

DESCRIPTION OF TWO NEW SPECIES OF LIZARDS AND NOTES
ON *FITZSIMONIA BREVIPES* (FITZSIMONS) FROM THE
CENTRAL NAMIB DESERT.

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(With 3 figures and 6 plates)

Introduction:

Amongst the reptile specimens in the collection of the Transvaal Museum from the Gobabeb area in the central Namib Desert two new species were recognized. Also one species which was hitherto known only by the type with no definite locality record, proved to be relatively common in that area.

This investigation proved the presence of a third species of the barking geckos of the genus *Ptenopus*. Until a few years ago when Brain described *P. carpi* from Gobabeb, this genus was considered monospecific. Now a third species has been recognized from that same area. Although the type species *P. garrulus* has a wide distribution throughout the drier sandy areas of Southern Africa, the two new species seem to have a very restricted distribution. The occurrence of these three sympatric species in the central Namib Desert indicates extraordinary and interesting ecological conditions which have prevailed for an extremely long period. According to Koch* the same phenomenon of explosive evolution is also apparent in Tenebrionid beetles like *Lepidochora* of this area; where usually only one species is known in areas where this wide-spread genus occurs, at Gobabeb and Rooibank up to four species occur on the same dune. The Research Station now proves to be erected at a site invaluable for further studies of the various problems which become apparent through these rather preliminary studies.

The other two species under discussion are both limbless Scincids and seem to have a restricted distribution as well.

I would like to thank Drs. V. F. FitzSimons and C. Koch for assistance rendered in preparing this manuscript and Mr. C. J. Coetzee for help with the statistics.

Ptenopus kochi sp. nov.

(Plates I—V)

Koch's Barking Gecko, named after Dr. C. Koch who collected the first specimen and reported the unusual gecko calls from Gobabeb. There, at the type locality for this species, mainly through his energy and devotion, the Namib Desert Research Station has been erected, which made further studies and collections possible.

Ptenopus garrulus part. Brain, June 1962, *Cimbebasia*, I, p. 1 and Dec. 1962, *Cimbebasia*, IV, p. 1.

TYPES:-

- Holotype:- Adult male, TM 28809,
coll. by W. D. Haacke, October 1963.
- Allotype:- Adult female, TM 28447,
coll. by W. D. Haacke, May 1963.
- Paratypes:- TM 24993 — 4, coll. by C. Koch, Oct. 1957. 25880 — 1, 25883 — 4, 25887, 25889 — 90, p5947, coll. by C. K. Brain, May 1959. 28442 — 6, 28448 — 55, 28625 — 7, coll. by W. D. Haacke, Oct. 1963.

Type locality:-

Gobabeb, South West Africa, central Namib Desert (23° 37' South, 15° 03' East, 408 m).

* Koch, C.: 1962. *Ann. Transv. Mus.* 24:136.

The data from three specimens not from the type locality have been included in the statistical analysis.

TM 25885, 25888, coll. by C. K. Brain, Rooibank, May 1959. 28388, coll. by W. D. Haacke, Farm Greylingshof, dist. Swakopmund, May 1963.

All types are in the Transvaal Museum, Pretoria.

DIAGNOSIS:-

A stoutly built ground gecko, similar in general appearance to the common Barking Gecko (*Ptenopus garrulus*), but usually bigger than specimens of the latter from the same localities. Body scales much smaller than the scales of other species of the genus, and consequently a greater number of scales round the middle of the body, viz. 187—222. Toes and fingers fringed laterally with elongate pointed scales. Yellow colour in males not restricted to the throat only, but extending over labials on to sides of snout, neck and body.

DESCRIPTION:-

Holotype:- Adult male, TM 28809, total length 119.8 (61.8 + 58) mm, tail length 93.8% of snout-vent length. Body covered with minute flattened scales, numbering 220 round middle of body, 82 gulars below eyes, 57 scales between supraciliary ridges. Upper labials 8, lower 9. Nostril pierced between 2 nasal scales, which are distinctly swollen. Nostril capable of being closed from the inside by a projection from upper nasal; nasal separated above rostral by a single, enlarged granule. Ear opening a short oblique slit. Rostral and mental undivided; cheeks swollen; no enlarged gular scales. Toes and fingers flattened and fringed laterally with greatly elongated, pointed scales. Tail tapering, covered with small, subimbricate scales. Three enlarged tubercular scales on either side of base of tail; postanal sacks present; preanal and femoral pores absent. Peritoneal lining pigmented.

Colour in life:- Basic dorsal colour reddish brown, with dark brown infusions, which are darker laterally. Underside of body, limbs and tail white. Throat sulphur-yellow. Yellow colour not restricted to throat but spreads over labials on to sides of snout, and also in the form of irregular spots along sides of neck and body. Hands paler in colour than body, dark infusions on toes and distal half of tail form indistinct crossbars. Supraciliary ridges a pale reddish brown. Iris brown, with lighter areas on dorsal and ventral edges of pupil, and marked with fine wavy lines.

Allotype:- Adult, total length 104.6 (62.8+41.8) mm, body/tail ratio smallest in series. Base of tail not swollen, two enlarged tubercles on either

side. 207 scales round middle of body, 84 gulars, 57 interorbital scales, 10 upper labials, 10 and 11 lower labials, nostrils surrounded by 2 nasal scales each. Colour (in alcohol):- Underside, throat and lateral spots white, otherwise similar to holotype.

Paratypes:- In general scale character of paratypes similar to holotype, but colour varies to a certain extent from very light to darker specimens.

