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## A NEW GEKKO (SAURIA, GECKONIDAE) FROM BECHUANALAND

by

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(With 1 text-figure and 3 plates)

*Pachydactylus tsodiloensis* sp. nov.

### MATERIAL

23 specimens: 5 males, 9 females, 9 unsexed juveniles and subadults.

Holotype: TM 30943, female.

Allotype: TM 30948, male.

Paratypes: TM 30937—30942, 30944—30947, 30949—30959.

Type locality: Tsodilo Hills, N.W. Ngamiland, Bechuanaland (about 18° 42'S. 21° 45'E., altitude about 1,500 metres).

All the specimens were collected by the author from the 17th to the 19th April 1965, and are kept in the Transvaal Museum, Pretoria.

### DIAGNOSIS

A nocturnal, rupicolous, medium sized gekko related to the *Pachydactylus weber* group, differing from related species by its slightly larger size, more stocky form enlarged posterior upper labials and distinctive colour pattern. The shape resemble that of a half-grown *P. bibronii* A. Smith but with a more flattened body and a narrower head.

## DESCRIPTION

Holotype: TM 30943, adult female, total length 108 (52.5 + 55.5) mm. Head flattened, 6.4 mm. thick, 14.5 mm. long from the tip of the snout to the posterior edge of the right ear opening, 12 mm. wide, checks swollen and neck not very distinct. Rostral subpentagonal, about  $1\frac{1}{2}$  times as broad as deep. Snout equal to twice the horizontal diameter of the eye and longer than the distance from eye to ear. Horizontal diameter of the eye 3.4 mm., pupil vertical with lobed edges, able to close down to four pinholes. Ear opening oval and oblique, longest diameter equal to half the horizontal diameter of the eye. Nostril pierced between three nasal scales and point of the first upper labial; anterior nasals or nasorostrals largest and in good contact with one another behind the rostral. Upper labials 14 on either side, decreasing in size posteriorly to just behind the eye but then increasing again in size to end in a large oval scale above the angle of the jaw; the first 11 labials border the lip while the last three are separated therefrom by a row of minute scales (Text-fig. 1). Lower labials 9 and 8; mental about twice as long as broad, wedge-shaped, rounded posteriorly and nearly as long, but narrower than the adjoining first lower labials; no enlarged chin shields present. Upper labials bordered above by a row of enlarged scales which are separated from the large tubercles on snout by a row of smaller scales. Snout tubercles rounded to subhexagonal, slightly larger than enlarged tubercles on the occiput, which are subconical and slightly smaller than the more elongate, keeled tubercles on the nape. The snout tubercles decrease abruptly in size at the anterior border of the eyes to the smaller scales of the back of the head with the first enlarged scattered tubercles appearing between the eyes. Scales on back small, flattened to tubercular, slightly rugose, irregularly arranged and shaped and intermixed with eighteen more or less regular rows of enlarged tubercles; the latter are rounded and conical on the sides of the body, increasing in size dorsolaterally and becoming slightly keeled, while dorsally they become slightly smaller again, well keeled and oval. These tubercles are usually separated by only one or two scales, but the two mesial rows are separated by a vertebral line from two to six scales in width. Scales on chin, small, granular and juxtaposed, increasing in size posteriorly and becoming imbricate on the throat. Underside of body covered by large, flattened, imbricate scales, largest preannally and on underside of thighs. Body generally flattened; limbs short and stout with the adpressed hindlimb not quite reaching elbow of forelimb. Upperarm covered above with flattened, imbricate scales, passing to smaller subgranular, irregular scales on the lower part of the limb, where they are intermixed with enlarged flattened tubercles. Hindlegs covered above with irregular, subgranular scales, intermixed with large subconical tubercles which are weakly keeled on the thigh but more clearly keeled on the lower part of the limb. Digits slightly flattened distally; first finger with five adhesive lamellae or scansors ventrally, while all other fingers have six each; first toe with six adhesive lamellae, while the remainder have seven each; inferomedian row of scales of fingers and toes transversely enlarged. Dorsally the digits terminate in a nail-like scute which overlies a slender, pointed scale, below which there is a thin, retractile claw. Tail swollen at the base, slightly flattened dorsoventrally, tapering to a fine point, clearly segmented, with a transverse row of eight enlarged, keeled tubercles per segment; the latter form longitudinal rows on the tail, decreasing in size and number posteriorly until indistinguishable from the ordinary scales on the terminal fifth. Scales between the enlarged tubercles flattened, imbricate and of irregular size, but forming five to six transverse rows on the basal segments. The ventral scales are larger, but do not form a median transversely enlarged

row. Two slightly enlarged scales present on either side of the base of the tail next to the vent.

