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New Dune Spiders (Sparassidae)
from the Namib Desert, South West Africa

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NEW DUNE SPIDERS (SPARASSIDAE)

FROM THE NAMIB DESERT, SOUTH WEST AFRICA

by

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I. INTRODUCTION

Recent collecting activity in the Namib desert has proved what was previously surmised, that there has been a considerable amount of speciation with regard to the Sparassid spiders which live mainly in the sand dunes of the Namib.

The newer finds make it clear that these spiders are not entirely confined to the sand dunes. One previously known species and one of the new species have been collected in the Kaokoveld at sites where there are no dunes.

The fauna has been augmented by seven new species in this paper and the known distribution of the group considerably extended in both a north- and a southward direction along the litoral of South West Africa.

The types of the new forms are deposited in the State Museum, Windhoek and the Transvaal Museum, Pretoria.

II. DESCRIPTIONS OF NEW SPECIES

GENUS: *Leucorchestris* Lawrence

LEUCORCHESTRIS ALEXANDRINA sp. nov. (Text-fig. 1a)

Holotype 1 ♀ (TM. 8922), from Porto Alexandre, Angola, collected by C. Koch, September 1951.

Colour. Carapace reddish mahogany brown, becoming progressively darker anteriorly but clypeus and lateral margins lighter, the hairs all rubbed off except some whitish ones along the margins and clypeus; chelicerae deep reddish, almost black, clothed with mixed white and yellow hairs; legs and pedipalps yellow, coxae and sternum a little darker, mouthparts brown; patellae and a narrow basal ring on tibiae, brown, scopulae of legs black. Abdomen above clay yellow, ventral surface without a wide blackish parallel-sided band in the middle between the epigastric furrow and spinners but a narrow blackish transverse band anterior to the spinners which are themselves darkened as follows: inferior spinners light brown at base, brown in the middle, blackish at apex, superior spinners yellow brown but blackened at apex.

Chelicera as in generic description.

Eyes. Anterior row subequal or medians a little larger, medians less than a radius apart and half of this again from the laterals; posterior row weakly recurved, equidistant, laterals $1\frac{3}{4}$ times as large as medians, which are $2\frac{1}{2}$ times their own diameter apart; posterior laterals a little smaller than anterior laterals, a little closer to them than is a posterior to an anterior median. Median quadrangle as long as posteriorly wide; anterior medians their diameter from the edge of the clypeus.

