

TRANSVAAL MUSEUM EXPEDITION TO  
SOUTH-WEST AFRICA AND LITTLE  
NAMAQUALAND, MAY TO AUGUST 1937.  
REPTILES AND AMPHIBIANS

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With Plates II, III, 1 Map and 9 Text-figures

THE material on which this paper is based was collected by the author in the course of an Expedition to South-West Africa and Little Namaqualand on behalf of the Transvaal Museum, during the period 6 March to 4 September 1937. Travelling throughout was done by motor transport, consisting of a light "safari van" (kindly loaned for the purpose by Mr C. S. Barlow, of Johannesburg) and a touring car. The personnel was made up of Dr Austin Roberts (Curator of Higher Vertebrates, Transvaal Museum), Mr Leighton-Hare (assisting in the collecting of birds and mammals), myself, a native skinner and a cook-boy.

The total number of specimens collected was 1416, representing 104 species and subspecies and comprising 6 species and subspecies of tortoises and turtles, 16 of snakes, 75 of lizards and 7 of frogs and toads. Of the above 1 tortoise and 8 lizards are here described as new.

The itinerary and situation of all localities at which specimens were collected are marked on the accompanying map.

All colour descriptions given were taken from live specimens in the field. Dimensions, unless otherwise stated, are of largest specimen.

LIST OF NEW SPECIES AND SUBSPECIES DESCRIBED

<i>Psammobates depressa</i>	...	...	...	p. 154
<i>Phyllodactylus lineatus rupicolus</i>	...	...	...	p. 162
<i>Oedura namaquensis</i>	...	...	...	p. 163
<i>Pachydactylus capensis labialis</i>	...	...	...	p. 168
<i>P. kobosensis</i>	...	...	...	p. 170
<i>P. laevigatus tessellatus</i>	...	...	...	p. 172
<i>P. robertsi</i>	...	...	...	p. 177
<i>Zonurus campbelli</i>	...	...	...	p. 189
<i>Gerrhosaurus validus damarensis</i>	...	...	...	p. 198

SYSTEMATIC ACCOUNT OF SPECIMENS COLLECTED

Order TESTUDINATA

Fam. TESTUDINIDAE

*Chersine angulata* (Schweigger)

*Testudo angulata* Schweigger, 1814, *Prodr. Monogr. Chelon.* p. 53 (type locality not known).

*Neotestudo angulata* Hewitt, 1931, *Ann. Natal Mus.* vi, p. 504.

Two specimens were collected, T.M. 19159 at Klipfontein, 18 August 1937; 18256, near Kamieskroon, 25 August 1937.

COLOUR. Pale areas of plastral scales and marginals, bright rosy red.

DIMENSIONS. T.M. 18256: carapace 138, plastron 130, breadth 92.5, depth 65 mm.

***Psammobates depressa* n.sp.<sup>1</sup>**

(Plate II, figs. 1-4, and Plate III, figs. 1 and 2)

Two specimens were collected, T.M. 17821 and 17822, 8 miles west of Aus, Great Namaqualand, 31 July 1937.

TYPES. Holotype, male (T.M. 17821); Paratype, female (T.M. 17822).

DESCRIPTION. Carapace depressed, feebly rounded above, vertebrals 1 and 4 only being slightly raised, narrow and scarcely broader behind than in front; marginals moderately serrated and reverted anteriorly and posterolaterally (neither serrate nor reverted in female); distinctly sulcate between marginals and costals; nuchal small, longer than broad (divided longitudinally, and thus paired in female); vertebrals 3 and 5 subequal in breadth, broader than others; vertebrals 1 and 4 longest and subequal, vertebral 3 shortest; costal 4 distinctly smaller than costal 1; supracaudal large and well curved, not as broad as vertebrals 3 and 5. Plastron moderately deep (a little deeper in female); gulars projecting, with median suture slightly longer than that between anals; suture between humerals much greater than that between pectorals or femorals; two axillaries, the smaller anterior in contact with marginal 3 and the larger posterior in contact with marginal 4; a single inguinal in contact with marginals 7 and 8. Beak not or but feebly hooked; enlarged antibrachial scales do not extend to end of forelimb but leave a moderately large area free distally; tubercle on back of thigh moderately enlarged (in female 2-3 such tubercles); scales at back of foot enlarged, elongate and upwardly curved (normal in female).

COLOUR. Above, dark brown to blackish, with large yellow areolae and broad radiating rays to outer edge of shields; vertebrals with 6-8 well-defined rays (2-4 rays often much broader than others) and a few fainter incipient rays not reaching border of shields; costals with 7-9 rays; marginals largely yellow, with triangular patches of dark brown; supracaudal with 5 distinct yellow rays. Below, horn yellow with slight reddish brown infusion down middle of plastron. Head dirty yellowish with more or less symmetrical blackish markings, comprising a bar down front of snout, a spot on top of snout, a large spot on each orbit and a bar across back of head.

DIMENSIONS. Male (T.M. 17821): carapace 109, plastron 95.5, breadth 82, depth 50 mm.; female (T.M. 17822): carapace 107, plastron 94, breadth 79, depth 51 mm.

FIELD NOTES. These two specimens were taken together, on the open sandy flats which slope down gently from the foot of the mountains around Aus to the lower lying Namib to the west.

REMARKS. Closely related to *amasiensis* Hwt. (1933-4, p. 333), but differing apparently in the slightly more depressed shell, the relative sizes of vertebrals, the distinct sulca between marginals and costals and the well-defined colour markings. *P. boettgeri*, also recorded from Aus, is found more among the hills and mountains, and is apparently confined to the stony slopes where mesembryanthemum plants abound.

<sup>1</sup> Genus name for geometrid tortoises of South Africa (formerly under *Testudo* and *Chersinella*), see Hewitt, 1937, *S. Afr. J. Sci.* xxxiii, p. 792.

**Psammobates fiskii** (Boulenger)

*Testudo fiskii* Boulenger, 1886, *Proc. Zool. Soc. Lond.* p. 542, pl. LVIII ("De Aar, near Hopetown").

*Chersinella fiskii* Hewitt, 1934, *Ann. Natal Mus.* VII, p. 309.

Three specimens were collected: T.M. 18259, Brandvlei, 30 August 1937; 18260, Bros Pan, 31 August 1937; 18261, between Bros Pan and Van Wyk's Vlei, 31 August 1937.

DIMENSIONS. Female (T.M. 18260): carapace 121, plastron 113, breadth 100.5, depth 63.5 mm.

**Psammobates trimeni** (Boulenger)

*Testudo trimeni* Boulenger, 1886, *Proc. Zool. Soc. Lond.* p. 541, pl. LVII ("Mouth of the Orange River").

*Chersinella trimeni* Hewitt, 1933, *Ann. Natal Mus.* VII, p. 287, pl. XV, figs. 41-45.

Two specimens were collected: T.M. 18257, Nieuwerust, 27 August 1937; 18258, near Calvinia, 29 August 1937.

DIMENSIONS. T.M. 18258: carapace 99, plastron 90, breadth 78, depth 51 mm.

**Chersobius signatus** (Walbaum)<sup>1</sup>

*Testudo signata* Walbaum, 1782, *Chelonogr.* pp. 71 and 120, pl. — (type locality unknown).

*Pseudomopus signatus* Hewitt, 1931, *Ann. Natal Mus.* VI, p. 496.

Two specimens were collected: T.M. 17946, Klipfontein, 18 August 1937; 18262, 15 miles south-east of Springbok, 25 August 1937.

Postero-lateral edge of carapace strongly serrated and reverted in adult specimen, serrated but not reverted in young.

COLOUR. Adult female (T.M. 18262) with carapace shields pale greenish white edged with dark brown to blackish and spotted with small irregular blotches of black; pale markings on head; below, dark brown passing to reddish brown towards outer edges.

DIMENSIONS. T.M. 18262: carapace 78.5, plastron 71, breadth 56, depth 28.5 mm.

Fam. **PELOMEDUSIDAE****Pelomedusa galeata** (Schoepff)

*Testudo galeata* Schoepff, 1792, *Naturg. Schildr.* p. 14, pl. III, fig. 1 ("Ostindien").

A single specimen was collected, T.M. 16990, at Namutoni, 26 May 1937.

This specimen agrees with Hewitt's subsp. *damarensis* (1935, p. 338, pl. 33, fig. 4) in the narrow plastron lobes, the convergent sides of anterior lobes, and the generally pale colouring, but the intergular shield is not appreciably narrowed as shown in the figure; pectorals, humerals and abdominals all meet at a point in middle line, thus there is no median suture between humerals.

COLOUR. Above, uniform light olive brown; below, light brown, slightly darker along sutures.

DIMENSIONS. Length carapace 156, breadth carapace 116, greatest depth 46.5, length femoral suture 31.7, greatest breadth combined femorals 48 mm.

<sup>1</sup> See Hewitt, 1937, *S. Afr. J. Sci.* xxxiii, p. 793.

## Order SQUAMATA

## Suborder OPHIDIA

## Fam. COLUBRIDAE

**Pseudaspis cana** (Linnaeus)

*Coluber canus* Linnaeus, 1758, *Syst. Nat.* ed. 10, 1, p. 221 ("In Indiis").

Two specimens were collected: T.M. 17276, Kamanyab, 19 June 1937; 19158, near Port Nolloth, 19 August 1937. Kamanyab specimen with ventrals 180, subcaudals 57; Port Nolloth specimen with ventrals 189, subcaudals 68.

COLOUR. Juvenile (Kamanyab), light brown above with large dark brown to blackish spots and indefinite crossbands; pale spots on sides; below, creamy white. Adult (Port Nolloth), above, a uniform shiny purplish black, slightly paler below.

DIMENSIONS. T.M. 19158: H. and B. 1025, tail 275 mm.

**Philothamnus semivariiegatus** A. Smith

*Dendrophis (Philothamnus) semivariiegatus* A. Smith, 1847, *Ill. Zool. S. Afr. Rept.* pls. LIX, LX and LXIV, fig. 1 ("Bushman Flat and in the country beyond Kurrichaine").

A single juvenile specimen was collected, T.M. 17315, on Farm "Paderburn", 23 May 1937. Ventrals 187; subcaudals 121.

COLOUR. Above, head olive green, body pale green to pale olive green, with paler spots at base of scales; back closely barred with dark brown to blackish, which together with pale spots disappear anterior to vent; tail uniform olive. Below, greenish white, with chin and throat slightly yellowish.

**Prosymna bergeri** Lindholm

*Prosymna (Pseudoprosymna) bergeri* Lindholm, 1902, *Jb. Nassau. Ver. Naturk.* LV, p. 57 (Rietmond, Gibeon District, German South-West Africa).

A single specimen was collected, T.M. 17957, at Klipfontein, 17 August 1937.

Nasal scale undivided, except for an incomplete suture on infero-posterior border; posterior suture of frontal and median suture of parietals incomplete and not meeting at a point; six upper labials, third and fourth entering eye; nine lower labials, first in contact with its fellow behind symphyseal and first three in contact with anterior gulars; ventrals 165, subcaudals 50.

COLOUR. Above, yellowish to pale yellowish brown, with a broad black band across neck, followed by further bands posteriorly which become progressively paler and more irregular until finally fading out altogether about one-third down body; band on neck with a narrow median anterior projection reaching posterior border of parietals; a black spot midway along suture between parietals; fronto-nasal edged with dark brown anteriorly; fourth upper labial (below eye) blackish and eye also dark edged; scales on body edged laterally with pale purplish brown giving appearance of longitudinal striping, this dark edging of scales extends on sides to upper edge of second last row; below, uniform white.

DIMENSIONS. H. and B. 153, tail 34 mm.

FIELD NOTES. Taken under some rocks on mountain slope.

**Amplorhinus nototaenia** (Gunther)

*Coronella nototaenia* Gunther, 1864, *Proc. Zool. Soc. Lond.* p. 309, pl. XXVI, fig. 1 ("In the Zambesi and Nyassa Regions").

A single specimen was collected, T.M. 17301, on Farm "Paderburn", 22 June 1937. Scales in seventeen rows; ventrals 163; subcaudals 17.

COLOUR. Above, head light brown, body pale greenish brown to olive; a broad black-edged brown band down middle of back from back of head, tending to break up over posterior half of back into large spots which, however, coalesce again into a zigzag band just in front of vent, continuing as such over anterior half of tail; a series of dusky spots on flanks; distal half of tail chestnut yellow above, below, creamy with small orange brown spots; eye brown.

DIMENSIONS. H. and B. 295, tail 72 mm.

FIELD NOTES. Taken among rocks at foot of koppie.

**Trimerorhinus tritaeniatus** (Gunther)

*Rhagerrhis tritaeniata* Gunther, 1868, *Ann. Mag. Nat. Hist.* (4), 1, p. 423, pl. XIX, fig. H (South-East Africa).

A single specimen was collected, T.M. 17091, Oshikango, 31 May 1937. Ventrals 167; subcaudals 63.

COLOUR. Above, pale olive grey with stripes greyish brown; below, uniform creamy white.

DIMENSIONS. H. and B. 472, tail 134 mm.

**Psammophis bocagii** Boulenger

*Psammophis bocagii* Boulenger, 1895, *Proc. Zool. Soc. Lond.* p. 538 ("Angola").

A single specimen was collected, T.M. 17114, at Oshikango, 1 June 1937. Nine upper labials, three (4-6) entering eye; two preoculars; three postoculars; upper preocular separated from frontal, which is narrower than supraocular; four lower labials in contact with anterior chin shields.

COLOUR. Above, a broad median black-edged band (seven scale rows broad), greyish anteriorly passing to light brown posteriorly; sides light slate grey and separated from dorsal band by a yellow lateral streak arising some little distance behind head and continuing over tail. Below, a broad median black-edged yellow band (black edging starts a little distance behind head and continues to vent); outer edge ventrals and lower half of outermost dorsals creamy white; labials yellow.

DIMENSIONS. H. and B. 578, tail 308 mm.

**Psammophis furcatus** Peters

*Psammophis moniliger* var. *furcatus* Peters, 1867, *Mber. Berl. Akad.* p. 236 (Otjimbingue, South-West Africa).

Two specimens were collected, 16929, Farm "Okosongomingo", 14 May 1937; 19157, 20 miles east of Port Nolloth, 19 August 1937.

Eight upper labials, fourth and fifth entering eye; two postoculars; ventrals 165 and 172; subcaudals 107.

COLOUR. Okosongomingo specimen brown above, paler posteriorly, a faintly marked vertebral stripe on nape bifurcating on occiput; a yellow dorso-lateral stripe, dark edged above, from eye and over body and tail; sides paler than above; below, creamy white, with a broad median yellow band. Specimen from 20 miles east of Port Nolloth, grey to olive grey above, scales black edged;

pale vertebral and dorsolateral stripes extend only to base of tail; dark and pale markings on head more or less transversely arranged; below, median band brownish yellow, edged over anterior half of body with dull bluish.

DIMENSIONS. T.M. 17896, H. and B. 652, tail 310 mm.

#### ***Psammophis notostictus* Peters**

*Psammophis moniliger* var. *notostictus* Peters, 1867, *Mber. Berl. Akad.* p. 237 (Otjimbingue, South-West Africa).

A single juvenile specimen was collected, T.M. 18038, 20 miles east of Port Nolloth, 22 August 1937. Upper labials 8, fourth and fifth entering eye; lower labials 10; ventrals 174, subcaudals 102.

COLOUR. Above, olive brown with a faintly marked vertebral line of paler spots, extending to base of tail; a white lateral stripe over posterior half of body, between ventrals and outermost dorsals; upper labials 4-6, each with a brown black-edged spot. Below, chin and throat yellowish with scattered dark spots, lower labials 4-10 creamy, belly and tail dirty greenish grey.

#### ***Psammophis sibilans* (Linnaeus)**

*Coluber sibilans* Linnaeus, 1758, *Syst. Nat.* ed. 10, 1, p. 222 ("In Asia").

Three specimens were collected: T.M. 17117, Oshikango, 2 June 1937; 17286, Kamanyab, 21 June 1937; 17316, Farm "Paderburn", 23 June 1937.

In Kamanyab specimen preocular separated from frontal, ventrals 163 and subcaudals 107. In Paderburn specimen, three upper labials (4-6) entering eye on one side and two (4-5) on the other; ventrals 165 and subcaudals 106. Oshikango specimen with upper labials entering eye as in Paderburn specimen, but ventrals 172 and subcaudals 103.

COLOUR. Oshikango specimen uniform olive to olive brown above, below yellowish white with sooty infusions anteriorly. Kamanyab and Paderburn specimens olive brown above, passing to light brown posteriorly; dark spots over anterior third of back present or absent; pale streaks dark edged, median streak fades out over posterior third of back; below, with a broad yellowish white median band, narrowly edged with greyish to black; outer edge, ventrals and lower edge of outermost dorsals white; a few pale-centred dark greyish spots on chin and throat.

DIMENSIONS. T.M. 17286, H. and B. 682, tail 354 mm.

#### ***Dispholidus typus* (A. Smith)**

*Bucephalus typus* A. Smith, 1829, *Zool. J.* IV, p. 441 ("Eastern Districts of South Africa").

Two specimens were collected: T.M. 16951, Lake Otjikoto, 21 May 1937; 17115, Oshikango, 2 June 1937.

Scales in 19 rows; Lake Otjikoto specimen, ventrals 172, subcaudals 110 and Oshikango specimen, ventrals 186, subcaudals 103.

COLOUR. Adult from Oshikango uniform dark olive brown above, greyish brown below. Juvenile from Lake Otjikoto, head light brown, body olive grey with pale bluish grey spots (on posterior portion of each individual scale); sides dirty cream with greyish stippling. Below, yellowish white, densely infused and stippled with grey, tinged with pink posteriorly; upper and lower labials and chin creamy white, with upper labials behind eye dark edged above; a series of dark spots along sides spaced on alternate sutures of ventrals and outer dorsals; a dark streak on side neck.

DIMENSIONS. T.M. 17115, H. and B. 1039, tail 355 mm.

***Naja anchietae* Bocage**

*Naja anchietae* Bocage, 1879, *J. Sci. Lisb.* VII, pp. 89 and 98 (Caconda, Angola).

A single half-grown specimen was collected, T.M. 17095, at Oshikango, 1 June 1937. Ventrals 196; subcaudals 59.

COLOUR. Above, brown, darkest along vertebral line, paling on sides; head light rufous brown; below, whitish with a broad purplish black band across neck.

DIMENSIONS. H. and B. 736, tail 150 mm.

FIELD NOTES. The above specimen had just swallowed a grass snake (*Psammophis* sp.), of which a few inches of the tail were still projecting from the mouth, when it was captured.

***Naja nigricollis* Reinhardt**

*Naja nigricollis* Reinhardt, 1843, *K. Danske Vidensk. Selsk. Afhandl.* x, p. 269, pl. III, figs. 5-7 ("Guinea").

Two specimens were collected: T.M. 16934, Farm "Waterberg", 17 May 1937; 17040, Oshikango, 30 May 1937.

Scales round middle of body 21; ventrals, female 203 and male 209; subcaudals 60 and 73 respectively; in specimen from Oshikango lower preocular and third upper labial fused on one side forming a single large shield.

COLOUR. Above, head pale olive to dark olive brown, body and tail banded throughout with alternate bars of black and white to pale olive; below, throat and neck black; underside, body and tail yellowish white with dark barring of black continued below in broken up and irregular form.

DIMENSIONS. Male (T.M. 16934) H. and B. 630, tail 147 mm.; female (17040) H. and B. 645, tail 140 mm.

***Aspidelaps lubricus* (Laurenti)**

*Natrix lubrica* Laurenti, 1768, *Synop. Rept.* p. 80 ("In Africa").

A single specimen was collected, T.M. 17551, on Farm "Kobos", 19 July 1937. Ventrals 158, subcaudals 28.

COLOUR. Head and neck ivory black, passing to dark brown posteriorly, where scales are pale edged behind, and over posterior half of body distinctly pinkish; darker bands faintly discernible across back and tail. Below, throat yellowish, followed by three black bands with yellow interspaces; remainder of lower surfaces yellowish white with irregular dusky crossbands.

DIMENSIONS. H. and B. 397, tail 52 mm.

**Fam. VIPERIDAE*****Bitis arietans* (Merrem)**

*Vipera (Echidna) arietans* Merrem, 1820, *Tent. Syst. Amph.* p. 152 ("Cape of Good Hope").

Four specimens were collected: 16881, Farm "Okosongomingo", 13 May 1937; 17130 and 17131, Itota Dune, 8 June 1937; 17645, Farm "Barby", 27 July 1937. Male (T.M. 16881) ventrals 141, subcaudals 32; males (T.M. 17130 and 17131) ventrals 135, subcaudals 29; female (T.M. 17645) ventrals 137, subcaudals 20.

COLOUR. The two specimens from Itota Dune are very pale and similar to pale specimens found in the Kalahari.

DIMENSIONS. Male (T.M. 16881), H. and B. 1037, tail 153 mm.

**Bitis caudalis** (A. Smith)

*Vipera (Cerastes) caudalis* A. Smith, 1839, *Ill. Zool. S. Afr. Rept.* pl. VII ("Sandy districts north of the Cape Colony").

Six specimens were collected: T.M. 16894 and 16931, Farm "Okosongomingo", 15 May 1937; 17153, Ikuma River, 11 June 1937; 17386, Kalkveld, 30 June 1937; 17584, Grootfontein (G.N.), 23 July 1937; 17772, Brukkaros Mountain, 6 August 1937.

Scales round middle of body, 25 in one specimen, 27 in four and 29 in one; males (4) with ventrals 136, 138, 151 and 152, subcaudals 25, 26, 25 and 27 respectively; females (2) ventrals 135 and 140, subcaudals 24 and 20.

COLOUR. Okosongomingo and Kalkveld specimens are a rich chocolate brown above, with a median row of large blackish, yellow edged, squarish spots down back, and a dorsolateral row of smaller rounded pale centred spots which are not so well marked as those in median row; symmetrical dark markings on head; tip of tail orange yellow; below, yellow to yellowish white. Brukkaros specimen reddish brown above, with interspaces between dark spots pale slate grey. Ikuma River specimen pale ash grey above, with darker spots indistinctly marked; tip of tail bright yellow; below creamy white. Grootfontein specimen light brown above, with darker spots and markings very faintly delineated; below straw yellow.

