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TRANSVAAL - Ornithology

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The Ostrich, June 1963

ORNITHOLOGICAL RESULTS OF THE TRANSVAAL MUSEUM NAMIB EXPEDITION MAY 1959, AND THE SUBSEQUENT TRIP TO SANDWICH HARBOUR DURING JANUARY, 1960.

- 1) Deserts - Namib - fauna. O. P. M. Prozesky, 1963
- 2) Sandwich Harbour - fauna. TRANSVAAL MUSEUM.
- 3) Swa - fauna. Received April 1962

The Expedition, sponsored by Mr. Bernard Carp, started under his leadership from Windhoek on 7 May 1959. The route followed was over the Khomas Hochland, through the pro-Namib, down to the Kuiseb Gorge and finally through Reserve No. 3 to Gobabeb on the Kuiseb River. Gobabeb, situated about 60 miles south-east of Walvis Bay, served as expedition headquarters until 20 May, after which they were moved to Rooibank about 25 miles from Walvis. From 13 to 17 May, a party consisting of Mr. Carp, Dr. Paulian from Madagascar, Dr. Brain and myself visited Sandwich Harbour. We came back via Swakopmund through Usakos to Windhoek arriving there on 25 May.

The subsequent trip to Sandwich Harbour during January 1960 was sponsored by Mr. Clem Haagner. The return route of the previous expedition was followed as the road through Reserve No. 3 could not be undertaken by a vehicle travelling alone.

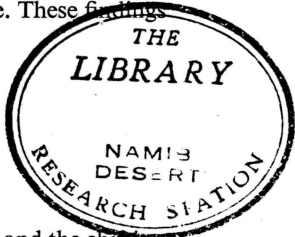
No large birds were collected. Only sight records are given of them, as well as of numerous other birds. The main object of the expedition was a reconnaissance of the bird life in the desert. In collaboration with Dr. Brain the body temperatures of collected specimens was taken wherever possible. These findings will appear in another paper.

The Namib is divided into three main biotopes:

- A. 1. Dry river beds with underground water, e.g. the Kuiseb and Swakop Rivers.
- 2. Gravel plains to the north of the Kuiseb River.
- 3. The shifting sand dunes south of the Kuiseb.
- B. The Sandwich Harbour complex will be treated under a separate heading.

A. 1. The Kuiseb River forms a clear-cut division between the gravel plains in the north and the shifting sand dunes in the south. This river, like the other rivers flowing westwards to the Atlantic, can be compared to arteries along which the bird-life from the interior of South West Africa can "flow" towards the west. Due to the under-water the following trees and shrubs are able to survive and grow along the whole length of the river to within a few miles of the Atlantic coast—*Acacia giraffae*, (Kameeldoring), *Acacia albida*, (Annaboom); *Tamarix austroafricana*; *Euclea pseudobenus*; (Ebbehout) *Salvadora persica*; a shrub; *Nicotiana glauca*; (wild tobacco), and a few specimens of *Ficus sycomorus*, a wild fig. Insect-eating birds, not dependent on water, are permanent residents of the river-bed. Woodpeckers, hoopoes, Scimitar-bills, Brubru-Shrikes, Crombec, Batis, chats, Dusky Sunbirds, Tit Babblers, tits and dikkop occurred, but were never found in large numbers.

On the other hand the birds dependent on water were numerous. Their existence in the Kuiseb depends on the few Hottentot settlements at Natab, Gobabeb, Sand River, Swartbank and other localities where water is drawn from wells dug in the river. The water is poured into troughs, made by hollowing out tree trunks, which serve as drinking places for large flocks of goats, the only apparent source of food of the Hottentots. Flocks of doves, sparrows, weavers, starlings, bulbuls, white-eyes, etc. congregated at these troughs after the goats had finished drinking. Should this source of water fail, these birds would be obliged to move eastwards until open water was encountered in the pro-Namib. Birds of prey were seldom seen, except a few Rock Kestrels and one Lanner. Owls were scarce and on one occasion a Pearl-spotted Owlet was heard. The following species of Tenebrionidae (Beetles) viz. *Physosterna globosa*, (Haag) (sil); *Onymacris rugatipennis*, (Haag); and *Gyrosia orbicularis* (Deyrolle), were very numerous in the river bed. Kori Bustards were observed feeding on these beetles. It is possible that many other species of birds feed on the smaller Tenebrionidae. Scaly-feathered finches were encountered not only in the river bed but also in the arid Kuiseb Canyon, miles from the nearest water, which seems to support the statement by Roberts that they may be independent of water. They were encountered in small flocks feeding where there was no sign of vegetation, though wind-swept seed must have been present. When the proposed Desert Research Station has been established at Gobabeb the opportunity for a more systematic and intense study of the birds in the desert will present itself.



Kuiseb beds

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PLATE 5



Small fresh-water pool with bullrushes and reeds in left foreground and coarse grass towards right background near Supervisor's establishment.

(Photograph by C. K. Brain)

2. The bird life on the vast gravel plains was restricted to a few species. Two species of lark, *Ammomanes* and *Certhilauda albofasciata*, coursers, Crowned Lapwing, Ostriches, korhaans and Secretary Birds were seen. On the isolated mountains, the Heinrich Berg, Amichab Berg, Tumas Berge and Arechadamab, vultures, kestrels, Pale-winged Starling, chats, (mountain and familiar) were observed. At the windmill at Ganab a pair of Chat Flycatchers was found in the few stunted thorn trees, (*Acacia giraffae*). A pair of Fiscal Shrikes managed to exist at a small dry pan, Amachab, which lies about 50 miles north of the Kuiseb. This pan is a shallow depression of about 50 yards diameter, surrounded by a few Acacias, some perhaps 20 to 25 feet high. Termites and beetles found under rotting pieces of wood lying scattered under the trees seem to form an adequate supply of food for them.

3. Only short excursions were made into the sand dunes south of the river. Occasionally Pied Crows were seen on the dunes, presumably catching beetles or digging out their larvae. At the foot of the dunes, where some tufts of spiny *Aristida* are found, a few pairs of *Certhilauda albescens* were observed. Their colour adaptation was so perfect that they were only seen when they flew from under one's feet. The specimens collected were extremely difficult to find on the sand after they had been shot on the wing. Kori Bustards, when disturbed in the river bed, mostly flew southwards over the dunes, and not towards the plains. In the lanes between the dunes running approximately from north to south, a few small flocks of *Ammomanes grayi* were encountered, probably feeding on small species of beetles, which were found there in great numbers. As they were close to the river they must have flown from the gravel plains, which seem to be their usual habitat.