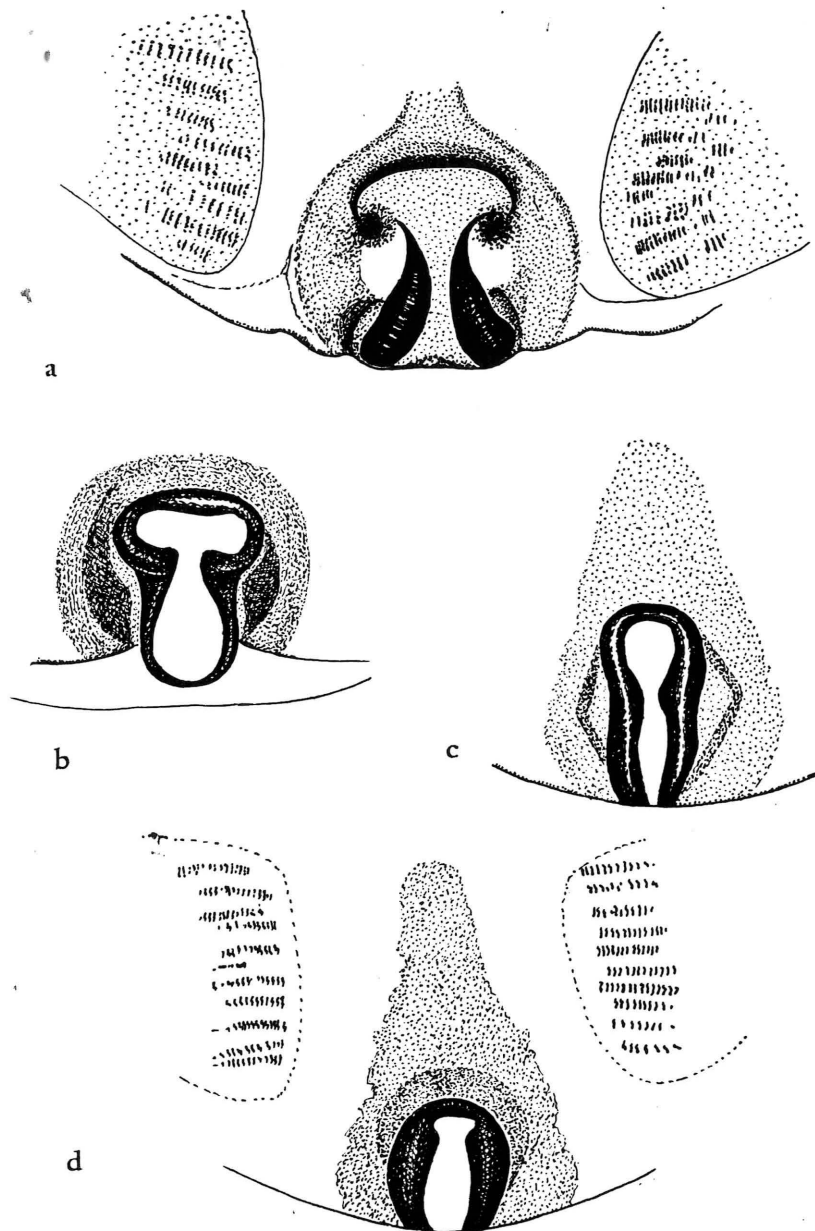


Fig. 1: Female genitalia of *Leucorchestris* species: a) *alexandrina* sp. nov.; b) *setifrons* sp. nov.; c) *arenicola* Lawrence; d) *sabulosa* sp. nov.

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Pedipalp. Femur below with an outer irregularly duplicated row of 12 setae; tibia similarly with 16, tarsus with more; femur with 5 dorsal or lateral spines in distal half, patella with 0 inner, 1 outer, tibia with 3 inner, 2 outer and 1 dorsal, tarsus with 2 outer, 3 inner spines.

Legs spined as in generic description.

Vulva as in Fig. 1a.

Dimensions. Length of carapace 13, width 10.5, length of abdomen 21 mm.

In its colouring the species definitely resembles *L. porti*, which was however based on a single male from between the Ugab and Huab rivers in the Namib.

LEUCORCHESTRIS SETIFRONS sp. nov. (Text-fig. 1b)

Holotype 1 ♀ (TM. 8963), from San Nicolau, Angola, collected by G. Rudebeck, September 1956.

Colour. Carapace a uniform brown with orange tinge, lateral margins with white hairs; clypeus and basal half of chelicerae with coarse white and dirty yellow hairs, chelicerae deep red; legs and pedipalps yellow with orange tinge; sternum a little darker than coxae, very light brown, mouthparts a little darker than sternum, light reddish brown. Abdomen clay yellow above, the whole ventral surface from epigastric furrow to posterior apex, including the spinners, black, this black marking shaped as a quadrilateral narrowing slightly posteriorly.

Eyes. The two rows moderately and equally recurved; behind each posterior lateral eye 2 long erect setae, another group of 2—3 just anteriorly and a little laterally to it, a number of irregularly disposed setae within the median quadrangle. Anterior eyes subequal, medians less than a radius apart, a little closer to the laterals; posterior laterals $1\frac{1}{2}$ times diameter of the medians, these 2—3 times their own diameter apart, a little nearer to the laterals; laterals on each side equal sized, a little further apart than a posterior from an anterior median; median quadrangle distinctly wider behind than long, distinctly wider behind than in front; anterior medians a little less than their diameter from the edge of the clypeus.

Chelicera as in generic description, very robust.

Pedipalp with a row of 8—9 setae ventrally on the outer side, tibia similarly with 5—6; spination of the segments as in *L. alexandrina*.

Legs spined as in *L. alexandrina* and other species; all legs with a dense scopula of fine short brown hairs extending to the base of metatarsus in all legs; a few long wiry setae among the hairs of the scopula, especially on the posterior legs.

Vulva as in Fig. 1b.

Dimensions. Length of carapace 8.5, width 6.8, total length 17.5 mm.

LEUCORCHESTRIS FLAVIMARGINATA sp. nov. (Text-fig. 2a, b).