Data of Type series:—

Total lengths:-		48 - 119.8 mm.
Proportion tail/snout-vent length:-	average	83.7%
	range	66.6—94.1%
	sample	25
Upper labials:-	average	9.0
	range	8 — 11
	sample	62
Lower labials:-	average	9.5
	range	8 — 12
	sample	62
Nasal scales per nostril:-	average	2.0
	range	2
	sample	62
Scales under third finger:-	average	29.0
	range	24—34
	sample	61
Scales under fourth toe:-	average	43.5
	range	39—50
	sample	58
Scales round middle of body:-	average	209.4
	range	187—222
	sample	31
Scales between supraciliary ridges:-	average	50
	range	44—57
	sample	31
Gular scales below eyes:-	average	85
	range	74—95
	sample	31

COMPARISON OF THE THREE SPECIES OF PTENOPUS:-

		<i>P. kochi</i>	<i>P. garrulus</i>	<i>P. carpi</i>
H + B length:-		64 mm	55.5 mm	59.7 mm
Largest specimen (H+B+tail):-		119.8 mm	92.5 mm	103.4 mm
HB/tail ratio:-	mean	83.7%	69.2%	72.1%
	obs. range	66.6—94.1%	63.8—76.6%	67.8—76.6%
	S. D.	6.41	3.81	2.26
	sample	14	22	23
Gulars:-	mean	84.9	54.8	65.1
	obs. range	74—95	48—64	58—74
	S. D.	4.97	3.36	4.14
	sample	31	27	31
Scales round middle:-	mean	209.4	132.8	117.4
	obs. range	187—222	120—146	105—131
	S. D.	9.20	6.24	5.85
	sample	30	26	31
Scales under third finger:-	mean	29.0	26.5	26.3
	obs. range	24—34	23—30	23—30
	S. D.	1.89	1.58	1.73
	sample	61	54	62
Scales under fourth toe:-	mean	43.5	37.4	34.4
	obs. range	39—50	33—42	27—40
	S. D.	2.72	2.29	2.62
	sample	58	52	62

Statistically the most significant difference between *P. kochi* and the other two species is the much higher scale count round the middle of the body. No practical overlap was observed nor is a theoretical overlap of ± 3 S.D. possible. Furthermore *P. kochi* has a higher mean HB/tail ratio, which is not, however, very significant as overlaps were observed.

The toes of all three species are fringed laterally with elongated, pointed scales which, however, are weaker developed in *P. carpi* than in the other two species. The fingers too are fringed laterally with elongated, pointed scales in *P. kochi* but with triangular more or less pointed scales only in *P. garrulus* and *P. carpi*.

Peritoneal lining in *P. kochi* and *P. garrulus* pigmented, unpigmented in *P. carpi*.

In *P. kochi* an internal projection of the upper nasal scale can close the nostril, in *P. garrulus* this is not always so well developed, while in *P. carpi* the nostrils are open.

Males of all species have yellow throats. In *P. kochi* the yellow colour spreads to other parts of the body, while in the other species only a very restricted area is covered on the throat itself. It was generally assumed that the females of all the *Ptenopus* spp. had white throats, but, in October 1963, all three females of *P. carpi* had yellow throats, although the actual areas covered were smaller than in the males. The females might be more subject to seasonal changes, as Brain did not observe this fact when collecting the type-series in May 1959. Attention should also be given to this possibility in the other species.

KEY TO THE SPECIES OF PTENOPUS:—

- 1) a. Toes weakly fringed laterally; nasals not swollen; nostrils open; peritoneal lining unpigmented *P. carpi* Brain.

(Plates II b, III c, IV c, V d).

- b. Toes strongly fringed laterally; nasals more or less swollen; nostrils partly closed by in-

ternal projections of the upper nasals; peritoneal lining pigmented 2.

- 2) a. Fingers fringed with elongated pointed scales; scales on body very small (187—222 round middle of the body). *P. kochi* sp. nov.

(Plates Ia, b, IIIa, IVa, Vc).

- b. Fingers fringed with pointed triangular scales; scales on body larger (120—146 round middle of the body). *P. garrulus* (Smith).

(Plates IIa, IIIb, IVb, Va, b).

VOCALITY:-

Each of the three species of *Ptenopus* has a distinctive call and, at Gobabeb, all three can be heard simultaneously. The time for calling seems to be the same for all species, although *P. carpi* is heard less frequently than the other two. The name Whistling Gecko gives a wrong impression, as the sounds made are certainly not comparable to whistling. The behaviour while calling was observed by the author on various occasions at a distance of a few feet in the case of *P. garrulus* in Northern Transvaal, Bechuanaland and South West Africa, as well as in *P. kochi* at Gobabeb, and has even been photographed. While on the lookout at the mouth of their burrows, with about half the body exposed, the geckos would suddenly start expanding and deflating their throats in quick succession, then slip back into the opening of their burrows and call by rhythmically opening their mouths for each individual click accompanied by small jerks of the head. This action is similar to that of a barking dog and for that reason I consider the name Barking Gecko more appropriate than Whistling Gecko.

Various authors have tried to describe the call of *Ptenopus* (Brain 1962), which consists of a series of clicks or squeaks, uttered in quick succession and gack-gack-gack- seems to be as acceptable as any.

In *P. garrulus* four clicks are usually heard in quick succession (Gobabeb, Oct. 1963), of which the first one is more pronounced than the others, but fewer than four or up to as many as six clicks can sometimes be heard. From observations in different localities of its distribution it appears that low temperatures effect a more drawn-out call with fewer clicks. High humidity with a light drizzle might stimulate loud concerts late at night. *P. kochi*'s pitch is similar to *P. garrulus*, and it can be confused therewith if an incomplete series of clicks at a slower speed is uttered. A full call consists of nine to eleven uttered in extremely fast succession and in a monotonous pitch. This reminds one very much of the stridulation of the big Pamphagid grasshoppers such as *Lamarckiana*. The calls of both *P. kochi* and *P. garrulus* have been heard in

captivity, but only on rare occasions. The call of *P. carpi* was recognized as such for the first time during October 1963. It consists of a series of up to sixteen clicks uttered in a rather low and monotonous pitch.

HABITAT AND BURROW STRUCTURE:-

It appears that the species *P. kochi* and *P. carpi* show a preference for a special habitat while *P. garrulus* is more indifferent and can be found mixing readily with either of the other species. Judging by the evidence of recorded calls and dug up specimens at Gobabeb, *P. kochi* occurs mainly in the actual river-bed and on the plains south of the Kuiseb River, where the soil consists mainly of fine river deposits. Brain collected some specimens on the north bank, which were probably taken in similar soil near to the river. The specimen from Greylingshof was dug up on the slope of a dune.