DIMENSIONS. Male (T.M. 17584), H. and B. 414, tail 37.5 mm.

**Bitis cornuta** (Daudin)

*Vipera cornuta* Daudin, 1803, *Hist. Nat. Rept.* vi, p. 188 (Cape of Good Hope).

A single juvenile specimen was collected, T.M. 18131, near Kamaggas, 25 August 1937. Ventral 142; subcaudals 26.

COLOUR. Above, greyish brown with a double row of squarish dark brown spots down middle of back and a lateral row of paler spots; a large symmetrical dark brown marking on head, extending from supraorbital region to back of head. Below, dark greyish with small brown spots.

## Suborder LACERTILIA

## Fam. GECKONIDAE

**Chondrodactylus angulifer** Peters

*Chondrodactylus angulifer* Peters, 1870, *Mber. Berl. Akad.* p. 111, pl. —, fig. 1 (Oorlogsrivier, Calvinia District).

A single specimen, T.M. 17824, was collected in the Great Fish River Valley, between Berseba and Keetmanshoop, 9 August 1937.

DIMENSIONS. H. and B. 95 mm. (tail reproduced).

FIELD NOTES. The above specimen was taken at night on a sand dune near the river's edge where it was feeding on nocturnal insects.

**Ptenopus garrulus maculatus** Gray

*Ptenopus maculatus* Gray, 1865, *Proc. Zool. Soc. Lond.* p. 640 (Damaraland).

Eight specimens were collected: T.M. 17804, 17823 and 17825, Great Fish River, between Berseba and Keetmanshoop, 9 August 1937; 17983 and 17984, 5 miles east of Port Nolloth, 20 August 1937; 18014 and 18015, 20 miles east of Port Nolloth, 21 August 1937; 18136, 5 miles south of Kamaggas, 25 August 1937.

These specimens are all distinctly separable from typical *garrulus* on the

larger dorsals and ventrals and the flattened gular scales; nasorostrals separated in all cases by two granules.

**COLOUR.** The colouring of these little geckos shows considerable variation according to the environment in which they are found. In the Fish River Valley, where the ground is a light brown, they are a light pinkish brown above, with series of large darker brown spots and blotches; specimens from near Port Nolloth, where the sand is dirty white to greyish white, are a pale greyish yellow above, uniform or with indistinct darker spots and markings, especially on the sides; specimens from the area 20 miles east of Port Nolloth and 5 miles south of Kamaggas where red sand predominates, are a rich brick red to reddish brown above, with small paler spots and indistinct larger dark spots and irregular blackish markings along side of neck and body.

**DIMENSIONS.** Female (T.M. 17823), H. and B. 53.5, tail 34 mm.

**FIELD NOTES.** Very plentiful in all the localities mentioned above and heard also at Kobos, Aus, Konkiep, Seeheim and the Great Karas Mountains.

### ***Narudasia festiva* Methuen & Hewitt**

*Narudasia festiva* Methuen & Hewitt, 1914, *Ann. Transv. Mus.* iv, p. 127, pl. XIV, fig. 1 (Narudas Sud, Great Karas Mountains).

Thirty-one specimens were collected: T.M. 17490-17492, 17507, 17509 and 17510, on Farm "Neudamm", 14 July 1937; 17588-17593, 17610-17612, 17615-17618, 17643, 17644 and 17682-17688, Farm "Barby", 24-27 July 1937; 17790-17792, 17797 and 17798, Brukkaros Mountain, 6 August 1937.

Nasorostrals in contact; one or two pairs of scales immediately behind nasorostrals often somewhat enlarged and distinct from other scales on snout; upper labials 7-8 (usually 7), lower 5-7 (usually 6); median anterior gular scales enlarged and subhexagonal, much larger than those behind and on sides into which they graduate.

**COLOUR.** Above, greyish brown, purplish brown to reddish brown or chestnut (young usually olive brown), with narrow black zigzag crossbars or stripes, which bear in their angles behind whitish or cream spots; tail above as body or often olive yellow (particularly over distal half), banded with black, edged behind with white; these crossbars may continue to the tip or disappear over distal third of tail (sometimes alternate black and white bands are found completely encircling the tail towards the tip); reproduced tails are uniformly grey above and below. Lower surface body dirty white to greyish, underside thighs and anal region a dirty creamy yellow. Eye dark brown with chestnut and golden brown tints.

**DIMENSIONS.** Male (T.M. 17588), H. and B. 31, tail 38, length head 8, breadth head 7 mm.

**FIELD NOTES.** Found only in rocky localities on the slopes and along the floor of valleys, where they were taken in rock crevices and under loose flakes. Very quick and active; seldom seen abroad during the day, and the habit of "waving its yellow tail in the air" as mentioned by Methuen (1914, p. 127), was not observed. Two eggs were taken in a rock crevice at "Barby", these are oval in shape and measure 7.6 x 6.0 mm.

### ***Phyllodactylus lineatus* (Gray)**

*Diplodactylus lineatus* Gray, 1845, *Cat. Liz. Brit. Mus.* p. 150 ("Cape of Good Hope").

Three specimens were collected: T.M. 17896 and 17897 at Klipfontein, 18 August 1937 and 18169 32 miles from Springbok on the road to Kamaggas, 24 August 1937.

Nasorostrals separated by a single granule in two specimens and two granules in one; upper labials 6-7, lower 5-6; mental subpentagonal to subtriangular, in contact behind with two large chin shields, which are much larger than other shields in two specimens, but slightly larger in one; scales over back small uniform granular subimbricate, a little smaller than on snout; in male (T.M. 17896) there are five preanal pores arranged in a broad V-formation, with apex directed anteriorly.

COLOUR. Above, dark greyish brown to purplish brown, with four longitudinal black stripes over back (the median pair arising on occiput and the lateral from nostril), or with scattered small paler black-edged spots; lower surfaces grey.

DIMENSIONS. Female (T.M. 17897), H. and B. 26 mm. (tail reproduced).

FIELD NOTES. All the above specimens were taken from dead vegetable matter under mesembryanthemum bushes on rocky slopes; a series of five eggs were also collected, these are more or less rounded and average  $7.8 \times 6.8$  mm.

### ***Phyllodactylus lineatus rupicolus* n.subsp.**

Nine specimens were collected: T.M. 18161-18168, between O'okiep and Springbok, 23 August 1937; 18105, 32 miles from Springbok on road to Kamaggas, 25 August 1937.

TYPE. Male T.M. 18161.

DESCRIPTION. Head oviform, about  $1\frac{1}{2}$  times as long as broad, distinctly depressed and flattened above; snout obtusely pointed, a little over  $1\frac{1}{2}$  times diameter of eye and about  $1\frac{1}{2}$  times distance from eye to ear-opening; latter oval and very oblique. Nostril pierced between rostral, first upper labial, a large nasorostral and 2-3 small nasals. Rostral large, subrectangular, at least twice as broad as deep, with a median cleft above, not quite extending half-way down. Nasorostrals widely separated by 2-3 granular scales. Upper labials 7-8 (seventh usually below middle of eye), lower 6-7. Mental large, broader at base than adjoining labials, subtriangular to subpentagonal in shape, narrowing to a point behind, where it extends well beyond posterior margin of adjoining labials; a row of enlarged chin shields, median pair in contact with mental and larger than others which become smaller along sides. Scales on snout slightly convex, larger than those on occiput which are much flattened; scales on back more or less flattened, subgranular, rounded, juxtaposed, smaller over middle of back than on sides, subequal to or a little larger than scales on snout. Below, gular scales small, subequal in size to those on occiput; scales on belly large flattened hexagonal, subimbricate, distinctly larger than scales on back. Body depressed; digits with infero-median row of scales slightly enlarged, especially at base, thence becoming smaller distally and breaking up into small scales short of distal expansion, which consists of a pair of enlarged, slightly elongate, rhomboidal adhesive plates. A short transverse row of 4 preanal pores. Tail depressed, covered above with flattened, subimbricate scales, larger than on back, arranged in more or less regular transverse series; below, scales larger, less uniform in shape and arrangement, imbricate and larger than on belly. A slightly oblique row of 3 enlarged flattened scales at base of tail near vent.

COLOUR. Above, dark greyish brown with scattered semicircular, pale greyish to slate spots, each bearing a small yellowish to salmon-coloured spot within the black-edged anterior curve; a thin black streak from nostril through eye to just above ear-opening. Below, greyish white. Tail above similarly marked as back, but tinged with olive yellow.

**DIMENSIONS.** Type male (T.M. 18161), H. and B. 28, tail 29.3, length head 6.6, breadth head 5.2, forelimb 8.8, hindlimb 11.5 mm. Paratype female (T.M. 18165), H. and B. 29, tail 31, length head 6.8, breadth head 5.2, forelimb 9.5, hindlimb 12 mm.

**REMARKS.** The following variations were noted: nasorostrals widely separated by one large granular scale in two specimens, by two granules in six and by three in one; mental may be subtriangular to subpentagonal; 2-3 enlarged chin shields in contact with mental behind, these may be distinctly larger or not much larger than those following; preanal pores in males, 4 in three specimens and 3 in one; pale semicircular spots (dark edged in front) occasionally arranged in more or less regular transverse series on back. Closely related to *P. lineatus essexi* Hewitt, from which it can be distinguished mainly on the dorsal and ventral scaling and the colour markings.

**FIELD NOTES.** Taken in cracks and crevices of rocks forming small outcrops along bottom of valley. Three eggs were collected between O'okiep and Springbok; these are elliptical in shape and average  $7.8 \times 6.0$  mm.

### *Oedura namaquensis* n.sp.

(Figs. 1 and 2)

**TYPES.** Holotype an adult male (T.M. 18094) from Little Namaqualand, 32 miles from Springbok on the road to Kamaggas, 25 August 1937. Ten paratypes (T.M. 18095-18104), comprising six adult males, two adult females and two juveniles.

**DESCRIPTION.** Head oviform, strongly depressed, slightly longer than broad. Snout rounded, longer than distance from eye to ear-opening (which equals distance from eye to nostril), a little less than twice the diameter of eye. Nostril pierced between rostral, first upper labial and three nasal scales of which the uppermost is by far the largest and separated from its fellow in the middle line by a granular scale which is subequal in size to those immediately posterior. Rostral twice as broad as deep. Upper labials 11, lower 10. Mental subpentagonal, narrowing but slightly behind, similar in shape to adjacent lower labials but a little longer; scales adjoining mental and anterior lower labials behind distinctly enlarged, flattened and polygonal, much larger than the small flattened subgranular scales on throat. Scales on snout large, rounded and somewhat flattened; over back of head and nape small and granular; on back slightly rounded, granular, larger than on back of head but smaller than on snout. Scales on belly large, larger than on snout, flat, smooth, hexagonal and juxtaposed; on throat granular, subequal to those on back of head. Body depressed. Limbs and digits stout, each digit inferiorly with an apical pair of large quadrangular adhesive plates and two smaller pairs at the distal end of the basal portion; infero-median row of scales enlarged, sub-circular proximally, becoming transversely elongate distally and terminating in a dumb-bell-shaped or double scale, immediately behind proximal pair of basal adhesive plates; 4-5 infero-median scales under middle digits. Preanal pores 8 and arranged in a more or less regular transverse or slightly curved row. Tail moderately slender (i.e. original basal section) and depressed, lower surface flattened, distinctly segmented with seven scale rows above and five below to each segment; scales on tail arranged in more or less regular transverse series, those above subgranular and much smaller than below where they are smooth, quadrangular and subimbricate. On either side of base of tail near vent are one or two enlarged, rounded projecting scales.

COLOUR. Above light greyish brown, with irregular or broken up transverse bands of dark velvety chocolate brown, bearing dull yellow spots; sides pale greyish yellow to dirty cream, usually with a line of yellow spots from axil to groin. Below creamy white. Tail banded above with chocolate brown, bands irregular and spotted as on back, below grey to slate; reproduced portion of tail with thin closely set zigzag bars encircling tail. Eye golden brown.

DIMENSIONS. Type male (T.M. 18094), H. and B. 53, tail (partly reproduced) 55.5, length head 12, breadth head 10.8 mm. Paratype female (T.M. 18096), H. and B. 56, tail (partly reproduced) 59, length head 12.2, breadth head 11.5 mm.

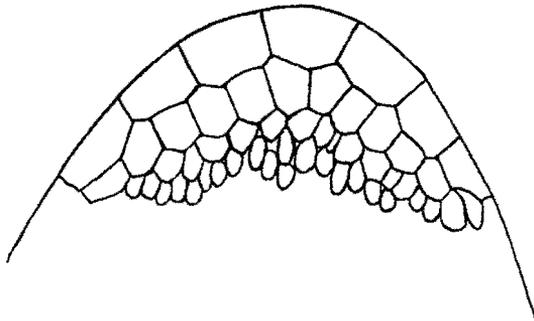


Fig. 1. *Oedura namaquensis* n.sp. Showing arrangement of chin shields.

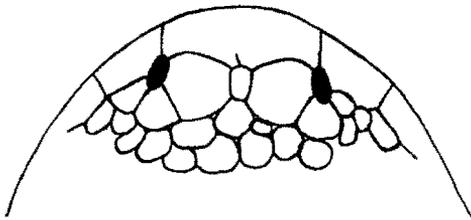


Fig. 2. *Oedura namaquensis* n.sp. Upper side of snout showing position of nostril and adjacent scales.

REMARKS. Three of the paratypes, viz. male (18101), female (18096) and juvenile (18104) differ from the type in that the large upper nasals are in short contact anteriorly and not completely separated by an intervening granule. Preanal pores number 9 in four specimens and 10 in two. Tails are all reproduced in varying degrees except in the juvenile (18104), where the tail is normal and is slightly longer than head and body.

FIELD NOTES. The above specimens were taken under flakes on granitic boulders outcropping on a hillside, and were found in association with *Pachydactylus weberi*.

### ***Pachydactylus bibronii bibronii* A. Smith**

(Fig. 3)

*Pachydactylus bibronii* A. Smith, 1846, *Ill. Zool. S. Afr. Rept.* pl. 50, fig. 1 ("Southern Africa").

Seven specimens were collected: T.M. 17905 and 17907, Klipfontein, 18 August 1937; 18012, 15 miles east of Port Nolloth, 21 August 1937;

18060, between O'okiep and Springbok, 24 August 1937; 18141 and 18142, Garies, 26 August 1937; 18185, Calvinia, 29 August 1937. The series comprises four adults and three juveniles.

These specimens may be regarded as typical *bibronii*, characterized by having stellate tubercles confined to the back of the head and flanks.

DIMENSIONS. T.M. 18185, H. and B. 108, tail (partly reproduced) 72, length head 14.6, breadth head 14 mm.

### *Pachydactylus bibronii turneri* (Gray)

(Fig. 4)

*Homodactylus turneri* Gray, 1864, *Proc. Zool. Soc. Lond.* p. 59, pl. IX, fig. 2 (South-Eastern Africa).

*Pachydactylus bibronii* var. *stellatus* Werner, 1910, *Jena. Denkschr.* XVI, p. 309.

Fifty-five specimens were collected: T.M. 16843, Witdraai, 5 May 1937; 16865-16867, between Sukkes and Otjiwarongo, 11 May 1937; 17010, 17011, 17104, 18263-18281 and 18283, Oshikango, 31 May 1937; 17257 and 17258, Kamanyab, 19 June 1937; 17380 and 17381, Kalkveld, 30 June 1937; 17460-17465, near Karub, 3 July 1937; 17585, Helmeringshausen, 23 July 1937; 17614, Barby, 25 July 1937; 17705 and 17706, 8 miles west of Aus, 1 August 1937; 17793, near Brukkaros, 6 August 1937; 17826, Narubis, 9 August 1937; 18106 and 18135, near Kamaggas, 25 August 1937; 18199-18204, Brandvlei, 30 August 1937; 18215, 18232, 18454 and 18455, Van Wyk's Vlei, 1 September 1937. The series comprises forty-five adults and ten juveniles.

Adult specimens, for the most part, are characterized by having stellate tubercles spread over middle of back and not confined to back of head and flanks as in typical *bibronii*, enlarged tubercles more elevated and more widely spaced than in typical *bibronii*. Two specimens from Kamanyab and one from near Karub, are intermediate in character in that stellate tubercles are somewhat feebly developed. Juveniles in many cases are almost indistinguishable from typical *bibronii* in regard to the amount of stellate keeling, but can usually be separated on the greater elevation and wider spacing of the enlarged tubercles on back. The number of transverse adhesive lamellae under dilated portion of digits appears to be consistently lower in specimens from Oshikango, Ovamboland, as may be seen from the following: Oshikango specimens, fingers, digit I with 7-8 (usually 8) lamellae, II with 8, III-V with 8-9 (usually 8); toes, digit I with 8-9 (usually 8) lamellae, II-V with 9-10 (usually 9). Other specimens, fingers, digit I with 10-11 (usually 10) lamellae, II with 10-11 (usually 11), III with 10-12 (usually 11), IV with 10-13 (usually 11) and V with 10-12; toes, digit I with 10-11 (usually 11) lamellae, II with 11-12 (usually 11), III with 11-13 (usually 12), IV with 12-14 (usually 12) and V with 11-13 (usually 12).

FIELD NOTES. Found in a great variety of situations, namely under stones, under rock flakes, in rock cracks, under loose bark of trees, in stone walls, and in thatch of native huts.

REMARKS. According to Parker (1936, p. 129), this northern form of *bibronii* is indistinguishable from *turneri* Gray, and thus Werner's *stellatus* falls away.

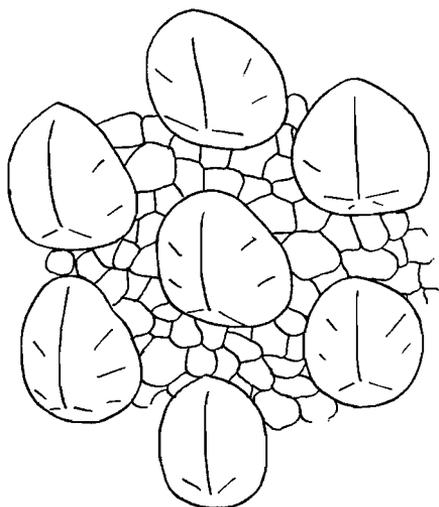


Fig. 3.

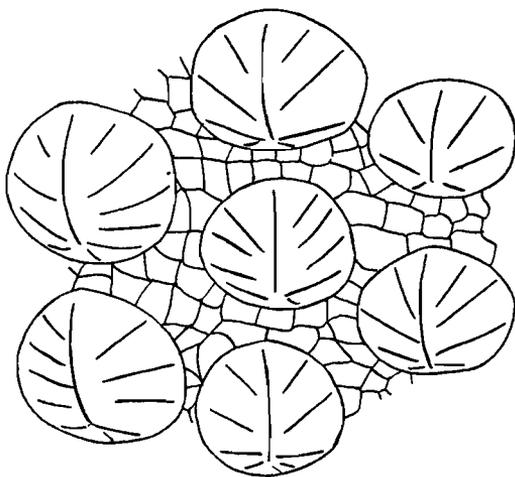


Fig. 4.

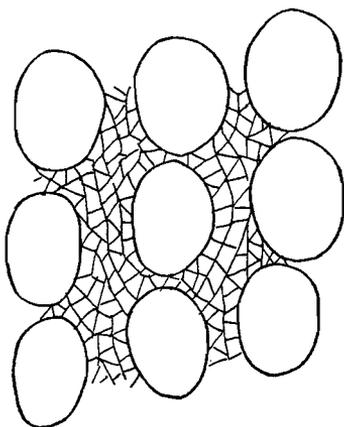


Fig. 5.

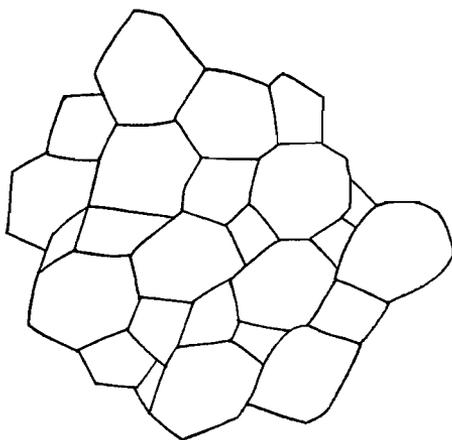


Fig. 6.

Dorsal scaling (from about midway along back, on right of vertebral line) of *Pachydactylus bibronii* and related forms.  $\times 10$  approx.

Fig. 3. *P. bibronii bibronii* A. Smith (T.M. 4563, Magalakwin R., N. Tol.).

Fig. 4. *P. bibronii turneri* (Gray) (T.M. 18199, Brandvlei, North Cape Province).

Fig. 5. *P. laevigatus* Fisch. (T.M. 17739), Seeheim, Great Namaqualand).

Fig. 6. *P. laevigatus tessellatus* n.subsp. (Type, T.M. 17202, Kamanyab, Kaokoveld).

***Pachydactylus bicolor* Hewitt**

*Pachydactylus punctatus bicolor* Hewitt, 1926, *Ann. S. Afr. Mus.* xx, p. 477, pl. XLIV, fig. 4 (Kaross, Kaokoveld, South-West Africa).

Twenty-two specimens were collected: T.M. 17203-17208, 17238-17242, 17244, 17245, 17263 and 17264 at Kamanyab, 17-19 June 1937; 17319 at Paderburn, 24 June 1937; 17343-17345 and 17359 at Huab, 26 June 1937; 17466 and 17467 near Karub, 3 July 1937. The series comprises fourteen adults, six half-grown and three juveniles.

A full description of this species is given, as the original description by Hewitt was made on juvenile specimens.