Holotype 1 ♂, from 30 miles E. of Cape Frio (indicated as Cape Fria on some maps) Namib Desert, South West Africa, collected by W. Steyn and B. van Zyl, November 1965. There are no dunes at this site.

Colour. Carapace reddish brown covered with whitish hairs in the middle, the margins with sulphur yellow hairs, clypeus with mixed yellow and white hairs; chelicerae similar in colour to carapace, with mixed white and yellow hairs on basal two-thirds; abdomen above light smoky brown, but bright yellow at the sides, ventral surface with a wide parallel-sided median band which is slightly infuscated anteriorly, becoming progressively darker posteriorly, the spinners blackish. Legs uniformly yellow, sternum, coxae and mouthparts similar to legs or a little darker; tibiae and metatarsi dorsally faintly yellow due to yellow hairs, femora (especially IV) distinctly yellowish below.

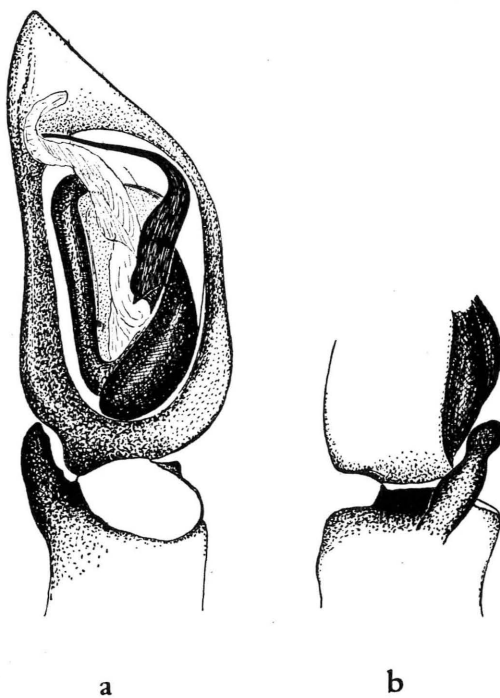


Fig. 2: *Leucorchestris flavimarginata* sp. nov. ♂; a) tarsus and apex of tibia viewed from below; b) lateral view of tibial process and base of tarsus.

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Eyes. Anterior more strongly recurved than posterior row, anterior medians $1\frac{1}{4}$ times as large as the laterals, their own radius apart and less from the laterals; posterior laterals twice as large as medians, which are $2\frac{1}{2}$ times their own diameter apart and nearer to the laterals; posterior laterals larger than anterior laterals; median quadrangle as long as posteriorly wide, wider behind than in front by the diameter of a posterior median eye; anterior medians their diameter from the edge of clypeus.

Pedipalp. Femur with about 24 setae in a very irregular row on the outer side, an irregular double row of 16 setae on inner side, patella with an inner row of 4—5, tibia similarly with about 6; femur with the usual 5 spines, patella with 1 inner 0 outer, tibia with 4 inner 1 outer. Tarsus slender, seen from the side, Fig. 2b, seen from below, Fig. 2a, it is differently shaped from other species with a more sharply pointed apex; tibial process resembling that of *porti* but projecting more downwards and forwards.

Legs spined as in generic description, the spines long and powerful, tibiae dorsally with a row of 3 instead of 2 spines between the lateral spines of anterior legs (thus 13 in all); scopula sparse on the metatarsi, almost absent on the proximal halves of posterior legs.

Dimensions. Carapace length 10, width 9; total length 21.5 mm.

The species differs from all others in the yellow colouration of the carapace, abdomen and legs.

LEUCORCHESTRIS SABULOSA sp. nov. (Text-fig. 1d).

Holotype 1 ♀, from dunes between Auros and Klinghardt Mountains (27—30' S, 15—45' E) in the diamond area near Lüderitzbucht, South West Africa, leg. W. D. Haacke, October, 1962.

Colour more or less as in *L. arenicola*; carapace light orange brown becoming progressively a little darker anteriorly, fairly thickly covered with fine white woolly hairs, especially on the margins and clypeus; chelicerae reddish brown, also covered with whitish hairs; legs yellow without markings, coxae, sternum and mouthparts a shade darker.

