a dozen or so birds kept mainly to the few patches of tall bushes and scattered thorn trees. They usually settled high up and were quite conspicuous. It was next recorded at Walvis Bay where it was fairly common along the lower Kuiseb River, and it seems that the species does not occur in the intervening country. Andersson (1872: 160) found it common in Great Namaqualand, but there are no specimens of his from south of Otjimbingwe on the Swakop River. This great gap in distribution along the west coast probably accounts for the differences between the southern and northern
birds referred to below. North of Walvis Bay it was noted from time to time, sometimes in very dry regions, as in the Brandberg Mts. (but again only where there were scattered trees) and in the bush and tree savannas around Kamanjab and Gobabis. It did not seem to occur in thick woods.

Taxonomic notes. Three races are recognised. They are based mainly on the size variation given by Stresemann in his monograph of the genus Lamprocolius (Journ. Orn., 83, 1925: 158). It seems that the species divides fairly readily into two colour groups. In the south, from Little Namaqualand to about the middle of the Orange Free State, birds have an appreciably greener sheen than the remainder of the species which has a more purplish sheen. The greenish birds take their name from Swainson’s Lamprotornis phoenicopterus which was based (see Sclater, 1930: 656) on a specimen from near Prieska. The purplish birds include the nominate race from Angola and Strickland’s Spreo bispecul-
laris, based on an Andersson specimen, probably from around Otjimbingwe. Strickland compared his bird with an Angola specimen. The difference in size of bills which he recognised is emphasised in the general size difference which Stresemann and others used to distinguish bispecularis from nitens. Comparative figures of wing lengths are shown in the following table, where figures in brackets indicate number of specimens:

<table>
<thead>
<tr>
<th></th>
<th>Transvaal, etc.</th>
<th>Damaraland</th>
<th>Angola</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>132–140 (8)</td>
<td>129–137 (4)</td>
<td>121–126 (7)</td>
</tr>
<tr>
<td>Female</td>
<td>121–126 (4)</td>
<td>124–126 (4)</td>
<td>113–120 (6)</td>
</tr>
</tbody>
</table>

The Angola sample shows a population of appreciably smaller birds. There is also a suggestion of a size cline between Damaraland and the Transvaal in the bispecularis group. The specimens therefore represent two geographical races, those from Little Namaqualand being L. n. phoenicopterus, and those from Damaraland L. n. bispecularis.

(203) Lamprotornis australis  Burchell’s Glossy Starling.

Specimen. 1♂ near Rehoboth.

Field notes. Only identified when a specimen was obtained from a belt of trees flanking a flooded river just south of Rehoboth. It was nearing completion of moult.

Taxonomic notes. Smith’s type locality, Kurrichane, is usually quoted. Kirby (1939-40: 1: 326) shows that this place was near Enzelberg, a village lying about 20 miles northeast of Zeerust. As Zeerust is a well-known place it could be quoted as the type locality.

(204) Onychognathus nabouroup  Pale-winged Starling.
Sturnus nabouroup Daudin, 1800, Traité d’Orn. 11: 308: ex Levaillant, Ois d’Afr., pl. 89. Kamiesberg.

Specimens. 1♂ Violl’s Drift (24 Dec.); 2♂ 1♀ Tsawissis, Kleinkaras (7–8 Jan.); 1♂ Barby (10 Feb.); 1♂ Brandberg Mts. (10 April).

Field notes. Although the type locality of this starling is the Kamiesberg Mts. it was first noted at Violl’s Drift. There was a party, probably a family, of five birds high up
on the limestone crags, where they made a great clamour. They came down to drink at the river in front of the camp regularly every day about half an hour before sunset. In this respect they behaved in much the same way as the Red-eyed Dove and the Namaqua Sandgrouse, but of the three it was usually the first to arrive. All the specimens obtained during a period of four months are about half-way through post-breeding moult, the body plumage being rather patchy with new glossy feathers replacing old dull feathers, and moult of primaries just beginning.

**Taxonomic notes.** The species has been divided into three races, mainly on variations in size and the light colour of the base of the primaries, which is in striking contrast to the rest of the plumage. Neumann (Orn. Monatsb. 11, 1903 : 184) found that Angola birds had the patch at the base of the primaries pure white, not suffused with pale brownish-orange as in typical *nabouroup*, and gave them the name *benguellensis*. Reichenow (1900–5 : 2 : 697) found that birds from around Port Elizabeth were larger and that the colours of the wing patch were darker, and gave them the name *intense tintica*. It seems that between Port Elizabeth and Benguella there is complete intergradation in these two variable characteristics; for example, size variations in wing lengths are shown in Table 8. The changes in both size and colour are scarcely perceptible over extensive areas but quite clear when extremes are compared. It is difficult now, and will be even more difficult with the addition of new data, to divide the species into distinct geographical units. In the meantime the three named races can be accepted. In western areas birds as far north as Damaraland can be included in the nominate race.

**Table 8. Gradation in wing length in population of *Onychognathus nabouroup***

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
<td>135–141 (2)</td>
<td>135 (1)</td>
</tr>
<tr>
<td>S.W. Africa</td>
<td>137–150 (6)</td>
<td>139–140 (2)</td>
</tr>
<tr>
<td>Little Namaqualand</td>
<td>144–153 (5)</td>
<td>136–146 (4)</td>
</tr>
<tr>
<td>Eastern Cape Province</td>
<td>150–160 (10)</td>
<td>144–151 (2)</td>
</tr>
</tbody>
</table>

Zosteropidae

(205) *Zosterops pallida* Pale White-eye.


**Specimens.** 1♂ 1♀ Kamieskroon (4 Dec.); 2♂ 1♀ Grootdern (10–11 Dec.); 3♂ 2♀ Violl’s Drift (23–27 Dec.); 1♂ 1♀ Seeheim (16–18 Jan.); 2♂ 4♀ lower Kuiseb River (24–28 March).

**Field notes.** At Kamieskroon several White-eyes were found on a patch of low thornbush. The two specimens taken were in fresh plumage. Along the Orange River White-
eyes were one of the commonest birds in the dense riverside vegetation. They were not restricted to it but were recorded sometimes in isolated thorn trees several miles from the river. At Seeheim they were found in vegetation along the course of the Great Fish River and specimens taken were nearing completion of total moult. Similarly, on the lower Kuiseb River White-eyes were fairly common in small parties foraging in the trees and bushes along the river. Specimens show that post-breeding moult was less well advanced there in late March than at Seeheim in mid-January.

**Taxonomic notes.** On the west side of the continent there are two distinct forms of this White-eye. Populations in south-west Cape Province have, among other differences, the lower breast and belly drab grey, while populations from the Orange River northwards have these areas buffish coloured. The two Kamieskroon specimens match the former group and do not appear to be distinguishable from toptotypical specimens of Sundevall’s *capensis*; this is an extension northwards of the race for the most northerly previous record seems to be on the Olifants River. It is a point of interest that at Klipfontein, about 70 miles north of Kamieskroon, Grant found White-eyes in ‘small parties frequenting the bushes and stunted trees in the kloofs’ which belong to the northern buffish-bellied form which is typified by Swainson’s *pallida*. Whether *pallida* and *capensis* are indeed conspecific is not certain from data available. *

The specimens from the lower Orange River are nearly toptypical of Reichenow’s *deserticola*, a minor variation of *pallida*. The validity of *deserticola* was questioned by Selater (1930: 677) and not accepted by Hoesch and Neithammer (1940: 328) who compared specimens from Goodhouse with the type. If the Orange River specimens are toptypical there is no reason for separating them from the other South West Africa specimens, but all these western birds average slightly smaller than birds from central Cape Province and the upper Orange and Vaal Rivers. The differences are not racially significant.