DESCRIPTION. Head strongly depressed, slightly longer than broad, not or but little broader than neck. Snout pointed, almost twice the diameter of eye which is rather small, and about  $1\frac{1}{4}$  times distance from eye to ear-opening; distinctly swollen on each side above loreal region. Ear-opening oval and oblique. Nostril pierced between three nasals and well separated from rostral and first upper labial. Nasorostrals in contact. Rostral subpentagonal, about  $1\frac{3}{4}$  times as broad as deep. Upper labials 7-9 (usually 8), lower 6-8 (usually 7). Mental rectangular, much narrower at base than adjacent lower labials, narrowing slightly behind. No chin shields. Scales on snout enlarged, flattened, largest on canthal region, much larger (almost twice) than similar flattened granular scales on occiput; scales smallest between the eyes. Scales on back flattened, smooth, rounded, granular, subequal in size to largest on snout. Scales on throat minute, smooth juxtaposed, becoming gradually larger and imbricate over base throat and chest; over middle of belly scales smooth, flat, subhexagonal and imbricate, distinctly larger than those on back, posteriorly enlarging until over preanal region between hindlimbs they are at least twice as large again and subequal in size to the largest on underside thighs (enlarged scales over preanal region and underside thighs smaller and less conspicuously enlarged in females). Body and tail strongly depressed. Limbs moderately short and stout. Digits dilated distally but not conspicuously so and median row of subdigital scales distinctly enlarged. Subdigital scales are as follows: fingers, 5 scales on digit I, 6 on II, 7-8 on III, 8 on IV and 5-6 on V; toes, 5-6 on I, 6 on II, 8-11 on III, 9-10 on IV and 7-9 on V. Adhesive lamellae are as follows: fingers, 4 lamellae on digit I and 5 on digits II-V; toes, 4 on digit I and 5 on digits II-V. Tail strongly depressed, rather indistinctly segmented, longer than head and body (about  $1\frac{1}{3}$ ), covered above with smooth rounded imbricate scales, much larger than on back and arranged in regular transverse rows, four or five to each segment; below, scales much larger and strongly imbricate, largest along median line but not in regular series, three scale rows to each segment. A row of five scales on either side base of tail near vent, the three upper being strongly compressed with sharp projecting edges.

COLOUR. Above, fawn to pale slate or greyish olive to greyish brown, with dark velvety chocolate brown, irregular, dentated bars and blotches and small scattered white or yellow spots, usually aggregated around and edging the dark markings over back; head usually tinged with yellow, with a few dark spots on occiput; a dark streak from nostril through eye, widening over ear-opening and continuing behind to encircle occiput; a second streak on side of neck arising behind ear-opening; labials infused with brown. Below, white, dirty white to greyish, chin and throat often with a pinkish tinge. Tail greyish brown with scattered scales white or yellow. Specimens from near

Karub are very pale. In very young specimens the head is greyish brown, with a blackish streak on each side, from nostril through eye and above ear, completely encircling occiput; this streak is bordered below and behind by a white stripe arising on upper lip below eye and passing through ear-opening, after which it widens out over nape; sides of neck, forelimbs and greater part of back and sides black, which colour ends abruptly behind, changing to greyish white on lumbar region; a dark brown transverse bar between hindlimbs above; hindlimbs and tail pale greyish to yellowish brown, with faint indications of darker cross-stripes. Below greyish white to yellowish grey, infused on sides with dark brown. In slightly older specimens the black above turns to greyish brown or greyish, black edged in front and behind, pale band on rump yellowish; tail above yellowish, below white.

DIMENSIONS. Male (T.M. 17263), H. and B. 40, tail 53, length head 10, breadth head 9.2, forelimb 11, hindlimb 17 mm. Largest specimen, a female, has H. and B. 43 (tail reproduced), length head 10.3, breadth head 8.6 mm.

FIELD NOTES. Taken in close-fitting rock cracks or under flakes. Somewhat sluggish in movement and easy to capture. Never seen abroad during the day and probably nocturnal in habit. Eggs are white and regularly oval, measuring on the average  $9.2 \times 6.0$  mm.

### *Pachydactylus capensis capensis* A. Smith

(Fig. 8)

*Pachydactylus capensis* A. Smith, 1846, *Ill. Zool. S. Afr. Rept.* pl. 50, fig. 2 ("Interior of Southern Africa").

Two specimens were collected: T.M. 16839 and 16840, at Van Zyl's Rust, Kuruman River, 5 May 1937.

These specimens are very pale, the adult being a dull dirty cream above with a few indistinct dusky blotches over back, and a dark streak on side of head from nostril to eye, continued faintly behind eye and round occiput; juvenile pale greyish above, with five irregular white cross-stripes on back and ten on tail, which is blackish towards the tip, the dark streak from nostril to eye not continued round back of head.

DIMENSIONS. T.M. 16839, H. and B. 60, tail 59, length head 14.3, breadth head 11.5 mm.

FIELD NOTES. Taken in a small outcrop of surface limestone, lying on the sandy bank of the Kuruman River.

### *Pachydactylus capensis labialis* n.subsp.

(Fig. 7)

Four specimens were collected: T.M. 18052-18055, at Steinkopf, Little Namaqualand, 23 August 1937.

TYPE. T.M. 18055.

DESCRIPTION. Head small, not or but very slightly broader than neck (distinctly broader in *capensis*), about  $1\frac{2}{5}$  times as long as broad (usually not more than  $1\frac{1}{3}$  in *capensis*); snout short (distinctly shorter than in *capensis*), about  $1\frac{1}{2}$  times diameter of eye and  $1\frac{1}{3}$  times distance from eye to ear-opening; nostril pierced between three nasal scales, well separated from rostral and first upper labial; nasorostrals well separated by a moderately large granule (usually in contact in *capensis*); mental not more than  $1\frac{1}{2}$  times as long as basal breadth, subequal to or a little narrower at base than adjoining labials,

not narrowed or narrowed but slightly behind; upper labials 5-7, with fifth below middle of eye (usually sixth or seventh below middle of eye in *capensis*); lower labials 5-6; labials all distinctly deeper than in *capensis*; scales on snout enlarged, especially on canthal region, slightly convex and faintly keeled (in *capensis* canthal scales not so distinctly enlarged); on interorbital region and occiput scales minutely granular intermixed with rounded, conical, keeled tubercles, smaller than enlarged scales on snout; over back tubercles large, with strong simple keels or trihedral, in more or less regular longitudinal series and evenly spaced, two or three granules apart; on tibia tubercles large and trihedral; below, scales on chin and throat minutely granular, enlarging over chest and belly, where they are smooth, flat, subcircular and subimbricate (in *capensis* usually subhexagonal and imbricate). Head and body not or but feebly depressed; limbs and digits short and stout; distal dilatation not or

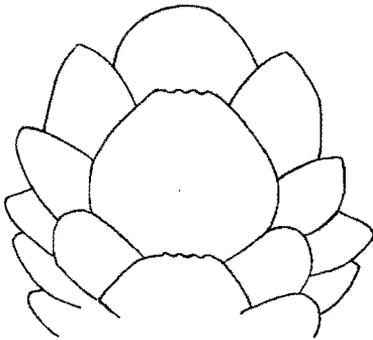


Fig. 7.

Fig. 7. *Pachydactylus capensis labialis* n. subsp. Dorsal view of fourth toe showing arrangement of terminal scales.

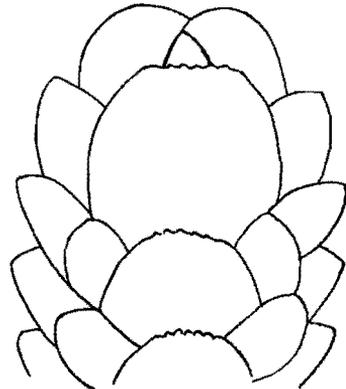


Fig. 8.

Fig. 8. *P. capensis capensis* A. Smith. Dorsal view of fourth toe showing arrangement of terminal scales.

but very slightly broader than proximal portion of digit, with five transverse adhesive lamellae under each digit, the most proximal being deeply nicked in the middle and often completely divided; median row of subdigital scales not or but feebly enlarged; fingers and toes above, each with a moderately large single median scale distal to the large nail-like scale (in *capensis* two scales terminally, and a very small median scale present or absent). Tail cylindrical, covered above with small imbricate irregular-sized scales and regular transverse series of six enlarged, pointed, keeled scales (three scale rows apart); below, scales larger than above, imbricate, somewhat pointed behind, no median row of transversely enlarged scales; two enlarged, somewhat flattened, sharp-edged scales, one behind the other, on either side of base of tail near vent.

COLOUR. Above, grey to greyish brown with dark markings arranged irregularly, in transverse series or in thin longitudinal stripes over back; a dark band on side of head from second upper labial through eye and over temporal region above ear and then curving inwards round occiput, but not quite meeting its fellow behind; a dark streak from nostril to just above eye; labials largely infused with dark brown; below, creamy white to greyish.

Tail more or less distinctly barred with dark brown to blackish; reproduced tails spotted.

DIMENSIONS. Type, T.M. 18055, H. and B. 44, tail (partly reproduced) 38, length head 10.5, breadth head 7.5, forelimb 11, hindlimb 15 mm.

FIELD NOTES. Taken under loose stones lying on the ground on the slopes of and along the bottom of a valley among the hills.

### ***Pachydactylus fasciatus* Boulenger**

*Pachydactylus fasciatus* Boulenger, 1888, *Ann. Mag. Nat. Hist.* (6), II, p. 138 ("Namaqualand").

Three specimens were collected: T.M. 18180, 18182 and 18183, at foot of Hantamsberg, 20 miles north of Calvinia, 29 August 1937. (One adult and two juveniles.)

Head distinctly broader than neck; snout  $1\frac{1}{2}$  times diameter of eye; nasorostrals in contact; mental rectangular, not or but feebly narrowed behind; scales on snout enlarged and slightly convex; tubercles on occiput distinctly smaller than scales on snout, enlarging over nape where they are conical and keeled; tubercles on back large, strongly keeled and almost trihedral posteriorly, smaller and more sparsely scattered over mesial area, becoming larger and more densely arranged dorsolaterally, in 16-18 more or less regular longitudinal rows; on flanks tubercles are more or less contiguous, tending to become conical and smooth; small smooth rounded tubercles on forearm, larger, subconical, smooth or feebly keeled, on hindlimb; median row of subdigital scales enlarged, on fingers, digits I and II with 5-6, III and IV with 7 and V with 6 scales; on toes, I and II with 6, III and IV with 10 and V with 9 scales; 5 transverse adhesive lamellae under each finger, 5 under first toe and 6 under remainder. Tail slender, cylindrical, segmented, each segment with a transverse row of 6-8 enlarged keeled tubercles, the outermost being the largest; below, median row of scales much enlarged, segments 2-4 each with a single scale in front and a pair behind, segment 5 onwards with two single scales.

COLOUR. Greyish brown above, with darker somewhat vermiculate markings and spots on head and back; a dark streak on side of head from first labial through eye and widening over temporal region above ear; below greyish white, chin and throat darker. Juveniles are pale olive grey above with dark markings arranged in transverse series; dark streak on side head continued behind to encircle occiput; tail banded; lower surfaces white.

DIMENSIONS. T.M. 18183, H. and B. 44.5, tail 52, length head 10.9, breadth head 9.3 mm.

FIELD NOTES. Taken in rock cracks on lower slopes of mountain.

### ***Pachydactylus kobosensis* n.sp.**

Nine specimens were collected: T.M. 17517-17519, 17539, 17540, 17553, 17557, 17558 and 17574 at "Kobos", 40 miles south of Rehoboth, Great Namaqualand, 21 July 1937. The series comprises five adults, two half-grown and two juvenile specimens.

TYPE. An adult male, T.M. 17574.

DESCRIPTION. Head large, subtriangular, strongly depressed, slightly longer than broad, much broader than neck. Snout pointed, about  $1\frac{3}{4}$  times diameter of eye and  $1\frac{1}{2}$  times distance from eye to ear-opening. Nostril

pierced between three nasal scales, widely separated from rostral and more narrowly from first upper labial. Nasorostrals in contact. Rostral quadrangular, narrower below than above, about  $1\frac{1}{2}$  times as broad as deep. Upper labials 9-10, lower 10. Mental narrower at base than adjoining labials, narrowing behind to about one-third anterior breadth. Scales on snout large, at least three to four times the size of the uniform small granules on occiput. Scales over back granular, flattened, a little irregular in size and for the most part smaller than scales on snout, although isolated scales posteriorly may be equal to or a little larger. Scales on chin and throat minute, granular and flattened, smaller than on occiput; no chin shields. On chest and belly scales are flat, smooth, subhexagonal, imbricate, as large as or larger than on snout, slightly larger posteriorly; the last two rows of scales on underside of thighs much enlarged and over twice as large as scales over middle of belly. Limbs and digits moderately stout; median row of subdigital scales distinctly enlarged, fingers with 5 scales on digits I and II, 7 on III and IV and 6 on V; toes with 5-6 scales on digit I, 6 on II and V, 8 on III and 9 on IV. Digits distinctly dilated distally, fingers each with 6 adhesive lamellae, and toes with 6 to digit I and 7 to digits II-V. Body and tail depressed. Tail longer than head and body, tapering, distinctly segmented, covered above with smooth imbricate scales larger than over back, 6-7 rows of scales to each segment; a transverse row of six enlarged tubercular scales about middle of each segment, the outermost being the largest; below, scales much larger than above, imbricate, with three rows to each segment, no median row of enlarged scales. Two to three enlarged flattened scales in an oblique row at base of tail near vent.

**COLOUR.** Above, pale olive with large dark sienna to reddish brown blotches which form irregular broken up crossbands over back; tail banded more or less distinctly with the same colour; eyelid (above and behind) and enlarged scales on tail, yellow; snout uniform reddish brown with a pale streak from nostril to eye; labials stippled with reddish brown, which extends below on to chin and along inner labial margin. Lower surfaces creamy yellow. Eye brown, flecked with gold, pupil-slit edged with yellow.

**DIMENSIONS.** Type, male (T.M. 17574), H. and B. 50.5, tail 57, length head 12.4, breadth head 10.9, forelimb 14.8, hindlimb 18.3 mm.

**REMARKS.** In some of the paratypes enlarged scales on back are more numerous than in the type, but are aggregated for the most part posterolaterally, they are slightly tubercular and not or but very feebly keeled. The number of adhesive lamellae is constant throughout the series, but a little variation of the number of subdigital scales was noticed, namely as follows: fingers, 5-6 scales on digits I and II, 7-8 on III and IV and 6-7 on V; toes, 5-6 scales on digit I, 6 on II, 8-9 on III, 9 on IV and 6-8 on V. Colour above is olive brown in one specimen; lower surfaces may be lightly stippled all over with brown, with the exception of the middle of the throat; regenerated tails are irregularly blotched with reddish brown. Young (T.M. 17519) greyish olive above, with three pairs of reddish brown transverse bars (the first round back of head and across nape, second across middle of back and third across rump), the area enclosed between each pair of bars is a very pale pinkish brown; tail olive yellow above, barred with brown. Below white. The dorsal markings of the young persist to a less definite degree in one of the half-grown specimens. This new species apparently comes nearest to *Pachydactylus capensis* and related forms.

**FIELD NOTES.** These geckos were found on rocky, boulder-strewn koppies, and were exposed under loose rock flakes and in cracks.

***Pachydactylus laevigatus laevigatus* Fischer**

(Fig. 5)

*Pachydactylus laevigatus* Fischer, 1888, *Jb. Hamb. Wiss. Anst.* v, p. 15, pl. II, fig. 3 (Aus, Great Namaqualand).

Fifty-six specimens were collected: 17371 and 17372, Kalkveld, 29 June 1937; 17395, between Nonidas and Namib Station, 2 July 1937; 17489 and 17506, Neudamm, 14 July 1937; 17515, 17516, 17549, 17550, 17552, 17554-17556 and 17571-17573, Kobos, 18 July 1937; 17594, 17595, 17600-17605, 17613, 17638-17641, 17647 and 17670, Barby, 24 July 1937; 17723-17728, Konkiep, 2 August 1937; 17739 and 17740, Seeheim, 3 August 1937; 17787, 17788, 17794-17796, Brukkaros Mountain, 6 August 1937; 17842-17848 and 17851-17853, Kochena, 11 August 1937; 17865 and 17883, Goodhouse, 14 August 1937. The series comprises thirty-one adults and twenty-five juveniles.

Enlarged tubercles above are button-like, smooth and generally smaller than in *bibronii*. Stellate tubercles are absent or at most confined to a few just above and behind ear-opening. Gular scales usually flat and occasionally subimbricate over posterior two-thirds of throat, sometimes subgranular. Subdigital lamellae are as follows: fingers, digit I with 8-9 lamellae, II-III with 9-10, IV with 10-11 and V with 9-10; toes, digit I with 9-10 lamellae, II with 9-11 (usually 10), III with 9-11 (usually 10-11), IV with 10-12 (usually 11-12) and V with 10-11. In two specimens from Kalkveld, the enlarged dorsal tubercles are obtusely keeled, but in all other respects are indistinguishable from typical *laevigatus*. On the characters given by Parker in his Key (1936, p. 128) this form can be readily distinguished from *bibronii* and its subspecies.

COLOUR. Above, pale creamy olive to olive or olive brown, with 3-4 blackish wavy crossbands, edged with white spots posteriorly; dark streaks on head similar to those found in *bibronii*. Below, uniform white to creamy white.

DIMENSIONS. T.M. 17883, H. and B. 91, tail (partly reproduced) 72, length head 25, breadth head 25 mm.

FIELD NOTES. Taken only in rock cracks and under flakes.

***Pachydactylus laevigatus tessellatus* n.subsp.**

(Fig. 6)

Four adult specimens were collected: T.M. 17200-17202 and 17250, at Kamanyab, 17-18 June 1937.

TYPE. Adult, T.M. 17202.

DESCRIPTION. This form is readily distinguishable from typical *laevigatus* on the uniform flatness of all the head and body scales above; there are no series of enlarged tubercles with granular interspaces, the entire upper surface being covered with smooth, flat, juxtaposed scales of slightly variable size, giving a pavement-like appearance. On sides of head just in front and behind ear-opening there are a few smooth conical tubercles; on flanks there are smooth subconical tubercles, with small granular interspaces; on upper surface hindlimb, tubercles are distinctly conical, but not keeled. Chin scales flat, polygonal and juxtaposed, larger than imbricate scales over middle of throat, which are smallest at base; scales on belly large, flat, hexagonal, imbricate, not more than twice the size of larger chin shields. Upper labials 10, lower

8-10. Digits short and stout, distinctly dilated distally. Subdigital adhesive lamellae as follows: fingers, digit I with 8-9 lamellae, II, III and V with 9, IV with 10; toes, digit I with 9 lamellae, II, III and V with 10, IV with 11.

COLOUR. Above, olive yellow with 4-5 irregular black zigzag crossbars (one on nape, two or three on back and one across rump) and scattered white spots, usually aggregated along posterior edges of dark crossbars; irregular blackish longitudinal vermiculate streaks on head. Below, white to creamy white, with underside limbs pinkish and pads of feet a pinkish grey.

DIMENSIONS. H. and B. 80, tail 70, length head 21.7, breadth head 21.7, forelimb 25, hindlimb 34 mm.

FIELD NOTES. Taken in rock cracks. T.M. 17250 was taken from same rock crack as specimens of *P. b. turneri*.

### ***Pachydactylus montanus onseepensis* Hewitt**

*Pachydactylus montanus onseepensis* Hewitt, 1935, *Rec. Alb. Mus.* iv, p. 318 (Onseephans = Onseepkans, Orange River).

Nineteen specimens were collected: T.M. 17580, Maltahohe, 22 July 1937; 17609, 17678-17681, Barby, 25-29 July 1937; 17717-17721, 20 miles east of Konkiep, 2 August 1937; 17738, Seeheim, 3 August 1937; 17780-17786, Brukkaros Mountain, 6 August 1937; 17864, Goodhouse, 14 August 1937.

The specimen from Goodhouse agrees well with description of the type which came from Onseepkans, a little higher up the Orange River. In Great Namaqualand specimens, nasorostrals vary from good to very short contact and in five cases are separated by a small granular scale; rostral enters nostril in all specimens; first upper labial enters on both sides in seven specimens, on one side only in five and is narrowly separated in eight; enlarged dorsal tubercles are absent in one specimen (Seeheim) but are present in all others to a varying degree and confined for the most part to the dorsolateral region of back, and may be keeled or smooth, flattened or slightly tubercular; transverse rows of 6-8 enlarged scales on tail usually four scale rows apart; tail segmented, with 5-6 scale rows to each segment above and 3-4 below.

COLOUR. Above, olive to olive brown more or less heavily spotted with dark reddish brown (similar to *purcelli*), but spots generally larger and less vermiculate; below creamy, greyish or brownish white. Dark streak on side of head absent in most adult specimens, present in juveniles in front of eye, usually faint or absent over temporal region, but well marked again round back of head; a dark streak across base of nape, enclosing with that round back of head a pale olive yellow area; enlarged scales on back and on tail yellow.

DIMENSIONS. T.M. 17719, H. and B. 45, tail (partly reproduced) 42, length head 11.5, breadth head 9.8 mm.

FIELD NOTES. Found always in rocky localities, in cracks and under flakes.

REMARKS. The Great Namaqualand specimens agree to a certain extent with Werner's description of *seval* (1910, p. 313) in so far as it goes, and some specimens resemble in markings his figure. However, as his description is so meagre in many respects, it is impossible to come to any definite decision as to whether these specimens belong to *seval* or not. In general form they appear different from *onseepensis* from the Orange River area, being somewhat stouter, with head a little broader and feebly differentiated from neck, tail more distinctly segmented, colouring darker with smaller and more numerous spots above and dark streaks on head absent or but faintly marked.

***Pachydactylus namaquensis* (Slater)**

*Elasmodactylus namaquensis* Slater, 1899, *Ann. S. Afr. Mus.* 1, p. 109, pl. V, fig. 2 (Little Namaqualand).

A series of sixteen specimens were collected: T.M. 17596, 17606-17608 and 17642, Farm "Barby", 24-27 July 1937; 17729, 20 miles east of Konkiep, 2 August 1937; 17789, Brukkaros Mountain, 6 August 1937; 17861-17863, Goodhouse, 14 August 1937; 17900-17904 and 17908, Klipfontein, 18 August 1937; 18143, Garies, 26 August 1937.