Eyes. Anterior medians subequal to the laterals or a very little larger, their diameter apart, a radius from the laterals, almost twice their diameter from edge of the clypeus. Posterior laterals $1\frac{1}{2}$ times diameter of medians, medians 3 times their diameter apart, the same distance from the laterals; laterals on each side as far from each other as is a posterior from an anterior median. Median quadrangle distinctly longer than its posterior width, distinctly narrower in front than behind.

Chelicera. Inferior margin with 3 strong triangular teeth, the apical a little larger than the middle one, much larger than the basal one.

Pedipalp spined almost as in *L. arenicola*.

Femur with a fringe of 9 long setae on its ventral outer surface; patella similarly with 5—6, tibia with an irregular row of about 18; tarsus with an outer row of at least 30 setae, a shorter row mesially to the outer row as well.

Vulva of the same general form as *L. arenicola*, Fig. 1d, differing in the details of size and shape.

Legs. Whole of metatarsus and tarsus thickly and almost equally scopulate in all legs, even the posterior metatarsi only a little less densely so; spination in general as in *L. arenicola*.

Dimensions. Carapace length 11, width 10; total length 28 mm.; transverse tarsus to tarsus measurement 95 mm.

The species differs little from *L. arenicola* in general; the anterior median eyes however are subequal to the lateral instead of $1\frac{1}{2}$ times as large and the shape of the vulva is different.

ADDITIONAL NOTES

Leucorchestris sp.

1 immature ♀ from 34 miles N. of Huab river mouth, South West Africa, collected by W. Steyn, September 1965.

Leucorchestris arenicola Lawrence 1962 (Text-fig. 1c).

L. arenicola Lawrence, Ann. Transv. Mus., 24, p. 203, figs. 2a, 3a, d, g.

A single adult ♀ from the same locality as the type, the Gobabeb sand dunes at the Namib Desert Research Station, South West Africa, collected by E. von Koenen, 1965.

The vulva is figured, Fig. 1c, and obviously differs in shape and size from those of both *L. steyni* and *L. sabulosa*, the only species of which the adult females have been described.

Leucorchestris porti Lawrence 1965.

L. porti Lawrence, Sci. Pap. Namib Desert Res. Sta. No. 27, p. 6, figs. 3f, g.

A rather small male of this species was dug out of a plain at a locality 18 miles SW. of Orupembe, Kaokoveld, by W. Steyn, 14th November, 1965.

The type came from the Namib desert between the Ugab and the Huab rivers.