B. The Sandwich Harbour complex comprises an area of roughly 6 miles long by 1½ miles wide, of which only a very small percentage is not covered by water. This area, bounded on the west by the Atlantic, and on the east by the sand dunes, coming right up to the water, is divided into a number of completely different biotopes: the sandy bar, the lagoon fringed with *Salsula*, growing only in a very saline medium, and the fresh water pools, formed by the underground water of the Kuiseb seeping through under the dunes. Towards these pools a coarse creeping grass, *Odyssea*, mingles with the *Salsula*, which gradually disappears and is supplanted by the grass and a sedge *Cyperus*, which is only about 12 inches high in this area. The fresh water pools are partially fringed with sedge, which in some places reaches a height of from six to seven feet. Bulrushes (*Typha latifolia*) and patches of reed (*Phragmitus communis*) grow in the pools

Plains

Dunes

Sandwich

(Plate 5). At the foot of the dunes, rising directly from the pools, a few stunted and isolated trees (*Tamarix austroafricana*) are found and here and there a creeper bearing an edible fruit, the "naras". At the establishment of the only inhabitant, Fison's supervisor, a few cultivated palms manage to survive. A heavy blanket of fog comes in from the Atlantic at night and hangs over Sandwich nearly every morning. Very often the sun only breaks through near midday.

The variety of birds found in this complex was astounding. The greatest surprises were found on and around the pools. Eight species of duck were observed, this notwithstanding the fact, that with the exception of a few small pools of fresh water at Rooibank, the pumping station on the Kuiseb 30 miles from Walvis, no open water occurs to the east until the dams on the farms on the escarpment about 80 miles to the west of Windhoek are reached. At Rooibank a few Cape Teal were seen and on the dams on the escarpment mostly Egyptian Geese and teal in very limited numbers. Excluding many of the sea birds, a total of more than 60 species was found at Sandwich.

SPECIES RECORDED AND NOTES ON THEM

(Sight records are denoted by (sr), and new distribution records by an asterisk)

STRUTHIONIDAE

(sr). *Struthio camelus* Linnaeus. Ostrich.

Seen on the gravel plains of reserve No. 3 in small mixed parties or singly on one or two occasions. At Swartbank a male and two females were found near the Kuiseb. Their spoor was noticed all along the river bed, where they probably feed on Acacia seed and on the leaves of the *Salvadora persica* and *Nicotiana glauca*, the only green vegetable matter to which they are so partial. May 1959.

PODICIPIDAE

S (sr). *Podiceps cristatus* (Linnaeus) Great Crested Grebe
Single pair found on fresh-water pools at Sandwich Harbour in January 1960. Not seen during May 1959. Has also been recorded here by Mr. Carp on his previous visit to Sandwich.

S (sr). *Podiceps nigricollis* (Brehm) Black-necked Grebe
Seen in large flocks, one of at least 200, on the lagoon, usually swimming in a closely packed mass and diving simultaneously. Smaller flocks found on fresh-water pools. May 1959 and January 1960.

S (sr). *Podiceps ruficollis* (Pallas) Cape Dabchick
Few pairs on fresh-water pools at Sandwich, where they are resident. Three seen on dam at Hohenheim, 80 miles West of Windhoek in May 1959.

PELECANIDAE

S (sr). *Pelecanus onocrotalus* Linnaeus White Pelican
Flocks of up to 40 seen. Immature birds found at Sandwich in January. Birds observed breeding on artificial islands a few miles north of Walvis Bay. The pelicans were mostly found resting on the fresh-water pools. An unforgettable sight was the graceful soaring of these huge birds pursued by their shadows on the dunes. They were not observed fishing on the lagoon but came regularly to feed on the offal where the supervisor and his children were cleaning their fish.

SULIDAE

(sr). *Morus capensis* (Lichtenstein) Cape Gannet
One small flock seen far out at sea during May.

PHALACROCORACIDAE

S (sr). *Phalacrocorax carbo* Linnaeus White-breasted Cormorant
Only a few birds seen on both occasions on lagoon and the pools. The supervisor had found a nesting colony on the bar between the lagoon and the ocean during the latter part of the year, but for no explicable reason the birds had abandoned the site.

S *Phalacrocorax capensis* (Spartman) Cape Cormorant
Very numerous. During May mostly seen over the open sea, but in January found on the lagoon and the Atlantic shore in very large flocks. Many of the birds were unable to fly owing to a complete moult. These birds breed on the artificial islands to the north of Walvis. Numerous dead and diseased birds (mostly immature), found along the dunes in May and only a few in January. A specimen was sent to Onderstepoort for analysis. The only endoparasites found were two specimens of a species of *Ascaris* and the ectoparasites consisted of a few Malophagi and a few Anoplura. The small number of parasites

present could not have caused the death of the bird. The possibility does exist that the ecto-parasites had already left the dying bird before it was found. The opinion is however that death was due to some other cause, in all probability a virus infection.

(sr). *Phalacrocorax neglectus* (Wahlberg) Bank Cormorant
A few specimens seen during May.

⊂ (sr). *Phalacrocorax africanus* (Gmelin) Reed Cormorant
Few specimens on lagoon and fresh-water pools both in May and January. One immature bird found in January.

ARDEIDAE

⊂ (sr). *Ardea cinerea* Linnaeus Grey Heron
Very common. Breeding on the reeds in the pools. Young birds seen both during May and January. Flocks of over 20 seen standing like sentinels low down on the dunes. On occasion seen with gulls and pelicans eating offal where fish was being cleaned.

(sr). *Ardea melanocephala* Vigors & Children Black-headed Heron
Only 2 specimens seen during January. Sandwich Harbour.

(sr). *Egretta garzetta* (Linnaeus) Little Egret
Found on both occasions over the whole area at Sandwich Harbour, but not in large numbers.

(sr). *Bubulcus ibis* (Linnaeus) Cattle Egret
Three specimens during May at Sandwich, roosting in the palms at the Supervisor's establishment. Feeding on the insects disturbed by the grazing goats and donkeys. One specimen was observed stalking an insect, stopping and moving its head from left to right, describing arcs of 6 to 9 inches in length before striking and catching the grasshopper. A similar movement is observed in chameleons who use it for range-finding purposes. Could this phenomenon observed in the Cattle Egret serve the same purpose or is it made to distract the attention of the insect before the bird shoots out its neck with lightning speed. (See *Annales du Musee Royal du Congo Belge*. Série la 8°. 87, (2): 25).

CICONIIDAE

(sr). *Sphenorhynchus abdimii* (Lichtenstein) White-bellied Stork
Flock of about one thousand seen at a gravel pit, which had been filled by a local shower, 15 miles west of Okahandja on the Usakos road on the 21 January 1960.

(sr). *Ciconia ciconia* (Linnaeus) White stork
Two specimens found with the flock of *S. abdimii*, mentioned above. Both these species of stork had in all possibility been attracted by a concentration of insects resulting from the local shower of rain.

PHOENICOPTERIDAE

(sr). *Phoenicopterus ruber* Linnaeus Greater Flamingo
Many thousands in the "Bucht" south of Walvis Bay. At Sandwich large numbers were seen in the lagoon and a fair number frequented the more saline water of the smaller pools. They stir up the mud with their feet whilst feeding. This mode of feeding was not once observed in the next species, *P. minor*. No marked increase or decrease in numbers for May and January. A loose association existed between the Greater and Lesser, but they tend to keep apart.