P. carpi has, up to now, been found only on the gravel plains north of the river, where the substratum is fairly hard, coarse and mixed with small pebbles.

P. garrulus has been found both north and south of the river, but seems to avoid the actual river-bed.

The burrow structure in all three species shows great similarity, and all have only one opening from which the main tunnel descends. At frequent intervals blind passages may branch off the main tunnel, most of them leading up, almost but not quite, to the surface. When digging up specimens many of them were found in these side passages, from the end of which they would often break through to the surface and try to escape. The burrow of *P. garrulus* has been examined in various localities and was found to be very similar in its general layout, although those at Gobabeb seem to be shallower, shorter and with fewer side passages than elsewhere. None seemed to go deeper than about 10" and the area covered was not more than about 20" squared. The burrows of *P. carpi*, of which only a few were found, showed even more simplicity, probably due to the harder soil of their location. *P. kochi*, however, in a more suitable habitat, makes longer and deeper burrows which go down to about 16 inches with the end as much as 2½ to 3 feet from the entrance.

HABITAT PREFERENCE AND ANATOMICAL ADAPTATIONS:—

P. kochi:- Digital combs of elongated, pointed scales on edges of toes and fingers (Plates IIIa and IVa).

P. garrulus:- Combs of bluntly pointed, triangular scales along edges of fingers, and of elongated, pointed scales on toes (Plates IIIb and IVb).

P. carpi:- Fingers edged laterally with short, spinose scales, while toes have weakly developed combs of elongated, pointed scales (Plates IIIc and IVc).

Comparing these with apparent habitat preference, there seems to be a clear correlation, viz., the softer the substratum the greater the finger and toe surface is for digging, or with more digital digging surface available the softer substratum that can be utilized. *P. kochi*, with the largest area available, can burrow even in the silt of the actual river-bed. *P. garrulus*, with a still relatively large area, is fairly indifferent to hardness of substratum, but avoids the softest parts and from other areas is known to avoid too hard ground. *P. carpi* is known only from fairly hard soil, north of the Kuiseb River, where large surfaced toes are of minor importance. In soft soil *P. carpi*'s narrow toes would be less effective.

Another anatomical adaptation to a habitat of fine sand seems to be the interior projection of the upper nasal in *P. kochi* (Plate Ia) and *P. garrulus*, which makes it possible to close the nostril and prevent the entry of sand; this projection is absent in *P. carpi* of the gravel plains. Experiments with live *P. kochi* gave no indication that closing of the nostrils could be done voluntarily, but pressure exerted on the nasal swellings was found to close the nostril completely. This could happen when these geckos block the entrance to their burrows with sand or try to harden the tunnel walls by tapping them with their heads, as was observed in a glass-walled container.

Peritoneal pigmentation is present in both *P. kochi* and *P. garrulus*, but absent in *P. carpi*. Brain pointed out that its functional significance was still obscure. Whether the slightly higher critical maximum temperature tolerance of *P. kochi* and *P. garrulus* (both treated as *P. garrulus* at that stage) over *P. carpi* has anything to do with the presence or absence of pigmentation in the peritoneal lining, has yet to be proved.

DISTRIBUTION:-

At present *P. kochi* has been recorded only from the central Namib Desert, but probably occurs further south well into the restricted Diamond Area, where its exact distribution remains uncertain.

Localities:- Gobabeb on Kuiseb River (Transvaal Mus., State Museum Windhoek); Rooibank; Farm Greylingshof, dist. Swakopmund; Sandwich Harbour (Transvaal Museum); Walvis Bay (State Museum Windhoek).

REFERENCES:-

- BRAIN, C. K.; June 1962. A Review of the Gecko Genus *Ptenopus* with the Description of a new Species. *Cimbebasia* No. 1, p. 1.
- Dec. 1962. Observation on the Temperature Tolerance of Lizards in the Central Namib Desert, South West Africa. *Cimbebasia*, No. 4, p. 1.
- FITZSIMONS, V. F.; July 1943. The Lizards of South Africa. *Transv. Mus. Mem.* No. 1.
- LOVERIDGE, A.; Jan. 1947. Revision of the African Lizards of the Family Gekkonidae. *Bull. Mus. comp. Zool.*, Vol. 98, No. 1.
- MERTENS, R.; 15.1955. Die Amphibien und Reptilien Südwestafrikas. *Abh. senckenb. naturf. Ges.* 490. pp. 1—172.

Typhlosaurus braini sp. nov.

(Text figs. 1—3, Plate VIc.)

Brain's Blindworm or Legless Skink, named after Dr. C. K. Brain, former curator of the Department of Lower Vertebrates of the Transvaal Museum, who collected the first specimens at Gobabeb on the Carp-Transvaal Museum Namib Expedition in 1959.

TYPES:-

- Holotype:- TM 28472,
coll. by W. D. Haacke, May 1963.
- Allotype:- TM 28473,
coll. by W. D. Haacke, May 1963.
- Paratypes:- TM 25866 — 68, coll. by C. K. Brain, May 1959. 28474, coll. by E. v. Koenen, May 1963. 28611, coll. by W. D. Haacke, Oct. 1963. 28612, coll. by D. Goode, Oct. 1963. 28613, coll. by O. P. M. Prozesky, Oct. 1963.

All types are in the Transvaal Museum, Pretoria.

DIAGNOSIS:-

This new form seems to be the thinnest of all the known South African species of this genus. It shows a considerable reduction of head scales, which clearly distinguishes it from all the other known species. Only a single large head scale is present, lying between the rostral and the parietals. This large scale is referred to as the frontal, although it is probably a fusion of the frontal, prefrontal or frontonasals and interparietal. The first 8—10 scales behind the head scales are much shorter than the rest of the body scales.