**Nectariidae**

(206) *Nectarinia famosa* Malachite Sunbird.


**Specimens.** 1♂ 1♀ Grootderm (10–16 Dec.).

**Field notes.** Frequenting bushes on the rocky hillsides at Kamieskroon and the thick vegetation along the banks of the Orange River, and not so common as the Double-collared Sunbird. Not recorded north of the Orange River although Andersson (1872: 68) found it to be rare in Great Namaqualand. The male was a young bird in post-juvenile moult.

**Taxonomic notes.** The specimens belong to the nominate race.

(207) *Cinnyris chalybeus* Double-collared Sunbird.


**Specimens.** 2♂ Kamieskroon (2–4 Dec.); 1♂ Springbok (8 Dec.); 4♂ 1♀ Grootderm (11–15 Dec.).

**Field notes.** A common species from Cape Town to the Orange River. Although frequenting dry areas it seems to prefer trees and bushes, unlike the Namaqua Sunbird

which was more a scrub species. At Grootderm the Double-collared Sunbird was much more common than the Malachite and Namaqua Sunbirds, but it was not identified farther up the river at Violl’s Drift and Assenkjer, where the Namaqua Sunbird was relatively more common. Nothing was seen of it north of the Orange River. Although birds in full plumage were recorded all the specimens taken were in post-juvenile moult.

**Taxonomic notes.** The nominate race seems to remain fairly constant in character as far north on the Orange River.

(208) *Chalcomitra fuscus*  Namaqua Sunbird.

*Specimens.* 1♂ Springbok (7 Dec.); 2♂ 2♀ Grootderm (11–15 Dec.); 2♂ Violl’s Drift (26–27 Dec.); 1♂ 4♀ Kleinkaras (3–8 Jan.); 1♂ 1♀ Seeheim (16–17 Jan.); 1♀ Aus (3 Feb.); 1♂ 40 miles north of Aus (5 Feb.); 1♂ Barby (9 Feb.); 1♀ juv. Bleskranz (9 March); 1♀ lower Kuiseb River (24 March).

*Field notes.* The Namaqua Sunbird was a fairly common and typical species of scrub vegetation. Even along the Orange River it kept mainly to the scrubbier margins of the tree belt rather than the thicker vegetation frequented by the Double-collared and Malachite Sunbirds. The males in their mainly black plumage were characteristic birds of the dry scrub everywhere as far north as the Brandberg Mts. but were noticeably less common in the bush and tree savanna around Kamanjab, and nothing was seen of them in the more thickly wooded areas at Gobabis. Specimens collected at the Orange River in December were well advanced in post-breeding moult, but farther north they were mainly in fresh plumage.

**Promeropidae**

(209) *Promerops cafer*  Long-tailed Sugarbird.

*Specimens.* 1♂ 1♀ Cape Town (20 Nov.).

*Field notes.* Fairly common in the vicinity of Cape Town, particularly where there are protea bushes. The male was nearing completion of moult.

**Taxonomic notes.** Agreement is found with Selater (1930: 713) and others that the Cape and Natal Long-tailed Sugarbirds can be regarded as geographical races of the same species.

**Ploceidae**

(210) *Bubalornis albirostris*  Buffalo Weaver.

*Specimens.* 3♀ (2 juv.) Onguati (21–25 April).

*Field notes.* Only recorded in the more heavily wooded areas of the upper Huab River around Onguati and Kakatswa. Birds were usually in large scattered parties in the tall trees along the dry course of the river. Sometimes they mixed with parties of Bare-cheeked Babbler, *Aethocichla gymnogenys*. Seeing these birds for the first time, or at
least after the lapse of a number of years, it was thought that they were some species of starling. Colonel Cave, who was well acquainted with the species in the Sudan, had already formed the opinion that it is more related to the starlings than the weavers.

Taxonomic notes. The doubtful position of this species in the Ploceidae is referred to above. It is widely distributed in the well-wooded savanna areas of tropical Africa. Its southern limits seem to be from about the Swakop River in South West Africa to the western Transvaal. These southern populations are regarded as a distinct race which takes its name from Smith’s Bubalornis niger from Kurrichane (near the modern Zeerust) in western Transvaal. The specimens can be identified with this race. The two juveniles mottled with white on the under parts, particularly on throat and breast.

Dimensions of ♂: wing 113; tail 97; bill 23. Colour of bill, adult ♂ mottled black and horn, juvenile mottled yellowish or orange and black; legs, grey-brown; iris, dark brown.

(211) Plocepasser mahali Sparrow-Weaver.


Specimen. 1♂ Spitzkopje (2 April).

Field notes. Although the Sparrow-Weaver extends as far south as the upper Orange River it does not appear to get anywhere near the river on the west side of the continent. Andersson (1872 : 166) said that it occurred sparingly in Great Namaqualand although there are no specimens of his to confirm this statement. It is doubtful if it occurs now south of the latitude of Windhoek. On the present occasion it was first seen at Spitzkopje as a result of investigating a small group of scattered thorn-bushes sprinkled with tufts of dry grass, as if the grass had been blown and left there by the wind. They were nests of this species and about two dozen birds were going in and out although the breeding season was at an end. The species was common on the upper Huab River area and at Gobabis.

Taxonomic notes. The species is based on a description by Andrew Smith, who stated that it belonged to ‘the country between the Orange River and the Tropic’. But in his diaries (see Kirby, 1939–40, 1 : 167) he says exactly where he first found it, and where, therefore, he must have secured specimens. On 4 December Smith left Thabanchu (now a large town just east of Bloemfontein) in a south-westerly direction until he reached the Modder River. There he ‘remained for a day in consequence of having obtained several new birds, a Passer and several others’. On 9 December he wrote, ‘Passer with white stripe over eyes shot on Modder River’, and on 10 December, ‘The nest of Passer found on Modder River is formed of grass. . . . The outside irregular with most of the extremities of the grass projecting like the spines of a porcupine.’ These notes clearly describe the Sparrow-Weaver and its nest, and the type locality can be quoted as Modder River, near Bloemfontein. The characteristics of the typical form seem to be constant across the continent to Damaraland. Another form, ansorgei, was described by Hartert (Nov. Zool. 14, 1907 : 487) from Angola mainly because of a greater amount of white on the tip of the tail. In the specimen most of the tail feathers are extremely worn, but one new feather has no more white at the tip than the majority of Transvaal specimens.
Dimensions of 1♂: wing 93; tail 58; bill 18. Colour of bill, blackish-horn; legs, grey; iris, cinnamon-brown.

(212) Philetairus socia Sociable Weaver.

Philetairus socia Latham, 1790, Index Orn., 1: 381. Warmbad, Great Namaqualand.

Specimens. 1♂ Kleinkaras (4 Jan.); 1♂ 38 miles north-east of Aus (5 Feb.).