Phoeniconaias minor Geoffroy Lesser Flamingo
About one quarter of the total number of Flamingoes seen in the "Bucht" were of this species. On both occasions they were found feeding at the southern end. At Sandwich they were mostly observed feeding in the smaller pools. Here they and the Greater were present in about equal numbers. Immature birds were found in May and January. A nasal "Koor-koor", often repeated, was heard when they were disturbed.

ANATIDAE

(sr). **Alopochen aegyptiacus* (Linnaeus) Egyptian Goose
At Sandwich in May only two specimens were seen, but more than 20 were found in January. They were on the fresh-water pools and were seen grazing in the short sedge. On the way through the Khomas highland 5 were encountered at a dam at Hohenheim, 80 miles west of Windhoek, during May.

(sr). *Saptula capensis* (Eyton) Cape Shoveller
Seen in fair numbers on both occasions on the pools at Sandwich.

- (sr.) *Anas erythrorhyncha* Gmelin Red-bill Teal
Only a few pairs at Sandwich during May and January; also frequenting the fresh-water pools.
- (sr.) *Anas capensis* Gmelin Cape Teal
Very common on both visits to Sandwich, on the lagoon as well as on all the pools, fresh and saline. The conditions round the pools are suitable for their breeding there. No ducklings were seen, but displaying males were often observed. A small flock was found on the shore a few miles south of Walvis and 12 specimens on a dam at Hohenheim, 80 miles west of Windhoek, during May.
- (sr.) *Anas punctata* Burchell Hottentot Teal
A few pairs on the fresh-water pools at Sandwich during May and January.
- (sr.) *Netta erythrophthalma* (Wied) South African Pochard
Fairly numerous, mainly on fresh-water pools, at Sandwich on both visits.
- (sr.) **Oxyura maccoa* Eyton Maccoa Duck
Only a few pairs frequenting the deeper fresh-water pools. The bulrushes and sedge in the pools are ideal for nesting sites. No ducklings seen, but males observed courting. May and January at Sandwich.
- (sr.) *Thalassornis leuconotus* Eyton White-backed Duck
A small number on fresh-water pools at Sandwich. During January four ducklings, only a few days old, were found.

SAGITTARIIDAE

- (sr.) *Sagittarius serpentarius* (Miller) Secretary Bird
In Reserve No. 3, on gravel plains. An old nest was found on the crown of an isolated *Acacia giraffae* about 10 feet high, 5 miles south of Heinrich Berg, 20 miles west of the Kuiseb Canyon.

AEGYPIIDAE

- (sr.) *Gyps coprotheres* (Forster) Cape Vulture
Three specimens seen in May, 38 miles from Windhoek; two 10 miles west of the Kuiseb Canyon on the road through Reserve No. 3 and a single bird soaring over Gobabeb on the Kuiseb River.
- (sr.) *Gyps africanus* Salvadori White-backed Vulture
Single specimen seen near Okahandja in January.
- (sr.) *Torgos tracheliotus* (Forster) Black Vulture.
One pair seen on gravel plain in Reserve No. 3, 20 miles west of the Kuiseb Canyon on the road to Gobabeb and another specimen soaring over the camp at Gobabeb in the company of the *G. coprotheres*.

FALCONIDAE

- (sr.) *Falco biarmicus* Temminck Lanner Falcon
Single specimen seen in May in Kuiseb River at Gobabeb.
- (sr.) *Falco tinnunculus* Linnaeus Rock Kestrel
Specimens seen 20 miles west of Windhoek, 13 and 17 miles west of the Kuiseb Canyon and a pair found at Natab in the Kuiseb River. During May a single specimen was found at Sandwich Harbour. This particular bird came to roost in a tumbled-down outbuilding every evening.

AQUILIDAE

- (sr.) *Milvus migrans* (Boddaert) Black Kite
A concentration of a few hundred in the vicinity of a water-filled gravel pit 15 miles west of Okahandja on 21 January 1960, after a local shower of rain.
- (sr.) *Milvus aegyptius* (Gmelin) Yellow-billed Kite
Single specimen 10 miles west of Okahandja on Usakos road on 21 January, 1960.
- (sr.) *Aquila verreauxi* Lesson Black Eagle
Single immature specimen on the outskirts of Usakos in January.
- (sr.) *Aquila rapax* (Temminck) Tawny Eagle
A young bird seen soaring 12 miles west of Okahandja on 21 January 1960.
- (sr.) *Buteo rufofuscus* (Forster) Jackal Buzzard
During May a specimen was seen flying along the shore at Sandwich.
- (sr.) *Buteo buteo* (Linnaeus) Buzzard
About 6 specimens seen in January west of Okahandja in the area where the local shower of rain had fallen.

Meliërax musicus (Daudin) Chanting Goshawk

Seen in the pro-Namib and along the coastal belt, but not in the Namib itself. Should it rain, conditions in the Namib would be suitable for this bird. A most unusual sight was that of a Goshawk soaring over the dunes on the edge of the lagoon at Sandwich. To make use of the slight sea breeze, its tail was spread out like a fan to increase its bearing area. It presented a striking flight-pattern with its red legs showing clearly against the barred fan. The bird was watched for at least 10 minutes during which time its wings were seldom flapped. One very pale specimen was collected 3 miles south of Walvis at the mouth of the Kuiseb river. The stomach of a specimen collected by Mr. Buys of the Windhoek Museum at Rooibank contained nothing but termites.

(sr). *Circus ranivorus* (Daudin) African Marsh Harrier
Two pairs seen at Sandwich on both occasions.

(sr). **Polyboroides typus* A. Smith Banded Harrier-Hawk
Single specimen found at Dorbabis, 60 miles East of Windhoek on 26 January 1960.

NUMIDIDAE

(sr). *Numida meleagris* (Linnaeus) Crowned Guinea-Fowl
Small flock observed a few miles west of Usakos on Swakopmund road in January.

RALLIDAE

(sr). **Limnecorax flavirostra* (Swainson) Black Crake
Few specimens on fresh-water pools at Sandwich during May and January; an immature bird was seen in May, from which it may be deduced that they breed there.

(sr). **Porhyrio porphyrio* (Linnaeus) Purple Gallinule
Found in fairly large numbers in bulrushes at the fresh-water pools in May; only a few birds seen in January. (Sandwich Harbour).

(sr). *Gallinula chloropus* (Linnaeus) Moorhen
A number of pairs seen at Sandwich during May and January. Not only were they observed on the fresh-water pools, but on more than one occasion found in small pools of very brackish water near the lagoon. Immature birds found in January.

(sr). *Fulica cristata* Gmelin Red-knobbed Coot
Found in large numbers at Sandwich, both during May and January, when immature birds were common. Although they were mostly found on the fresh-water pools, they were on a few occasions found on the lagoon. They were observed far from the shore diving repeatedly, obviously feeding. As the lagoon is quite saline they must have been feeding on seaweed.

OTIDAE

(sr). *Ardeotis kori* (Burchell) Kori Bustard
One specimen in Kuiseb River at Gobabeb feeding on Tenebrionidae. When disturbed flew southwards into the sand dunes.