Abbreviations to figs. 1-3:

F. Frontal, LL. Lower labial, Lo. Loreal, M. Mental, Oc. Ocular, P. Parietal, PO. Preocular, PoO. Postocular, R. Rostral, SL. Sublingual, UL. Upper labial.

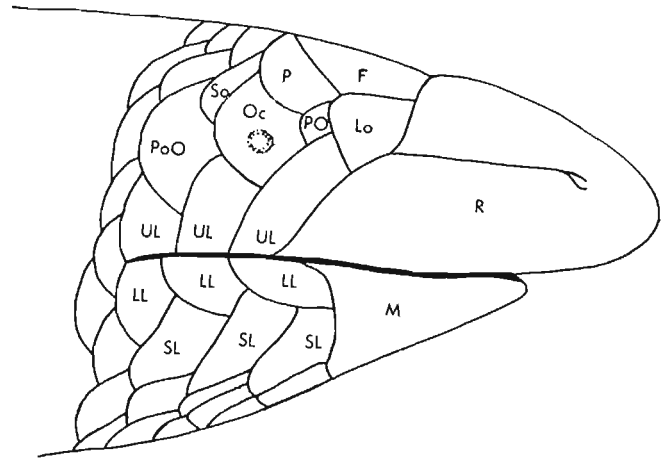


FIG. 1

Typhlosaurus braini sp. nov. Lateral view of head.

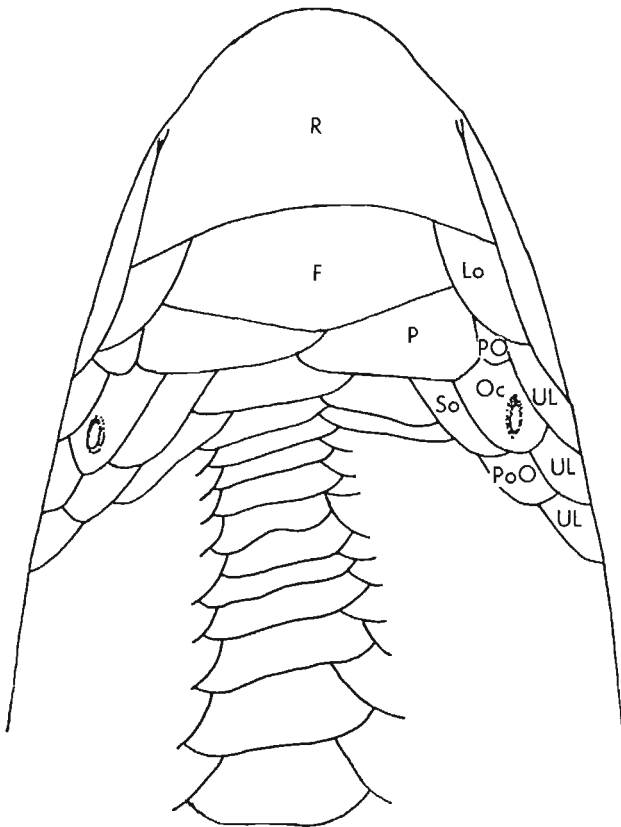


FIG. 2

Typhlosaurus braini sp. nov. Dorsal view of head.

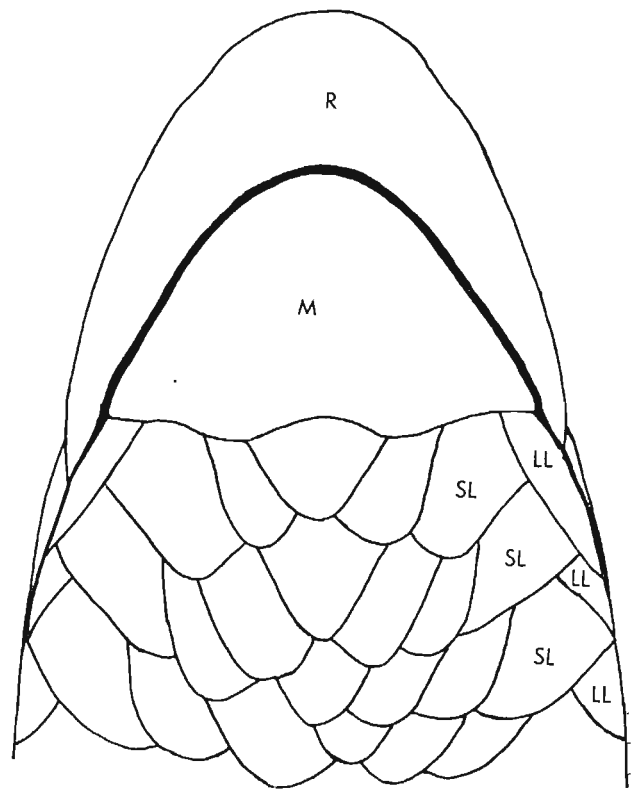


FIG. 3

Typhlosaurus braini sp. nov. Ventral view of head.

DESCRIPTION:-

Holotype:- TM 28472, sex undetermined, total length 197 (167 + 30) mm, tail length 18% of snout-vent length. Snout elongate, projecting and rounded, slightly flattened below. Rostral large; distance from tip of snout to posterior edge subequal to or a little longer than the other head shields together. Laterally rostral projects backwards to below ocular. Prefrontal or frontonasal and interparietal absent or fused with frontal, which is about twice as broad as long and in long contact with rostral. Parietals forming a short, median, diagonal suture behind frontal. Eye visible as a dark spot under the ocular scale. A single supra-ocular, postocular and a small preocular present. Ocular in contact above with parietal and below with first two upper labials. Three upper labials, 1st largest and broader than long, 3rd smallest. Mental large with undulate posterior edge, not reaching back as far as rostral. Three lower labials. Row of scales adjoining lower labials, sublinguals, enlarged and broader than long. Body scales broader than long and subhexagonal. The two median ventral rows being narrowest, i.e. only slightly broader than long. 12 rows of scales round the middle of the body. The first 8—10 scales behind the head scales are much shorter than the rest of the body scales. A single enlarged preanal scale present. Tail short and obtusely pointed.