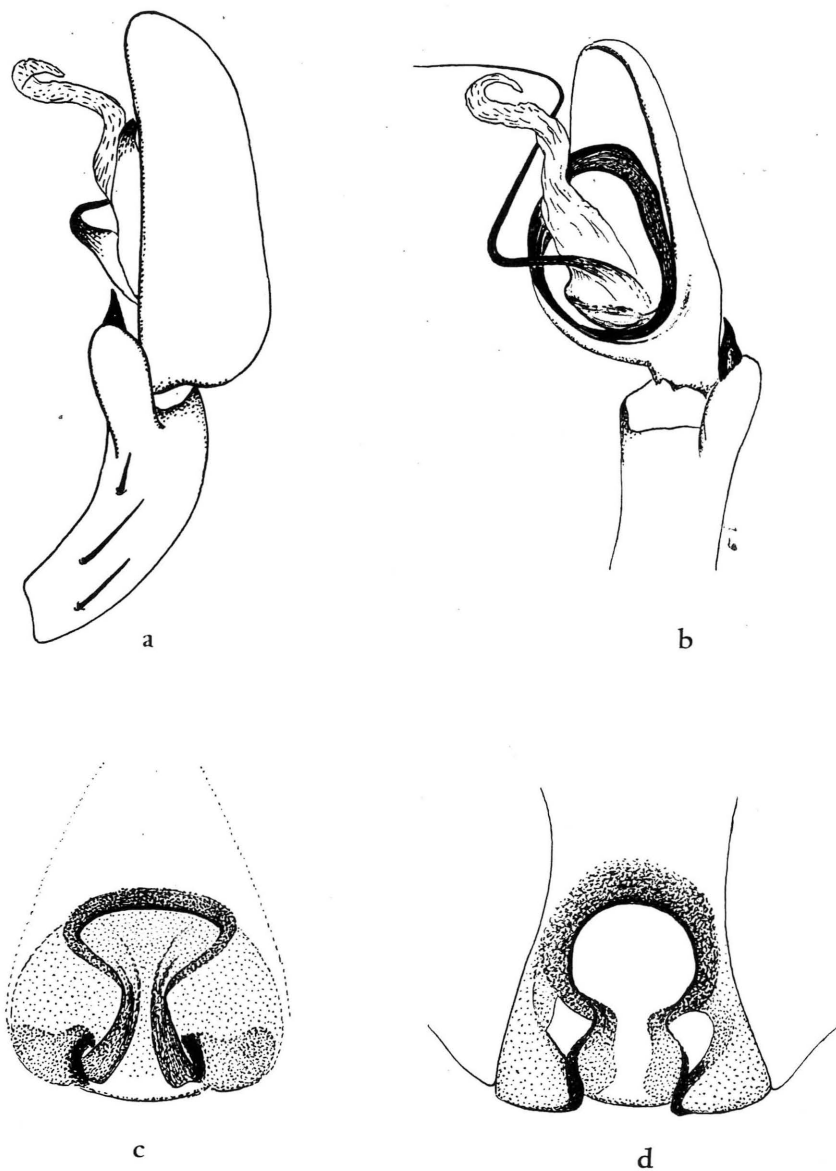


Fig. 3: *Microrchestris scutatus* sp. nov. ♂; a) tibia and tarsus, lateral view; b) tarsus and apex of tibia viewed from below; c) vulva of *Carparachne aureo-flava* sp. nov. ♀; d) the same of *Orchestrella caroli* sp. nov. ♀.

GENUS: *Microrchestris* Lawrence.

MICRORCHESTRIS SCUTATUS sp. nov. (Text-fig. 3a, b).

Holotype 1 ♂, from Sossus Vlei, South West Africa, W. D. Haacke leg., October, 1965. Type in the Transvaal Museum, Pretoria.

Colour. Entire specimen pale yellow except the spinners, which are smoky blackish-brown (the superior spinners and colulus however, pale) and the deep black apices of the tarsi; chelicerae and clypeus with white hairs, carapace and abdomen with sparse light yellow brown hairs.

Eyes as in generic description, seen from above both rows well recurved, the anterior slightly more so than posterior; anterior medians a third larger than laterals, about two-thirds their diameter apart, less than a radius from the laterals; posterior medians the smallest of the eyes, a little more than half the diameter of the laterals, about three times their own diameter apart, two-thirds as far from the laterals as from each other; laterals on each side subequal, nearer to each other than is a posterior to an anterior median; median quadrangle distinctly wider behind than long, about as long as anteriorly wide; anterior medians their diameter from the edge of the clypeus.

Chelicera. The 2 teeth of the inferior margin small, triangular, sharp, subequal or the basal very slightly larger.

Pedipalp. Femur on inner ventral surface with a regular row of 7 long straight setae (the remaining segments without) and 5 dorsal and lateral spines in distal half; patella with 1 weak spine, tibia with 3 spines on each side, Fig. 3a.

Tarsus from outer side as in Fig. 3b, the basal part of the tibial process very long, swollen rounded, the apex spiniform; seen from below as in Fig. 3a.

Legs. Femora with 3 anterior, 2 dorsal, 3 posterior spines; anterior tibiae with 3 ventral and 2 lateral pairs, in addition 2 dorsal spines (12 in all); anterior metatarsi with 2 ventral and 3 dorso-lateral pairs. Scopulation of metatarsi absent, of tarsi very weak and sparse.

Abdomen apparently with a very light coloured (pale yellow brown) dorsal scute covering almost the entire surface of the abdomen when seen from above; the scute with sparse hairs similar in colour to those of the carapace.

Dimensions. Total length 11.5, length of carapace 5.2, width 4, length of abdomen 6 mm.

The species differs from the female type of *M. melanogaster* Lawrence in the pallid colouring, the anterior median eyes larger than the laterals, the anterior eyes further apart, the posterior medians much nearer to the laterals than to each other, the median quadrangle distinctly wider than long.

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GENUS: *Carparachne* Lawrence

CARPARACHNE AUREO-FLAVA sp. nov. (Text-fig. 3c).