Eupodotis rüppellii rüppellii (Wahlberg) Rüppell's Korhaan
TM. 29963 (♂); TM. 29964 (♀). Collected on 21 January 1960, 36 miles west of Usakos on Swakopmund road. Heavily infested with two species of nematodes, found in excrement. During May a flock of 6 was encountered on the gravel plains 20 miles north of Gobabeb. They are exceedingly strong and fast fliers; they were chased at speeds of up to 50 miles an hour for more than a quarter of an hour but could not be overtaken. It seemed as if the birds were enjoying the chase, as they were, at these high speeds, engaged in aerial acrobatics. Two pairs were also found near the windmill at Ganab, 50 miles north of the Kuiseb River.

Lophotis ruficrista ruficrista (A. Smith) Red-Crested Korhaan
Male collected 68 miles from Stamprietfontein on Dordabis road in May. Two specimens seen at Tiegerpforte, east of Dordabis in January.

HAEMATOPODIDAE

(sr). *Haematopus moquini* Bonaparte Black Oystercatcher
Flock of about 20 at Sandwich in May and one of over 40 seen there in January. Seldom seen singly and usually found on the lagoon shore, but occasionally observed feeding in the shallow water of the freshwater pools.

(sr). **Haematopus ostralegus* Linnaeus European Oystercatcher
Found at Sandwich in January in loose association with the flock of Black Oystercatchers. Very timid, could not be approached at all.

CHARADRIIDAE

- (sr). *Charadrius hiaticula* Linnaeus Ringed-Plover
Found in fairly large numbers at Sandwich in January, including many immature birds. No specimens seen during May.
- (sr). *Charadrius marginatus* Vieillot White-Fronted Sandplover
Common at Sandwich in May and January. Two nests containing eggs found on bar between the lagoon and the Atlantic in January. Birds often observed feeding in the area covered with *Salsula*.
- (sr). *Charadrius pecuarius* Temminck Kittlitz's Sandplover
Few specimens seen at Sandwich both in May and January, feeding on exposed sand- and mudbanks of the fresh-water pools.
- (sr). *Charadrius tricollaris* Vieillot Three-Banded Sandplover
Only a few specimens around pools at Sandwich on both occasions.
- (sr) *Squatarola squatarola* (Linnaeus) Grey Plover
During May one small flock seen at Sandwich. In January quite a number of flocks up to 20 were common. No birds in partial breeding plumage observed.
- (sr). *Stephanibyx coronatus* (Boddaert) Crowned Plover
Single pair seen near Gobabeb on Kuiseb River during May.
- (sr). **Hoplopterus armatus* (Burchell) Blacksmith Plover
Single pair found at Sandwich frequenting the northern end in May and two pairs found in January. The effect of their alarm note on the other birds was most astounding. The birds on the whole were not unduly timid. When walking along the water's edge, they usually moved over to the other side of the pool and very seldom flew away. On the other hand the alarm note had about the same effect as firing a 12 gauge shotgun would have had. It caused a "stampede" on the two or three occasions it did happen. A possible reason for this behaviour is that these plovers were new-comers to the area and their alarm note something not known to the resident population.

SCOLOPACIDAE

- (sr). *Calidris testacea* (Pallas) Curlew Sandpiper
Only a few specimens seen at Sandwich during May, but common in January when fairly large flocks were observed. None of the birds showed even partial breeding plumage.
- Calidris minuta* (Leisler) Little Stint
A few individuals seen at Sandwich in May and large numbers during January. Mostly found feeding singly and it seemed as if they had fixed feeding territories, which could be of a temporary nature. Many a fight was observed when one bird encroached on another's territory. Both would crouch low, making a twittering noise, and then attack each other with claws and bill. The vanquished one would fly off a little distance and feeding would continue as before. No notice was taken of other species; they all fed peacefully together in the same area. An example of intraspecific being much keener than interspecific competition. A very large flock, estimated at a few hundred, was encountered on the shore of the Bay a few miles south of Walvis. Associated with it were numerous *Crocethia alba* and *Calidris testacea*. One ♀ collected in Walvis Bay.
- (sr). *Crocethia alba* (Pallas) Sanderling
Few seen during May and January at Sandwich. A large flock of about 200 birds seen south of Walvis on exposed mudbank in January.
- (sr). *Philomachus pugnax* (Linnaeus) Ruff
During May a few fairly large flocks were seen at Sandwich, mostly at the fresh-water pools. Surprisingly few were seen in January; one group of six and some single birds recorded.
- (sr). *Actitis hypoleucos* (Linnaeus) Common Sandpiper
Two specimens seen at fresh-water pools at Sandwich in January.
- (sr). *Tringa nebularia* (Gunnerus) Greenshank
Fairly common; mostly single birds in May and small flocks in January. A few specimens seen just South of Walvis Bay.
- (sr). *Tringa glareola* Linnaeus Wood Sandpiper
Common at Sandwich during both May and January, frequenting the fresh-water pools.
- (sr). *Limosa lapponica* Linnaeus Bar-Tailed Godwit
A flock of 14 seen at the lagoon at Sandwich during January. They were very timid and could not be approached.

- (sr). *Numenius arquata* (Linnaeus) Curlew
All the specimens seen appeared rather lightly coloured and probably belonged to the race *N.a.orientalis*. Brehm. During May a flock of 17 and a few single birds at Sandwich. In January only one Curlew was seen.
- (sr). *Numenius phaeopus* (Linnaeus) Whimbrel
Few specimens at Sandwich during May.

RECURVIROSTRIDAE

- (sr). *Recurvirostra avosetta* Linnaeus Avocet
Very common at Sandwich, both in the lagoon and in the fresh-water pools during May and January. One flock of over 300 seen in May and smaller ones in January. A flock of 60 observed feeding in deep water "ends up" and paddling whilst moving in a circle, thereby creating the impression of a revolving wheel.
- (sr). *Himantopus himantopus* (Linnaeus) Black-Winged Stilt
Small flocks in May and single birds in January, mostly at the pools at Sandwich. Many immature birds observed.

BURHINIDAE

- Burhinus capensis* (Lichtenstein) Cape Dikkop
One specimen T.M. 29932, collected at Rooibank in the Kuiseb River on 21 May 1959. The skin is only slightly mottled on the back and compared to other skins appears much lighter; its ground colour being a pinkish beige.

GLAREOLIDAE

- (sr). *Cursorius rufus* Gould Burchell's Courser
One specimen seen in January on the sand dunes along the coast at Sandwich Harbour.
- Rhinoptilus africanus africanus* (Temminck) Double-banded Courser
Three specimens collected in Reserve No. 3 during May. T.M. 29864, 25 miles north east of Gorob Mine; T.M. 29875, 29876 at the Amichab water hole. The gravel plain north-east of the Gorob Mine has a brownish hue, and the colour of the specimen taken there appears darkish brown, whereas the other two, taken where the plain is distinctly reddish, are rufous. The two localities are only about 20 miles apart. The average measurements conform with those given in Roberts.