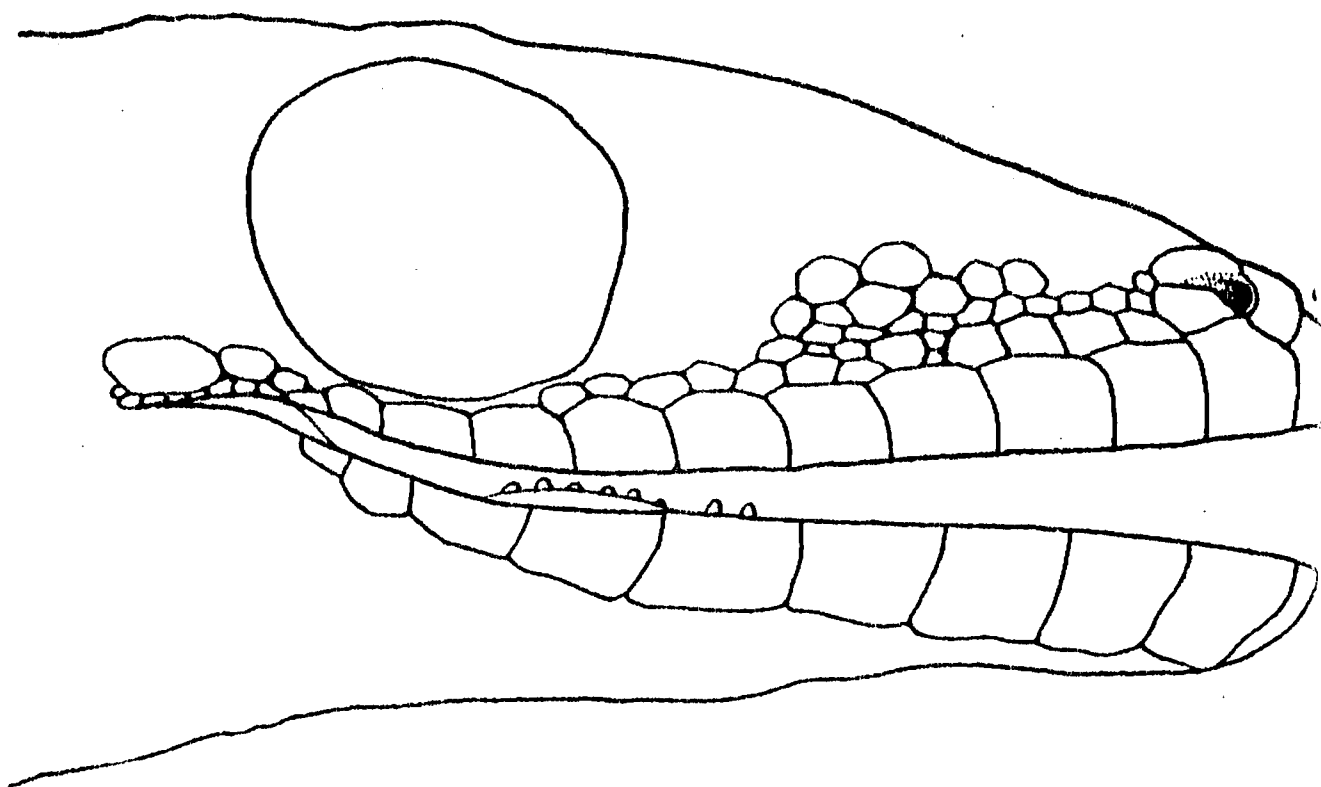


Fig. 1. *Pachyductylus tsodiloensis* sp. nov. Lateral view of head of holotype, TM 30943, showing arrangement of labials, nasals and scales bordering upper labials.