Colour:- Very light pinkish, almost uniform, except for some faint brown marks on the forehead, i.e. on the rostral, frontal, parietals, loreals, preoculars and oculars only, extending very sparingly on to adjacent scales.

Data of Type series:-

	H + B	tail	diam. of body
Holotype:-			
TM 28472	167 mm	30 mm	3.4 mm
Allotype:-			
TM 28473	179 mm	38 mm	4.0 mm
Paratypes:-			
TM 25866	141 mm	30 mm	3.0 mm
25867	188 mm	39 mm	3.6 mm
25868	180 mm	41 mm	3.7 mm
28474	192 mm	37 mm	3.7 mm
28611	180 mm	35 mm	3.5 mm
28612	164 mm	38 mm	3.5 mm
28613	198 mm	no tail	4.1 mm

Ratios:-

H + B/tail	4.3—5.6
H + B/diameter	44.75—52.22

REMARKS:-

The assumption that the interparietal is part of the probable fusion forming the frontal is based on the fact that in TM 25474 a circular pit exists in the usual position of the pineal eye. In TM 25867 the parietals have fused to form a single, narrow, transverse scale, which is in contact on either side with the ocular. A number of specimens show slight variations in the scaling of the lower jaw, e.g. a small aberrant scale separating the 3rd labial from the lip, or the 2nd labial is fused with or replaced by the 2nd sublingual, the mental may be more or less cordiform with a suture extending forward. Three specimens have 14 rows of scales round the middle of the body.

FIELD NOTES:-

The first three specimens were collected by digging under tufts of grass on the slopes of dunes (Plate VIc.), while all the others were collected on the surface at night. The very regular snakelike tracks, made by these animals when moving on or just under the surface of the sand, leading from one tuft of grass to another, could easily be followed. When disturbed these lizards would immediately attempt to disappear by diving into the sand, an action which they managed with great speed unless caught at first sight. During May 1963 it seemed as if they were active only during the early hours of the night, while the sand was still warm, as no fresh tracks could be found after about 9.30 p.m. In October, however, when it was warmer, some specimens were collected much later at night. Stomach contents consist of well masticated insects. Amongst these only one termite could be identified, while the others might have been *Lepisma* or larvae of some kind. A surprising amount of sand was found in the stomach and the faeces.

DISTRIBUTION:-

At present only known from the semistable (held by grass) parts of the dunes south of the Kuiseb River at Gobabeb. Probably widely distributed in the dunes of the central Namib Desert.

REFERENCES:-

- FITZSIMONS, V. F.; July 1943, The Lizards of South Africa. *Transv. Mus. Mem.* No. 1.
- MERTENS, R.; 15.1955, Die Amphibien und Reptilien Südwestafrikas. *Abh. senckenb. naturf. Ges.* 490, pp. 1—172.

WITTE, G. F. DE et LAURENT, R.; 1943. Contribution à la systématique des formes dégradées de la famille des Scincidae. — *Mém. Mus. Hist. nat. Belg.* (2) 26.

Fitzsimonsia brevipes (FitzSimons)

(Plate VI a, b)

Typhlacontias brevipes FitzSimons, 1938, *Ann.*

Transv. Mus. XX, 1, p. 15.

Fitzsimonsia brevipes de Witte and Laurent, 1943.

Mém. Hist. nat. Belg. (2) 26, p. 33.

HISTORICAL AND SYSTEMATIC NOTES:-

This scincoid lizard, one of the group of legless fossorial forms, is in general build and scalation very similar to *Typhlacontias*, except for the presence of a small postnasal scale and minute rudimentary hindlegs. The type specimen (SAM 508, S.A. Museum, Cape Town), with locality given as "Cape Division", was originally identified by G. A. Boulenger (1912) as *Typhlacontias punctatissimus*, with a note by Boulenger "not Cape Division, recorded from Mossamedes." FitzSimons, however,

found this to be a misidentification and made it a new species, *Typhlacontias brevipes*, while de Witte and Laurent considered the differences significant enough for generic distinction and called it *Fitzsimonsia brevipes*. For many years the type was the only known specimen, but in 1959 a similar limbless lizard was sent to the Transvaal Museum by Dr. A. Weber from Swakopmund, S.W.A., which was not identified until some time later. During May 1963 a number of specimens of the same type were found by the author at Gobabeb and were identified as *F. brevipes*. So at last some information on the occurrence of this hitherto rather mysterious species became available.

ADDITIONAL DATA:-

All the above specimens, from the central Namib Desert, agree closely with the original description of the type to which is referred. From the available series, however, it is obvious that the tail of the type is regenerated, as it is much shorter than the average relative length of the specimens we now have with original tails. In 14 complete specimens the tail length varies between 33.5% and 41.3% of the head-body length, while in the type it is only 17.7%. The diameter of the body goes 13.5 to 18 times into the head-body length.

Dimensions of largest specimens of series:-

	H + B	tail	head length	head breadth	diameter body
TM 28464	100 mm	regen.	7.2 mm	5.0 mm	6.3 mm
TM 28607	100 mm	broken	7.7 mm	4.7 mm	5.5 mm
TM 28638	92 mm	38 mm	7.0 mm	5.0 mm	5.9 mm

All specimens have 18 scales round the middle of the body, as in the type.

Colour:- The markings of the specimen from Swakopmund correspond closely to those of the type, i.e. "Each scale bearing a dark central spot, forming regular longitudinal series; line of spots on second dorsal row from middle line much paler than others; a median dark band on head." The rest of the body is very faded and does not show the original colour.