LARIDAE

- (sr). *Larus dominicanus* Lichtenstein Black-backed Gull
Very numerous at Sandwich Harbour on both occasions. During January a nesting colony was found on the bar between the ocean and the lagoon. The colony consisted of newly made scrapes, nests containing eggs and chicks of different sizes, but the latter all still in downy stage. The nests were mostly made close to a patch of *Salsula*, although some were situated in the patch itself. Some of the birds had used a small amount of nesting material, but most of the nests had no material at all.
- (sr). *Larus cirrocephalus* Vieillot Grey-headed Gull
Few breeding and non-breeding birds at Sandwich on both occasions. They apparently showed a preference for the fresh water pools.
- (sr). *Larus hartlaubii* (Bruch) Hartlaub's Gull
Very numerous at Sandwich both during May and January. Large numbers gathered daily where the supervisor and his children were cleaning fish.

STERNIDAE

- (sr). *Hydroprogne caspia* (Pallas) Caspian Tern
Found in large numbers at Sandwich. During January a nesting colony was found close to that of the Black-backed Gulls. Nests also at different stages, but chicks seemed slightly younger on the whole than those of the Gulls.
- (sr). *Sterna hirundo* Linnaeus Common Tern
Found in fairly large numbers at Sandwich in May and January.
- (sr). *Sterna balaenarum* (Strickland) Damara Tern
One small flock found fishing and giving its characteristic call in the lagoon during May.

PTEROCLIDAE

- (sr). *Pterocles namaqua* (Gmelin) Namaqua Sandgrouse
One small flock seen on wing 20 miles west of Windhoek during May. None observed in the pro-Namib nor in Reserve No. 3.

COLUMBIDAE

- (sr). *Streptopelia capicola* (Sunderall) Cape Turtle Dove
Common also in Kuiseb River, drinking at water troughs and feeding under the trees in the river bed.
- Stigmatopelia senegalensis senegalensis* (Linnaeus) Laughing Dove
T.M. 29926 and 29927. Only a few specimens seen at Gobabeb and Natab in the Kuiseb River. Hoesch in "Die Vogelwelt Südwest-afrikas" also refers to their scarcity in the sandveld.
- (sr). *Oena capensis* (Linnaeus) Namaqua Dove
Seen both in May and January in the pro-Namib and a single female at Sandwich Harbour on 13 May 1959.

PSITTACIDAE

- (sr). *Poicephalus rüppellii* (Gray) Rüppell's Parrot
Few specimens seen at Djab in the Rehoboth district in May. Plentiful at Dordabis east of Windhoek in January, where they were observed feeding on the blossoms of *Acacia karroo*.
- (sr). *Agapornis roseicollis* Vieillot Rosy-faced Lovebird
A small flock seen in May at Hohenheim, 80 miles west of Windhoek.

MUSOPHAGIDAE

- (sr). *Corythaixoides concolor* (A. Smith) Grey Loerie
Very plentiful during May and January at Dordabis where permanent water was found. No specimens observed in the dry areas.

BUBONIDAE

- (sr). *Glaucidium perlatum* (Vieillot) Pearl-spotted Owlet
Single specimen found in May at Gobabeb in the Kuiseb River.
- Bubo africanus africanus* (Temminck) Spotted Eagle Owl
T.M. 29905 (?). Specimen taken at Gobabeb in river bed on 17 May 1959. Another specimen was later seen in the same locality. At Sandwich Harbour a specimen was also observed being mobbed by Blacksmith Plovers, Terns and Gulls.

COLIIDAE

- Colius colius* (Linnaeus) White-backed Mousebird
T.M. 29903. Gobabeb in river bed. Only one small flock seen in May, of which one was collected.
- Urocolius indicus lacteifrons* (Sharpe) Red-faced Mousebird
T.M. 29845. Common in flocks up to 10 in the river at Gobabeb during May.

MEROPIDAE

- (sr). *Dicrocercus hirundineus* (Lichtenstein) Swallow-tailed Bee-eater
Single specimen 95 miles west of Windhoek in May and small flock near Karibib in January.

CORACIIDAE

- Coracias caudata caudata* Linnaeus Lilac-breasted Roller
T.M. 29808. (?) Collected 95 miles from Stamprietfontein on Dordabis road. Common in sandveld east of Dordabis.
- Coracias naevia mosambica* Dresser Mozambique Roller
T.M. 29811. Collected 42 miles west of Windhoek on Maltahöne road. A few specimens seen at Djab in the Rehoboth district during May. Mr. Rusch, owner of Djab, reports that these Rollers are found in the Kuiseb River Canyon after good rains.

UPUPIDAE

- (sr). *Upupa africana* Bechstein African Hoopoe
Not uncommon in the Kuiseb River at Gobabeb and Natab during May. Very numerous at Dordabis in January.
- Rhinopomastus cyanomelas cyanomelas* (Vieillot) Scimitar-bill Hoopoe
T.M. 29844, (Imm.) 29913, (Imm.) and 29930. Common along the Kuiseb River east of Gobabeb during May. Frequently observed feeding on the young buds of *Salvadora persica*.

BUCEROTIDAE

- (sr). *Lophoceros flavirostris* (Rüppell) Yellow-billed Hornbill
Two specimens in thornveld a few miles west of Usakos during May.

CAPITONIDAE

- Tricholaema leucomelas centrale* (Roberts) Pied Barbet
T.M. 29804 and 29841. Found throughout the pro-Namib and in the Kuiseb River.

PICIDAE

- Dendropicos fuscescens stresemanni* Grote Cardinal Woodpecker
T.M. 29916-919. The only Woodpecker found in May in the Kuiseb.

ALAUDIDAE

- Mirafra sabota herero* (Roberts) Sabota Lark
T.M. 29800-802. Found in the pro-Namib during May and January, but not along the Kuiseb in the Namib Desert itself.

- Mirafra africanaoides harei* Roberts Fawn-coloured Lark
T.M. 29955, from sandveld at Tigerpforte east of Dordabis in January 1960. Common in suitable habitats. When disturbed usually seeks shelter under small trees or shrubs with branches growing low down.

- Certhilauda albescens erythrochlamys* (Strickland) Karroo Lark
T.M. 29937-38. This pair was found feeding in some coarse *Aristida* at the foot of the dunes South of the Kuiseb at Rooibank. When disturbed they flew onto the dunes, where their adaptive coloration made them completely invisible. They remained motionless and only flew up when a yard or two from one's feet. No specimens of this lark were seen on the gravel plains. Their nesting habits in the shifting sand dunes should prove very interesting.

- Certhilauda albofasciata arenaria* Reichenow Spike-heeled Lark
T.M. 29805 and 29954. These two specimens are similar to *C.a.arenaria*, T.M. 15133, from Gobabis and T.M. 20935, 24960, 24961 and 24964 from Windhoek. They are however quite different from the specimens of *C. a. arenaria*, T.M. 20936-938 and 20940, from Kobos, south-west of Rehoboth, which have a distinct light rust basic colour.