Head depressed, very slightly longer than broad, distinct from neck; snout from  $1\frac{3}{4}$  to twice diameter of eye and from  $1\frac{1}{2}$  to  $1\frac{1}{3}$  times distance from eye to ear-opening; rostral from  $1\frac{1}{3}$  to  $1\frac{3}{4}$  times as broad as deep, with upper margin distinctly indented or scalloped, the projecting horn on each side entering nostril; first upper labial just entering nostril in five specimens, narrowly separated in one and well separated in remainder; nasorostrals in more or less short contact in twelve specimens, separated by one or two granules in four; mental rectangular not or but slightly narrowed behind, a little broader, subequal to or a little narrower than adjoining lower labials; upper labials 11-12, lower 9-11 (usually 9 or 10); enlarged dorsal tubercles unequal in size, longitudinally oval or rounded, smooth or feebly keeled; scales on underside thighs much enlarged, especially so in South-West African specimens; subdigital adhesive lamellae are as follows: fingers, 9-10 (usually 10) under digit I, 10-11 (usually 10) under II, 10-11 (usually 11) under III, 11-12 (usually 11) under IV and 10-11 (usually 11) under V; toes, 10-11 (usually 10) under digit I, 10-11 (usually 11) under II, 11-12 (usually 12) under III, 12-13 (usually 12) under IV and 11-12 (usually 12) under V; the first (i.e. most proximal) subdigital adhesive lamella often divided in two; median row of subdigital scales often more or less enlarged, the distalmost 2-3 transversely so, the remainder rounded. Tail much thickened laterally at base in adults, segmented, with six rows of scales to each segment above, also a transverse row of 6-8 enlarged pointed tubercles to each segment, keeled and conical above while outermost row are larger, more sharply pointed and often lanceolate and slightly recurved; below, scales large and imbricate with three rows to each of the first three or four segments, thereafter median row of scales transversely enlarged with two scales to each segment.

**COLOUR.** The colouring varies considerably in specimens from different localities. "Barby" specimens: above, rich brown with paler and darker markings (the latter often vermiculate and transversely arranged), or light to reddish brown with dark zigzag, pale-edged crossbands (more distinctly marked in young); eye reddish to reddish brown; below, pale yellowish brown on throat and sides belly, belly cream and thighs yellow. Konkiep specimen, pale pinkish brown above with a few scattered darker spots. Brukkaros specimen, light pinky olive above, with orange brown zigzag crossbands on back, tail banded with orange brown. Goodhouse specimens, light greyish brown above, with five irregular dark brown crossbands on back, often broken up along vertebral line; limbs and tail banded with brown; eye brown to golden brown. Klipfontein specimens, velvety olive brown above, with darker and paler ill-defined crossbands on back; tail banded; below, yellowish white to greyish white.

**DIMENSIONS.** T.M. 17596, H. and B. 82, tail 75, length head 20, breadth head 19.5 mm. (Breadth of tail at base 18 mm.)

FIELD NOTES. Rupicolous and diurnal, often seen basking in the early morning sun in quiet nooks among the rocks. The Brukkaros specimen was taken near the summit (altitude 5000–6000 ft.) and was actually captured in the cellar-like dark room hewn out of the rock and used by a meteorological expedition in the past. A large batch of eggs were exposed at Barby on opening up a rock crack. The eggs were affixed firmly to the rock face and numbered in all from thirty to forty; they are rounded and measured approximately 16 mm. in diameter by 12 mm. in height.

### ***Pachydactylus punctatus amoenoides* Hewitt**

*Pachydactylus punctatus amoenoides* Hewitt, 1935, *Rec. Alb. Mus.* iv, p. 314 (Luderitzbucht, South-West Africa).

A single specimen was collected, T.M. 17646 at Barby, 27 July 1937.

Head moderately depressed; snout a little over  $1\frac{1}{2}$  times diameter of the rather large eye, which in turn is a little less than its distance from ear-opening; nasorostrals in fairly short contact; first upper labial entering nostril; upper labials 6–7, lower 5–6; mental much narrower than adjoining labials and narrowing behind to less than half anterior breadth; median row of subdigital scales enlarged, fingers with 5 scales on digits I, II and V, 8 on digit III and 9 on IV; toes with 6 scales on digit I, 7 on II, 10 on III and IV and 8 on V; three subdigital adhesive lamellae on fingers I and V, 4 on II–IV, 4 lamellae on all toes; three enlarged compressed scales on either side base of tail near vent.

COLOUR. Above, light brown with fine reticulations and mottlings of darker brown together with scattered pale spots; a dark streak on side of head from nostril through eye and over ear, fading out just above and behind armpit; labials each with a dark spot; below creamy white.

DIMENSIONS. H. and B. 37, tail 39.5, length head 9, breadth head 7.3 mm.

FIELD NOTES. Taken on stony ground in valley between rocky hills.

REMARKS. This form is readily distinguishable from typical *punctatus* on its more slender form, depressed head and narrower mental shield. Two specimens (T.M. 15598 and 15599) from Kuibis and Aus respectively, previously (1935, xv, p. 530) placed by me under *P. p. brunthaleri*, I now regard as *P. p. amoenoides*.

### ***Pachydactylus punctatus punctatus* Peters**

*Pachydactylus punctatus* Peters, 1854, *Mber. Berl. Akad.* p. 615 (Sena and Tette, Mozambique).

Twelve specimens were collected: T.M. 16979 and 16987, near Lake Guinas, 23 May 1937; 17164, between Okaukuejo and Outjo, 15 June 1937; 17167, 20 miles south of Outjo, 15 June 1937; 17304 and 17305, Paderburn, 23 June 1937; 17379, Kalkveld, 29 June 1937; 18436, near Usakos, 2 July 1937; 17436 near Arandis, 2 July 1937; 17493, 17508 and 17511, Neudamm, 14 July 1937. The series comprises six adults and six juveniles.

Head about  $1\frac{1}{4}$  times as long as broad, not or but very slightly depressed; snout from  $1\frac{1}{2}$  to  $1\frac{3}{4}$  diameter of eye and about  $1\frac{3}{4}$  times distance from eye to ear-opening; nasorostrals in contact in eight specimens, separated (by an upward prolongation of the rostral in front and a granule behind) narrowly in two and widely in two; first upper labial separated from the nostril in six specimens, entering on one side only in one and entering on both sides in five; rostral subpentagonal to subtriangular, twice as broad as deep; mental

rectangular or narrowing slightly behind; median row of subdigital scales more or less enlarged, fingers with 4-5 scales on digit I, 5 on II, 7-8 on III, 7-9 on IV and 5 on V; on toes, 6 scales on digit I, 7 on II, 9-10 on III, 9-11 on IV and 7-8 on V; distal dilatation not or but slightly broader than rest of digit, transverse adhesive lamellae number three under fingers I and V, four under II-IV, and four under all toes.

The above specimens were carefully compared with a series of forty-four specimens from the Northern Transvaal and Southern Rhodesia, from which they proved to be inseparable. The separation of the nasorostrals and the entry of the first upper labial into the nostril in three specimens from Neudamm and one from near Arandis suggested at first a separate form, but as the same were found in odd individuals from the Transvaal and Southern Rhodesia, these characters would appear to be merely individual variations.

COLOUR. Above light grey to greyish brown with irregular blotches or short vermiculate dark brown spots or bars, often forming indeterminate crossbands across back or longitudinal series along sides; small white spots scattered over upper surfaces; a dark streak on side head (occasionally ill-defined or absent) from nostril through eye to above ear-opening, where it fades out; labials each bearing a dark spot. Below uniform white to creamy white. Tail often indistinctly barred above.

DIMENSIONS. T.M. 17164, H. and B. 34, tail 38, length head 8.8, breadth head 7.2 mm.

FIELD NOTES. Taken under stones lying in open grass country or bushveld. A series of eggs were collected, these are oval and measure from 8.0 to 8.6 x 6.2 to 7.0 mm.

### ***Pachydactylus purcelli* Boulenger**

*Pachydactylus purcelli* Boulenger, 1910, *Ann. S. Afr. Mus.* v, p. 494 (Touw's River, Cape Province).

*Pachydactylus pardus* Sternfeld, 1911, *Mittl. Zool. Mus. Berl.* v, p. 398 (Warmbad, South-West Africa).

Twenty-four specimens were collected: T.M. 17855 and 17856, 15 miles south of Warmbad (G.N.), 13 August 1937; 18209-18214, 18216 and 18217, 15 miles west of Van Wyk's Vlei, 31 August 1937; 18218-18231, Van Wyk's Vlei, 31 August 1937.

Nasorostrals in contact; first upper labial usually entering nostril, occasionally just separated; granular scales above uniform over back, slightly larger than on occiput, much smaller than on snout; scales on chin and throat generally very small, slightly enlarged in one specimen; belly scales distinctly enlarged posteriorly, anterior to anal region; tail distinctly segmented, with five rows of scales to each segment above and 3-4 below and a transverse row of 4-6 enlarged tubercles (i.e. two to three on each side of middle line) on each segment.

COLOUR. Warmbad specimens are olive to olive grey above, with reddish brown irregular spots and transversely elongate mottlings over back; a dark streak on side of head from nostril through eye to above ear-opening. Van Wyk's Vlei specimens are sooty grey to greyish brown above with fairly densely scattered irregular spots of dark brown; a dark streak on side of head from first labial through eye to above ear-opening; below, greyish white; young specimens have three paired transverse bands above and are very similar in appearance to the young of *P. montanus onscopensis* Hewitt.

DIMENSIONS. (T.M. 18211), H. and B. 41, tail 48, length head 10, breadth head 8.3 mm. (T.M. 17855), H. and B. 37, tail 38, length head 9.2, breadth head 7.6 mm.

FIELD NOTES. Found in cracks and crevices of rocks. The generally darker colouring of specimens from Van Wyk's Vlei and neighbourhood is attributable to the very dark hue of the rocks in this area.

REMARKS. The two specimens from 15 miles south of Warmbad, can I think be regarded as topotypical of Sternfeld's *pardus*, unless of course the Warmbad given is that in Damaraland, which appears unlikely. A careful comparison of these specimens with typical *purcelli* does not expose any characters which warrant the separation of this form. The range of variation found in *purcelli* includes all the characters by which Sternfeld differentiates *pardus*, i.e. shape of ear-opening, length snout and colour.

### *Pachydaetylus robertsi* n.sp.

A single specimen, T.M. 17854, was collected on the Farm "Kraikluft", Great Karas Mountains, Great Namaqualand, 12 August 1937.

DESCRIPTION. Head elongate, depressed, a little over  $1\frac{1}{3}$  times as long as broad, not much broader than neck. Snout pointed,  $1\frac{1}{3}$  times diameter of the somewhat large eye, which about equals its distance from ear-opening; latter an elongate oval and almost horizontal. Nostril pierced between first upper labial and three nasal scales, of which the uppermost or nasorostral is largest and in long contact with its fellow. Rostral rectangular, twice as broad as deep, distinctly lower than adjacent upper labials. Upper labials 12 (8-9 to below middle of eye), lower 6-7. Mental elongate, narrowing behind to about half anterior breadth, much narrower than adjoining labials both in front and behind. Scales on snout convex, largest on canthal region just in front of eye, where they are subhexagonal and at least twice as large as any on middle of snout. Occiput minutely granular with scattered larger rounded smooth subconical tubercles which are smaller than scales on middle of snout. Back covered with large flattened keeled tubercles, intermixed sparsely with small granules, which form a narrow median strip down middle of back; enlarged tubercles contiguous or at most separated by a single granule; on sides tubercles smaller and more conical; tubercles on hindlimbs large, conical, keeled but not contiguous. On chin and throat, scales very small, enlarging over chest; scales on belly flat and imbricate, largest posteriorly, where they are still smaller than the much enlarged scales over antero-inferior surface of thigh. Body slender, moderately depressed; limbs and digits moderately long. Median row of subdigital scales enlarged, fingers with 4 scales on digits I and V, 5 on II to IV; toes with 5 scales on digit I, 6 on digits II, III and V, 7 on IV. Distal dilatations only slightly broader than proximal portion of digits, with 5 lamellae under fingers, 4 under first toe, 5 under second toe and 6 under third, fourth and fifth. Tail only slightly depressed, more or less cylindrical, segmented, covered above with small flat subimbricate smooth scales; a transverse row of 8-2 (8 basally reducing to 2 near tip) enlarged keeled scales to each segment, three scale rows apart; below scales much larger and imbricate, median row enlarged with two scales to each segment; 26 segments to tail, including basal one.

COLOUR. Above, light olive brown, with a line of eight small dark spots down vertebral line from nape to lumbar region and a few smaller irregular specks scattered over back; a dark streak from nostril through eye passing above ear-opening and encircling back of head, bordered below and behind,

from angle of jaw, by a pale olive yellow band which in turn is edged behind by a broken up dark streak arising on last lower labial and passing through ear; a pale streak along canthal region bordering dark side streak above; labials wholly or partly suffused with dark brown. Chin, throat and sides belly greyish white, middle of belly and underside limbs white. Tail uniform olive brown, enlarged scales yellow; below light greyish brown.

**DIMENSIONS.** Type, T.M. 17854, H. and B. 42, tail 48, length head 11.2, breadth head 8.2, forelimb 11.7, hindlimb 16.5 mm.

**FIELD NOTES.** Taken in a rock crack at foot of mountains.

**REMARKS.** Superficially much like *P. scutatus*, but quite distinct on the nostril character, dorsal scaling, scaling on tail and colour markings on head.

### ***Pachydactylus rugosus* A. Smith**

*Pachydactylus rugosus* A. Smith, 1849, *Ill. Zool. S. Afr. Rept.* pl. 75, fig. 2 ("Interior of Southern Africa").

A single adult specimen was collected, T.M. 18013, 15 miles east of Port Nolloth, 21 August 1937.

Snout about  $1\frac{3}{4}$  times diameter of eye and a little less than  $1\frac{1}{2}$  times distance from eye to ear-opening; nasorostrals separated by three small granules; rostral  $1\frac{1}{2}$  times as broad as deep; upper labials 8-9, lower 8-9; mental rectangular, not narrowing behind, a little longer but slightly narrower than adjoining labials; median row of subdigital scales not enlarged; five adhesive lamellae to each digit; scales on snout conical and keeled, becoming smaller and intermixed with small granules between eyes and over occiput; back covered with small granules and enlarged trihedral spinose scales (with strongest keel anteriorly), closely set and arranged in more or less regular longitudinal series; enlarged conical keeled spinose tubercles on hindlimbs; chin and throat covered with minute conical granules, passing to subgranular imbricate scales on chest and flattened imbricate scales over belly; immediately anterior to vent, scales granular; tail above with small keeled spinose imbricate scales and regular transverse series of 6-7 enlarged keeled elongate spinose scales, below scales elongate smooth spinose imbricate.

**COLOUR.** Above, blackish, with three broken up longitudinal white streaks over back, with partial transverse connections forming a rough network design, enclosing large elongate spots of the dark ground colour; a white streak from nostril to upper edge eye; a curved series of five white spots across top of head from supero-posterior corner of eyes; a white zigzag band from below eye, passing behind and encircling back of head; narrow white crossbars on tail, and enlarged scales white. Below, small scattered dark spots on chin and throat and irregular vermiculate markings along labial margin, chest and belly white.

**DIMENSIONS.** H. and B. 50, tail (partly reproduced) 31, length head 12.8, breadth head 11 mm.

**FIELD NOTES.** Taken in a rock crack on rocky hills near roadside.

### ***Pachydactylus scutatus* Hewitt**

*Pachydactylus scutatus* Hewitt, 1927, *Rec. Alb. Mus.* III, p. 395, pl. XXIII, fig. 2 (Kowaris, South-West Africa).

Four specimens were collected: T.M. 17209 and 17270, at Kamanyab, 17-19 June 1937; 17302, Paderburn, 23 June 1937; 17338, Huab, 26 June 1937. Two subadult and two juvenile specimens.

Snout long, about  $1\frac{2}{3}$  diameter of the rather large eye and  $1\frac{1}{2}$  times distance from eye to ear-opening; nostril pierced between rostral, first upper labial and three nasals; nasorostrals in contact; rostral twice as broad as deep; mental elongate, more than twice as long as broad, narrowing slightly behind, narrower in front than adjoining labials but subequal behind; upper labials 9-10, lower 7-8 (usually 9 and 7); scales on snout more or less flattened, subequal, much larger than any on back of head, which is covered with small granular scales plentifully intermixed with larger keeled subconical scales; over nape enlarged keeled scales predominate, with but few scarcely discernible intervening granules; back and sides covered exclusively with enlarged strongly keeled scales, juxtaposed or subimbricate, with a narrow median strip over posterior half of back where scales are very small, smooth and almost granular; scales over chin and throat very small, on belly smooth, imbricate, smaller than on back, largest preanally. Median row of subdigital scales transversely enlarged, fingers with 5 scales under digits I and II, 7 under III, 8 under IV and 6 under V; toes with 6 under digits I and II, 8 under III and V, and 9 under IV. Transverse adhesive lamellae under distal expansions, fingers I and V with 5 lamellae, II to IV with 6; toes I and II with 6 lamellae, III to V with 7. Tail cylindrical, distinctly segmented above, each segment with 2-3 rows of small smooth scales followed by a transverse row of 8-4 (basally 8 reducing to 4 distally) strongly enlarged keeled scales; below, no trace of segmentation and scales smooth, flat and imbricate.

COLOUR. Above, light greyish brown with a few scattered small dark brown spots on back; a dark brown streak on each side of head from nostril through eye, passing above ear and curving in to meet its fellow on nape (widest on temporal region and narrowing on nape); this dark streak is bordered above, from nostril to a point above ear-opening, by a white stripe, below and behind by another white stripe arising under eye, itself edged behind on nape by a narrow dark stripe; a pale band across middle of snout intersecting upper pale side stripes and thus isolating a dark triangular spot anteriorly; below, dirty white to greyish. Juveniles light olive above, with head markings conspicuous, tail olive yellow.

DIMENSIONS. T.M. 17302, H. and B. 36, tail 38, length head 10.5, breadth head 8.3 mm.

FIELD NOTES. Taken in rocky localities under rock flakes. Four eggs (in two pairs, glued together) were taken with T.M. 17209, under a loose flake of rock, and measure from 7.7.4 × 5.4.5.6 mm.

### ***Pachydactylus weberi gariesensis* Hewitt**

*Pachydactylus capensis gariesensis* Hewitt, 1932, *Ann. Natal Mus.* VII, p. 124, pl. VI, figs. 8 and 9 (Garies, Little Namaqualand).

Seventeen specimens were collected: T.M. 18144-18160, at Garies, 26 August 1937. Thirteen adult and four juvenile specimens.

Nasorostrals in fair to good contact in fourteen cases, in short contact in three; first upper labial separated from nostril on both sides in seven specimens, entering on one side only in eight, entering nostril on both sides in two; upper labials 8-10 (usually 9), lower 6-8 (usually 8); enlarged rounded tubercles on occiput absent or few in number and feebly enlarged; transverse adhesive lamellae, fingers with 5 under digit I and 5-6 under II-V, toes with 5-6 under digit I and 6-7 under II-V.

COLOUR. Grey to olive grey above with numerous reddish brown, darker edged elongate spots and blotches over back, which occasionally (in two

specimens) coalesce to form irregular transverse bands; a dark streak on side of head from second upper labial through eye and above ear where it widens out and curves inwards round occiput, pale edged above from nostril to eye; tail usually banded, at least over distal half, with black and white, latter bands half as broad as former. Juveniles are pale grey to olive above, with well-marked transverse bands on back and tail.

DIMENSIONS. T.M. 18151, H. and B. 49, tail 58, length head 11.7, breadth head 10 mm.

REMARKS. Similar to *P. w. weberi*, but mainly distinguishable on the absence (or at most great paucity) of rounded tubercles on occiput and side of head; tubercles over middle of back sparser, smaller and less regular in size and feebly keeled, while those on sides are likewise much smaller and less densely arranged; nasorostrals generally in long contact. T.M. 15797, previously (1935, p. 528) placed by me as young of *P. fasciatus*, proves now to be young of *P. w. gariesensis*.

FIELD NOTES. Found only in rocky localities, and taken in cracks and under flakes.

### *Pachydactylus weberi weberi* Roux

*Pachydactylus weberi* Roux, 1907, *Zool. Jb. Syst.* xxv, p. 408, pl. XIV, figs. 4 and 5 (Klipfontein, Little Namaqualand).

Thirty-nine specimens were collected: T.M. 17899, 17909-17917, at Klipfontein, 18 August 1937; 18039-18047, 20 miles east of Port Nolloth, 22 August 1937; 18061-18065, between O'okiep and Springbok, 24 August 1937; 18107, 18108, 18110-18119, 32 miles from Springbok on road to Kamaggas, 25 August 1937; 18132-18134, near Kamaggas, 25 August 1937. The series comprises twenty-nine adult and subadult specimens and ten juveniles.

Head depressed; snout convex above, distinctly swollen in front of eye above loreal region, just over  $1\frac{3}{4}$  diameter of eye and about  $1\frac{1}{4}$  times distance from eye to ear-opening; first upper labial entering nostril on both sides in twenty-two cases, entering on one side only in ten, narrowly separated from nostril in seven; nasorostrals in contact (usually very short contact) in thirty-four specimens, narrowly separated in five; upper labials (to below middle of eye) 8-9 (usually 9), lower 7-8; rostral subpentagonal, about  $1\frac{3}{4}$  times as broad as deep; mental elongate, its length being from  $1\frac{3}{4}$  times to twice anterior breadth, usually narrower at base than adjoining labials, narrowing behind to form half to three-quarters anterior breadth. Scales on snout enlarged, largest above loreal region; occiput covered with minute granules intermixed with larger round smooth tubercles (smaller than largest scales on snout), which extend forward to a point almost midway between eyes; tubercles on temporal region larger, subconical and equal to or a little larger than scales on snout; over nape tubercles increase in number, slightly larger than on occiput and keeled; back fairly densely covered with enlarged keeled tubercles, those over middle of back flattened and distinctly smaller (about half the size) than dorsolaterally, where they are very large, more strongly keeled and raised; on sides tubercles decrease in size again, becoming more or less smooth and subconical. Scales on throat very small and granular, over chest and belly enlarged, flat, smooth, imbricate, subhexagonal, largest posteriorly. Tubercles on hindlimbs very large, conical and keeled. Body depressed; limbs and digits moderate; median row of subdigital scales moderately enlarged, fingers with 4-5 scales on digits I, II and V, 6-7 on III and IV; toes with 4-5 on

digit I, 5-6 on II, 6-9 on III, 8-10 on IV and 6-8 on V; subdigital adhesive lamellae well developed, fingers with 5 lamellae to each digit, toes with 5 to digit I and 6 to remainder. Tail depressed, segmented, covered above with small irregular-sized imbricate scales, 3-4 rows to each segment, also a transverse row of 6-8 (8 basally and 6 distally) enlarged keeled pointed scales edging each segment posteriorly, largest on sides; below, scales much larger than above, smooth, imbricate, largest along median line, where over first 9-10 segments there is a pair of scales in front and a single transversely enlarged scale behind on each segment, thereafter single scales only with two to each segment (the inferomedian row of transversely enlarged scales may sometimes start from third segment).