The specimens from Gobabeb show some variation on this pattern. Of the 20 specimens available for study, 18 have only the dorsal and the third row of scales on both sides marked with spots, which are less distinct in some specimens than in

others. The rest of the bodies of the specimens in this series is unmarked, apart from a few dark marks on the heads of some specimens. The remaining two specimens show a pattern closer to that of the type, but with the following differences:- The second row of scales from the dorsal line is completely unmarked (faintly marked in type). The rows of scales adjacent to the third row are well marked with dark spots which fade towards the ventral side and some of the ventral scales are unmarked, so that the belly appears to be irregularly speckled. In all specimens the tail markings are bolder and darker than on the body. In the few well marked specimens the fainter or unmarked dorsolateral line continues on to the tail where only the ventral half of the scales in the second row is

marked with a dark spot. In the 18 faintly marked specimens the second row of dorsal scales continues to be unmarked on the tail, while all the other tail scales are marked with a more or less pronounced dark spot. Regenerated tails usually appear to be darker in colour. The basic body colours of all the specimens from Gobabeb which were seen alive were shades of light sulphur-yellow while the tails were blue-grey between the dark marks. The scales have a smooth, glossy surface. (Plate VIa.)

FIELD NOTES:-

So far *F. brevipes* has been found in a very restricted habitat, viz. the windblown semistable sand between the vegetation islands on the southern bank of the Kuiseb River or within close proximity thereto, where plants like the Narras (*Acanthosiclos horrida*), *Salvadora persica*, *Tamarix austro-africana* and the hard dune-grass *Aristida sabulicola* form clumps (Plate VIb). It appears that *F. brevipes* shelters amongst the roots of these plants during the day, as the regular, winding, snakelike tracks are found fresh only in the evenings just after sunset. These tracks lead from the base of one clump to another, also between the *Acacia* trees that have been half covered by sand and across the leeward, semi-fluid slopes of the smaller dunes along the bank of the Kuiseb River. During May 1963 no fresh tracks were found after about 9.30 p.m., probably due to the cooling of the sand. However, during October of the same year, when it was warmer, some specimens were collected much later at night. These lizards move about just below the surface of the sand, making thus narrow, shallow furrows in the sand. They were never observed on the surface and the tracks certainly give no indication that such might be the case, although this possibility cannot be excluded. When disturbed, they immediately try to disappear by diving into the sand, an action which they manage with the same speed as *Typhlosaurus braini*.

As they apparently never come to the surface, they provide a special problem to the collector and

this is no doubt the reason why they have hitherto been found on so few occasions. To locate a specimen one has to watch the sudden end of a fresh track carefully for any movement or just take a chance and grab into the sand on the off chance of securing a specimen. Another method is to hit the sand at the suspected end of a track with a shovel, thus stunning the lizard and obviating its escape. The stomach contents consisted of the remains of various minute insects, inter alia termites, ants, beetles, plant-bugs, cicadas, ant-lions, etc. together with a fair amount of sand.

Higher up on the slopes of the big dunes, among the *Aristida sabulicola* islands, *F. brevipes* is replaced by *Typhlosaurus braini*. *Amphisbaena quadrifrons* is another limbless lizard known to occur in this area, but seems to be much rarer here than above mentioned species.

DISTRIBUTION:-

Known only from the central Namib Desert in South West Africa.

Localities:- Swakopmund; Gobabeb, on Kuiseb River. The locality of the type specimen, given as "Cape Division", is very vague and at present there is no indication that this lizard could occur in the Capé Province.

REFERENCES:-

- FITZSIMONS, V. F.; 1939. Descriptions of some new Species and Subspecies of Lizards from South Africa. *Ann. Transv. Mus.*, XX, p. 15.
- GIESS, W.; 1962. Some Notes on the Vegetation of the Namib Desert. *Cimbebasia*, No. 2.
- WITTE, G. F. DE et LAURENT, R.; 1943. Contribution à la systematique des formes dégradées de la famille des Scincidae. *Mém. Mus. Hist. nat. Belg.* (2) 26.

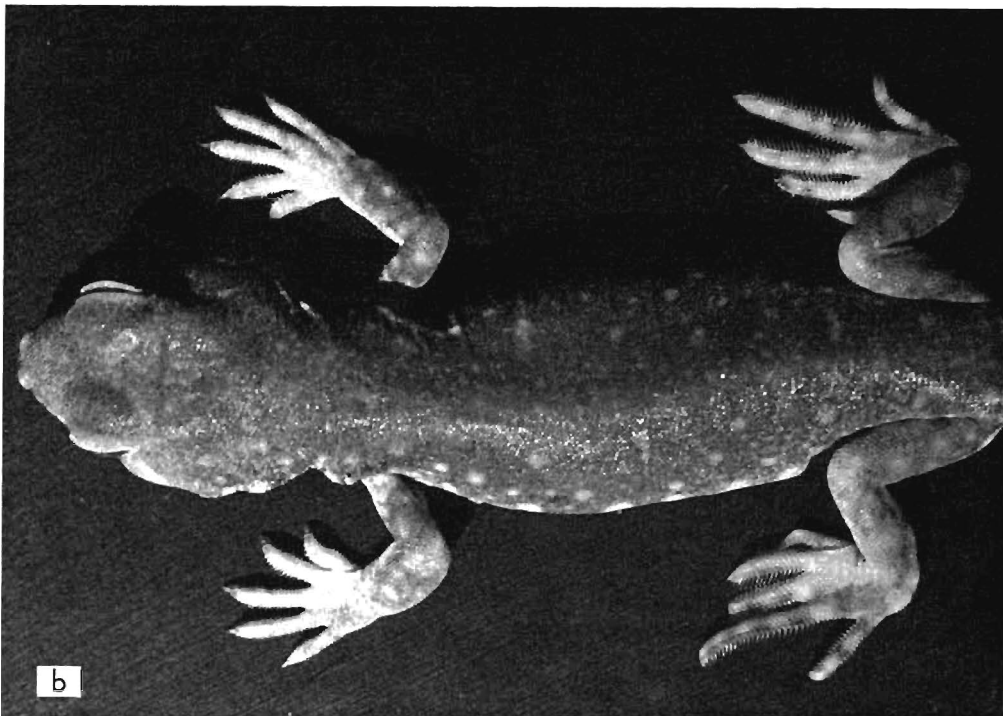
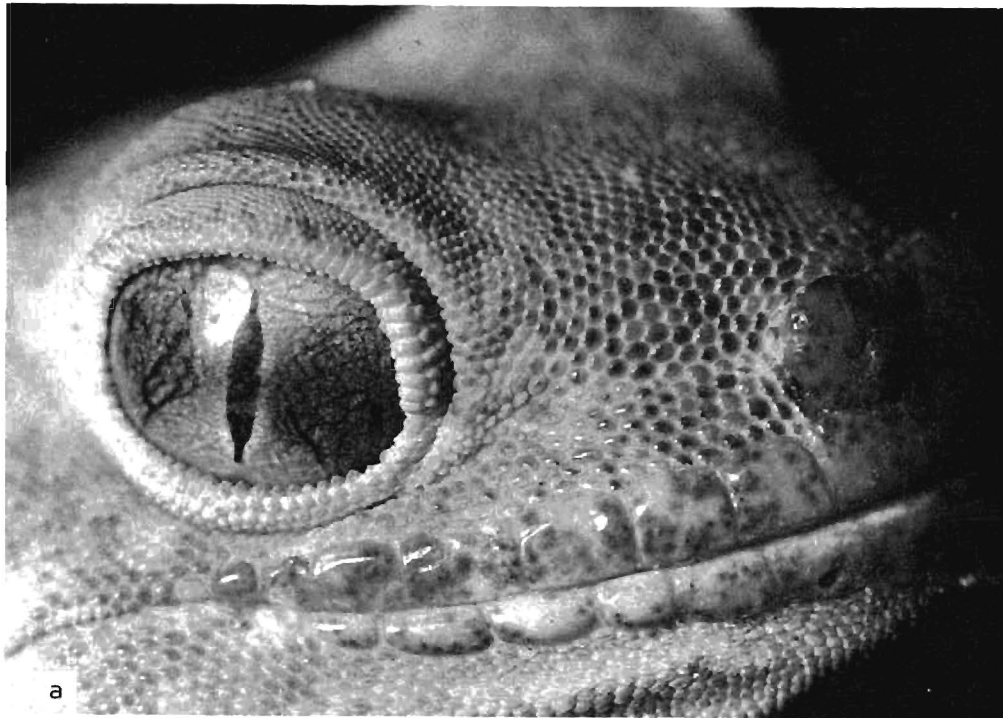