Colour: The basic dorsal colour is a light, greyish brown, patterned with off-white brown-edged crossbars. Head marked with a number of dark brown spots and vermiculations; a dark brown line passes from behind the nostrils through the eye and over the temporal region to join its fellow from the other side on the occiput; an indistinct brown Y-shaped mark on the snout, starting from between the nostrils and with its slightly bent arms extending to a line between the anterior borders of the eyes. An off-white, U-shaped band, with a dark posterior margin, borders the dark head-line described above; there are five similar, dark-edged, off-white, transverse bands on the back, of which the first is between the shoulders, the second (slightly angular) and third over middle of back, the fourth on the rump, and the fifth across the base of the tail. The latter is marked with an indistinct continuation of the back pattern over its anterior half, while its posterior half, the dorsal side of the legs and the light brown areas between the prominent cross-bars on the back are marked with brown vermiculations and spots. Underside white throughout.

Allotype: TM 30948, adult male, HB length 50 mm., tip of tail regenerated. Upper labials 13 on either side, with 10 bordering the lip. Nostril surrounded by 3 nasals, plus the tip of the first upper labial; six scensors under all fingers as well as the first toes, but 7 under all the remaining toes; about 18 more or less regular longitudinal rows of enlarged tubercles on the back; a pair of enlarged scales on either side of the base of the tail, next to the vent; base of tail, just behind vent not markedly swollen and determination of sex only possible by dissection. Colour and pattern similar to holotype, but second cross-bar over back indistinctly forked on the right side.

Paratypes: In general similar to the holo- and allotype. No marked sex dimorphism and sexing only possible by dissection. Colour pattern similar to holotype, but in some cases the cross-bars not as clearly defined, angular, laterally forked or wavy. Juvenile colour pattern similar to adult with head unmarked. In some specimens, e.g., TM 30937, the more or less regular rows of enlarged tubercles on certain areas on the back are interrupted, thereby forming small patches covered by the normal small irregular scales of the back.

### VARIATIONS IN THE TYPE SERIES

Scales round nostrils: Usually 3 nasals plus tip of first upper labial. First upper labial excluded in 4 specimens.

Internasal granule: Usually absent, but present in 4 specimens.

Upper labials: Usually 12 to 14; 1—(11), 15—(12), 14—(13), 12—(14), 2—(15), 1—(17), 1 damaged.

Of these usually 9 to 11 border the lip. 1—(8), 16—(9), 20—(10), 7—(11), 1—(14).

Lower labials: Usually 8 to 9; 20—(8), 22—(9), 3—(10), 1 damaged.

Scansors under fingers:

I. 5—6; 27—(5), 18—(6), 1 damaged.

II. 5—6; 9—(5), 35—(6), 2 damaged.

III. 5—6; 8—(5), 37—(6), 1 damaged.

IV. 5—6; 9—(5), 34—(6), 3 damaged.

V. 5—6; 11—(5), 34—(6), 1 damaged.

Scansors under toes:

I. 5—6; 10—(5), 36—(6).

II. 6—7; 12—(6), 33—(7), 1 damaged.

III. 6—7; 9—(6), 36—(7), 1 damaged.

IV. 6—7; 9—(6), 35—(7), 2 damaged.

V. 6—7; 10—(6), 36—(7).

Dorsal rows of enl. tubercles: Usually 18; 15—(18), 4—(19), 4—(20).

Largest complete specimen: TM 30937 (female), 121.5 (58 + 63.5) mm.

Largest female: TM 30939, HB 60 mm., tail regenerated.

Largest complete male: TM 30944, 105.5 (51 + 54.5) mm.

Largest male: TM 30938, HB 58.5 mm., tail regenerated.

### FIELD NOTES

This new gekko occurs on the Tsodilo Hills, which consist of quartz-shist, quartzite, dolomitic limestone and marble of the Damara system. These hills are made up of a prominent outcrop, rising abruptly to 1,000 feet above the surrounding plains; the highest is locally known as the "Male Hill", while a lower hilly area, covering about four square miles, is known as the "Female Hills". The "male" and "female" are separated by a 300 yards wide stretch of sand covered with thick bush. The specimens were collected at night on both outcrops from the base to an altitude of about 200 feet; the higher levels were not sampled at night owing to the ruggedness of the terrain.

They were usually found on rocks and boulders, but occasional specimens were noticed when crossing the leaf- and debris-strewn spaces at the bases of these rocks. Only a single specimen was collected while walking on sand when trying to reach a loose-lying boulder about 30 feet from the main outcrop. This appears to indicate a reluctance to leave the rocky substratum, an observation of importance when considering the possible dispersal of the species. To avoid capture some specimens ran quite fast, though their normal form of locomotion appeared to be the usual waddling gait of gekkos. The stomach contents of three specimens consisted of the remains of small insects of which only the heads of some ants were still recognizable. *Pachydactylus bibronii* was the only other nocturnal reptile collected in the same habitat.