Holotype 1 ♀, from Gobabeb, Namib Desert Research Station, South West Africa, collected by C. Koch, January, 1966.

Colour entirely light cream or yellow except the inferior spinners and a small part of abdomen anterior to them which are blackish brown; anterior median eyes also with a black ring, the area between them suffused blackish; entire carapace except clypeus and the area posterior to the fovea with golden yellow hairs; chelicerae pale, an orange patch basally on outer surface. Dorsal surface of abdomen with a sharply defined oval area resembling a scute covered with golden hairs, contrasting with the sides and a small portion of the abdomen above the spinners, which are white; whole of ventral surface white; femora and patellae of legs dorsally covered with yellow hairs, these not as deep as on the carapace, legs otherwise pale.

Eyes small, anterior row a little more recurved than posterior one, and less than half its total width; anterior medians $1\frac{1}{4}$ — $1\frac{1}{2}$ as large as laterals, their own diameter apart, a little more than a radius from the laterals; posterior medians $\frac{1}{2}$ — $\frac{2}{3}$ diameter of laterals, more than 4 times their own diameter apart, $1\frac{1}{4}$ as far from laterals as from each other; laterals on each side almost twice as far from each other as is a posterior from an anterior median; median quadrangle considerably wider behind than in front, much wider behind than long (by more than the diameter of an anterior median eye); anterior medians $1\frac{1}{2}$ diameters from edge of clypeus.

Chelicerae. Inferior margin with the apical distinctly larger than the basal tooth.

Pedipalp femur with 5 dorsal spines near apex, patella with one on each side, the inner weak, tibia with 3 inner, one dorsal, 2 outer spines, tarsus with 3 inner (2 paired at base), 2 outer; femur with a short row of 7 setae on inner edge, pedipalp otherwise with setal distribution as in *C. alba*.

Legs spined as in *C. alba*, scopula of metatarsus-tarsus IV weak as compared with those of the remaining legs where they are blackish brown and sharply demarcated, contrasting strongly with the rest of the leg surface.

Vulva as in Fig. 3c.

Dimensions: Carapace 8.6, abdomen 10.2, total length 18.4 mm.

The species differs from the genotype, *Carparachne alba*, in its considerably smaller size, the conspicuous golden colouring of the abdomen and carapace; the anterior median eyes are a little more widely separated and the median quadrangle much wider relative to its length.

GENUS: *Orchestrella* Lawrence

ORCHESTRELLA CAROLI sp. nov. (Text-fig. 3d).

Holotype 1 ♀, from Gobabeb sand dunes, Namib Desert Research Station, South West Africa, collected by C. Koch, January 1966.

Colour. Carapace light cream to yellow, the ocular area and clypeus suffused light brown, chelicerae dark reddish brown with white hairs in basal half, brown ones in distal half; the whole carapace covered with white woolly hairs as in *O. browni*; legs cream; abdomen dorsally uniformly light yellow, thickly covered with long white woolly hairs, ventral surface with only the spinners and a small encircling area blackish brown, the remainder light cream.

Chelicerae as in description of *O. browni*.

Eyes as in *O. browni* differing as follows: anterior laterals almost $1\frac{1}{2}$ times as large as medians, almost their diameter apart and distinctly separated from the laterals; posterior medians very small $\frac{1}{4}$ — $\frac{1}{3}$ as large as the laterals three times their own diameter apart or a little more, median quadrangle a trifle wider behind than in front; anterior laterals a little more than their diameter from edge of clypeus.

Pedipalp with 20 spines in all, spined as in *O. browni* but patella with 2 distinct spines on each side.

Legs. II, IV, III, I, much longer than in *O. browni* especially IV; tarsi-metatarsi with a well defined scopula, but that of metatarsus IV becoming sparse basally. *Legs* spined as in other species of *Leucorchestris* and *Carparachne*; tibiae dorsally with 2 anterior, 2 median, 2 posterior spines, patellae with a pair of spines each.

Vulva as in Fig. 3d; the anterior circular basin-like depression almost concealed by numerous coarse overhanging hairs.

Dimensions: Length of carapace 10.3, greatest width 8.1, abdomen 8, leg IV 39 mm. (tarsus-trochanter).