- Certhilauda albofasciata boweni* (de Schauensee) Spike-heeled Lark
T.M. 29864-871. All these specimens were collected from one locality about 40 miles south of the Swakop River in the neighbourhood of the isolated Arechadamab Mountain. The terrain was slightly more stony than is usually the case on the gravel plains in Reserve No. 3. This lark depends on its protective colour-pattern and was very difficult to flush. Wing: (male) 81-86, 3 specimens.

- Ammomanes grayi* (Wahlberg) Gray's Lark
T.M. 29819-836. (18 specimens.) The gravel plains of Res. No. 3, can be divided into areas with substrata of different colour. Series of *A. grayi* were taken from a reddish, brownish and a light substrata. The specimens show no marked variation in colour. Large areas of many square miles with an outcrop of blackish rock looked like newly burnt veld; no *A. grayi* were found on this substratum.

A pair (T.M. 29820-21) were observed at a disused *Gerbillus* hole by four members of the Expedition. The birds disappeared into the hole a few times. The male was displaying to the female and another lark which came close to the hole was chased away. There were two entrances, only one of which was used by the pair. At the end of a twisting and turning tunnel of between 5 and 6 feet long and about 2 feet below the surface, a neat empty cup-shaped nest was found. The short pieces of curly grass used for its construction were quite fresh. Feathers of the larks were found in the tunnel during the digging operation. Another pair of the larks was observed at another gerbil hole, behaving like the previous pair. This hole was marked for further investigation, but the opportunity to pay it another visit did not present itself. Mr. A. Port, honorary Game Warden of Reserve No. 3, had on previous occasions noticed these larks entering old gerbil holes. It does seem as if disused gerbil holes might be used for breeding purposes by *A. grayi*, but further observation will be necessary to establish the fact.

A flock of about 10 birds was seen in undulating flight. They were on occasion found feeding in the valleys between the ridges of the dunes south of the Kuiseb River. On no occasion were they observed to alight on the red sand dunes.

- (sr). *Spizocorys conirostris* (Sundevall) Pink-billed Lark
Small flocks were encountered both in May and January to the east of Windhoek, but none to the west of this locality nor in the pro-Namib.

HIRUNDINIDAE

- (sr). *Hirundo rustica* Linnaeus European Swallow
Large flock found after local shower 10 miles West of Okahanaja in January. At Sandwich Harbour a few specimens were also present during the same month.

- Hirundo dimidiata dimidiata* Sundevall Pearl-breasted Swallow
T.M. 29877. Three pairs at Sandwich Harbour during May and an odd specimen in January. Found mostly over the fresh-water pools.
(sr). *Cecropis cucullata* (Boddaert) Larger Striped Swallow
Few specimens seen hawking insects over a dam at Hohenheim 80 miles west of Windhoek in May.
Ptyonoprogne fuligula anderssoni (Sharpe & Wyatt) Rock Martin
T.M. 29907 and 29939. Both females. A few isolated pairs found in the Kuiseb River from Natab to Rooibank during May.

DICRURIDAE

- (sr). *Dicrurus adsimilis* Bechstein Fork-tailed Drongo
Furthest record west at Hohenheim 80 miles west of Windhoek in May. None seen in the pro-Namib nor in the Namib itself.

CORVIDAE

- (sr). *Corvus albus* Müller Pied Crow
Few specimens at Sandwich Harbour during January and May. Fairly common at Rooibank. Some isolated birds at Gobabeb on the dunes. Found feeding there mostly early mornings and late afternoons when, according to Dr. C. Koch, the Tenebrionidae larvae are close to the surface of the sand. Dr. Koch also found *C. albus* in the dunes at the Sossos-vlei situated about 70 miles south of the Kuiseb River and about 30 miles from the Atlantic coast. Also seen on both occasions all along the coast from Swakopmund southwards.

PARIDAE

- Parus afer cinerascens* Vieillot Grey Tit
T.M. 29915. Found in small numbers, usually in pairs, in the Kuiseb River bed on a few occasions during May.

TIMALIIDAE

- (sr). *Turdoides bicolor* (Jardine) Pied Babbler
A small party found a few miles east of Karibib in January.
Achaetops pycnopygius (P. Sclater) Damara Rock-jumper
T.M. 29816. This specimen was collected in the rocks at the foot of a high mountain at Djab, district Rehoboth, in May. This bird is very reluctant to take to the wing and creeping about the crevices in the rocks, it is easily mistaken for a small rodent.

PYCNONOTIDAE

- Pycnonotus nigricans* (Vieillot) Red-eyed Bulbul
T.M. 29840. One of the most abundant birds in the Kuiseb River from Natab to Rooibank. They are dependent on the water at the Hottentot settlements, where large numbers come to the water troughs after the goats have had their daily drink. There were no berry-bearing trees in the river. The few wild fig trees at Gobabeb had no fruit and no *P. nigricans* were observed in the trees. These birds must have adopted a completely insectivorous diet in this area during the period under discussion. They were found in all suitable localities to the west of Windhoek.

TURDIDAE

- Oenanthe monticola monticola* Vieillot Mountain Chat
T.M. 29843, 29848 (males) 29904, 29910, (females) and 29942. Fairly common along the Kuiseb mostly on and near the trunks of dead trees strewn in the river bed. A few specimens also seen in the Swakop River near the Welwitschia plain.
(sr). *Oenanthe pileata* (Gmelin) Capped Wheatear
Single specimen seen 34 miles west of Djab in the Rehoboth District in May.
Cercomela familiaris galtoni (Strickland) Familiar Chat
T.M. 29849, 29924, (females), 29852. Common during both May and January.
Cercomela tracterac albicans (Wahlberg) Layard's Chat
T.M. 29842, 29921, 29931, 29941, 29943, and 29952. Fairly common on rock outcrops along the Kuiseb River at Gobabeb. Found also in the open desert at Rooibank and along the Swakopmund-Usakos road. During the heat of the day at Gobabeb it was usually found on the ground in the shade of a tree, where it ran out moving very swiftly, to pick up an insect and run back to the shade again.
Cercomela schlegelii schlegelii (Wahlberg) Grey-rumped Sickle-wing Chat
T.M. 29953. This specimen was collected in sparse thornveld with large rock outcrops along the Swakopmund-Usakos road in the pro-Namib.

SYLVIIDAE

Acrocephalus baeticatus baeticatus (Vieillot)

African Marsh Warbler

T.M. 29855-858. Resident at Sandwich Harbour, where it was found in May and January in large numbers, frequenting the bulrushes and sedge in and along the fresh water pools. Heard singing lustily on both occasions.

Sylvietta rufescens rufescens (Vieillot)

Crombek

T.M. 29846, 29860 and 29906. Found all along the Kuiseb River as far West as Rooibank.