**COLOUR.** (Adult.) Above, grey to greyish brown with irregular transverse bands or bars of reddish brown over back and tail, these crossbands are often broken up into large irregular-shaped spots on back; a brown streak from second upper labial through eye (edged above with white from nostril to eye), widening over temporal region and often linked up with its fellow round back of head by a much dentated or zigzag band; a few irregular spots on occiput; below creamy white to greyish white; tail usually banded with brown, at least over basal half, and often over distal portions alternately with black and white, bands completely encircle tail towards tip. In juveniles transverse barring well marked and regular, usually arranged in three pairs, one on nape and two on back, each pair enclosing an area paler and narrower than intervening spaces.

**DIMENSIONS.** (T.M. 17914), H. and B. 45, tail 44 (partly reproduced), length head 10.5, breadth head 9.3 mm. (T.M. 18118), H. and B. 42, tail (normal) 52 mm.

**FIELD NOTES.** Found only in rocky localities.

**REMARKS.** Two specimens from Soebatsfontein, T.M. 15949 and 15950, previously (1935, p. 528) placed by me under *P. c. gariesensis* are now referred to *P. weberi weberi*. The series of specimens from between O'okiep and Springbok appear to be more or less intermediate, approaching *P. w. gariesensis* in the longer contact of nasorostrals and the slightly smaller, less densely arranged dorsal tubercles.

### ***Pachydactylus weberi weberi?* Roux**

Eight specimens were collected: T.M. 17689-17695, at Aus, 31 July 1937; 17722, near Konkiep, 2 August 1937.

These specimens are apparently very close to *weberi*, but appear to differ in the greater density, stronger keeling and more regular longitudinal arrangement of the dorsal tubercles. Other characters noted were: snout more pointed, a little less than  $1\frac{1}{2}$  times diameter of the rather large eye and a little longer than distance from eye to ear-opening; nasorostrals in good contact; first upper labial entering eye; rostral subrectangular, slightly less than twice as broad as deep, enters nostril on one side only in one specimen; mental elongate as in *weberi*; upper labials 8-9 (usually 9), lower 7-8; dorsal tubercles in about sixteen longitudinal series, with a narrow area down middle of back granular and free of tubercles; subdigital scales and adhesive lamellae as in *weberi*; tail as in *weberi*.

**COLOUR.** Pale olive grey above, with dark brown irregular crossbars, sometimes edged with pinky brown and often enclosing patches of the same colour; a dark streak on side of head from nostril through eye and over ear, often encircling occiput behind; this streak between nostril and eye edged

above with yellow; upper eyelid yellow; head tinged with pink. Tail usually a light pinkish to yellowish brown, with narrow barring of dark brown (less than half as broad as pale interspaces), and enlarged scales yellow. Lower surfaces creamy to greyish white. Eye reddish.

DIMENSIONS. T.M. 17694, H. and B. 37, tail 43, length head 10.2, breadth head 8 mm.

FIELD NOTES. Taken usually under loose flakes of rock. A large accumulation of some 50-60 eggs and egg-shells was uncovered at Aus on lifting up a large slab of rock, leading one to presume that this was a favourable spot and thus used as a communal repository. The eggs are oval and average  $10 \times 6.5$  mm.

### *Rhotropella ocellata* (Boulenger)<sup>1</sup>

*Rhotropus ocellata* Boulenger, 1885, *Ann. Mag. Nat. Hist.* (5), xvi, p. 475 ("Cape Town").

Sixteen specimens were collected: T.M. 17888-17895 and 17898 at Klipfontein, 18 August 1937; 18016-18022 on rocky hills 15 miles east of Port Nolloth, 21 August 1937. The series comprises eight males, seven females and one juvenile.

Snout at least twice diameter of the rather small eye and about  $1\frac{1}{2}$  times distance from eye to ear-opening; rostral trapezoidal in shape, from  $1\frac{1}{2}$  to  $1\frac{2}{3}$  times as broad as deep; upper labials 7-8, lower 5-7; mental large and subtriangular, about  $1\frac{2}{3}$  as broad as deep, much broader at base than rostral and about twice as broad as adjacent lower labials; a series of enlarged well-defined polygonal chin shields, median pair in contact with mental; digits 2-5 much inflated distally and bearing 7-8 undivided transverse adhesive lamellae below; median row of subdigital scales on fingers transversely enlarged and somewhat swollen, on toes they may or may not be enlarged basally, but are always enlarged and swollen distally adjacent to the lamellae; tail segmented, with 6-7 (usually 6) scale rows above and 4-5 (usually 4) below to each segment; femoral and preanal pores in males arranged in one long uninterrupted series of 24 to 31 pores (24 in three specimens, 26 in one, 27 in one, 30 in two and 31 in one).

COLOUR. Above, light brown to greyish brown or grey to greyish black, with series of pale round spots and smaller dark spots over back, limbs and tail; pale spots sometimes absent, but when present are larger and more conspicuous on sides of body; below creamy to bluish white or pinkish, chin often suffused with grey. An inconspicuous dark streak sometimes present on side of head from nostril to ear-opening. Fully adult specimens are often tinged with orangy brown over lumbar region, groin and sides of tail base.

DIMENSIONS. Male (T.M. 17891), H. and B. 37, tail 43, length head 9.7, breadth head 7.8 mm.

FIELD NOTES. A very active diurnal gecko, living among rocks and boulders over which it runs rapidly in short lightning quick spurts, jumping across spaces of as much as six to ten inches with the utmost ease. The general colouring tones in well with the particular rocks which it frequents, and thus, unless carefully marked down when first seen, can very easily be lost sight of, especially as it often favours inconspicuous close-fitting flakes under which to hide.

<sup>1</sup> See Hewitt, 1937, *Ann. Natal Mus.* vii, p. 199.

**Rhotropus afer** Peters

*Rhotropus afer* Peters, 1869, *Mber. Berl. Akad.* p. 58 ("Damara Country").

Twenty-nine specimens were collected: T.M. 17407-17435, between Nonidas and Namib Station, 12 to 20 miles east of Swakopmund, 2 July 1937.

Nasal swellings separated anteriorly by 2 granules in eight specimens and by 3 in twenty-one, usually 4-5 granules in second row; smooth, flat, hexagonal scales over middle of throat usually larger than the rounded scales on belly, but in six specimens they are subequal in size or a little smaller; from one to three enlarged chin shields occasionally present. Enlarged subdigital scales on digits are as follows: fingers, 7 scales on digit I, 8 on II, 12-14 on III, 12-13 on IV and 10 on V; toes, 7 scales on digits I and II, 12 on III, 10 on IV and 8 on V. Subdigital adhesive lamellae: fingers, 6 lamellae on digits I-II, 7 on digits III-V; toes, 5 lamellae on digit I and 6 on II-V.

COLOUR. Above, pale grey to greyish brown, with scattered spots of rich and varying shades of brown (sometimes arranged to form irregular crossbars) and numerous pale spots of dirty white or yellow; legs usually paler above than back, being a light yellowish brown; tail banded above with dark brown and dull yellow. Below, chin, throat, anal region and underside limbs and tail bright yellow, chest and belly bluish white. Eye light brown.

DIMENSIONS. (T.M. 17411), H. and B. 49, tail 47, length head 14, breadth head 12.5, forelimb 22, hindlimb 35 mm.

FIELD NOTES. This species, although found in the same locality as *R. bradfieldi*, has a totally different habitat. It is confined to the dry open flats of gravelly sand and stones in the Namib Desert and does not apparently occur in the finer dune-sand areas. With the aid of its long well-developed hind legs, it can run with great rapidity over considerable distances, and to capture a series proves thus an exhausting business. I have known specimens to run for a distance of a hundred yards or more when pursued, before disappearing into a hole or under a stone.

**Rhotropus barnardi** Hewitt

(Plate III, fig. 3)

*Rhotropus barnardi* Hewitt, 1926, *Ann. S. Afr. Mus.* xx, p. 413, pl. XXXV, figs. 1-3 (near Eriksson's Drift, Kunene River, South-West Africa).

Forty-six specimens were collected: T.M. 16972-16977 and 16982-16986 from dolomite koppie, 4 miles east of Lake Guinas, 24 May 1937; 17190 and 17191 between Oshikondo and Kamanyab, 16 June 1937; 17243, 17265-17269, 17278 and 17284, at Kamanyab, 19 June 1937; 17290, 17303 and 17318, on Farm "Paderburn", 22 June 1937; 17334-17336, 17339 and 17346-17356, on Farm "Huab", 27 June 1937; 17373-17378 and 17382, at Kalkveld, 30 June 1937. The series comprises nineteen males, twenty-four females and three juveniles.

Snout at least twice diameter of eye, which equals about three-quarters of its distance from the ear-opening; rostral large, almost twice as broad as deep, with a median prolongation above, separating the nasal swellings anteriorly; nasal swellings are separated behind by a single large elongate granule in three specimens, by two granules (one behind the other) in thirty, by one granule in front and two behind in seven, by two granules in front and one behind in four and by two pairs of granules, one behind the other, in one; upper labials 9-10, lower 6-8; mental and first two lower labials much elongated

with their posterior borders usually forming a regular transverse line (sometimes slightly concave), mental exceptionally narrowing to a point behind and in two specimens only is the first labial on each side in contact with its fellow behind mental; adjoining mental and anterior labials behind is a row of 6-9 chin shields which extend backwards obliquely for some distance on each side. Median row of enlarged subdigital scales: fingers, 4-6 scales on digits I and II, 7-10 on III, 6-9 on IV and 5-7 on V; toes, 4-5 scales on digit I, 4-6 on II, 8-10 on III, 6-10 on IV and 5-7 on V. Transverse adhesive lamellae under distal expansions: fingers, 6-7 on digit I, 7-8 on II-V; toes, 6-7 on digit I and 7-8 (usually 8) on digits II-V. Tail depressed, segmented, with 6-7 scale rows to each segment above; below, a double row of enlarged scales along median line, there being three pairs of such scales to each segment; in reproduced tails there is a single median row of transversely enlarged subcaudal scales. In males preanal pores are arranged as follows: 3 pores on each side with a single intervening scale in six specimens, 3 pores on one side and 2 on the other with a single intervening scale in three, 3 pores on each side with two intervening scales in two, 2 pores on each side with a single intervening scale in two, and uninterrupted series of 4 pores in one specimen and 6 pores in five specimens.

COLOUR. A certain degree of variation in the colouring of specimens from different localities was noted. Lake Guinas: above, bluish grey to slate with scattered paler spots and series of dark reddish brown spots which occasionally fuse to form irregular crossbars over back; below, chin, throat and chest white to bluish white, belly pale bluish, underside hindlimbs creamy white, and tail pale grey to bluish white; reproduced tails uniform dull grey to greyish brown above. Kamanyab, Paderburn and Huab specimens: above, grey, greyish brown to yellowish or pinkish brown, with a more or less symmetrical patterning of dull maroon or reddish brown to dark brown or blackish, bearing pale and dark spots and enclosing large spots of the ground colour; tail banded above with dark brown and light yellowish brown; below, throat, chest and belly white, underside limbs and tail creamy yellow; sometimes a greyish infusion on chin and on sides of belly. Kalkveld specimens: above, dark grey to greyish or dark brown with scattered small black spots and larger rounded paler spots; below greyish white, underside limbs and anal region creamy yellow.

DIMENSIONS. Male (T.M. 17351), H. and B. 44, tail 42, length head 12.2, breadth head 11.5.

FIELD NOTES. These little geckos, unlike *R. boultoni*, are able to match their colouring to the type of rock on which they are living to a remarkable degree, and as a result are amazingly difficult to detect when at rest. On many occasions when pursued, I have seen them dart over a rock face and apparently disappear into thin air, when only a minute inspection of the rock face brings them to light again. Several batches of eggs in various stages of incubation were found, these are always glued firmly on to the rock in a crack or under a loose flake. The eggs are dead white and slightly oblong, measuring 11-12 × 9-10 mm. and stand from 5-6 mm. high (see Pl. III, fig. 3).

### **Rhotropus boultoni** Schmidt

*Rhotropus boultoni* Schmidt, 1933, *Ann. Carnegie Mus.* xxii, p. 7, text-fig. 2, pl. I (Pico Azevedo, Mossamedes, Angola).

Thirty specimens were collected: T.M. 17177-17189, between Oshikondo and Kamanyab, 16 June 1937; 17195-17199, 17236, 17237 and 17260-17262,

at Kamanyab, 17-19 June 1937; 17289, 17291, 17292 and 17317, at Paderburn, 22-24 June 1937; 17337, 17357 and 17358, at Huab, 27-29 June 1937. Series comprises eighteen males, seven females and five juveniles.

Snout over twice diameter of eye and about  $1\frac{1}{2}$  times distance from eye to ear-opening; rostral almost twice as broad as deep, with a median prolongation above separating nasal swellings anteriorly in all but one case, when nasal swellings are still separated behind by a single granule; in the other twenty-nine specimens the nasal swellings are separated behind by a single elongate granule in two cases, by one granule in front and one behind in fifteen and by one granule in front and two behind in twelve; upper labials 11-13 (usually 12-13), lower 8-10 (usually 8 or 9); mental and first two lower labials on each side much elongated with their posterior borders forming a more or less regular transverse line; a row of 8-9 distinctly enlarged chin shields adjoining mental and anterior labials and extending backwards obliquely for some distance on each side of throat; anteriormost lower labials in contact in middle line behind mental in one specimen; median row of enlarged subdigital scales are as follows: fingers, 5 scales on digit I, 7 on II, 9 on III, 7 on IV and 5 on V; toes, 6 scales on digit I, 7 on II, 12 on III, 10 on IV and 8 on V. Transverse adhesive lamellae under distal expansions are as follows: fingers, 10 lamellae on digits I and II and 12 on digits III-V; toes, 9 lamellae on digit I, 10 on II, 12 on III, 13 on IV and 12 on V. In males the preanal pores are arranged as follows: in two series of 3 on each side with a single intervening scale in seven specimens, in two series of 3 on one side and 4 on the other with a single intervening scale in six, in a continuous uninterrupted series of 5 in one, 7 in three and 8 in one. Tail depressed, thick at base, segmented, with about eight scale rows to each segment above. Median subcaudal scales enlarged from segment III onwards; segments III-VII with paired scales (three to each segment), the hindermost largest; segments VIII and IX each with two pairs and a single enlarged transverse scale; segment X with one pair and two large single scales; thereafter paired scales disappear, there being a single median row of transversely enlarged scales.

COLOUR. Above, dark sooty grey to sooty olive brown or blackish, with large, scattered, irregularly shaped, dark-edged spots and markings of dull brick red, sometimes these spots are arranged in irregular, broken-up transverse series over back; below, dull dark bluish grey to slate, underside forelimbs and posterior surface of tibia often paler. Eye reddish brown flecked with golden tints.

DIMENSIONS. Male (T.M. 17358), H. and B. 65, tail 71, length head 17, breadth head 16, forelimb 23, hindlimb 35.3 mm. Largest specimen, a male (T.M. 17182) has H. and B. 73 mm. (tail reproduced).

FIELD NOTES. Essentially rupicolous, frequenting the granitic boulder-strewn koppies which outcrop over the areas in which they occur. *R. barnardi*, although occurring in the same localities, is apparently confined to the smaller outcrops of rock found in the flats. The dark colouring of *R. boultoni* is apparently not protective, as these diurnal geckos stand out conspicuously on the light coloured rocks among which they live. If approached quietly while basking in the sun, they are reluctant to move and will permit a very close approach before finally dashing off rapidly to cover. Males appear to be somewhat aggressive and pugnacious, and were often observed chasing and fighting one another, while disabled specimens were pounced on immediately and mercilessly attacked.

**Rhotropus bradfieldi** Hewitt

*Rhotropus bradfieldi* Hewitt, 1935, *Rec. Alb. Mus.* IV, p. 307 (Messum River, South-West Africa).

Nine specimens were collected: T.M. 17396-17404, between Nonidas and Rossing, 15 to 20 miles east of Swakopmund, 2 July 1937.

Similar in general appearance to *R. boultoni*, but specifically distinct. Snout well over twice diameter of eye and about  $1\frac{3}{4}$  times distance from eye to ear-opening; nasal swellings very pronounced and conspicuous, separated by one scale in front and three behind in eight specimens and by two in front and four behind in one; rostral about  $1\frac{1}{2}$  times as broad as deep and projecting above between nasal swellings anteriorly; upper labials 11-13 (usually 12), lower 8-9 (usually 8); no definite series of chin shields, but scales over chin generally distinctly larger than those behind into which they graduate; median row subdigital scales enlarged: fingers, 5 on digits I and II, 9 on III and IV, and 6 on V; toes, 5 on digit I, 6 on II, 12 on III, 10 on IV and 8 on V. Transverse adhesive lamellae on fingers, 9 on digits I and II, 10 on III, IV and V; on toes, 9 on digits I and II, 10 on III and 11 on IV and V. Tail segmented, with about eight scale rows to each segment above; below, a median row of transversely enlarged scales from third segment, with three scales to each segment.

COLOUR. Above, sooty brown to blackish, with narrow indistinct black, zigzag or looped, crossbars; on tail each segment narrowly edged with black; below, uniform slate to bluish slate. Eye dark brown with golden brown flecking and edging to pupil slit.

DIMENSIONS. (T.M. 17399), H. and B. 60, tail 61.5, length head 17, breadth head 15, forelimb 26.5, hindlimb 34 mm.

FIELD NOTES. The above series were all taken on an outcropping ridge of black rock in the Namib Desert. Their dark colouring matched so well the black rocks among which they lived, that it was only by their movement that they were detected.

## Fam. AGAMIDAE

**Agama anchietae anchietae** Bocage

*Agama anchietae* Bocage, 1896, *J. Sci. Lisb.* (2), IV, p. 129 (Angola).

Twenty-three specimens were collected: T.M. 16852, 30 miles north of Keetmanshoop, 8 May 1937; 16981, near Lake Guinas, 23 May 1937; 17279, Kamanyab, 20 June 1937; 17297, 17298, 17313 and 17314, Paderburn, 23 June 1937; 17450-17452, near Karub, 3 July 1937; 17476, Liebig's Ranch, 9 July 1937; 17499, Neudamm, 15 July 1937; 17579, Maltahohe, 22 July 1937; 17714, between Kuibus and Konkiep, 1 August 1937; 17750, Seeheim, 3 August 1937; 17753-17758, 17802 and 17803, Berseba, 5 August 1937; 18235, Van Wyk's Vlei, 1 September 1937.

The majority of the above series are juvenile or subadult. Enlarged scales on back often irregularly scattered, well keeled and mucronate to almost smooth and flattened; varying considerably in number and in some cases being very few and inconspicuous; variation in foot and tibia length is fairly considerable and a feebly developed nuchal and vertebral crest may be present or absent; ventral scales may be quite smooth or distinctly keeled. These gradations and variations link up typical *anchietae* Boc. very closely with *methueni* Blgr. & Pow., and it is thus unlikely that *methueni* is separable, as has already been indicated by Parker (1936, p. 131).

DIMENSIONS. Female (T.M. 17450), H. and B. 69, tail 103 mm.

**Agama anchietae knobeli** Blgr. & Pow.

*Agama anchietae* var. *knobeli* Boulenger and Power, 1921, *Trans. Roy. Soc. S. Afr.* IX, p. 271, text-fig. ("Aus, in Namaqualand").

Two specimens were collected: T.M. 17707 and 17708, 8 miles west of Aus, 31 July 1937.

Two adult males, with nuchal and vertebral crests distinct, caudal crest well developed and conspicuous over middle third of tail, which is strongly compressed over distal three-quarters to four-fifths of its length and tapers rapidly terminally; 18 scales under third toe; scales on soles of feet not tipped with black; 12-14 preanal pores in a single row.

COLOUR. Above, dull bluish on back with darker and paler spots; a pale bluish white vertebral stripe; head bright blue; membrane round eye orange red; throat bright blue and chest greyish blue; inguinal region and underside tail orange yellow.

DIMENSIONS. Male (T.M. 17707), H. and B. 120, tail 170 mm.

FIELD NOTES. A rock-frequenting *Agama*, very similar in habits to *A. atra atra*.

**Agama atra atra** Daudin

*Agama atra* Daudin, 1802, *Hist. Nat. Rept.* III, p. 349 (locality unknown).

Twenty-two specimens were collected: T.M. 17773 and 17774, Brukkaros Mountain, 6 August 1937; 17834-17837, Kochena, 11 August 1937; 17877 and 17882, Goodhouse, 14 August 1937; 17945, 19153-19156, Klipfontein, 18 August 1937; 18077, 20 miles east of Port Nolloth, 22 August 1937; 18078-18081, between O'okiep and Springbok, 24 August 1937; 18139, Garies, 26 August 1937; 18184 and 18187, Hantamsberg, near Calvinia, 29 August 1937; 18193, Brandvlei, 30 August 1937.