Field notes. The Sociable Weaver is typical of Great Namaqualand although it extends eastwards to the Transvaal, and is particularly associated with dry open country with sparsely scattered small trees such as kokerboom and camelthorn. It was in a kokerboom that the bird was first noted in the flat stony country near the canyons of the Great Fish River, just above Ai Ais. A small party of noisy birds shot out of a curious ‘growth’ on the tree which was readily identified as the well-known communal nest of this species. It was seen again frequently in similar circumstances as far north as the Kuiseb River, but not beyond. The Kleinkaras specimen was in extremely worn plumage while the Aus bird was in fresh plumage.

Taxonomic notes. It is possible to fix the type locality of this species fairly accurately. Latham’s description was based on a bird recorded by Paterson (1789) who did not penetrate very far into Great Namaqualand. From the account of his travels it seems that he must have reached the Orange River (after first exploring the mouth) near the present Goodhouse. Then he went up the river for several days probably to about Homs (or Houms) Drift, due south of Warmbad, then north for about a day’s journey. It seems reasonable, therefore, to restrict the type locality to the nearest well-known place, namely Warmbad.

Dimensions of 1♂ 1♀: wing, 9♂ 77; tail, 9♀ 45, ♀ 41; bill, 9♂ 17, ♀ 16. Colour of bill, greyish-horn; legs, yellowish-grey; iris, dark brown.

(213) Passer motitensis Great Sparrow.


Specimens. 1♂ Kleinkaras (4 Jan.); 1♂ Blesskranz (10 March); 1♀ Spitzkopje (3 April); 1♂ 1♀ Kamanjab (22 April).

Field notes. Although the first specimens were collected at Kleinkaras where the Great Sparrow was fairly common, it was recorded at Grootderm on the Orange River, which seems to be its southern limit on the west side of the continent. North of the Orange River it was recorded from time to time, usually in small numbers, as far north as Kamanjab and east to Gobabis. It seemed to be a rather shy species and to be associated with trees, large or small; for example, at Aus on the edge of the desert it was only seen in a damp pocket where there were a few trees. The Spitzkopje specimen was taken from a small flock of about half-a-dozen birds at a water hole, and the Kamanjab specimens were both taken from high up in trees flanking a dry river course. It was only the Kamanjab male (late April) which showed the first sign of post-breeding moult, the female being a young bird in its first full plumage. The Spitzkopje female (early April) had very granular ovaries, and the males from farther south (early January and March) were in moderately worn plumage.

Taxonomic notes. Opinions are divided on whether or not P. motitensis is conspecific with P. jagoensis. The view that it is not is accepted here, but it is a point that requires further investigation. In his description Smith says: ‘Only two specimens of this bird
were procured, both about 60 miles to the south of the Orange River.' This must have been on his 1834–6 expedition because he mentions that the local natives were Bechuana. Kirby (1939–40) showed that Smith twice crossed the Orange River on that Expedition, between Colesberg and Philippolis (at the present Colesberg Bridge) at the start of his journey and near Hopetown on the return, positions on the upper Orange River about 100 miles apart. There is nothing in the text published by Kirby from which one can decide on which occasion he obtained the specimens, nor would it seem to matter very much as the localities are relatively near each other. It is proposed therefore to restrict the type locality to ‘near Hopetown’. The specimens appear to match birds from the type locality.

Dimensions of $3\varphi 2\varphi$: wing, $\varphi 82–85$, $\sigma 81–82$; tail, $\sigma 54–58$, $\varphi 55–56$; bill, $\sigma \varphi 16$. Colour of bill, black; legs, greyish-brown; iris, medium brown.

(214) **Passer melanura** Cape Sparrow.


*Specimens.* $\varphi$ 1(?) juv. Grootderm (12 Dec.); $\sigma 1\varphi$ Kleinkaras (9 Jan.); $\sigma$ Seeheim (16 Jan.); $\varphi$ Aus (30 Jan.); $\varphi$ 52 miles north of Mariental (17 Feb.); $\sigma 1\varphi$ near Walvis Bay (23–24 March).

*Field notes.* The Cape Sparrow was recorded as a fairly common species in most collecting localities from Klipfontein north to the Kuiseb River. It was nearly always associated with trees or tall bushes along wet or dry watercourses, such as along the Orange and Kuiseb Rivers, and even in solitary small trees near the margins of deserts; it is also said to take the place of the House Sparrow at human habitations. It was notably absent from localities north of about the latitude of Windhoek, and no reference can be found to its occurrence in these regions except for a single specimen reported by Bocage and obtained by Anchieta at Benguella, Angola, in 1867. The description and measurements fit the species very closely, but it seems strange that in all these years it should not have been reported again. The specimens taken at Grootderm in mid-December are about the same stage of worn breeding plumage as specimens taken near Walvis Bay in late March, but in between most of the specimens are near completion of post-breeding moult.

*Taxonomic notes.* The description of the species is based on specimens sent to M. de Reaumur by M. l’Abbé de la Caille, from the ‘Cape of Good Hope’. It is highly probable that they were obtained near Cape Town where the Cape Sparrow is still a common species. It is preferable to quote Cape Town as type locality because, in common with a number of other species, populations of this sparrow in the Cape region are appreciably darker and greyer than populations in other areas. This richer and darker colouring is found in specimens taken as far west as Port Elizabeth, eastern Cape Province and the northern Orange Free State, but it seems to be greatest around Cape Town. In Little Namaqualand both males and females are appreciably lighter, for instance the chestnut of the upper parts is brighter. These characteristics are found in specimens as far as the northern limits of distribution on the west side of the continent and they have been named *damarensis*. All the specimens belong to this race.

Dimensions of $3\sigma 5\varphi$: wing, $\sigma 74–76$, $\varphi 72–75$; tail, $\sigma 54–56$, $\varphi 53–56$; bill, $\sigma \varphi 13–14$. 

*Notes on Species*
(215) _Sporopipes squamifrons._ Scaly Weaver.


_Specimens._ 1♂ 2♀ 40 miles north-east of Kleinkaras (10 Jan.); 2♂ 1♀ 30–40 miles north of Aus (31 Jan.–5 Feb.); 1♂ Barby (9 Feb.); 1♂ 1♀ Tsondab Mund (6 March); 1♂ lower Kuiseb River (25 March).

_Field notes._ This bird does not appear to extend south of the lower Orange River. It was noted for the first time to the north-east of Kleinkaras in undulating sandy country with sparse low scrub and small bushes. A few birds, probably a family party, which were feeding on the ground quickly took cover in the vegetation when disturbed. Although the black and white features of its plumage are conspicuous against the predominantly reddish sands the bird is quickly ‘lost’ in bushes. It seems to be suited to a wide range of environments for it was found all along the edge of the desert, even in the patches of _Aristida_ grass and green Tsama bushes at the edge of the Namib desert, and also in the wooded country around Kamanjab and Gobabis. It was usually in flocks of about ten or a dozen birds, and the specimens collected were in various stages of post-breeding moult.

_Taxonomic notes._ The species was first described by Andrew Smith. In his original description he gives its occurrence merely as ‘South Africa’, but later (1844: pl. 95) he states: ‘This bird is frequently found to the northward of Latakoo (now Kuruman), but rarely to the southward; and the only specimens seen from the latter were obtained towards the sources of the Great Fish River’ (of eastern Cape Province). The species is well known around Kuruman and it is suggested that the type locality be restricted to that place. It is generally regarded as a monotypic species in spite of Reichenow’s (1900–5: 838) separation of a South West Africa race, _damarenis_, based on lighter and greyer upper parts, a difference which might easily be attributed to seasonal variation. The present series shows a transition from a lighter coloured and worn breeding plumage to a darker fresh plumage.