PLATE I.

- (a) *Ptenopus kochi* sp. nov. Snout, showing extrabrillar fringes and swollen nasals with internal projection of upper nasal scale.
- (b) *Ptenopus kochi* sp. nov., adult male from Gobabeb. Note small lepidosis, flattened, fringed fingers and swollen nasals.

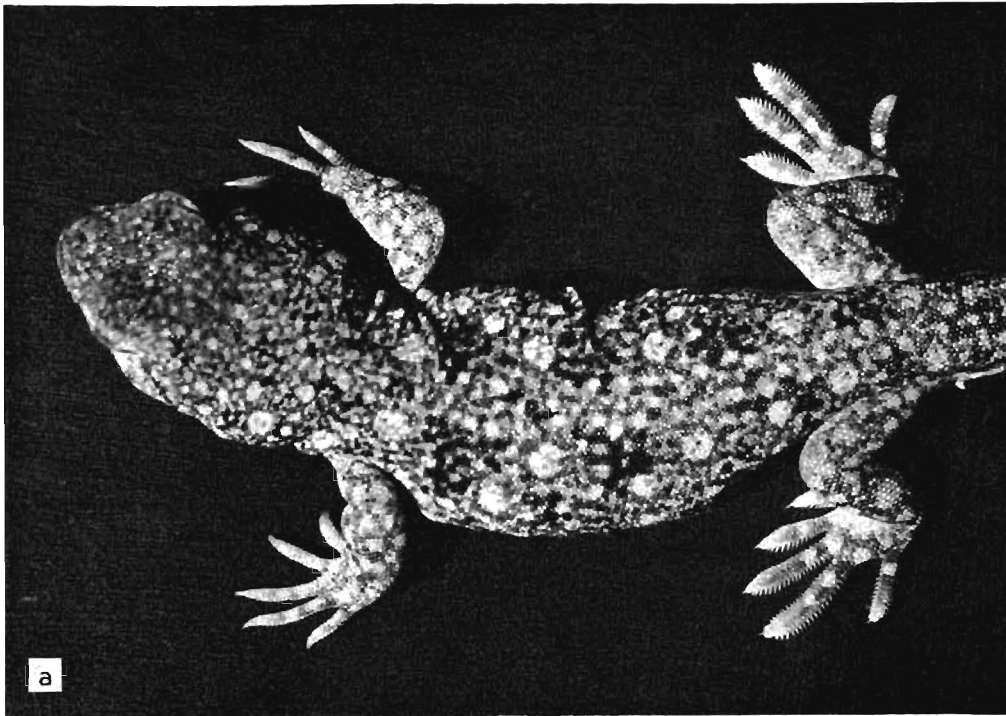


PLATE II.

- (a) *Ptenopus garrulus* (Smith), adult male from Karibib. Note relatively coarse lepidosis and compressed fingers with serrated edges.
- (b) *Ptenopus carpi* Brain, adult male from Gobabeb. Note relatively coarse lepidosis, compressed fingers and toes with weakly developed fringes.