In a few of the above specimens the dorsolateral scales on back are inclined to have their keels directed more or less inwards, and in this respect approach *A. anchietae*, but in all other respects they are typically *atra*. Preanal pores in males in a single row, from 12-16 in number; subdigital lamellae under third toe 19-24; in young specimens enlarged or spinose scales on back usually absent, likewise in adults from Klipfontein, Goodhouse and 20 miles east of Port Nolloth. In two adults from Calvinia scattered scales on back are distinctly enlarged and spinose.

COLOUR. Adult males dark greyish blue on back, vermiculated with dull maroon or brown and with scattered pale spots; a pale greenish to bluish white vertebral band usually present; sides of body dull maroon brown to orange red; cheeks creamy with network of maroon; head blue above; below, uniform bright blue, or throat and chest blue, with darker network of purplish maroon, and lower belly, underside hindlimbs, and tail greyish to creamy white; tail, above greyish white with darker bands, on sides orange yellow; scales on soles of feet (in adults) usually not black-tipped.

DIMENSIONS. Male (T.M. 19156), H. and B. 135, tail 175 mm.

**Agama atricollis** A. Smith

*Agama atricollis*, A. Smith, 1849, *Ill. Zool. S. Afr. Rept.* App. p. 14 ("Interior of Southern Africa and the country near Port Natal").

Six specimens were collected: T.M. 17105, 17106, 17111 and 17112, Oshikango, 1 June 1937; 17116 and 17122, between Oshikango and Ondonga, 4 June 1937.

Femoral pores in males in a double row, with 10–12 pores in each row.

COLOUR. Back dull bluish with enlarged scales light greenish blue; head and band down middle of back bluish green, becoming paler towards rump; chin and throat bright metallic blue; chest and sides of body dark blue; belly blackish.

DIMENSIONS. Male (T.M. 17111), H. and B. 140, tail 195 mm.

### *Agama hispida aculeata* Merrem

*Agama aculeata* Merrem, 1820, *Tent. Syst. Amph.* p. 53 (Cape of Good Hope).

Sixty-nine specimens were collected: T.M. 16873, 16874, 16882–16890, 16903–16910, 16920–16926, 16932, Okosongomingo, 15 May 1937; 16953 and 16954, between Lake Otjikoto and Nakusib, 22 May 1937; 16988, Lake Guinas, 25 May 1937; 16993 and 16994, 75 miles north of Namutoni, 27 May 1937; 17007–17009, 17022, 17023, 17025, 17031–17033, 17044–17046, 17062, 17080–17082, 17085, 17089, 17094, Oshikango, 30 May 1937; 17132–17134, Itota Dune, 12 June 1937; 17154, between Okaukuejo and Outjo, 14 June 1937; 17273, Kamanyab, 21 June 1937; 17361, Kalkveld, 29 June 1937; 17498 and 17500, Neudamm, 15 July 1937; 17620–17623, Sinclair Mine, 26 July 1937; 17668, Barby, 28 July 1937; 18192, Brandvlei, 30 August 1937; 18236–18239, Van Wyk's Vlei, 31 August 1937.

Specimens from Okosongomingo with enlarged scales on back a little larger and more conspicuously mucronate and spinose, than found in remainder of series.

COLOUR. Uniform above, or with series of dark and light spots on back on either side middle line; pale vertebral streak present or absent; vermiculations below vary from greenish, to blue, brick red and black.

DIMENSIONS. Male (T.M. 16910), H. and B. 114, tail 158 mm.

FIELD NOTES. Usually taken on the ground, and very fond of living in the holes of burrowing mammals such as Gerbilles, Ground Squirrels, Spring-hares, etc. At Oshikango most often found on old termite hills.

### *Agama hispida brachyura* Boulenger

*Agama brachyura* Boulenger, 1885, *Cat. Lix. Brit. Mus.* 1, p. 350, pl. XXVIII, fig. 1 ("Cape of Good Hope").

Three specimens were collected: T.M. 19160, 5 miles east of Port Nolloth, 20 August 1937; 18076, 20 miles east of Port Nolloth, 21 August 1937; 18126, near Kamaggas, 25 August 1937.

COLOUR. Male (T.M. 17905), verdant green above with very dark green to blackish spots arranged transversely across back; limbs and tail barred with dark green; enlarged spinose scales round ear-opening and over back yellowish green; throat green, belly paler, a darker network on throat extending over chest and belly; underside tail and soles of feet, yellow. Male (T.M. 18076), olive yellow above with brown markings; below yellow to yellowish green with large blotches of bluish green on chest and belly; throat uniform bluish green; lower lip yellow. Female (T.M. 18126), dull tangerine above with dark grey to slate crossbands and spots; head greenish blue; below white, except for chin and throat which are bluish green with a brighter green network extending faintly over chest and belly.

DIMENSIONS. Male (T.M. 17905), H. and B. 114, tail 123 mm. Female (T.M. 18126), H. and B. 105, tail 87 mm.

FIELD NOTES. Two specimens were taken on the tops of small Euphorbia bushes, where they were basking in the early morning sun, while the third specimen was found on the road.

### *Agama planiceps* Peters

*Agama planiceps* Peters, 1862, *Mber. Berl. Akad.* p. 15 ("Neu Barmen, Hereroland").

Thirty-seven specimens were collected: T.M. 17172, 17192-17194, between Oshikondo and Kamanyab, 17 June 1937; 17224-17235, 17249, 17251-17255, 17281, Kamanyab, 18 August 1937; 17327-17329, 17332, Paderburn, 24 June 1937; 17360, Huab, 27 June 1937; 17520-17523, 17542-17545, 17564, Kobos, 20 July 1937.

Preanal pores 8-14 (usually 12) in a single row.

COLOUR. Young, with large symmetrically arranged bright lemon yellow spots on head; stripe on side behind shoulder orange yellow; back greyish brown with darker and paler mottlings; a pale greyish band, black edged above and below, along back of thighs and continued along side of tail base; below white to pale lemon yellow, with or without longitudinal or clouded vermiculations on throat and chest. Adult males with head and neck a uniform bright terra-cotta to brick red, sometimes with small darker and paler spots over neck; back dark bluish brown, often with a purplish sheen anteriorly and scattered scales a dull green; tail reddish to orange brown above; chin and throat uniform terra-cotta as head or with small yellow spots; chest, belly and underside limbs dull purplish, bluish or slaty blue, darkest on middle of belly; underside tail greenish to yellowish white basally, orange to orange brown distally. Adult females with yellow markings on head and orange yellow side stripes as in young specimens; back greyish to olive brown, densely infused with dark purplish brown; chin and throat yellowish, often with cloudy vermiculations of dull grey on throat and chest; belly, underside limbs and tail greenish white.

DIMENSIONS. Male (T.M. 17332), H. and B. 112, tail 208 mm. Female (T.M. 17234), H. and B. 104, tail 196 mm.

FIELD NOTES. Very common on the boulder-strewn koppies scattered over the northern parts of South-West Africa. The males, in spite of their bright colouring, are not nearly so conspicuous as would at first be imagined, and in this respect resemble strongly *A. kirku*, which occurs in similar localities in the eastern part of the sub-continent.

### Fam. ZONURIDAE

#### *Zonurus campbelli* n.sp.

Nine specimens were collected: T.M. 17632-17635, 17637, 17673-17676, Farm "Barby", 10-20 miles east of Helmeringshausen, Great Namaqualand, 27 July 1937.

TYPE. Adult male, T.M. 17635. (Named after Mr Campbell, the owner of the Farm "Barby".)

DESCRIPTION. Head and body much depressed; head slightly longer than broad, not very strongly expanded in temporal region; temporal spines poorly developed; scales on head rugose and pitted; nostril directed upwards and outwards, in a single large nasal which is swollen and slightly tubular; nasals in contact in middle line behind rostral; frontonasal, large, six-sided, as

long as broad or a little longer than broad; prefrontals in good contact; interparietal lozenge-shaped, not separating anterior parietals; five upper labials to below middle of subocular, one or two hindmost strongly keeled; lower eyelid with a semi-transparent disc, not scaly; dorsal scales in 28 transverse series, longest row with 32 scales, moderately keeled above, more strongly keeled and spinose on sides, pronouncedly so on sides of neck; a granular lateral fold separating dorsals from ventrals; ventrals in 26 transverse series (from axillary to inguinal region) with 16-18 scales in longest row, the two outermost scales on each side much smaller and almost subgranular in appearance and two median rows of scales much broader than others; gular scales flat, non-granular, the anteriormost (or chin scales) larger than those immediately following behind, subequal to or a little larger than scales on middle of throat; caudal scales strongly keeled and spinose, especially so distally and on sides, where spines are longest, in 29-30 whorls; scales on limbs moderately spinose; a row of four somewhat large femoral pores on each side, anterior to which is a row of five much enlarged, conspicuous, modified (glandular) scales.

**COLOUR.** Above chestnut brown on back and tail, with irregular dark brown crossbars and spots and a wide band down middle of back bearing pale yellowish spots; head very dark above with scattered pale irregular spots, dark dorsal colour ends abruptly on side of head along superior margin of upper labials; tail more or less barred with dark brown. Below, greyish white with rusty infusion on chin and throat; underside forelimbs straw colour; modified scales on femur anterior to femoral pores, pale yellow.

**DIMENSIONS.** Type male, T.M. 17635, H. and B. 76, tail 88, length head 20, breadth head 18, forelimb 25, hindlimb 35 mm. Co-type female, T.M. 17637, H. and B. 79, tail (tip lost) 83, length head 19.7, breadth head 18, forelimb 26.5, hindlimb 35.6 mm.

**REMARKS.** The following variations were noted in co-type series: dorsals in 27 transverse series in two specimens, 28 in five and 30 in one; ventrals in 25-27 transverse series; six upper labials to below subocular in one specimen; row of five enlarged scales on femur in females, as in males, but flattened and not glandular; wide dark band down middle of back often in the form of a series of confluent rings, each bearing pale spots. This new form is similar in size and appearance to *namaquensis* but may be distinguished as follows:

<i>Z. namaquensis</i>	<i>Z. campbelli</i>
Nasals strongly swollen and definitely tubular	Nasals moderately swollen and feebly tubular
Second and third supraocular smooth	Second and third supraocular rugose as rest of head shields
Lower eyelid opaque, scaly	Lower eyelid semi-transparent, not scaly
Scales on upper surface limbs larger and more strongly spinose	Scales on upper surface limbs smaller and less strongly spinose
Femoral pores 9-10	Femoral pores 4
Scales on femur anterior to femoral pores not conspicuously enlarged	A row of five much enlarged scales on femur anterior to femoral pores (flattened in females, swollen and glandular in males)
A well-marked dark streak on side of head and two narrow streaks along sides of body; no pale spots down middle of back	No dark streak on side of head; no streaks on side of body; pale spots down middle of back

**FIELD NOTES.** Taken in rock cracks among outcrops on slopes of valley among rocky hills.

**Zonurus cataphractus** (Boie)

*Cordylus cataphractus* Boie, 1828, *N. Acta Ac. Leop.-Carol.* xiv, 1, p. 140 (presumed to be South Africa).

Fifteen specimens were collected: T.M. 18023-18026, 18066-18069, 18073 and 18074, 15 to 20 miles east of Port Nolloth, 22 August 1937; 18120-18123, 32 miles from Springbok on road to Kamaggas, 25 August 1937; 18129, near Kamaggas, 25 August 1937.

Femoral pores 12-15 (usually 14).

DIMENSIONS. Male (T.M. 18066), H. and B. 105, tail 102 mm.

**Zonurus jordani** Parker

*Zonurus jordani* Parker, 1936, *Novit. Zool.* xl, p. 133 (Hoffnung, near Windhoek).

Twenty-one specimens were collected: T.M. 16891-16893, Okosongomingo, 14 May 1937; 17468, near Karub, 3 July 1937; 17484, 17485, 17494-17497, 17512-17514, Neudamm, 16 July 1937; 17559-17562, Kobos, 20 July 1937; 17586, Helmeringshausen, 23 July 1937; 17669, Barby, 29 July 1937; 17712 and 17713, 15 miles east of Aus, 1 August 1937.

Dorsal scales on back in 31 transverse rows in two specimens, 32 in two, 33 in three, 34 in seven, 35 in three, 36 in three and 37 in one. Femoral pores in males, 4/5 in one specimen, 6/6 in five, 6/7 in six, 7/7 in two and 7/8 in two.

COLOUR. Above, usually olive to olive brown, uniform (in old specimens) or with dark irregular ill-defined transverse spots and bars; sides pale olive to yellowish olive, lower surfaces straw colour, with chin and throat often longitudinally vermiculated with greyish; no dark streak on side of neck from ear to forearm. An adult male from near Karub is straw yellow above, with irregular narrow ill-defined dark brown transverse bars on back and tail; head greyish yellow with a few small dark spots on occiput; below pale yellowish white.

DIMENSIONS. Male (T.M. 17468), H. and B. 125, tail 126, length head 32.7, breadth head 28.4 mm. Female (T.M. 17496), H. and B. 127, tail 128, length head 32.2, breadth head 28.2 mm.

REMARKS. As noted by Parker (1936, p. 133) these northern specimens, formerly included under *Z. polyzonus*, are quite distinct and may be easily separated on the characters which he gives. In addition to the characters mentioned by Parker, it may be added that specimens of *jordani* lack the black streak on side of neck (so characteristic of *polyzonus*), appear on the average to attain to a larger size, with spines on femur and tail much more strongly developed, and lastly have only five large shields bordering lower labials below, whereas in *polyzonus* there are usually six.

**Zonurus namaquensis** Methuen & Hewitt

*Zonurus namaquensis* Methuen & Hewitt, 1914, *Ann. Transv. Mus.* iv, p. 137 (Narudas Sud, Great Karas Mountains).

Three specimens were collected: T.M. 17838-17840, Kochena, 11 August 1937.

Dorsals in 29 transverse rows in one specimen and 30 in two, longest row with 28, 30 and 32 scales respectively; ventrals in 26, 27 and 28 transverse series,

longest row with 18 scales, the two outermost on each side being distinctly keeled; 4-5 upper labials anterior to subocular; femoral pores in male 9/10; two irregular rows of scales on femur anterior to femoral pores in male much modified and swollen, 10-12 in number.

COLOUR. Above, light to dark chestnut brown with dark brown spots and mottlings, which are more densely aggregated down middle of back; head heavily spotted; a dark streak from nostril through eye, ending just anterior to ear-opening or continuing on side of neck to forearm; a narrower streak from posterior corner of eye along upper edge of temporals to back of head; lower labials dark edged; two dark brown lateral streaks on each side of body, sometimes interrupted. Below, dirty white to light muddy brown, underside tail light brown.

FIELD NOTES. Taken in rock cracks on lower slopes of mountains.

### *Zonurus peersi* Hewitt

*Zonurus peersi* Hewitt, 1932, *Ann. Natal Mus.* VII, p. 116, pl. VI, fig. 12 (Garies, Little Namaqualand).

Eleven specimens were collected: T.M. 18085-18093, between O'okiep and Springbok, 24 August 1937; 18124 and 18125, 32 miles from Springbok on road to Kamaggas, 25 August 1937.

Fronto-nasal well separated from rostral by suture of nasals; prefrontals in fair or short contact in nine cases, narrowly separated in two; dorsal scales in 22-24 (usually 23) transverse rows from occiput to base of tail, longest row with 16 scales; ventrals in 23-25 transverse series, with 10 scales (excluding the much reduced outermost row) in longest row; femoral pores in males are 9/10 in one, 10/10 in one and 10/11 in four; modified yellow scales in front of pores in a single or double irregular row, with 9-13 such scales on each side.

COLOUR. Above and below, uniform shiny black; femoral pores in males watery yellow in colour and patch of modified scales anterior to pores lemon yellow.

DIMENSIONS. Male (T.M. 18090), H. and B. 78, tail 91, length head 22.3, breadth head 19; female (T.M. 18088), H. and B. 81, tail 97, length head 22, breadth head 18.5 mm.

FIELD NOTES. Found in cracks and crevices on the slopes of rocky boulder-strewn koppies; the latter were also inhabited by *Z. polyzonus*, which were, however, apparently confined to the lower slopes, while *Z. peersi* occurred on the upper. These little Zonures are fairly conspicuous and easily spotted, and appeared to be much less timid than is usual among rock-frequenting members of this genus.

### *Zonurus polyzonus* (A. Smith)

*Cordylus polyzonus* A. Smith, 1838, *Ann. Mag. Nat. Hist.* (2), II, p. 31 (South Africa).

Thirty-one specimens were collected: T.M. 17598, 17599 and 17636, Barby, 25 July 1937; 17709, Aus, 1 August 1937; 17938-17942, 17968-17971, Klipfontein, 18 August 1937; 18027-18029, 18070-18072, 20 miles east of Port Nolloth, 22 August 1937; 18082-18084, between O'okiep and Springbok, 24 August 1937; 18130, near Kamaggas, 25 August 1937; 18186, Calvinia, 29 August 1937; 18205-18208, Bros Pan, 30 August 1937; 18243, 18244 and 18435, Van Wyk's Vlei, 31 August 1937.

Dorsal scales in 38-46 transverse rows on back from occiput to base of tail; femoral pores 13-19.

COLOUR. Olive, olive brown, dark brown to blackish above, with paler or both paler and darker, transverse spots on back; a dark streak present on side of neck from ear-opening to forearm; below dirty, white, yellowish white or olive white, uniform or with greyish infusions and sometimes indistinct vermiculations on throat. Specimens from Van Wyk's Vlei and Bros Pan are dark brown above, with paler and darker spots; sides and under surfaces carnelian red to terra-cotta in males; in females colour localized to chin, throat and sides, with chest and belly creamy yellow; patch of modified scales on femur anterior to femoral pores in males, yellow; black streak on side of neck distinct.

DIMENSIONS. Male (T.M. 18206), H. and B. 116, tail (tip lost) 121, length head 32, breadth head 28.6 mm.

### *Platysaurus capensis* A. Smith

*Platysaurus capensis* A. Smith, 1844, *Ill. Zool. S. Afr. Rept.* pl. XL ("Great Namaqualand").

Twelve specimens were collected: T.M. 17867-17876, 17878 and 17879, Goodhouse, 14 August 1937.

Nasals narrowly separated in one specimen; femoral pores 15-17 on each side.

COLOUR. Males, head and anterior two-thirds to three-quarters of back cobalt to peacock blue, with slightly paler longitudinal stripes and spots; posterior part of back, upper side hindlimbs and tail greyish brown, indistinct crossbands on tail; posterior third of flanks, groin and anterior surface hindlimbs tangerine, distal half of forelimbs pale green. Below, chin, throat, forelimbs and anterior two-thirds of belly navy blue; posterior third belly, underside hindlimbs and anterior half tail tangerine. Females, dull grey to olive above, with pale median streak faintly marked, lateral streaks distinct extending to rump; scattered pale spots over back and sides. Below, bluish to greenish white on chin and throat, forelimbs, chest and anterior half of belly; posterior half belly pinkish grey; tail greyish.

DIMENSIONS. Male (T.M. 17867), H. and B. 70, tail 114 mm. Female (T.M. 17874), H. and B. 68, tail 110 mm.

FIELD NOTES. Found among large rocks and boulders abutting on to Orange River (south bank). The males with their bright colouring prove particularly conspicuous.

### Fam. VARANIDAE

#### *Varanus albigularis* (Daudin)

*Tupinambis albigularis* Daudin, 1802, *Hist. Nat. Rept.* III, p. 72, taf. 32.

Three specimens were collected: T.M. 16930, Okosongomingo, 15 May 1937; 17256 and 17285, Kamanyab, 18-21 June 1937.

These specimens appear to be typical *albigularis* (with 138-147 scales round middle of body, 92-99 transverse rows of scales from collar to thighs and 77-78 scales in fortieth caudal verticil) and thus do not fall under Schmidt's *angolensis*, described from Bihe, Angola (1934, p. 10).

Fam. **AMPHISBAENIDAE****Amphisbaena quadrifrons** Peters

*Amphisbaena quadrifrons* Peters, 1862, *Mber. Berl. Akad.* p. 25 (Hereroland).

Eight specimens were collected: T.M. 17155-17159, between Okaukuejo and Outjo, 14 June 1937; 17479-17481, Liebig's Ranch, 30 miles south-west of Windhoek, 9 July 1937. Series comprises four adult and four juvenile specimens.

Okaukuejo-Outjo specimens have 224 to 226 annuli on body and 40 to 45 on tail, each annulus with 18 dorsal and 16 ventral segments; specimens from Liebig's Ranch have 237 to 242 annuli on body and 43 to 47 on tail, each annulus with 18-20 dorsal and 18 ventral segments. Four distinct preanal pores always present.

**COLOUR.** Above, pinky mauve anteriorly, passing over posterior half of body to brownish or purplish mauve, darkest on tail; below paler.

**DIMENSIONS.** T.M. 17157, H. and B. 174, tail 28 mm.

**FIELD NOTES.** Okaukuejo-Outjo specimens were found in mixed mopani and thornbush country, under loose pieces of surface limestone lying on black turfy soil; specimens from Liebig's Ranch were found under stones lying on sandy ground in open scrub country.

**Monopeltis quadriscutata** Werner

*Monopeltis quadriscutata* Werner, 1910, *Jena. Denkschr.* xvi, p. 328 (German South-West Africa).

A single adult specimen, T.M. 16937, from Waterberg, 17 May 1937.

Body with 180 annuli above (173 complete annuli from behind pectoral shields to vent), tail 7; each annulus about middle of body with 22 dorsal and 16 ventral segments.

**COLOUR.** Above, mauvy brown to purplish brown, paler below.

**DIMENSIONS.** H. and B. 265, tail 12 mm.

**FIELD NOTES.** Taken in moist loamy soil under stone at foot of mountains.

Fam. **LACERTIDAE****Nucras tessellata** (A. Smith)

*Lacerta tessellata* A. Smith, 1838, *Ann. Mag. Nat. Hist.* (2), II, p. 92 ("Eastern parts of Cape Colony").

Six specimens were collected: T.M. 17952-17954, Klipfontein, 18 August 1937; 18030, 20 miles east of Port Nolloth, 22 August 1937; 18056, Steinkopf, 23 August 1937; 18179, Calvinia, 29 August 1937.

Femoral pores 12-15 on each side; subdigital lamellae 27-30.