**Cisticola juncidis terrestris* (A. Smith)

Common Fantail Cisticola

T.M. 29957, 29959, 29961 (males) 29897, 29899, 29958, 29960 (females) and 29898 (imm. male). These 8 specimens were collected at Sandwich Harbour and at the mouth of the Kuiseb River 4 miles south of Walvis Bay. They were found frequenting the coarse creeping grass, *Odyssea*, which is the only grass growing along the coast, and the short sedge *Cyperus*. Two skins, T.M. 15096 and 15097 were collected by R. Bradfield on 12 December 1928 at Nonedas, Swakopmund, which lies about 20 miles North of the Kuiseb River mouth. These specimens are assumed to belong to the same isolated colony along the Atlantic coast. Morphologically there is no difference between these specimens and the other *C. j. terrestris* skins in the collection. We have the same tail pattern, seasonal plumage change and immature wing pattern.

Lynes gives $\frac{\times 1) 0}{P_2} = 46$, for *C. j. terrestris*, were P_1 = first primary and P_2 = second primary. In the 9 specimens under discussion this ratio varies from 39 to 51.5, $m = 45.5 \pm 1.312$, S.D. = 3.937, which does not justify sub-specific status. The following observations however, are of interest.

1. In January the males were conspicuous, flying about, uttering the usual note, dipping as each note was uttered. T.M. 29898 is an immature male. The Cisticola are therefore in all probability breeding at Sandwich Harbour. Their nests should be interesting, constructed in either the *Odyssea*, which reaches a maximum height of less than 9 inches, or in the *Cyperus*, about 12 inches high. In both cases the medium is hard and stiff and not supple like the grass usually used for the construction of their soda-water bottle nests. Owing to the scanty vegetation the nesting material used should also be an adaptation to this habitat.

2. The alarm note was not the excited succession of "zit zit zit . . .", but a low pitched "tsurr tsurr . . ." repeated several times.

3. When alarmed these birds did not find safety by flying to a great height and disappearing as they usually do, but took refuge in the nearest patch of reeds or bulrushes, in many cases over water.

If their isolation along the Atlantic coast should be complete, which is doubtful, as T.M. 13141 from Okahandja, 30 August 1923 and T.M. 13149 from the Waterberg District, 18 August 1923, point to a connection with the normal distribution range, which could exist under favourable climatic conditions, the colony along the coast between Walvis Bay and Sandwich Harbour could in time become a sub-species.

Cisticola aridula kalahari O. Grant

Desert Cisticola

T.M. 29933-934. Fairly common during May and January along the upper reaches of the Auob River to the east of Windhoek. The two specimens were collected at Rooibank in the Kuiseb River.

PRINIIDAE

Prinia flavicans (Vieillot)

Black-chested Prinia

T.M. 29900-901 and 29962. Fairly common in many localities, usually in low shrub, even found in isolated patches of the "Naras"-creeper on the dunes just south of Walvis Bay. None were found in the Kuiseb River East of Rooibank.

MUSCICAPIDAE

Parisoma subcaeruleum cinerascens Reichenow

Tit-babbler

T.M. 29850 and 29857. Very common in the Kuiseb River west of Natab. Found in all suitable localities during May and January, even in the pro-Namib.

(sr.). *Parisoma layardi* Hartlaub

Layard's Tit-babbler

Single specimen seen in the gardens of the Administrative Buildings in Windhoek in January.

Bradornis mairiquensis A. Smith

Marico Flycatcher

T.M. 29797. Fairly common in Auob River both in May and January. None found in the pro-Namib and further westwards.

Bradornis infuscatus benguellensis Sousa

Chat Flycatcher

T.M. 29788, 29873-874 and 29944. Found to be the most widely distributed insectivorous bird encountered during the May and January Expeditions. Pairs or small groups found living in dry water-

courses with scattered stunted thorn trees under the most arid conditions in Reserve No. 3. Surprisingly enough none were seen in either the Kuiseb or Swakop Rivers.

**Sigelus silens* (Shaw) Fiscal Flycatcher
T.M. 29878 (female) In addition to this single specimen collected at Sandwich Harbour, a pair was seen 95 miles west of Windhoek in the pro-Namib near the Kuiseb Canyon during May and another specimen at Stamprietfontein in January.

Batis pririt (Vieillot) Pririt Flycatcher
T.M. 29858-861, 29909-914-920. (5 specimens). Very common in Kuiseb River west of Natab during May.

(sr). **Terpsiphone viridis* (Müller) Paradise Flycatcher
A few pairs found at Dordabis, east of Windhoek, during January. According to Mrs. Stauch, the owner of the Dordabis Hotel, a pair nest regularly in her garden.

MOTACILLIDAE

Motacilla capensis capensis Linnaeus Cape Wagtail
T.M. 29879-884. (6 specimens). Found in all suitable localities with open water. The size of the population at Sandwich Harbour is enormous and is estimated at a few hundred pairs, concentrated in the relatively small area around the fresh water pools. Their nests were found in the vegetation in and around these pools. The scarcity of predators and the abundance of food is probably the reason for their large numbers. A few specimens were seen at Rooibank, but none to the East of that locality along the Kuiseb River to the pro-Namib.

**Motacilla flava flava* Linnaeus Yellow Wagtail
T.M. 29818 (male). This specimen was collected at Gobabeb in the Kuiseb River, 80 miles from the Atlantic in the middle of the Namib Desert. Mr. O. von Broen, Fison's Supervisor at Sandwich Harbour reports that during the last few years he has occasionally seen a Yellow Wagtail at the fresh-water pools during summer.

LANIIDAE

Lanius collaris aridicolus Clancey Fiscal Shrike
T.M. 29940. This specimen was obtained at Rooibank. One other specimen was seen east of Usakos on the Windhoek Road in January, and 2 in Reserve No. 3 in May.

Laniarius atro-coccineus Burchell Crimson-breasted Shrike
T.M. 29792. Very plentiful around Dordabis in January. None seen in either the Namib or pro-Namib.

(sr). *Eurocephalus anguitemens* A. Smith White-crowned Shrike
Fairly common to the east of Windhoek both in May and January.

Nilaus afer brubru (Latham) Brubru Shrike
T.M. 29908 and 29929. This was the only species of shrike found in the Kuiseb River east of Rooibank towards the pro-Namib. They were scarce, as only a few specimens were seen and heard.

STURNIDAE

Lamprocolius nitens phoenicopterus (Swainson) Cape Glossy Starling
T.M. 29911. A few pairs and some single birds found in the Kuiseb River near the Hottentot Settlements in May. A few pairs seen between Usakos and Okahandja in January.

Lamprotornis australis A. Smith Burchell's Glossy Starling
T.M. 29784 and 29946. Abundant at Dordabis and in the sandveld east of Dordabis towards the Tiegertpforte Mountains, both in May and January. None found in either the Namib or the pro-Namib.

(sr). *Onychognathus naboroupp* (Daudin) Pale-winged Starling
A small colony found on the Arechadamab Mountain in Reserve No. 3 in May and a flock seen in the outskirts of Usakos in January.

NECTARINIIDAE

(sr). *Cinnyris talatala* A. Smith White-breasted Sunbird
Single specimen (male) seen in Klein-Windhoek during May.