### DISTRIBUTION

Known only from the Tsodilo Hills, N.W. Ngamiland, Bechuanaland. This is an isolated rock outcrop, surrounded by many miles of slightly undulating sand plains. The Aha mountains, the nearest prominent rock outcrop of importance, situated about 75 miles distant on the border of South West Africa, have been visited but no specimens of this species were found. It would thus appear at present as if the distribution of this species might be restricted to its type locality.

### ACKNOWLEDGEMENTS

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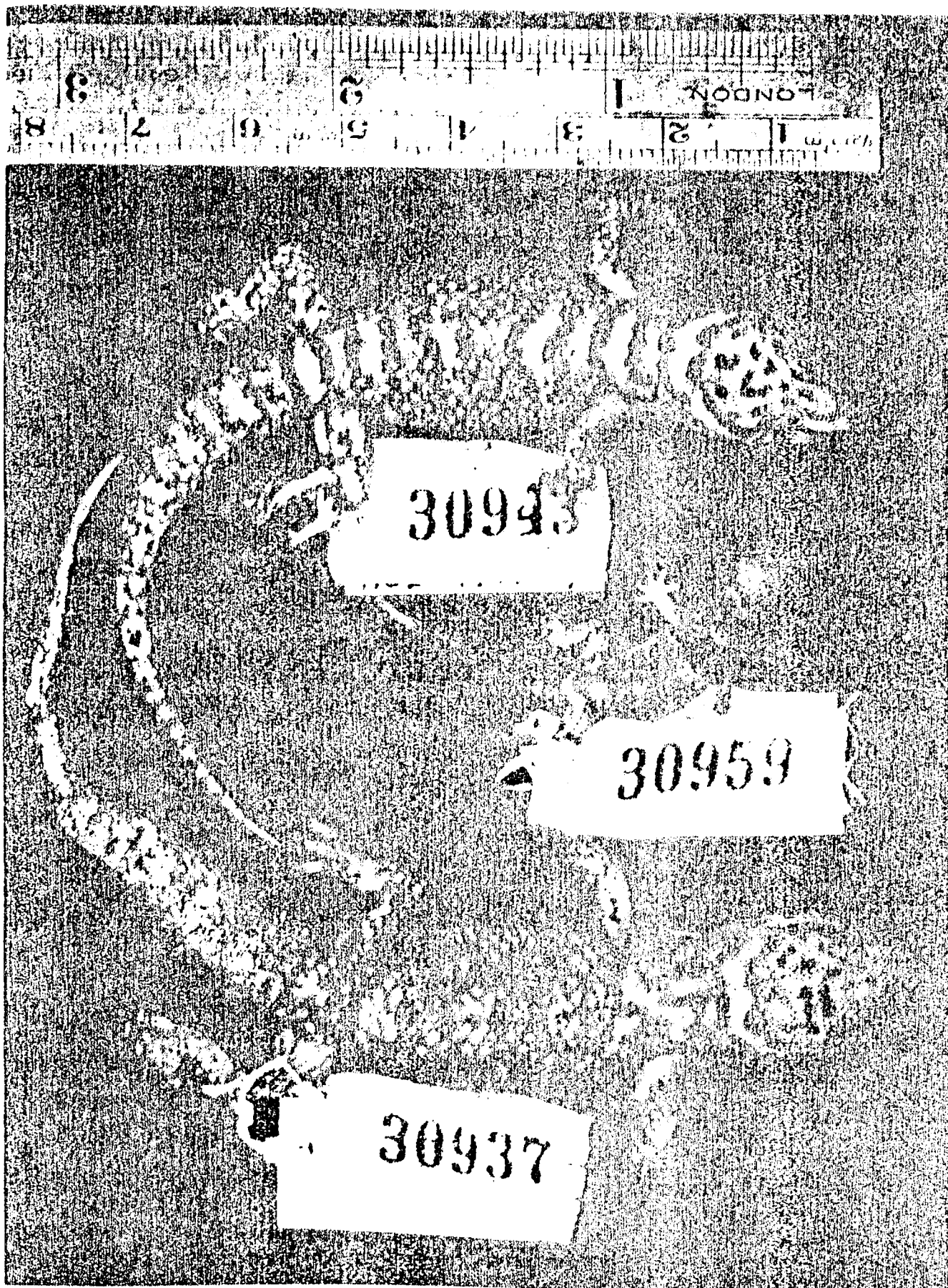


PLATE I

*Pachydactylus tsodiloensis* sp. nov. TM 30943, holotype, showing typical colour pattern, TM 30959, juvenile. TM 30937, largest complete specimen with abnormal scalation on back.