**COLOUR.** In adult males from Little Namaqualand, pale stripes above have disappeared; sides of head and anterior half of body with well-defined black and white vertical stripes; posterior half of body and the tail light brown to orange brown. Female from Calvinia greyish brown above, three outer stripes on each side indistinct and extending only over anterior half of back; no vertical stripes on sides. In juveniles the pale longitudinal stripes above are well defined and eight in number, the outermost but one on each side, usually broken up into a series of white spots.

**DIMENSIONS.** Male (T.M. 18030), H. and B. 66, tail 208, length head 14.5, breadth head 8.6 mm.

***Ichnotropis capensis* (A. Smith)**

*Algyra capensis* A. Smith, 1838, *Ann. Mag. Nat. Hist.* 11, p. 94 ("Latakoo").

Six specimens were collected: T.M. 16868, Okosongomingo, 13 May 1937; 17006, 17030, 17049, 17051 and 17086, Oshikango, 31 May 1937.

Femoral pores vary from 11-13 on each side.

COLOUR. Above, uniform olive grey; a buff-coloured lateral band from eye to groin, on flanks pale edged above and dark edged below; a well defined white streak from below eye through ear to base of tail; below white. Tail buff to orangy brown above, paler below; hindlimbs pale buff with whitish ocelli above; in males pinkish below and behind.

***Ichnotropis squamulosa* Peters**

*Ichnotropis squamulosa* Peters, 1854, *Mber. Berl. Akad.* p. 617 (Tette, Mozambique).

Two specimens were collected: T.M. 17071 and 17078, Oshikango, 31 May 1937. Femoral pores 13-14 on each side.

***Eremias capensis* (A. Smith)**

*Lacerta capensis* A. Smith, 1838, *Ann. Mag. Nat. Hist.* 11, p. 93 ("Arid districts of Cape Colony").

A single specimen was collected, T.M. 18190, 20 miles south of Brandvlei, 29 August 1937.

An immature specimen exhibiting a distinctive colour phase. Above, black with narrow white longitudinal stripes, comprising a median stripe bifurcate from between shoulders anteriorly, a dorsolateral stripe from posterior corner of eye over body and base of tail, and a wider lateral stripe from labial margin to groin; limbs with conspicuous white spots; head dark grey, infuscated with black; below white. Tail buff above over distal half, pinkish below.

***Eremias lineo-ocellata* Dum. & Bibr.**

*Eremias lineo-ocellata* Dumeril & Bibron, 1839, *Erpet. Gen.* v, p. 314 (South Africa).

Seventy-four specimens were collected: T.M. 17470 and 17474, Liebig's Ranch, 9 July 1937; 17488, Neudamm, 14 July 1937; 17575-17578, Maltahohe, 22 July 1937; 17582 and 17583, near Grootfontein (G.M.), 23 July 1937; 17628, Sinclair Mine, 26 July 1937; 17648-17651, 17653-17663, 17665-17667, Barby, 28 July 1937; 17716, between Kuibis and Konkiep, 1 August 1937; 17733, near Konkiep, 2 August 1937; 17734-17736, 17742, 17743, 17745, 17747-17749, Seeheim, 3 August 1937; 17760, 17762, 17763, 17765-17767, Berseba, 5 August 1937; 17807-17815, Great Fish River Valley, between Berseba and Keetmanshoop, 6 August 1937; 17958-17967, Klipfontein, 18 August 1937; 18174-18176, Nieuwerust, 27 August 1937; 18177, 18178 and 18181, Calvinia, 29 August 1937; 18191, 20 miles south of Brandvlei, 30 August 1937; 18240-18242, Van Wyk's Vlei, 31 August 1937.

Within the above series are represented all the colour forms grouped under *pulchella*, and previously described by me (1935, pp. 540-1).

**Eremias lugubris** (A. Smith)

*Lacerta lugubris* A. Smith, 1838, *Ann. Mag. Nat. Hist.* II, p. 93 ("District immediately beyond Northern frontier of the Colony").

Sixteen specimens were collected: T.M. 16946, 16947 and 16950, Waterberg, 17 May 1937; 16980, near Lake Guinas, 24 May 1937; 16991 and 16992, between Namutoni and Ondonga, 27 May 1937; 17004, 17005, 17035, 17072-17074, 17097-17100, Oshikango, 30 May 1937.

Series comprises three adults, five subadults and eight juveniles, showing all the colour gradations as described by Boulenger (1921, *Mon. Lacert.* II, p. 241).

**Eremias namaquensis namaquensis** Dum. & Bibr.

*Eremias namaquensis* Dumeril & Bibron, 1839, *Erpet. Gen.* v, p. 307 (Great Namaqualand).

Twenty-five specimens were collected: T.M. 16859-16862, Asab, 8 May 1937; 17271 and 17280, Kamanyab, 20 June 1937; 17438-17442, near Karub, 3 July 1937; 17627, Sinclair Mine, 26 July 1937; 17664, Barby, 28 July 1937; 17759, 17761, 17764 and 17768, Berseba, 5 August 1937; 17819, Great Fish River Valley, between Berseba and Keetmanshoop, 8 August 1937; 17857-17859, 10 miles north of Goodhouse, 13 August 1937; 17848-17886, Bushman Flats, 10 miles south of Goodhouse, 16 August 1937; 18198, Brandvlei, 30 August 1937.

The above series comprises for the most part juvenile and subadult specimens, and exhibits a wide range of colour markings. Specimens from the desertic areas near Karub and the Bushman Flats, south of Goodhouse, have the pale stripes white, well marked, and as broad as the dark stripes, while the opposite extreme is found in specimens from Berseba and the Great Fish River, where the pale stripes are reduced to almost thread-like width, and the general appearance is thus very dark.

**Eremias undata** (A. Smith)

*Lacerta undata* A. Smith, 1838, *Ann. Mag. Nat. Hist.* II, p. 93 ("Northern and western parts of the Cape Colony").

*Eremias inornata* Roux, 1907, *Zool. Jb. Syst.* xxv, p. 427, pl. XV, figs. 1-3.

Sixteen specimens were collected: T.M. 17028, 17029, 17050, 17075-17077, Oshikango, 30 May 1937; 17168, 20 miles north of Outjo, 16 June 1937; 17272, Kamanyab, 21 June 1937; 17299 and 17300, Paderburn, 22 June 1937; 17469, 17471-17473, 17475, Liebig's Ranch, 9 July 1937; 17483, Neubaumis, 11 July 1937.

COLOUR. Adults, with head densely speckled with black; pale stripes over back buff coloured and dark stripes reddish brown; a series of greenish spots along sides of body. In juveniles, pale stripes above are white or pale yellow anteriorly, passing to orange yellow behind; head usually olive to olive grey; hindlimbs and tail salmon pink to salmon orange.

A series of twenty-six specimens of the colour variety, described by Roux, as *E. inornata*, were collected: T.M. 16869-16872, Okosongomingo, 14 May 1937; 17443-17449, near Karub, 3 July 1937; 17626, Sinclair Mine, 26 July 1937; 17715, between Kuibis and Konkiep, 1 August 1937; 17737, 17744,

17746, 17751 and 17752, Seeheim, 3 August 1937; 17777-17779, Brukkaros Mountain, 6 August 1937; 17805, 17806, 17816-17818, Great Fish River Valley, between Berseba and Keetmanshoop, 8 August 1937.

COLOUR. Above more or less uniform powdery grey to greyish brown or pale buff, often passing in adults to dull salmon posteriorly over hindlimbs and tail; below pinkish; juveniles and half-grown specimens often with whitish dark-edged ocellar spots on sides of body and on limbs. Specimens from near Karub are very pale, being a very light greyish olive anteriorly passing to pale straw colour or light buffy yellow behind, with darker vertically elongate spots on the sides.

FIELD NOTES. The *inornata* colour form is usually confined to open, arid stone covered flats, while the typical form is usually found in more mixed country where vegetation is more plentiful and conditions generally less arid.

### *Scaptira ctenodactyla* (A. Smith)

*Lacerta ctenodactyla* A. Smith, 1838, *Ann. Mag. Nat. Hist.* (2), 11, p. 93 ("Sandy deserts of Little Namaqualand").

Ten specimens were collected: T.M. 17977-17982, 18008 and 18009, 5 miles east of Port Nolloth, 20 August 1937; 18051 and 18075, 20 miles east of Port Nolloth, 22 August 1937. Series comprises eight adults and two juveniles.

Nasals in contact in seven specimens, separated in three; femoral pores 33-34 on each side.

COLOUR. Adult male, uniform orange brown to russet above; females pale greyish to greyish brown above, densely reticulated and speckled with darker.

### *Scaptira knoxii* (Milne-Edwards)

*Lacerta knoxii* Milne-Edwards, 1829, *Ann. Sci. Nat. Paris*, xvi, p. 76 ("Cape of Good Hope").

Twenty-three specimens were collected: T.M. 17955 and 17956, Klipfontein, 18 August 1937; 17973-17976, 18010 and 18011, 5 miles east of Port Nolloth, 20 August 1937; 18031-18037, 18048 and 18049, 20 miles east of Port Nolloth, 22 August 1937; 18058 and 18059, between O'okiep and Springbok, 24 August 1937; 18170-18173, Nieuwerust, 27 August 1937.

Specimens from the sand dune area near Port Nolloth are much paler and not nearly so richly coloured as those from further inland.

### *Scaptira suborbitalis* (Peters)

*Eremias suborbitalis* Peters, 1869, *Oefvers. Vet. Akad. Forh.* p. 658 (Damaraland).

Seventeen specimens were collected: T.M. 17392, near Karub, 1 July 1937; 17405 and 17406, between Nonidas and Namib Station, 2 July 1937; 17687, 30 miles north of Aus, 30 July 1937; 17701-17704, 8 miles west of Aus, 31 July 1937; 17710 and 17711, 10 miles east of Aus, 1 August 1937; 17860, 10 miles north of Goodhouse, 13 August 1937; 17887, Bushman Flats, 10 miles south of Goodhouse, 16 August 1937; 18050, 20 miles east of Port Nolloth, 22 August 1937; 18194-18197, Brandvlei, 30 August 1937.

Femoral pores 14-20 on each side.

COLOUR. Two adult specimens from between Nonidas and Namib, are a pinky slate or bronzy pink above, with irregular shaped dark spots arranged in longitudinal series over back; limbs barred; below creamy white with metallic lustre; soles of feet yellow. A specimen from near Karub, retains only two median dark longitudinal bands, broken up in the form of a series of squarish spots, remainder of back and limbs with large round pale bluish dark-edged spots.

Fam. **GERRHOSAURIDAE**

**Gerrhosaurus flavigularis nigrolineatus** Hallowell

*Gerrhosaurus nigrolineatus* Hallowell, 1857, *Proc. Acad. Nat. Sci. Philad.* ix, p. 49 (Gaboon, West Africa).

Seventeen specimens were collected: T.M. 17036-17039, 17041-17043, 17067-17070, 17090, 17093, 17096, 17101, 17102 and 17113, Oshikango, 31 May 1937.

Frontonasal<sup>1</sup> longer than broad in thirteen specimens, as broad as long in three and longer than broad in one; prefrontals in long contact; dorsals strongly keeled, not striated except for a few rows just behind head, in 24 longitudinal series and 55-58 (usually 57) transverse rows; lateral scales keeled in adults; scales on soles of feet imbricate and keeled; 14-17 scales under fourth toe; femoral pores 15-18 on each side; length of head into length from snout to vent, 4.2-4.8 (average 4.4) times; length head and body into length tail, 2.06-2.64 (average 2.3) times.

COLOUR. Adults above, light brown to brown, with scales darker spotted; dorsolateral streaks, from upper posterior corner of eye or back of head over back and anterior third of tail, pale lemon yellow and dark edged; a pale dark-edged vertebral streak from back of head to anterior third of tail occasionally present, usually broken up or absent; sides of body light olive to olive brown, with scattered yellow spots and often light reddish spots low down on sides. Below, a uniform pale yellowish white. In juveniles the dark spots above are arranged to form irregular transverse bars; median pale streak usually broken up into a series of narrow, black-edged spots; pale spots on sides arranged in more or less regular vertical series.

DIMENSIONS. Male (T.M. 17067), H. and B. 154, tail 337 mm.

FIELD NOTES. Very shy and found living in thick bushy undergrowth.

**Gerrhosaurus validus damarensis** n.subsp.

(Fig. 9)

Three adult specimens were collected: T.M. 17277, Kamanyab, 19 June 1937; 17287 and 17288, Paderburn, 22 June 1937.

TYPE. Adult male, T.M. 17288.

DESCRIPTION. Prefrontals forming a short suture; tympanic shield small, crescentic, narrow, with greatest breadth distinctly less than half depth; subocular reaches the lip, with labial margin over two-thirds length of upper border; 4-6 upper labials anterior to subocular; dorsals tricarinate, in 54 transverse and 29 longitudinal rows; ventrals in 14 longitudinal rows; femoral pores 20; scales under fourth toe 16-17.

<sup>1</sup> In table of characters of *G. f. flavigularis* and *G. f. nigrolineatus* (1935, *Ann. Transv. Mus.* xvi, p. 366), read "frontonasals" for "frontals".

**COLOUR.** Very dark to blackish brown on back, paler on head; each scale on back and tail with an elongate yellow spot (almost coalescing dorsally, coalescing on sides) forming regular longitudinal series; dorsolaterally three rows of spots are enlarged and coalesce to form a series of wider distinctly marked longitudinal streaks from back of head to basal portion of tail; head with conspicuous, symmetrical markings and spots of yellow; limbs spotted with yellow. Below, russet to vinaceous brown, paler over chest and darker on belly; pale yellowish spots or short longitudinal streaks on throat; underside of tail dark brown.

**DIMENSIONS.** Type male (T.M. 17788), H. and B. 211, tail 338, length head 43, breadth head 30, forelimb 59, hindlimb 80, foot 38 mm.

**REMARKS.** Variations in paratype and specimen from Kamanyab as follows: dorsals in 50 and 55 transverse and 25 and 27 longitudinal rows; ventrals in 12 and 14 longitudinal series; femoral pores 22; lamellae under fourth toe 15 and 16. This form is readily distinguished from typical *validus* of the east,

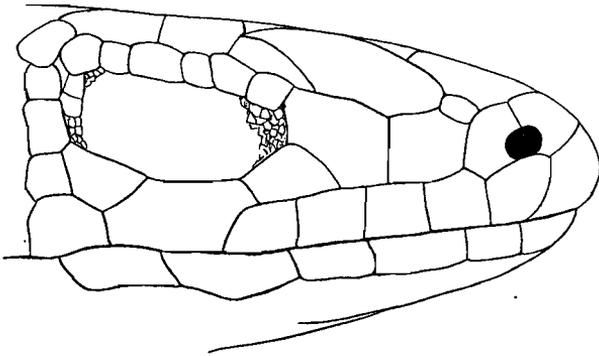


Fig. 9. *Gerrhosaurus validus damarensis* n.subsp. Side view of head, showing subocular reaching lip.

on the subocular character, the narrow tympanic shield (in *validus* greatest breadth is well over half depth), fewer subdigital lamellae (in *validus* 19-24) and the generally larger yellow spots on head and body and the more conspicuous dorsolateral streaks.

**FIELD NOTES.** Very shy and retiring, usually a single specimen found occupying an isolated outcrop of rocks; never observed on the large koppies, seemingly preferring the small outcrops.

#### ***Gordylosaurus trivittatus trivittatus* (Peters)**

*Gerrhosaurus trivittatus* Peters, 1862, *Mber. Berl. Akad.* p. 18 (Neu Barmen, Hereroland).

Five specimens were collected: T.M. 17163, between Okaukuejo and Outjo, 14 June 1937; 17362, 17383-17385, Kalkveld, 29 June 1937. Three adults and two juveniles.

In juveniles the sutures on top and back of head are distinct, and fronto-parietals, interparietal and parietals are thus all clearly differentiated. In the adults, however, these sutures become almost completely obliterated, resulting in the fusion of the above mentioned shields into one large parieto-occipital

shield. Intermediate stages were noted in a series of specimens in the Transvaal Museum, from Great Namaqualand, and it would thus appear that the presence or absence of individual shields over back of head is of no specific importance, but merely a matter of age.

Femoral pores (functional) 5 in four specimens and 6 in one with usually in addition 2-3 non-functional pores on each side. Tympanic shield very narrow, much narrower than hinder superior temporal; carination of scales distinct, while median keels over posterior half of body are well differentiated.

COLOUR. Pale stripes above, yellowish or pale buff on head passing over back to pinky buff or pale greenish blue, and over tail bluish green basally to bright blue distally and below; below, chin pinky buff, chest and belly dirty white.

DIMENSIONS. T.M. 17383, H. and B. 49, tail 73, length head 8.7, breadth head 5.7 mm.

FIELD NOTES. No. 17163 was taken in a small hole at the foot of a Mopane tree, while Kalkveld specimens were all found in sandy soil under stones on an open hillside.

REMARKS. In regard to the characters used by Hewitt (1932, p. 114) to separate his *australis*, the following notes on a series of six specimens in the Transvaal Museum collection may be of interest. Three specimens (Klaver, Kuibis and Narudas Sud) agree well with Hewitt's description except that in the Klaver specimen there are 7 femoral pores and in the Narudas Sud specimen there are 8 femoral pores and a single large superior temporal scale. In the three other specimens, all from Kuibis, the pale dorsolateral stripe, though less than two scales width over body, yet encroaches on to both superior temporals; femoral pores 7/7, 8/8 and 7/9.

#### Fam. SCINCIDAE

##### *Mabuya acutilabris* (Peters)

*Euprepes acutilabris* Peters, 1862, *Mber. Berl. Akad.* p. 19 (Neu Barmen, Hereroland).

Six specimens were collected: T.M. 17171, between Oshikondo and Kamanyab, 16 June 1937; 17306, 17308-17310, Paderburn, 22 June 1937; 17820, Great Fish River Valley, between Berseba and Keetmanshoop, 8 August 1937.

COLOUR. Cinnamon or light brown above with blackish or dark brown spots, scattered over back or arranged to form irregular transverse bars; a pale dorsolateral streak from nape to base of tail; a whitish lateral streak present or absent; dark spots on sides vertically elongate; head not spotted.

DIMENSIONS. T.M. 17309, H. and B. 45, tail 83 mm.

##### *Mabuya binotata* (Bocage)

*Euprepes binotatus* Bocage, 1867, *Jorn. Sci. Lisb.* 1, p. 230, pl. III, fig. 3 (Benguella, Angola).

Eleven specimens were collected: T.M. 16989, between Nakusib and Namutoni, 25 May 1937; 17084, 17087, 17088, 17103, 17107-17110, Oshikango, 31 May 1937; 17331 and 17333, Paderburn, 25 June 1937.

Subocular narrows inferiorly, but labial margin at least half length of upper margin in ten specimens, subocular not reaching lip on one side and labial margin on other side only two-fifths of upper, in one case. Prefrontals

in contact in ten specimens, separated in one; five upper labials anterior to subocular. Subdigital lamellae smooth, except occasionally when a few distal lamellae may be moderately keeled; scales on soles of feet not spinose. Anterior angle of frontonasal not or but slightly obtuse. 37-38 scales round middle of body.

COLOUR. Adults, a uniform olive grey above, head usually with a faint buffy tinge; a wide black band on each side from posterior corner of eye passing through upper half of ear opening and fading out above forearm. Below dirty white to greyish white, chin and throat spotted with greyish brown; underside tail grey. Juveniles are similar to adults but with scattered dark brown spots above.

DIMENSIONS. T.M. 17333, H. and B. 127, tail 164, length head 29.8, breadth head 23 mm.; another specimen, T.M. 17088, has H. and B. 125 and tail 175 mm.

REMARKS. This form is quite distinct from *M. quinquetaeniata* of which it was made a synonym by Boulenger (1887, p. 198). Hewitt (1935, p. 304) placed it as a subspecies of *M. striata*, but on structural differences and the fact that it occurs side by side with the latter, I am inclined to regard it as a distinct species.

FIELD NOTES. An arboreal form, invariably found living in holes in trees, particularly Mopani, which, owing to the rotting of the heartwood, provide the most suitable retreats. They seldom venture far from their holes, near which they can often be seen basking in the sun ready to disappear at the slightest alarm.

### Mabuya damarana (Peters)

*Euprepes damaranus* Peters, 1869, *Oefvers. Vet. Akad. Forh.* p. 660 (Damaraland).

Twenty-five specimens were collected: T.M. 16978, Lake Guinas, 23 May 1937; 17166, 20 miles north of Outjo, 15 June 1937; 17169 and 17170, between Oshikondo and Kamanyab, 16 June 1937; 17216, 17274, Kamanyab, 17 June 1937; 17296, 17307, 17325 and 17326, Paderburn, 22 June 1937; 17369, 17370 and 17390, Kalkveld, 30 June 1937; 17393 and 17453, near Karub, 1 July 1937; 17437, near Arandis, 2 July 1937; 17548, Kobos, 19 July 1937; 17827-17829, Kochena, 10 August 1937; 17944, 17947-17949, Klipfontein, 18 August 1937; 17972, 5 miles east Port Nolloth, 20 August 1937.

The above specimens agree well with the resuscitated species *damarana*, the distinguishing characters of which are given by Parker (1936, p. 137). The nostril is in all cases directed more or less vertically upwards and separated from the first upper labial by a distance as great as or a little less than its own diameter; centre of nostril vertically above suture of rostral and first labial or in many cases well anterior to latter; subocular usually much narrowed inferiorly and at most labial margin not more than half length of superior border; ear lobules elongate slender and lanceolate, three present in all but two cases where there are but two.