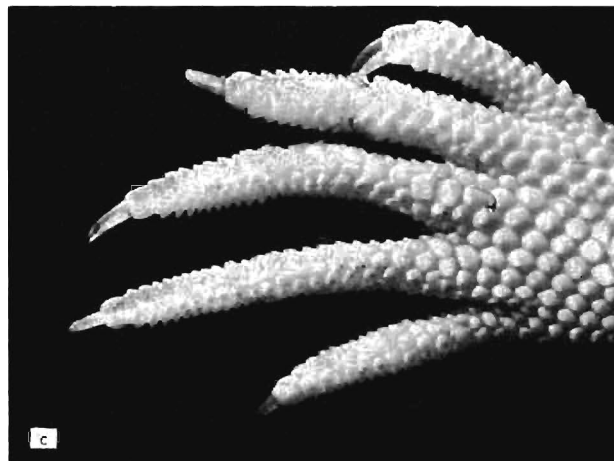
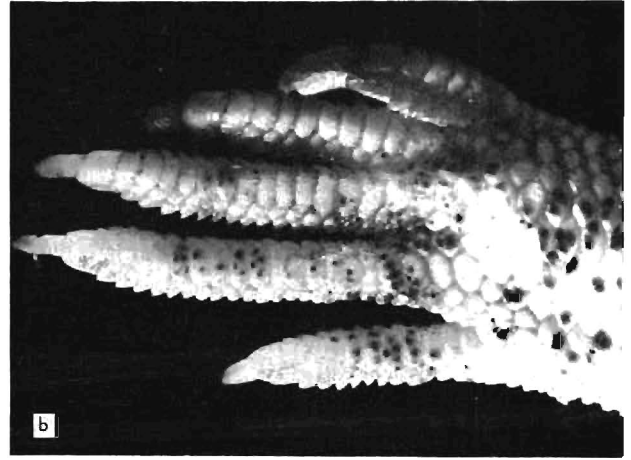
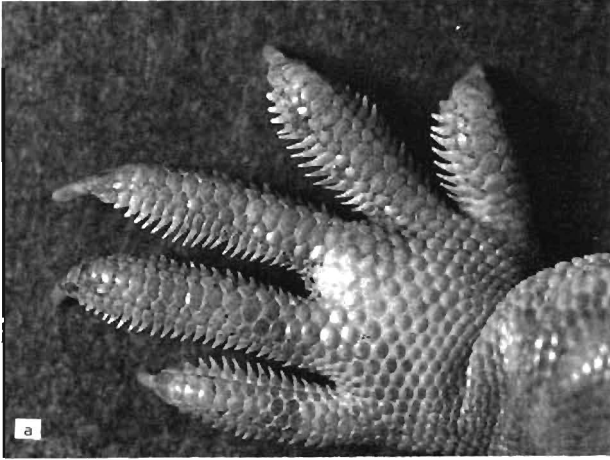


PLATE III.

- (a) Left front foot of *Ptenopus kochi* sp. nov.
- (b) Left front foot of *Ptenopus garrulus* (Smith).
- (c) Left front foot of *Ptenopus carpi* Brain.

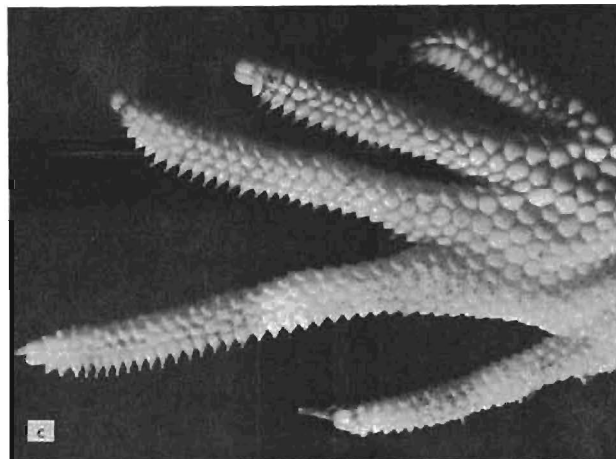
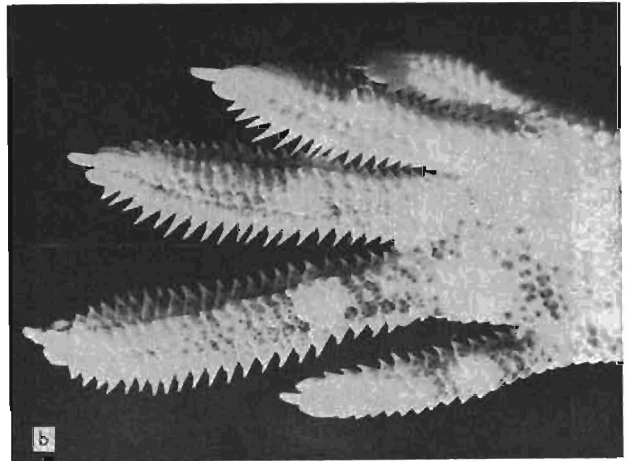
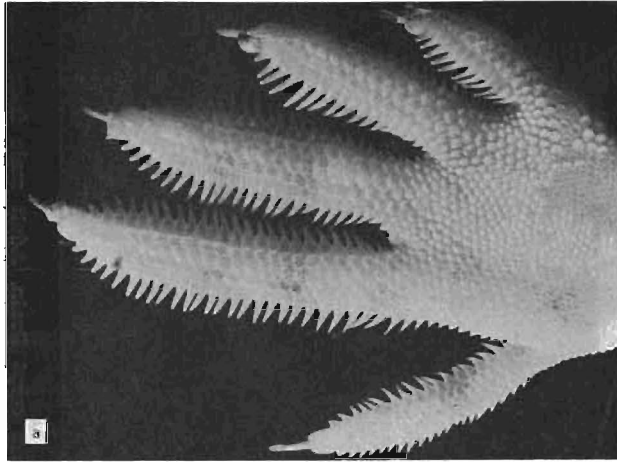


PLATE IV.

- (a) Left hind foot of *Ptenopus kochi* sp. nov.
- (b) Left hind foot of *Ptenopus garrulus* (Smith).
- (c) Left hind foot of *Ptenopus carpi* Brain.



(a) *Ptenopus garrulus* (Smith). Adult male from Karibib.



(b) *Ptenopus garrulus* (Smith). Subadult from south of the Kuiseb River at Gobabeb.



(c) *Ptenopus kochi* sp.nov. Adult male from Gobabeb.



(d) *Ptenopus carpi* Brain. Adult male from Gobabeb.

PLATE VI.



(a) *Fitzsimonsia brevipes* (FitzSimons). Adult specimen from Gobabeb.



(b) Southern bank of the Kuiseb River showing habitat of *Fitzsimonsia brevipes*.



(c) View across the Kuiseb River at Gobabeb showing the dunes with islands of grass, habitat of *Typhlosaurus braini*.