Dimensions of 6♂ 5♀: wing ♂ 56–59; tail ♂ 38–39; bill ♂ 10. Colour of bill, pinkish above, whitish below; legs, pinkish-brown or flesh; iris, brown.

(216) _Ploceus rubiginosus_ Chestnut Weaver.

_Ploceus rubiginosus_ Rüppell, 1840, N. Wirb. Vog.: 93, pl. 33, fig. 1. Abyssinia.


_Specimens._ 2♂ Bleskranz (10 March); 1♂ upper Kuiseb River (14 March); 1♀ Kamanjab (23 April).

_Field notes._ First seen on the stony slopes of the Naukluft Mts. above Bleskranz. A compact flock of small birds dashed past at great speed and disappeared over the shoulder of a hill. They had the speed and dash of Rosy-cheeked Parrots, _Agapornis roseicollis_, but they were not screeching. Later the flock came round that way again and dropped into a small tree. Two birds were obtained and as far as one could see—there was little time for observation—all the birds were in chestnut plumage. They were next seen on the banks of the Kuiseb River in tall acacias by the water’s edge which were festooned with hanging nests of the Masked Weaver, _Ploceus velatus_. Again, near Kamanjab, a bird picked out from a fast moving flock turned out to be a female of the...
species. Field notes on the Chestnut Weaver seem to be rather scanty. The bird interested Roberts who recorded (1940: 339): ‘There appears to be no records of its habits’, and illustrated (pl. 31) a chestnut specimen as a female. He had some correspondence with Dr. J. S. Watt of Windhoek on the subject and, as Roberts died before he had time to publish some new observations, the Director of the Transvaal Museum has kindly put them at our disposal. Roberts wrote to Watt in December 1946 asking for information about this bird, but Watt had nothing to report until April 1948 when he sent Roberts the following data: ‘... in February this year Mr. Thomson, manager of Neudam (near Windhoek) ... drew my attention to some weavers which had just arrived and were building nests high in the blue gum trees near the house. Most of the birds were a rich chestnut in colour and I felt that these must be the ones that you were looking for. Mr. Thomson mentioned that they constructed their nests very rapidly and untidily and the common weavers (Masked Weavers) kept interfering with operations. This appeared to be the case, as Ploceus velatus was building in the same trees and numbers of birds resembling the females of this species were noticed to be active among the nests. I did not have an opportunity for prolonged observation ... (and) ... I asked Mr. Thomson to secure some specimens for me. [Unfortunately, as I learned from Dr. FitzSimons, all the specimens sent to Roberts were not sufficiently well preserved and could not be kept.] Later, during early March, I went out to obtain specimens and found numbers of nests at various points between Kapp’s Farm and Neudam. They were all built in thorn trees. ... The most of them were near watercourses, but a few were found in trees on high ground several hundred yards away from the nearest watercourse. In some cases the Masked Weaver was building in the same trees. The birds were shy and left the trees at my approach, but one or two remained behind and I secured two males. Plainer coloured birds were seen leaving the nests and I was now convinced that these were the females, but they were much shyer than the males. I obtained two nests and these are being forwarded to you (one of the nests in the Transvaal Museum is illustrated in Pl. VI B). These nests were empty and the others were inaccessible with the means at my disposal. The nests, as you will observe, are strongly built, but the untidy and rough finish give one the impression of a very loosely built affair when viewed in the field. At a later stage Mr. Thomson sent in a female skin and a pair of birds which I skinned. By that time the birds were feeding the young and Mr. Thomson was reluctant to shoot any more. Mr. Thomson has lived at Neudam for over thirty years and cannot recall ever having seen this species before so that it seems certain that they have not appeared in the vicinity in any numbers in recent years. In the area selected for nesting, covering several miles, there were fairly large numbers. The shyness of the females and the fact that they so closely resembled the females of the Masked Weaver probably accounts for the failure to obtain specimens. In the field they are not easily distinguished except that in the Chestnut Weaver the beak is much darker.’

This account is a valuable contribution to our knowledge of the Chestnut Weaver. Dr. Watt said that birds were building nests in early February, and probably incubating in March 1950 though he did not actually see a nest with eggs. The condition of the present specimens fits in with this breeding period for the males taken on 10–14 March were in very worn plumage with no indication of moult, and with testes quite large.
The Kamanjab female taken on 23 April was only just commencing moult. Judging by other species it seems to be a rather late breeder for these latitudes.

**Taxonomic notes.** Windhock is the type locality of *Ploceus trothae* which is now regarded as conspecific with *P. rubiginosus*. Reichenow described the male as having an appreciably lighter red-brown plumage. In the present specimens there is more yellow in the chestnut-brown, and all have a large patch of grey on the rump, which is only very slightly indicated in the males of the nominate form; there is no sign that the grey feathers are remains of a younger developmental stage, or part of a non-breeding plumage—if there is such a distinctive dress as there is in the nominate race. The streaky grey-brown female plumage is appreciably greyer than in the nominate race.

Dimensions of $3\delta$ 1♀: wing, $\delta$ 81–86, ♀ 78; tail, $\delta$ 54–57, ♀ 49; bill, $\delta$ 19–21, ♀ 19. Colour of bill, $\delta$ black, ♀ blackish-horn; legs, lavender or mauve-grey; iris, orange to cinnamon-brown.

(217) *Ploceus capensis* Cape Weaver.


**Specimen.** 1♂ Kamieskroon (3 Dec.).

**Field notes.** Little Namaqualand is the northern limit of the Cape Weaver on the west side of the continent. It seemed to be a fairly uncommon species both at Kamieskroon and Springbok, and was usually found on rocky hillsides where there was low scrub and scattered bushes. The single specimen obtained was just commencing post-breeding moult. The new feathers showing on the forehead are dark brown and belong to the sombre-coloured non-breeding plumage which is similar to that of the female.

**Taxonomic notes.** Little Namaqualand birds belong to the nominate race.

Dimensions of 1♂: wing 90; tail 56; bill 23. Colour of bill, black; legs, light brown; iris, cream.

(218) *Ploceus velatus* Masked Weaver.


**Specimens.** 1♂ 1♀ Grootderm (10 Dec.); 1♂ Violi’s Drift (26 Dec.); 1♂ juv. Ai Ais (31 Dec.); 1♂ Barby (7 Feb.); 3♂ 1♀ lower Kuiseb River (25 March).

**Field notes.** The Masked Weaver showed a distinct preference for watercourses, especially those with open water and clusters of their ball-like nests were usually suspended from branches overhanging the water. It was found along the Orange River, which seems to be its southern limit on the west side of the continent, and noted regularly throughout South West Africa as far north as Kamanjab, even in very dry areas, such as at Tsondab Mund far out in the Namib Desert, but where there was at least a short seasonal flow of water. Along the Orange River in mid-December birds seemed to be in the early stages of breeding for males were in relatively fresh plumage with large testes and one was seen to be busily engaged in nest building. The Ai Ais specimen, however, taken later in the month, was diagnosed as a young male in female-type plumage. The male from the Tiraz Mts. taken in early February was in slightly worn plumage with fairly large testes, but the Kuiseb River series show extremely worn plumage with early stages of complete moult.
Taxonomic notes. The species was described by Vieillot on a specimen in Temminck's collection from the country of the Namaquas. It is highly probable that the specimen was obtained by Levaillant and it is likely that he found it on the lower Orange River, about Goodhouse or Pella. Birds on the west side of the continent belong to the nominate form in which the green of the upper parts is paler, less yellowish, than in eastern birds.