COLOUR. A considerable variation in colour markings was noticed: Nos. 17166 and 17274 are uniform buffy brown above; Nos. 17393, 17437 and 17453 are straw colour to buffy brown above with faintly marked darker spots in longitudinal series over back and a very faintly marked dorsolateral streak present; Nos. 17169, 17216, 17325, 17326 and 17296 are light olive brown above with well marked black spots in longitudinal series over back, irregular vertical barring of black on sides, pale dorsolateral streak indistinct; Nos. 17170,

17307, 17369, 17390 and 17827 are similar to the above but with lateral streak also faintly marked; Nos. 17829, 17972 and 17944 are uniform dark greyish brown above with lateral streak marked only to forearm; Nos. 16978, 17828 and 17947-17949 are olive to dark brown above densely spotted with black, dorsolateral streak faint, lateral streak marked only to forearm; Nos. 17370 and 17548 are olive brown above with dorsolateral and lateral streaks well marked and distinct, a median pale streak also present from nape to lumbar region, series of black spots arranged transversely between median and dorsolateral pale streaks giving an effect of barring.

DIMENSIONS. T.M. 17274, H. and B. 52, tail 63 mm.

### **Mabuya striata** (Peters)

*Tropidolepisma striatum* Peters, 1844, *Mber. Berl. Akad.* p. 36 (Mozambique Island).

Eighty-four specimens were collected: T.M. 16841, Van Zyl's Rust, 5 May 1937; 16842, Witdraai, 5 May 1937; 16845-16851, Hakskeen Pan, 6 May 1937; 16853-16858, Asab Siding, 8 May 1937; 16864, Basserman, 11 May 1937; 16876-16880, 16895-16898, 16900, 16911-16916, 16927, 16928 and 16923, Okosongomingo, 14 May 1937; 16936 and 16948, Waterberg, 17 May 1937; 16997-17003, Ondonga, 28 May 1937; 17012-17021, 17024, 17026, 17027, 17034, 17047, 17048 and 17083, Oshikango, 31 May 1937; 17151, Ikuma River, 11 June 1937; 17165, 20 miles north of Outjo, 15 June 1937; 17248, Kamanyab, 18 June 1937; 17337, Huab, 26 June 1937; 17366-17368, Kalkveld, 29 June 1937; 17391, Omaruru, 30 June 1937; 17482, Neubaumis, 11 July 1937; 17535-17538, 17546, 17547 and 17563, Kobos, 20 July 1937; 17624, Sinclair Mine, 26 July 1937; 17652, Barby, 27 July 1937; 17769, 17771, 17799-17801, Berseba, 7 August 1937.

Subocular reaches lip in fifty-four specimens, reaching lip on one side only in one and not reaching lip in twenty-six; frontonasal and frontal in contact in fifty-one specimens separated in twenty-four.

COLOUR. Specimens from Hakskeen Pan and Witdraai are uniform blackish brown to black above, with sometimes a few scattered pale specks in young; below dirty cream, more or less infused with greyish brown; in males chin and throat with rosy tinge. Berseba specimens are uniform brown above in adults, young with pale scattered specks; below, dirty white, black or rosy red on chin and throat. Remainder olive, olive brown to dark brown above, with characteristic pale dorsolateral streak and dark streak on side of neck present; back speckled, spotted or longitudinally striated with lighter and darker brown, except in a few specimens from Okosongomingo and Waterberg when back apart from pale streaks is uniform. Oshikango specimens are kaiser-brown above.

FIELD NOTES. A widely spread adaptable species, found on trees, fence poles, in stone walls, among rocks, in old termite hills, in thatching of huts and houses, among dead brushwood, etc.

### **Mabuya sulcata** (Peters)

*Euprepes sulcata* Peters, 1867, *Mber. Berl. Akad.* p. 20 (Neu Barmen, Hereroland).

One hundred and eleven specimens were collected: T.M. 17173-17176, between Oshikondo and Kamanyab, 16 June 1937; 17218-17223, 17217,

17246, 17247, 17282, 17283, Kamanyab, 17 June 1937; 17293-17295, 17311, 17312, 17320-17324, 17330, Paderburn, 23 June 1937; 17340-17342, Huab, 27 June 1937; 17363-17365, 17387-17389, Kalkveld, 29 June 1937; 17454-17459, near Karub, 3 July 1937; 17477, Liebig's Ranch, 9 September 1937; 17486, 17487, 17501-17504, Neudamm, 15 July 1937; 17524-17534, 17541, 17565-17570, Kobos, 21 July 1937; 17587, 17597, 17629-17631, 17677, 18245-18255, Barby, 27 July 1937; 17625, Sinclair Mine, 26 July 1937; 17696-17699, 8 miles west of Aus, 31 July 1937; 17730-17732, 20 miles east of Konkiep, 2 August 1937; 17741, Seeheim, 3 August 1937; 17775 and 17776, Brukkaros Mountain, 6 August 1937; 17830-17833, Kochena, 10 August 1937; 17849 and 17850, Kraikluft, 12 August 1937; 17866, Goodhouse, 14 August 1937; 17943, Klipfontein, 18 August 1937; 18057, between O'okiep and Springbok, 24 August 1937; 18127 and 18128, near Kamaggas, 25 August 1937; 18137 and 18138, Garies, 26 August 1937; 18188 and 18189, Brandvlei, 29 August 1937; 18233 and 18234, Van Wyk's Vlei, 31 August 1937.

From an examination of the subocular in the above series, an interesting feature is brought to light, namely that in specimens from the most northerly areas (i.e. Kamanyab—Oshikondo) the subocular reaches the lip in all but one case; as we proceed south, however, we find the subocular reaching the lip in fewer cases until in the Windhoek area the percentage is about 60; from Kobos south through Great Namaqualand into the Cape Province the percentage of cases in which the subocular reaches the lip falls sharply to between 3 and 4 per cent (i.e. 4 cases out of 56). Frontal and frontonasal in contact in 73 adult and subadult specimens, separated in 40, there being no appreciable differentiation between specimens from the north and south as is the case in the subocular character.

COLOUR. Above, pale olive to dark brown or black, uniform or spotted with black, or with six dark brown longitudinal stripes over back; chin, lips, throat and sides of head often infused with yellowish pink to orange yellow or reddish; flanks often a pale metallic bluish green. Below dirty white to bluish white, uniform or with varying degrees of black spotting to being entirely black.

#### **Mabuya trivittata** (Cuvier)

*Scincus trivittatus* Cuvier, 1829, *Reg. Anim.* new ed., II, p. 62 (South Africa).

Seven specimens were collected: T.M. 16899, 16917-16919, Okosongomingo, 15 May 1937; 17478, Liebig's Ranch, 9 July 1937; 17770, Berseba, 5 August 1937; 17950 and 17951, Klipfontein, 18 August 1937.

COLOUR. A juvenile specimen from Berseba is chestnut brown above, the median pale streak is very indistinct, arising in front between the shoulders and fading out anterior to rump; dorsolateral streaks normal; a well marked white band on side from upper labials to inguinal region, dark edged above and below; no dark spots or bars above and no pale spots on sides.

DIMENSIONS. Female (T.M. 16919), H. and B. 132, tail 141 mm.

#### **Mabuya varia varia** (Peters)

*Euprepes (Euprepis) varius* Peters, 1867, *Mber. Berl. Akad.* p. 20 (Tette, Mozambique).

Four specimens were collected: T.M. 16875, 16901 and 16902, Okosongomingo, 13 May 1937; 16935, Waterberg, 17 May 1937.

Subocular not much narrowed inferiorly, labial margin about two-thirds length of upper; ear lobules pointed but short and broad at base; nostril lateral and separated from upper labial by a distance much less than its own diameter; centre of nostril just behind suture of rostral and first labial in three cases, entire nostril behind in one.

COLOUR. Above, rich chocolate brown speckled with black; a faintly marked dorsolateral streak from just above and behind eye, fading out towards groin; a well marked white lateral streak from upper labials through ear and continued to base of tail.

DIMENSIONS. T.M. 16875, H. and B. 59, tail 92 mm.

REMARKS. The above specimens are typical *varia*, intruding from the east through the Kalahari, which approaches the Waterberg area closely on the east side.

#### **Riopa sundevallii** (A. Smith)

*Eumices (Riopa) sundevallii* A. Smith, 1849, *Ill. Zool. S. Afr. Rept.* App. p. 11 ("Country to the eastward of the Cape Colony").

Four specimens were collected: T.M. 17118 and 17119, Ondonga, 3 June 1937; 17160 and 17161, between Okaukuejo and Outjo, 14 June 1937.

COLOUR. Olive to olive brown above, each scale with a small dark spot or streak; sides olive yellow; below, pinkish white.

DIMENSIONS. T.M. 17160, H. and B. 80, tail 54 mm.

#### **Scelotes bipes** (Linnaeus)

*Anguis bipes* Linnaeus, 1736, *Syst. Nat.* 1, p. 390 ("In Indiis").

A single adult specimen was collected, T.M. 18007, from 5 miles east of Port Nolloth, 20 August 1937.

Supranasal in narrow contact with first upper labial; upper labials 5, third lying below eye; 18 scales round middle of body; digits on hindlimb each with a long slender recurved claw.

COLOUR. Above, pale straw yellow with dark longitudinal stripes over body and tail, these run down middle of dorsal and lateral scale rows and number 12 on body and 8 on tail; first and second row on each side paler than third and fourth which are well defined and blackish in colour, fifth row a little narrower than third or fourth, while sixth (outermost) is broken up into a series of small isolated spots; fifth and sixth stripes not continued on tail; first and second stripes arise at back of head, third at anterior end of parietal, fourth at posterior corner of eye, fifth a short distance posterior to angle of jaw and sixth some little distance along side of neck; a dark streak from nostril to eye; lower surfaces dirty white.

DIMENSIONS. H. and B. 98, tail (partly reproduced) 35, hindlimb 10.5, inner digit 2, outer digit 3.5 mm.

FIELD NOTES. Dug out of sand in shallow depression among sand dunes.

#### **Acontias lineatus** Peters

*Acontias lineatus* Peters, 1879, *Mber. Berl. Akad.* p. 774, pl. —, fig. 2 ("Hantam, South Africa").

Thirty specimens were collected: T.M. 17918–17937, at Klipfontein, 18 August 1937; 17992–17998 and 18000–18002, 5 miles east of Port Nolloth, 20 August 1937.

**COLOUR.** Klipfontein specimens: above, head and body yellow, tail flesh colour, with four dark brown longitudinal stripes, the two median arising behind head and outer rows from nostril; there are two more incipient rows on side of head, the upper continued along sides of body to just anterior to vent as a series of small dark spots, the lower fading out on side of neck; lower surfaces uniformly flesh coloured. The specimens from near Port Nolloth, though indistinguishable from typical *lineatus* in scale characters, represent two distinct colour varieties, viz. T.M. 17992-17998 are a uniform orange yellow above, slightly paler posteriorly than anteriorly; a dark purplish brown streak from nostril to anterior corner of eye, sometimes extending beyond nostril to join its fellow over end of snout; lower surfaces paler than above. T.M. 18000-18002 are uniform dark purplish brown above with middle of snout and median head shields yellowish; a dark streak from anterior corner of eye to nostril; sides and under surface of body deep yellow; sides of tail yellow, under surface with a wide median longitudinal band of dull purplish brown, a little paler than above.

**DIMENSIONS.** T.M. 17996, H. and B. 113, tail 27 mm. T.M. 18002, H. and B. 118, tail 29 mm.

**FIELD NOTES.** Klipfontein specimens were taken in sandy soil under stones near foot of a small koppie. Specimens from near Port Nolloth, were dug out of the sand under small shrubs in depressions among the sand dunes, together with *Scelotes bipes* and *Typhlosaurus vermis*.

### ***Acontias meleagris* (Linnaeus)**

*Anguis meleagris* Linnaeus, 1766, *Syst. Nat.* ed. 12, I, p. 390 (South Africa).

A single adult specimen, T.M. 17162, between Okaukuejo and Outjo, 14 June 1937. Sixteen scales round middle of body.

**COLOUR.** Above, olive yellow, each scale with a dark brown spot on its anterior edge and also edged with dark brown; head slaty brown; lower surfaces uniform fleshy to creamy white.

**DIMENSIONS.** H. and B. 133, tail 24 mm.

**FIELD NOTES.** Taken in leaf mould under surface limestone in bushveld country.

### ***Typhlosaurus vermis* Boulenger**

*Typhlosaurus vermis* Boulenger, 1887, *Cat. Liz. Brit. Mus.* III, p. 434, pl. XXXVIII, fig. 4 ("Cape of Good Hope").

Five specimens were collected: T.M. 17999, 18003-18006, 5 miles east of Port Nolloth, 20 August 1937.

Eye shows up as a dark spot below suture of a small ocular (in contact with nasorostral suture) and a larger postocular.

**COLOUR.** Uniform light pinky mauve to flesh colour, paling posteriorly to a pale pinkish white.

**DIMENSIONS.** T.M. 18004, H. and B. 195, tail 29 mm.

**FIELD NOTES.** Found living in sand dune country where three specimens were dug up in moist sand under small shrubs in shallow depressions. Two specimens were taken from the stomach of a Suricate (*Suricata suricatta namaquensis*), while masticated remains were also found in the stomachs of small moles (*Eremitalpa granti*).

Fam. **CHAMAELEONTIDAE****Chamaeleon dilepis dilepis** Leach

*Chamaeleo dilepis* Leach, 1819, in Bowdich, *Miss. Ashantee*, App. No. 4, p. 493 (Gaboon).

Five specimens were collected: T.M. 17063-17066, 17092, Oshikango, 31 May 1937.

DIMENSIONS. Male (T.M. 17092), H. and B. 127, tail 148 mm. Female (T.M. 17065), H. and B. 146, tail 152 mm.

**Chamaeleon namaquensis** A. Smith

*Chamaeleo namaquensis* A. Smith, 1831, *S. Afr. Quart. J.* No. 5, p. 17 ("Little Namaqualand, near Orange River mouth").

Three specimens were collected: T.M. 17394, near Karub, 1 July 1937; 17688, 30 miles north of Aus, 30 July 1937; 19161, near Port Nolloth, 20 August 1937.

Thirteen to fourteen knob-like vertebral tubercles, usually consisting of two enlarged scales only, or with one or two smaller supporting scales; posteriorly tubercles become smaller and simpler, often consisting then of a single conical scale.

Class **AMPHIBIA**Order **ANURA**Fam. **PIPIDAE****Xenopus laevis laevis** (Daudin)

*Bufo laevis* Daudin, 1803, *Hist. Nat. Rainettes*, p. 85, pl. 30, fig. 1 (no type locality given).

A single half-grown specimen, T.M. 16938, Waterberg, 17 May 1937.

COLOUR. Above, blackish with scattered paler spots; below, throat and belly dirty white, underside hindlimbs light yellowish brown.

Fam. **BUFONIDAE****Bufo regularis** Reuss

*Bufo regularis* Reuss, 1834, *Mus. Senckb.* 1, p. 60 ("Egypt").

Eleven specimens were collected: T.M. 16939-16945, Waterberg, 17 May 1937; 17059-17061, Oshikango, 30 May 1937; 17121, Ondonga, 3 June 1937.

Tympanum close to eye and barely two-thirds diameter of latter.

COLOUR. Above, olive with symmetrically disposed blotches of blood red to corinthian purple; bright rose red patches in groin and on back of thighs.

DIMENSIONS. T.M. 16939, snout to vent 63.5 mm.

## Fam. POLYPEDATIDAE

**Kassina senegalensis senegalensis** (Dum. & Bib.)

*Cystignathus senegalensis* Dumeril & Bibron, 1841, *Erpet. Gen.* VIII, p. 418  
("Lakes in the vicinity of Galam, Senegal").

Eight specimens were collected: T.M. 17052-17058, 17063, Oshikango, 31 May 1937.

Belly in one specimen smooth throughout, in remainder with varying degrees of wartiness and folding, which in two cases extends forward over anterior part of belly on to chest.

COLOUR. Above, grey to light slate, with darker longitudinal spots, not forming stripes, except occasionally an incipient vertebral one.

## Fam. RANIDAE

**Pyxicephalus adpersus** Tschudi

*Pyxicephalus adpersus* Tschudi, 1838, *Classif. Batr.* p. 84 (Cape of Good Hope).

Ten specimens were collected: T.M. 16952, between Lake Otjikoto and Nakusib, 23 May 1937; 16995 and 16996, pan 75 miles north of Namutoni, 27 May 1937; 17120, Ondonga, 3 June 1937; 17124-17126, pan between Ondonga and Itota Dune, 7 June 1937; 17139 and 17140, pan at Itota Dune, 8 June 1937; 17581, Maltahohe, 22 July 1937.

The above series includes only two adults, one of which (from Maltahohe) was dug out of the bank of a dry river bed, where it was aestivating.

DIMENSIONS. T.M. 17139, snout to vent 154 mm.

**Pyxicephalus delalandii** Dum. & Bibr.

*Pyxicephalus delalandii* Dumeril & Bibron, 1841, *Erpet. Gen.* VIII, p. 445, pl. LXXXVII, figs. 1, 1a-1b ("South Africa").

Thirteen juveniles were collected: T.M. 17127, 17135-17138, 17149, pan at Itota Dune, 11 June 1937; 17210-17215, 17275, Kamanyab, 19 June 1937.

**Cacosternum boettgeri** (Boulenger)

*Arthroleptis boettgeri* Boulenger, 1882, *Cat. Liz. Brit. Mus.* p. 118, pl. XI, fig. 6 ("Vleis, Kaffraria").

Two juvenile specimens were collected: T.M. 17128-17829, pan between Ondonga and Itota Dune, 7 June 1937.

## Fam. BREVICIPITIDAE

**Breviceps macrops** Boulenger

*Breviceps macrops* Boulenger, 1907, *Ann. Mag. Nat. Hist.* (7), xx, p. 46, text-fig., pl. II ("Little Namaqualand").

Seven specimens were collected: T.M. 17985-17991, 5 miles east of Port Nolloth, 20 August 1937.

Metatarsal tubercles distinct, inner long and narrow, not projecting, outer small flattened or feebly rounded, from a half to two-thirds length of inner; sides of body and lumbar region sometimes densely granular.

COLOUR. Above, creamy yellow, dirty white to light yellowish brown with darker markings of greyish brown; head and back of thighs straw colour; feet pinkish; chin and throat chalky white; chest, flanks, legs and belly flesh colour; orbits show up as dark shadows above.

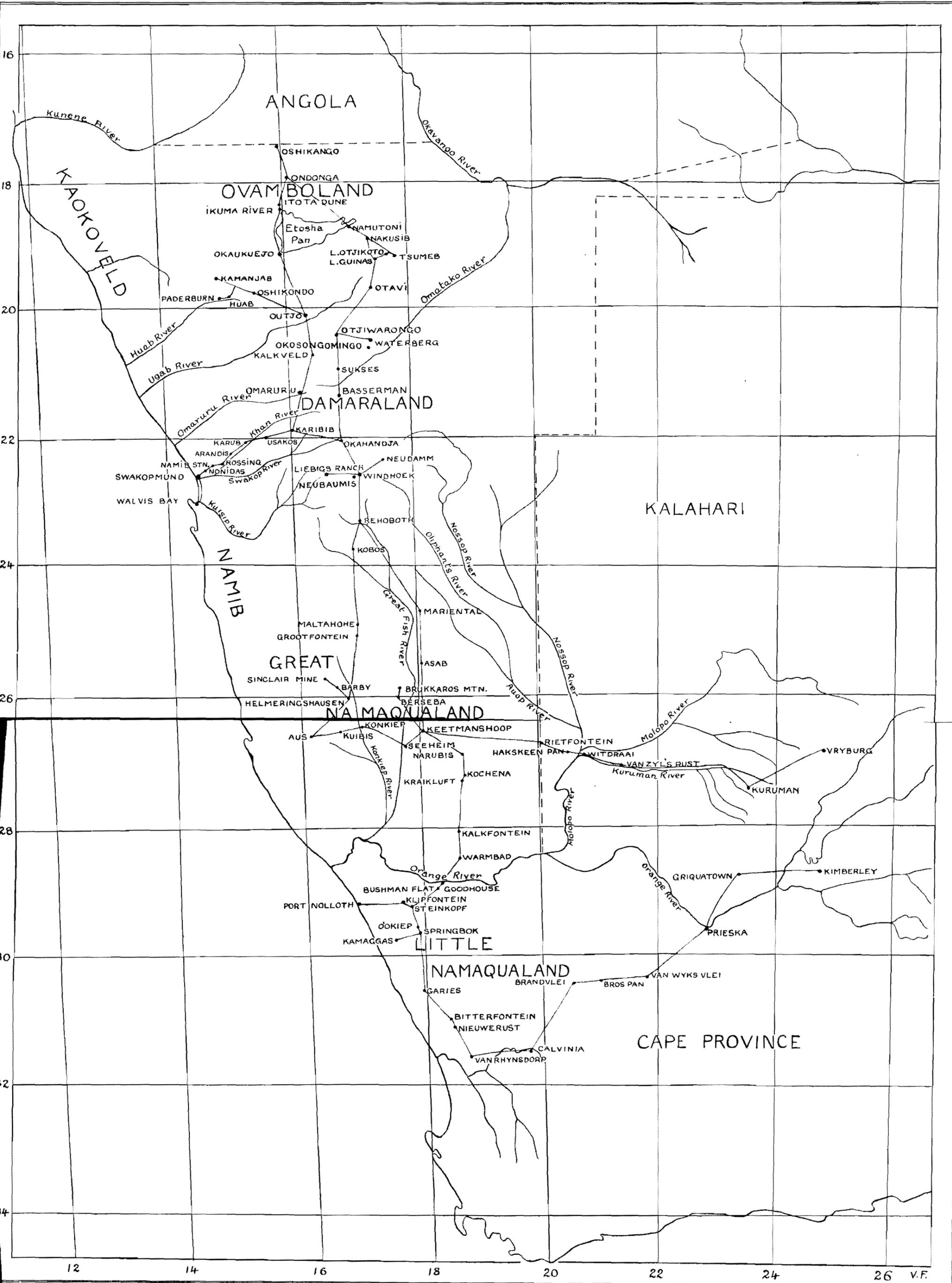
DIMENSIONS. T.M. 17986, snout to vent 40.5 mm.

FIELD NOTES. Taken on sand dunes at night during a light misty rain.

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SKETCH MAP OF SOUTH-WEST AFRICA AND LITTLE NAMAQUALAND, SHOWING ROUTE OF TRANSVAAL MUSEUM EXPEDITION AND LOCALITIES AT WHICH SPECIMENS WERE COLLECTED