PLATE II

*Tsodilo Hills, type locality of *Pachydactylus tsodiloensis* sp. nov. "Male Hill" in centre, rising 1,000 feet above surrounding plain, and "Female Hills" in left background.*

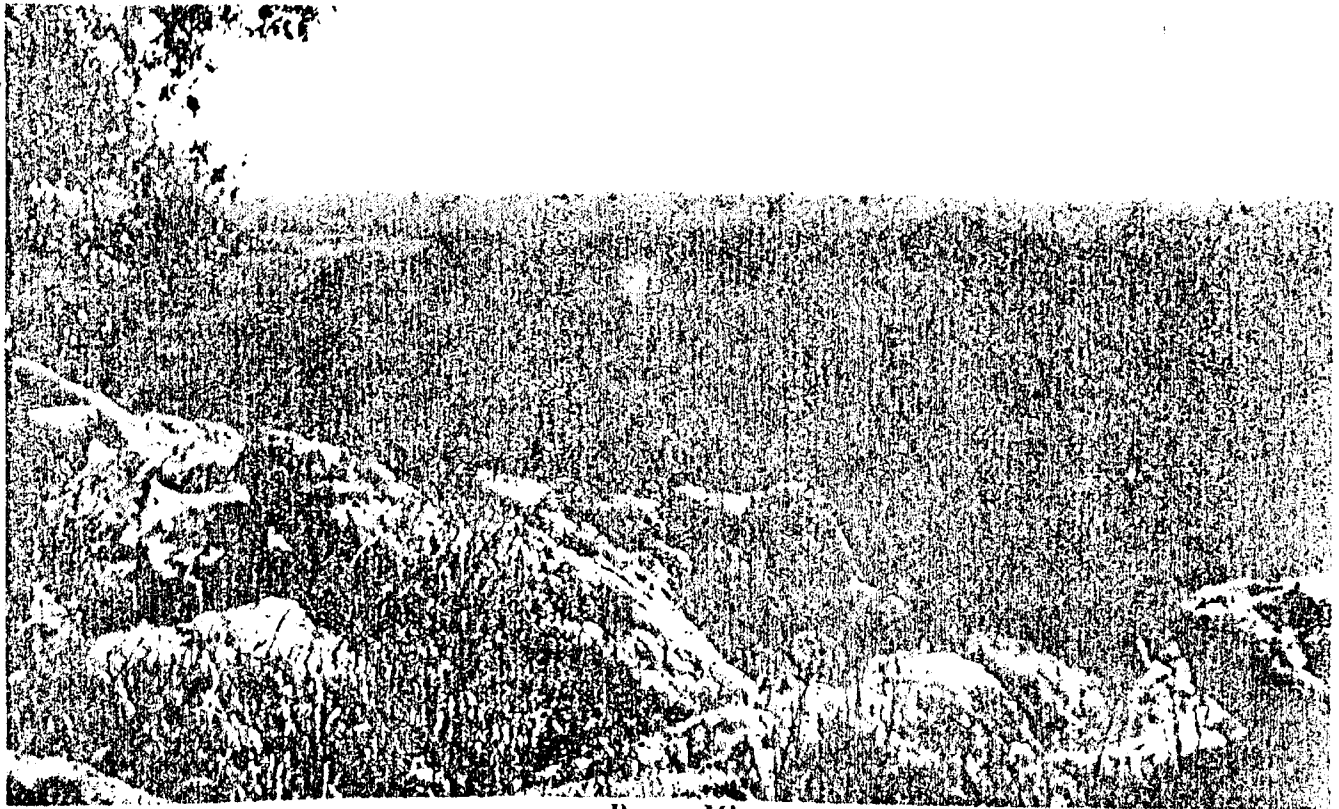


PLATE III

*Tsodilo Hills. View from top of "Male Hill" onto the "Female Hills" and surrounding plains.*