Dimensions of $6 2\varphi$: wing, $\varphi$ 74–80, $\varphi$ 72–74; tail, $\varphi$ 52–57, $\varphi$ 47–52; bill, $\varphi$ 15–17. Colour of bill, $\varphi$ black, $\varphi$ pale horn; legs, brown; iris, $\varphi$ orange, $\varphi$ grey-brown.

(219) *Quelea quelea* Red-billed Quelea.


**Specimens.** $1 \varphi$ Kamanjab (22 April).

**Field notes.** Only identified with certainty in the Kamanjab area where the two specimens obtained were taken out of a small party of about a dozen birds in a thorn-bush. Both were in very worn plumage, the male having lost all its deep pink colour, although testes were still quite large. The loss of the pink in the plumage of the breeding male is not brought about by moult; it is either by abrasion or fading, or some other means.

Taxonomic notes. The species is widely distributed, the nominate form belonging to West Africa. In western South Africa its southern limits appear to be about the Swakop River, and the birds there are identified with the race *lathami*.

Dimensions of $1 \varphi$: wing, $\varphi$ 67, $\varphi$ 66; tail, $\varphi$ 35, $\varphi$ 34; bill, $\varphi$ 14.

(220) *Euplectes capensis* Cape Bishop-Bird.


**Specimen.** $1 \varphi$ Kamieskroon (3 Dec.).

**Field notes.** This weaver does not appear to have been recorded before in Little Namaqualand and it seemed to be a rather uncommon species. Only two birds were identified, both at Kamieskroon near a small well in open hilly country with scrub, boulders, and occasional cultivation. The male specimen obtained was in post-breeding moult the black feathers being replaced by those of the fawn-coloured non-breeding plumage.

**Taxonomic notes.** There are numerous races of this Bishop-Bird many of which are not considered valid, as for example, Roberts' *macrorhynchus* (1919: 117) from the Olifants River, which was based on a single specimen with only slightly larger dimensions. It seems probable, however, that birds in the Cape Flats may be rather smaller than those farther north, but data are too few for critical study. The specimen is therefore identified as the nominate race.

Dimensions of $1 \varphi$: wing 92; tail 64; bill 20.

(221) *Amadina erythrocephala* Red-headed Finch.


**Specimens.** $1 \varphi$ Spitzkopje (3 April); $1 \varphi$ Kamanjab (19 April).

**Field notes.** Only noted on two occasions, each being a pair of birds; they were in bushes in dry savanna. Andersson (1872: 174) recorded it in large flocks in October,
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but he considered it to be a rather uncommon and local species. Specimens were in relatively fresh post-breeding plumage and gonads were still quite large. In the fresh plumage the general colour of the upper parts is grey-brown whereas in old worn plumage it is much browner with little indication of grey.

Dimensions of 2♂ 1♀: wing, ♂ 72–76, ♀ 71; tail, ♂ 51–56, ♀ 46; bill, ♂ 12.

(222) Pytilia melba Melba Finch.

Specimens. 1♂ Spitzkopje (31 March); 1♂ Kamanjab (27 April); 1(? ) juv. Gobabis (10 May).

Field notes. First seen in the scattered thorn bushes in the plains around the foot of Spitzkopje. It was not common anywhere. The two males were in fresh post-breeding plumage although testes were still quite large.

Taxonomic notes. Damaraland birds match the nominate race.


(223) Estrilda erythronotos Black-cheeked Waxbill.

Specimens. 1♂ 2♀ Kamanjab (20 April).

Field notes. Only recorded in the Kamanjab area, where it appeared to be quite common, although it is known to occur at least as far south as the Swakop River. Usually seen in small parties of up to about 10 or 12 birds foraging in bushes and trees. The specimens collected were in worn plumage, the two females showing early stages of post-breeding moult.

Taxonomic notes. The South West Africa populations are identified with the nominate race.

Dimensions of 1♂ 2♀: wing, ♂ 55, ♀ 51–55; tail, ♂ 61, ♀ 59; bill, ♂♀ 10. Colour of bill and legs, black; iris, dark red in male, light brown in female.

(224) Estrilda astrild Waxbill.


Specimens. 1♂ Kamieskroon (5 Dec.); 3♂ 1♀ Violl’s Drift (26–27 Dec.); 3♂ 2♀ 1(?) juv. Ai Ais (30 Dec.–2 Jan.); 1(?) juv. Swakopmund (21 March); 1♂ Brandberg (9 April).

Field notes. Fairly common and widespread, usually near open water, however small. In Little Namaqualand only three birds were recorded near a very small rock pool at Kamieskroon: Grant only recorded a single party (Sclater, 1911: 230). Although not observed at Grootderm it was quite common at Violl’s Drift where small flocks frequented the irrigation flats at Swartbas. At Ai Ais a flock of more than a hundred birds fed on the seeds of the rough grass at the side of the main pool. It was recorded as far north as the Brandberg Mts. but nothing was seen of it in the more inland northern districts. The Kamieskroon specimen was just beginning to moult its very worn
plumage, and the Brandberg specimen, taken four months later, was in much the same condition, but the birds from the Orange and Great Fish Rivers, which were taken from large flocks, were nearing completion of post-breeding moult.

**Taxonomic notes.** The Kamieskroon specimen is appreciably darker than all the others, even although it is in very worn plumage. It matches the nominate form which therefore extends as far north as Little Namaqualand, but not to the Orange River for the Violl’s Drift specimen matches the paler *damarensis* described by Reichenow from Rehoboth. The specimens are therefore identified as follows:

1. *E. a. astrild.* From Kamieskroon.
   Dimensions of ♂: wing 52; tail 55; bill 9. Colour of bill, bright red; legs, black; iris, brown.

2. *E. a. damarensis.* From Orange River to Brandberg Mts.

(225) *Granatina granatina*  
Violet-eared Waxbill.


**Specimen.** 1♂ Blesskranz (10 March).

**Field notes.** The Violet-eared Waxbill apparently does not occur farther south than the Naukluft Mts., on the west side of the continent. It was found in the valley of the Tsondab River in fairly thick scrub, and seen again in several localities farther north but never commonly. The male specimen collected was in fresh plumage although the testes were fairly large.

Dimensions of 1♂: wing 58; tail 71; bill 13. Colour of bill, crimson; legs, black; iris and flesh around eye, orange.

(226) *Vidua regia*  
Shaft-tailed Whydah.


**Specimen.** 1♂ 40 miles east of Franzfontein (16 April).

**Field notes.** First recorded with certainty when this specimen was obtained; it is a male in full though rather worn breeding plumage. It was on a low branch of a bush and the long tail feathers seemed to be a nuisance for they were swinging in the breeze and the impression was that unless the bird kept into the wind it would overbalance. This was in the savanna country between Franzfontein and Outjo where bushes and small trees were fairly thickly scattered in knee-deep grass. The species was fairly common in the Kamanjab area.