Cinnyris fuscus Vieillot Dusky Sunbird
T.M. 29856, 859, 862 and 29912. Very widely distributed even in the pro-Namib and along the Kuiseb and Swakop Rivers. Found as far west as Rooibank. Partial to the flowers of *Nicotiana glauca*, which was in flower in May.

ZOSTEROPIDAE

Zosterops pallidus capensis Sundevall

Cape White-eye

T.M. 29851, 854, 863 and 29928. Found in large numbers near the Hottentot Settlements in the Kuiseb River. I would like to avail myself of the opportunity to thank Mr. R. E. Moreau for kindly examining the material sent to him.

PLOCEIDAE

(sr). *Bubalornis albirostris* (Veillot)

Buffalo Weaver

Isolated colonies at Dordabis and eastwards in the sandveld to the Tiegerpforte Mountains. Were not found in the pro-Namib and more to the west.

Plocepasser mahali mahali A. Smith

White-browed Sparrow-weaver.

T.M. 29807. Numerous in the sandveld to the east of Dordabis. The most westerly record was at Klein Auob, 15 miles west of Windhoek, where a small colony was found.

Philetairus socius (Latham) *Sensu lato*†

Sociable Weaver

T.M. 29796. Found in all localities with suitable trees for nest-building, even in the pro-Namib at Rostock, 33 miles west of Djab in the Rehoboth District. A very large nest was found near Hohenheim about 80 miles west of Windhoek, which contained just over 200 nest-chambers. This nest had been built in a large *Acacia giraffae*. It is found that the portion of the tree on which these nests are built, always dies. In some cases the limbs of the tree on which such a nest is built has a diameter of more than 12 inches.

Passer melanurus damarensis Reichenow

Cape Sparrow

T.M. 29839. Very plentiful in the Kuiseb River and small flocks found at Sandwich Harbour in May and January.

(sr). *Passer diffusus* (A. Smith)

Grey-headed Sparrow

Few specimens seen at Stamprietfontein in January,

Sporopipes squamifrons (A. Smith) *Sensu lato*‡

Scaly-feathered Finch

T.M. 29922. Very widely distributed. Found in the most arid areas imaginable, such as the gorges leading into the Kuiseb River, east of Natab, where no vegetation of any description was to be seen. Being quite independent of water, they must therefore exist entirely on metabolic water.

(sr). *Ploceus intermedius* Rüppel

Lesser Masked Weaver

Large colony found nesting at Dordabis in January at the Hotel.

Ploceus velatus velatus Vieillot

Masked Weaver

T.M. 29812-815 and 29838. Common at Djab in the Rehoboth District and also in the Kuiseb River at Gobabeb, Natab and Rooibank. Small flocks found at Sandwich Harbour in May and in January found breeding in the reeds in the fresh water pools.

(sr). *Quelea quelea* (Linnaeus)

Red-billed Quelea

One small flock seen in January near Karibib on the Usakos road.

Amadina erythrocephala (Linnaeus)

Red-headed Finch

T.M. 29817. No specimens were observed to the west of the Kuiseb Canyon. Seen on a few occasions east of Windhoek on the Stamprietfontein road. Common in the Auob River.

Granatina granatina (Linnaeus)

Violet-eared Waxbill

Single female collected on 7 May 1959, 95 miles west of Windhoek on the edge of the pro-Namib.

Estrilda astrild damarensis Reichenow

Common Waxbill

T.M. 29889-896 from Sandwich Harbour and 29935-936 from Rooibank. During May very plentiful at Sandwich where they were found in flocks of 50 and more feeding on the seed of the *Cyperus*. In January they were found nesting in the *Odyssea* and not encountered in such flocks. Few small parties were found at Rooibank.

Crithagra albigularis crocopygia (Sharpe)

White-throated Seed-eater

Single specimen collected at Gobabeb in the Kuiseb River on 18 May 1959. Found in a bird-party consisting of Masked Weavers, Cape Sparrows and White-eyes.

† (nec. *Philetarius socius socius* Clancey 1957 *s. restr.*)

‡ (nec *Sporopipes squamifrons squamifrons* Clancey 1957 *s. restr.*)

THE NUMBER OF FEATHERS IN THE LAUGHING DOVE *STREPTOPELIA SENAGALENSIS* (LINNAEUS)

M. B. Markus

206 LUNNON ROAD, PRETORIA

Received November 1961

INTRODUCTION

Comparatively little is known as to the number of feathers which together form the plumage of a bird, the amount of research which has been undertaken in this regard being rather limited. The first examination of a specimen was made in 1882 on a Brewer's Blackbird *Euphagus cyanocephalus* (Wagler) by Seton (1940: 197). Following this, the feathers on a Bobolink *Dolichonyx oryzivorus* (Linnaeus) were recorded by Dwight (1900). Enumerations were made from two study skins, a Glaucous-winged Gull *Larus glaucescens* Naumann and a Savannah Sparrow *Passerculus sandwichensis* (Gmelin), by McGregor (1903) and a feather count was made on a mallard by Knappen (1932). Lowe (1933: 487) found 300 feathers to the square inch on the Gentoo Penguin *Pygoscelis papua* (Forster) but he did not supply the total number for the bird. Hitherto, the only major investigation on this subject has been that of Alexander Wetmore (1936), subsequent workers being Ammann (1937), Brodkorb (1949), Staebler (1941), Trainer (1947) and Wing (1952).

Wetmore, *loc. cit.*, records contour feather counts which were made on North American birds for 73 Passeriform species as well as for six representatives of four other orders, all of which were collected within a radius of 80 miles of Washington, D.C. The results of this study showed *inter alia* that, where the contour feathers of sufficient individuals of a species had been counted at different times of the year, there was a definite seasonal variation in the number of these feathers present; more feathers were found on a bird during the winter than during the summer. The fact that there is this seasonal variation in their number is borne out by Staebler, *loc. cit.*, who during different months of the year counted the contour feathers of eight specimens of the House Sparrow *Passer domesticus* (Linnaeus) collected at Ann Arbor, Michigan.

In order to ascertain whether a similar seasonal variation was to be found in the Laughing Dove *Streptopelia senegalensis* (Linnaeus) at Pretoria, counts of feathers on the present series of adult specimens were done, most of them being in varying stages of moult at the time that they were obtained. It should be noted that whereas Wetmore and Staebler recorded contour feathers only, plumulae (down feathers)

TABLE 1
Data for specimens of *Streptopelia senegalensis* (Linnaeus)

Specimen number	Sex	Date	Total No. of Feathers
1	♂	3 December 1959	3,900
2	♂	7 January 1960	4,094
3	♂	26 January 1960	4,351
4	♂	27 January 1960	4,330
5	♂	28 January 1960	4,390
6	♀	10 May 1960	4,210
7	♂	10 November 1960	4,151
8	♂	12 November 1960	4,287
9	♀	14 November 1960	4,207
10	♂	20 February 1961	3,921
11	♀	21 June 1961	4,275