The species will perhaps be found to be the female of *O. longipes* Lawrence from the same locality, when both sexes have been found together; it may possibly also be synonymous with *O. browni* (Lawrence) collected at Gobabeb, but represented by an immature female. It differs from the latter species in colour pattern, in having the anterior row of eyes further apart, the posterior medians smaller and more widely separated, the much longer legs and the sparser scopula of metatarsus IV.

The species is named in honour of Dr. Charles Koch, the distinguished desert zoologist, whose assiduous collecting activities has made available a substantial body of knowledge to students of the Namib arachnid fauna.

III. A LIST OF THE DUNE SPIDERS (SPARASSIDAE) OF THE NAMIB DESERT, SOUTH WEST AFRICA.

- (1) *Leucorchestris arenicola* Lawrence 1962. Ann. Transv. Mus., 24, p. 203, figs. 2a, 3a, d, g: Pl. XLII.
Gobabeb, Namib Desert, South West Africa; Rooibank near Walvis Bay, Namib Desert.
- (2) *Leucorchestris porti* Lawrence 1965. Sci. Pap. Namib Desert Res. Sta. No. 27, p. 6, fig. 3f, g.
Between Ugab and Huab rivers, Namib Desert; Orupembe, Kaokoveld, South West Africa.
- (3) *Leucorchestris steyni* Lawrence 1965. Ibid. p. 5, figs. 3a, b.
Torrebaai, Namib Desert, South West Africa.
- (4) *Leucorchestris kochi* Lawrence 1965. Ibid. p. 6, figs. 3d, e.
Gobabeb, Namib Desert, South West Africa.
- (5) *Leucorchestris flavimarginata* Lawrence 1966. In the present paper.
Cape Frio, Namib Desert, South West Africa.
- (6) *Leucorchestris setifrons* Lawrence 1966. In the present paper.
San Nicolau, Angola.
- (7) *Leucorchestris alexandrina* Lawrence 1966. In the present paper.
Porto Alexandre, Angola.
- (8) *Leucorchestris sabulosa* Lawrence 1966. In the present paper.
Between Auros and Klinghardt Mts., near Lüderitzbucht, South West Africa.
- (9) *Orchestrella longipes* Lawrence 1965. Sci. Pap. Namib Desert Res. Sta. No. 27, p. 8, figs. 4a, b.
Gobabeb, Namib Desert, South West Africa.
- (10) *Orchestrella browni* (Lawrence) 1962. Ann. Transv. Mus., 24, p. 206, figs. 3c, f, i (sub Palystella).
Gobabeb, Namib Desert, South West Africa.
- (11) *Orchestrella caroli* Lawrence 1966. In the present paper.
Gobabeb, Namib Desert, South West Africa.
- (12) *Carparachne alba* Lawrence 1962, Ann. Transv. Mus., 24, p. 205, figs. 2b, c; 3b, e, h; 4d, Pl. XLII.
Gobabeb, Namib Desert, South West Africa.
- (13) *Carparachne aureo-flava* Lawrence 1966. In the present paper.
Gobabeb, Namib Desert, South West Africa.
- (14) *Micrororchestris melanogaster* Lawrence 1962, Ann. Transv. Mus., 24, p. 208, figs. 4a—c.
Sandwich Bay near Swakopmund, South West Africa.
- (15) *Micrororchestris scutatus* Lawrence 1966. In the present paper.
Sossus Vlei, South West Africa.

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IV. SUMMARY

Seven new dune spiders are described in this paper, four of *Leucorchestris* and one each of *Microrchestris*, *Orchestrella* and *Carparachne*. A list of the fifteen known species with the localities of the types is given at the end of the paper. The known distribution of the group is extended and now ranges from Lüderitzbucht, South West Africa in the South to Porto Alexandre, Angola in the North.

V. ACKNOWLEDGEMENTS

Three Institutions have been especially active in the collection and observation of the habits of these Arachnids. The State Museum, Windhoek, with Dr. W. J. Steyn and his staff, the Namib Desert Research Station at Gobabeb, South West Africa, with Dr. Charles Koch, and the Transvaal Museum with Mr. W. D. Haacke and Dr. L. Schulze. The author records his grateful thanks to these colleagues for the energetic interest they have shown in these unique spiders.

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