(227) *Steganura paradisea*  
Paradise Whydah.


**Specimen.** 1♂ Kamanjab (21 April).

**Field notes.** Not uncommon in the Kamanjab area, particularly where tall trees were most abundant such as along the dry courses of the tributaries of the Huab River. One is astonished on first seeing a fully plumaged male in flight, usually between one high tree-top and another, for momentarily it is difficult to register the fact that it is a bird. The specimen collected was in fresh post-breeding plumage.
Contribution

200.

348.

Fringillidae

(228) Serinus flaviventris  Yellow Seed-eater.


Specimens. 2♂ 1(? ) juv. Grootderm (11–17 Dec.); 1♂ Annisfontein, Richtersveld (13 Dec.); 1♂ near Maltahöhe (12 Feb.); 2♂ 1♀ Tsondab Mund (7 March).

Field notes. Recorded at Kamieskroon where small flocks were seen near water. Fairly common along the river at Grootderm where it frequented the dry flats rather than the narrow belt of dense vegetation along the river. A usual place to find a small flock was along the course of a dry irrigation channel. When disturbed the birds flew off in a tight bunch. These flocks consisted of fully fledged young and adults near completion of post-breeding moult. Although found in very dry localities along the edge of the desert as far north as Tsondab Mund birds seldom seemed to be far away from some small patch of water. The specimens collected at Tsondab Mund were scarcely as far advanced in post-breeding moult as the birds taken along the Orange River nearly three months earlier. Last recorded at Gobabis where it was fairly common.

Taxonomic notes. This species, in common with many others, shows a gradual change from dark colour in southern Cape Province to lighter and brighter colour in Damara-land. Male birds from the Cape Flats have dark olive-green upper parts and a dull yellow rump while those from Damaraland are much less olive above and have a very bright lemon-yellow rump. In between there are various stages of intergradation and it is difficult to divide the species into distinct geographical races. It is generally accepted that the Cape birds represent the nominate race. Populations in the limited area of the Sclerophyll Region in the extreme south-west Cape (see Fig. 3) are slightly darker and may eventually be separated as a distinct race, but in the meantime most of the Cape Province populations, except those in north-west Little Namaqualand, are included in the nominate form. Sclater (1930: 815) put all the birds south of the Orange River into the nominate race and all those north into the race marshalli from Potchefstroom, although Roberts (1922: 264) limited marshalli to the east side of the continent and made a new race, damarensis, type from Windhoek, of the very pale South West Africa birds. Roberts’ arrangement seems more correct for marshalli seems to be an intermediate group extending from the eastern Transvaal across the continent to Little Namaqua-land. The specimens are therefore identified as:

(1) S. f. marshalli. Specimens from Little Namaqualand.

Dimensions of 3♂ 1♀: wing, ♂ 70–75, ♀ 69; tail, ♂ 53–56, ♀ 53; bill, ♂ 12, ♀ 11. Colour of bill, dark brown; legs, brown; iris, dark brown.

(2) S. f. damarensis. Specimens from South West Africa.
Dimensions of $3\varnothing$ i\#: wing, $\delta$ 73–75, $\varphi$ 72; tail, $\delta$ 55–59, $\varphi$ 57; bill, $\varnothing$ 12. Colour of bill, legs and iris as in previous race.

(229) *Alario alario* Blackhead Canary.


**Specimens.** 2$\delta$ 1 juv. Kamieskroon (1–5 Dec.); 1 juv. Springbok (7 Dec.); 2$\delta$ 1$\varphi$ 1(?i?) juv. Klipfontein (22 Dec.); 1$\delta$ Kanabeam, north of Assenkjer (30 Dec.); 2$\delta$ Blesskranz (10 March).

**Field notes.** The Blackhead, or Mountain, Canary was fairly common in Little Namaqualand. North of the Orange River it was seen less frequently and it was noted for the last time in the Naukluft Mts., which seems to be about its northern limit on the west side of the continent. It appeared to have a preference for scrubby vegetation in high rocky localities. The specimens taken in the Naukluft Mts. were found in a high mountain valley above Blesskranz (see Pl. IV B). They were in rather worn plumage and had well-developed testes. That was in early March, whereas in early December in Little Namaqualand specimens were all well advanced in post-breeding moult and juveniles in their distinctive plumage were in evidence; one juvenile was beginning to moult into first adult plumage.

**Taxonomic notes.** There are two distinct variations of the Blackhead Canary. From the Orange River northwards males have a white throat and white stripes above and below the eye. South of the Orange River these white areas are mainly absent; occasional birds with a little white suggests that the two groups are conspecific although they are sometimes kept as separate species. All our specimens belong to the northern group, which has the name *leucolaema*. The name is based on an Andersson specimen taken at the Hountop River. There is no river of that name now shown on modern maps, but the map given by Andersson in his ‘Lake Ngami’, 1856, shows that it is a tributary of the Great Fish River which he crossed very close to the present Maltahöhe.

Dimensions of $7\varnothing$ i\#: wing, $\delta$ 65–71, $\varphi$ 66; tail, $\delta$ 45–58, $\varphi$ 42; bill, $\varnothing$ 10–11. Colour of bill and legs, blackish-horn; iris, dark brown.

(230) *Poliospiza atrogularis* Black-throated Canary.


**Specimens.** 2$\delta$ Blesskranz (11 March); 1$\delta$ lower Kuiseb River (27 March).

**Field notes.** The bright yellow rump is an obvious field characteristic of this species, but it is only in parts of its range that it has a black throat. A similar yellow rump is also a feature of a related species *P. albogularis*, but this is a larger bird which keeps mainly to the karroo scrub, whereas the habitat preference of *P. atrogularis* is the bushes and trees of dry savanna. (Similar ‘complementary’ species of these habitats have been referred to previously, mainly among the warblers.) First noted in the Naukluft Mts., which seems to be the southern limit of its range on the west side of the continent. It was identified fairly regularly as far north as Kamanjab, but it did not seem to be common. The three specimens collected were in worn plumage and showing early stages of post-breeding moult.

**Taxonomic notes.** The species is rather variable and numerous races have been
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Described; Roberts (1940 : 366), for example, listed five in South Africa. In the South African populations there seems to be two main variable characteristics; the amount of black on the throat (which varies inversely to the amount of streaks on the breast) and the quantity of dusky-brown pigment in the general plumage colour. In the series examined it is not easy to relate these variables to sex, season and age, and the geographical pattern seems to be one in which there is a widespread group with a black or dusky throat in the form of a patch or numerous blotches on the breast and another group with streaky breast and throat and no dusky throat patch. There are intermediates between these two extremes, the appearance in a clinal series being as if the dark streaks of the breast gradually move up on to the throat where they become established as a dark patch. It was dark-throated specimens on which Smith based his description of the species. They were obtained from ‘about and beyond Kurrichane’, which is near the modern Zeerust in the west Transvaal. This is about the southern limit of the dark-throated group for it extends northwards into Rhodesia and across Bechuanaland to the north-east corner of South West Africa, southern Belgian Congo and northern Angola. The streaky-breasted group is found at Benguella and extends through South West Africa (except the north-east corner) to the Orange River, and up that river at least as far as Upington (a Bradshaw specimen) and possibly a short way along the Vaal River (a Woosnam specimen labelled only ‘Vaal River’). Several rather scruffy specimens from the Orange Free State and upper Vaal River are not readily linked with either the streaky-breasted or black-throated groups; it is usual to put them with the former although it may yet be found that they are a distinct race. What seems to be another group of intermediates is found in the Ondonga area of South West Africa. To the west of Ondonga specimens are clearly streaky-breasted and east of Ondonga, at Elephant Vley, specimens are clearly black-throated. But the Ondonga birds, named ovambensis by Roberts (1937 : 106), as well as being neither clearly streaky-breasted nor clearly black-throated are almost entirely lacking in brown pigment, being very grey above and nearly white below. There are numerous subdivisions of the black-throated group based on the amount of brown pigment in the plumage, semideserti Roberts (1935 : 182) from Machumi Pan, west Bechuanaland, fitzsimonsi Roberts (1935 : 183) from Nkate, east Bechuanaland, hvenarum White (Bull. B.O.C., 64, 1944 : 41) from Balovale, North Rhodesia, and apparently extending across the southern Belgian Congo to north Angola. In the specimens examined the last-named is the most distinct. The present specimens belong to the streaky-breasted and paler birds of South West Africa which have the name deserti Reichenow.

Dimensions of 35; wing 65–70; tail 42–44; bill 9–10. Colour of bill, blackish-horn; legs, brown; iris, dark brown.

(231) Poliospiza albogularis  White-throated Seed-eater.


Specimens. 1♂ 1♀ Kamieskroon (3–4 Dec.); 1♂ Springbok (7 Dec.); 1♂ 2♀ Groot-
from sordahlae. Colours a Hoesch make name in to convenient amount of the patches, In qualand north, rather collected similar (23 Dec.); 1♂ 1♀ Kleinkaras (4–8 Jan.); 1♂ 1♀ Seeheim (17–18 Jan.); 1♀ near Witputs (23 Jan.); 1♀ Barby (8 Feb.); 1♀ upper Kuiseb River (16 March); 1♂ juv. Spitzkopje (31 March); 1♀ Brandberg Mts. (10 April).

Field notes. Similar to P. atrocilaris in having a conspicuous yellow rump on otherwise drab-brown upper parts, but it is a larger bird and frequents the kokerboom scrub rather than the trees and bushes of savannas. Similar likenesses in appearance and differences in ecological preference have already been referred to in a number of other species. In the Kamiesberg Mts. it was frequently seen feeding about the edges of cultivated patches, or on the rocks and bushes of hillsides. It was one of the few species recorded in the rather dead wastes of the Richtersveld Mts. It was common along the Orange River but in the dry parts away from the thick river vegetation. It was recorded in similar dry scrubby habitats as far north as the Brandberg Mts. All the adult specimens collected were in the early stages of post-breeding moult, those from the south, taken in December, being on the whole only slightly more advanced than those from the north, taken in March–April.

Taxonomic notes. In western South Africa this species like many others shows a gradation from darker colours in south-west Cape to lighter and brighter colours in west Damaraland. This gradation is particularly marked in the colour of the rump for in the south it is olive yellow and in the north bright lemon-yellow. The brightness of the colour seems to be related to the amount of dark pigment diffused throughout most of the whole plumage. In addition to geographical changes there is an appreciable amount of seasonal variation which is well illustrated by specimens from Little Namaqualand taken in August, December and April, those in December showing the transition from worn breeding plumage to fresh plumage. The geographical changes seem to be evenly graded and racial differentiation is difficult. There are, however, three convenient named forms which illustrate the main changes. The darkest populations in the south-west Cape are the nominate race for Roberts (1936: 315) showed that Andrew Smith described the species on specimens obtained near Piquetberg. The pale Damaraland form was named crocyga by Sharpe, the type being an Andersson specimen from near Otjimbingwe on the Swakop River. Intermediates have Friedmann’s name sordahlae, based on specimens from Mt. Brukkaros, near Bethany. It is usual to make the Orange River the northern limit of the nominate race, though our specimen from Witputs, for example, could fit in equally well with either the nominate race or sordahlae. The race crocyga has so far not been recorded south of the Kuiseb River, and Hoesch and Niethammer (1940: 333) identified sordahlae as far north as the Naukluft Mts. These arrangements seem to be satisfactory. Meinertzhagen’s theresa appears to be a seasonal variation of the nominate form. The specimens are therefore identified as:

(1) P. a. albogularis. Little Namaqualand, as far as the Orange River.


(2) P. a. sordahlae Friedmann. South West Africa as far north as Naukluft Mts.

Emberizidae

(232) *Emberiza flaviventris*  Golden-breasted Bunting.


*Specimens.* 1♀ juv. Sorris Sorris (13 April); 3♂ 1♀ (2) juv. Kamanjab (20–26 April).

*Field notes.* Fairly common in the bush and grass savannas. It was usually seen near the tops of large bushes or small trees, like the mopane. One of the males taken in the Kamanjab area was in very worn plumage and had been feeding a young bird not long out of the nest. Another male from the same area was well advanced in post-breeding moult and the new feathers of the back show up much darker against the paler brown of the worn plumage.

*Taxonomic notes.* These specimens belong to the nominate race.


(233) *Fringillaria capensis*  Cape Bunting.


*Specimens.* 1♀ Kamieskroon (1 Dec.); 1♂ Springbok (6 Dec.); 1♂ Grootderm (13 Dec.); 2♀ 1♂ (2) juv. Richtersveld (13–16 Dec.); 1♀ Klipfontein (21 Dec.); 1♀ Kleinkaras (6 Jan.); 1♂ Witputs (26 Jan.); 1♀ 1♂ Aus (2–3 Feb.); 1♂ Barby (8 Feb.); 1♂ Spitzkopje (31 March); 1♂ 1♀ Brandberg Mts. (10 April).

*Field notes.* The Cape Bunting was widely distributed but never very common from Little Namaqualand to the Brandberg Mts., but not in the wooded savanna around Kamanjab and Gobabis. It seemed to be a bird of dry scrub with a preference for places with rocky outcrops; it was one of the few species found in the dry wastes of the Richtersveld Mts. Its black-and-white striped face and rufous shoulders readily distinguished it. Most of the specimens collected were in various stages of post-breeding moult, those in the north taken in March–April being, as in many other species, less advanced in the seasonal cycle than those in Little Namaqualand taken in December.

*Taxonomic notes.* Samples of this species were collected in as many localities as possible in order to gain some fresh light on the numerous races which have been described. The series obtained is useful for this purpose because it illustrates the transition from worn to fresh plumage, the latter being appreciably darker and richer in colour. Seasonal variation is also illustrated in a series examined from the vicinity of Cape Town, which can be regarded as topotypical of the nominate form. A topotypical specimen of Roberts’ *klaverensis* is quite indistinguishable from a bird of that series in the same seasonal condition. In fact there is little appreciable change in character as far north as the Tiraz Mts., but north of the central range of mountains, for example at Spitzkopje, Brandberg and Waterberg, birds are distinctly lighter brown above, with rather narrower dark streaks in the centre of the feathers, and paler below. There seems to be no valid distinction between Brandberg Mts. and Waterberg Mts. birds and
cloosi is regarded as a synonym of bradfieldi. Vincent (Bull. B.O.C., 1950: 15) put karasensis Roberts into the synonymy of ausensis Roberts. It seems that ausensis should go with klaeverensis into the synonymy of the nominate race. According to the specimens examined (which includes those in the Transvaal Museum) there are only two valid races between the Cape and Damaraland, both of which are represented by the specimens collected.

(1) F. c. capensis  Little Namaqualand to Tiraz Mts.

(2) F. c. bradfieldi Roberts. Spitzkopje and Brandberg.
Similar to previous race except that bill is appreciably longer, being about 14 mm. in 2♂ 1♀.

(234) Fringillaria tabapisi  Rock Bunting.
Specimen. 1♂ Spitzkopje (31 March).
Field notes. First identified at Spitzkopje where it did not appear to be common. The specimen taken, which is in rather worn plumage, was foraging about in the grass and resting on rocks at the foot of a boulder-strewn kopje. Identified also in the Kamanjab area where it was fairly common in the numerous kopjes which are a feature of that region. On 21 April a nest containing three eggs was found on the ground beside a rock near the camp at Kamanjab, on the following day it contained nestlings.

Taxonomic notes. The specimen taken belongs to the nominate race.

(235) Fringilla impetuanii  Lark-like Bunting.
Specimens. 2♂ Kamieskroon (5 Dec.); 1♀ Springbok (8 Dec.); 1♂ Klipfontein (22 Dec.); 2♂ 2♀ Kleinkaras (4–8 Jan.); 1♀ near Seeheim (17 Jan.); 1♂ 1♀ Barby (10 Feb.); 1♂ 1♀ lower Kuiseb River (14 March); 1♂ Brandberg Mts. (9 April).
Field notes. A fairly common species in most localities (particularly in Little Namaqualand) as far north as the Brandberg Mts., but not recorded in the wooded savannas at Kamanjab and Gobabis. Frequently identified in the field by its habit of jumping up to reach the top seeds of grass when feeding. Usually seen in small parties and often in the company of other buntings and finches, especially when visiting water-holes. The parties, in Little Namaqualand at least, were probably members of the same family; the specimens collected were just completing post-breeding moult or in fresh plumage. In the Kleinkaras area only one out of four specimens showed commencement of moult, while all those from farther north were in worn breeding plumage. Thus the breeding season in Little Namaqualand is at least four months in advance of what it is in Damaraland.

Taxonomic notes. In his description of the species Smith says that this bunting ‘inhabits the country between the Nu Gariep and Tropic’. There is no reference to this species in Kirby (1939–40). ‘Gariep’ is an old name for the Orange River so that Smith’s specimens were probably collected either in the west Orange Free State, east Bechuanaland or south-west Transvaal. Perhaps east Bechuanaland could be selected as a type
area. The question has some importance because birds from south of the upper Orange River have distinctive characters. A series collected by Seimund and Grant at Deelfontein, in central Cape Province, are constantly paler in fourteen specimens representing various stages of plumage from January to October. Sharpe (Cat. Bds. 12, 1888: 563) explained this difference as a seasonal one, "the (summer) plumages being browner and the (winter) rather more grey and mealy in appearance". Comparison of specimens of the same seasonal age show that the differences are geographical not seasonal. There is also an appreciable size difference. The species so far has been regarded as monotypic but it seems advisable to draw attention to this geographical variation by giving a racial name to the Deelfontein specimens, namely as follows:

F. i. sloggetti New race.

Characteristics. Dark centres of feathers of the upper parts narrower, and the colour of the margins of the feathers lighter, about pinkish-cinnamon instead of fawn or wood-brown, than in the nominate race. Slightly smaller: dimensions of 10♂ 40♀: wing, 72-77, ♀ 70-75; tail, ♂ 55-61, ♀ 52-55; bill, ♂♀ 11. (Compare with dimensions given below of 8♂ 6♀ of nominate race.)

Distribution. East central Cape Province in the vicinity of Deelfontein.


Remarks. The race is based on a series of ten males and four females collected in the type locality between January and October. The specimens collected by us, therefore, belong to the nominate race.

Dimensions of 8♂ 6♀: wing, ♂ 75-81, ♀ 73-76; tail, ♂ 59-63, ♀ 56-60; bill, ♂♀ 11. Colour of bill, dark horn above, whitish below; legs, pinkish-brown or flesh; iris, dark brown.
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THE PLATES
Plate I

A. Kamiesberg Mountains, Little Namaqualand, with sandy flats frequented by several species of larks and chats, and bushy boulder-strewn hillsides, typical habitat of the Ground Woodpecker, *Geocolaptes olivaceus*, and the rare Cinnamon-breasted Warbler, *Euryptila subcinnamomea*.

B. Orange River at Assenkjer. The narrow strip of rich vegetation in an otherwise barren landscape provided suitable conditions for many non-desert species of birds.
Plate II

A. Canyons at Ai Ais; much of the year the Great Fish River consists of a string of pools with reedy margins and patches of tamarisk and acacias. In spite of the very high mid-summer temperatures birds were fairly numerous and the Treble-banded Sand Plover had a clutch of eggs on an exposed rock.

B. Sandy flats south of Konkiep. This thin covering of short and medium scrub, typical of the desert margin, was frequented by several larks, especially the Long-bill, Certhilauda curvirostris, and by the Karroo Bustard, Heterotetrax vigorsii.
Plate III

A. The shallow sand-choked course of the Great Fish River at Schlangkopf near Seeheim. Species typical of the woodland savannas farther north, such as the Go-away Bird, Corythaixoides concolor, were first met with here in the patches of riverside trees.

B. Namib gypsum veld; the Tumas Flats about 20 miles inland from Walvis Bay. A landscape of glaring whitish sand, bare of all but the scantiest vegetation but the typical habitat of Gray’s Lark Ammomanes grayi.
Plate IV

A. Tsundab Mund: a patch of dying acacia woods far out in the Namib Desert where the Tsundab River becomes swamped with shifting sands. Shrikes, especially the Lesser Grey Shrike, *Laniodes minor*, were fairly common.

B. Blesskranz where the Tsundab River forms a deep valley in the Naukluft Mts. This is the type locality of the Chat Shrike, *Lanioturdus torquatus*, and the limestone cliff was frequented by two species of Swift and the Rosy-faced Lovebird, *Agapornis roseicollis*. 
Plate V

A. Spitzkopje, an isolated peak of about 2000 feet in the Rubble Calcrete Shelf inland from Swakopmund. Type locality of the rare Herero Chat, *Namibornis herero*, which frequented the isolated bushes. Monotonous Larks were numerous on the grassy plains.

B. Kamanjab at the edge of the Kaokoveld; flat country typically sprinkled with tall bushes and numerous kopjes, each of which had a pair of Hartlaub’s Francolin, *Francolinus hartlaubii*, and a pair of Damara Rock-jumpers, *Achaetops pycnapygus*. 
Plate VI

A. Habitat of the rare Bare-cheeked Babbler, *Turdoides gymnogenys*, in the upper Huab River area near Onguati.

B. Nest of the Chestnut Weaver, *Plocus rubiginosus*, collected by Dr. J. S. Watt near Windhoek and now in the Transvaal Museum.
Plate VII

Developmental stages of *Francolinus adspersus*. Dorsal and ventral appearance: (a) chick; (b) juvenile, showing chick feathers still on head and neck; (c) juvenile plumage nearly complete; (d) juvenile plumage complete; (e) adult.