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## New Oriental Reptiles

BY

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ABSTRACT: The following reptiles from southeastern Asia are described as new. One new genus, *Keiometopon* is proposed for a small Malayan snake obtained on Fraser's Hill, Malaya.

|                                                         |                                                      |
|---------------------------------------------------------|------------------------------------------------------|
| <i>Cyrtodactylus quadrivirgatus</i> sp. nov.            | <i>Riopa frontoparietalis</i> sp. nov.               |
| <i>Cyrtodactylus peguensis zebraicus</i><br>subsp. nov. | <i>Riopa haroldyoungi</i> sp. nov.                   |
| <i>Phyllodactylus melanostictus</i> sp. nov.            | <i>Leiolopisma pootipongi</i> sp. nov.               |
| <i>Peropus laceratus</i> sp. nov.                       | <i>Dibamus alfredi</i> sp. nov.                      |
| <i>Peropus fehlmanni</i> sp. nov.                       | <i>Typhlops khoratensis</i> sp. nov.                 |
| <i>Luperosaurus amissus</i> sp. nov.                    | <i>Typhlops trangensis</i> sp. nov.                  |
| <i>Gekko petricolus</i> sp. nov.                        | <i>Typhlops klemmeri</i> sp. nov.                    |
| <i>Sphenomorphus lineopunctulatus</i> sp.<br>nov.       | <i>Calamaria fraseri</i> sp. nov.                    |
| <i>Sphenomorphus mimicus</i> sp. nov.                   | <i>Keiometopon</i> gen. nov.                         |
| <i>Sphenomorphus grandisonae</i> sp. nov.               | <i>Keiometopon booliati</i> sp. nov.                 |
|                                                         | <i>Liopeltis baliodeirus cochranæ</i> subsp.<br>nov. |

## INTRODUCTION

The species described herein as new have been collected for the most part by me while carrying on herpetological research in Thailand. One, however, is from the Philippines and two forms were obtained in Malaya.

The type of one species was presented to me by Mr. Harold Young of Chiang Mai who collected it at the base of Doi Suthep, a mountain some five kilometers northwest of the city of Chiang Mai. Two species of lizards were loaned to me by Miss Alice Grandison of the British Museum of Natural History with permission to describe them. One small snake was loaned by Dr. Doris Cochran of the U. S. National Museum with permission to describe it. I am under obligation to Dr. Adair Fehlmann who assisted in the capture of the type of a species of *Peropus* that bears his name.



*Cyrtodactylus quadrivirgatus* sp. nov.

*Type:* No. 387 ♀, taken at Khao Chong Forest Experiment Station, Trang province, November 10, 1959, by Edward H. Taylor.

*Paratypes:* No. 388 ♂, same date, taken with the type. EHT-HMS Nos. 2595 Kuala Tahan, Pahang, Malaya; M. 36 Fraser's Hill, Malaya; 3595, 10 mi. E Seremben, Malaya.

*Diagnosis:* A terrestrial species 67 mm. snout to vent; head blackish brown above; a strong blackish stripe from eye along dorsolateral part of body to base of tail; a second stripe, less distinct, begins behind orbit, fuses on neck with its fellow, then separating they continue to base of tail separately but are connected at two or three points; five grayish lines, one below, one above dorsolateral black stripe on each side, and a median, interrupted line; or lines may be broken tending to form transverse bands. Tail with transverse black bands separated by white bands that may or may not be complete. No median enlarged series of scales under tail; usually four preanal pores in both male and female\*; no curved band across nape extending to eyes.

*Description of type:* A rather small species; rostral not twice as wide as high, its upper edge with a V-shaped notch cutting scale half in two, the area of the notch being filled with three internasal scales; rostral bordered by these three scales, first supralabials, and nostrils; nostril bordered by rostral, first labial, a large and a small supranasal, and three small postnasals; 56 scales across snout between fifth supralabials; about 64 small granular scales between median edges of eyelids; eye diameter less than snout length; ten smooth supralabials, posterior ones small, followed by eight or ten small granular scales reaching back to angle of mouth; ten infralabials, last three small, followed by seven very small scales to mouth angle; mental triangular with a labial border equal to that of rostral; a pair of chinshields separated for more than half their length by mental; second pair of chinshields separated by five scales, scarcely differentiated; ear diagonally elongate; tympanum deeply sunk; a slight depression on occiput more or less connected with a depression on snout.

Scales on occipital region very small with a few scattered rounded tubercles; dorsum with somewhat larger granular scales intermixed with minute scales and with large conical or pyramidal tubercles forming about 24 irregular rows; a bare trace of a ventrolateral fold,

\* Sometimes the scales are pierced with pores; sometimes there is only a circular depression.





FIG. 1.—*Cyrtodactylus quadrivirgatus* sp. nov. Type. Actual length, 144 mm. Khao Chong Forest Station, Trang, Thailand.



separated from its fellow by about 40 scalerows, the outer rows small, median ones considerably larger; group of four preanal pores in a  $\Lambda$ -shaped arrangement, continuous with two series of 17 enlarged femoral scales. Tail above dimly segmented; dorsal scales smaller than ventral ones; no median widened series of scales on undersurface of tail but there may be four or five series subequal in size, a little larger than dorsal caudal scales; no caudal tubercles, the tail slender tapering to a fine point. Leg reaches to elbow of adpressed arm; toes subequal, six or seven lamellae under basal part of fourth toe; all digits clawed.

*Color in life:* Above gray on body; head uniform blackish on top; a distinct black band begins behind eye extending back on sides of body to base of tail, bordered above by a wide gray stripe and below by a narrow one; two other lines begin behind eye and run back to form an angular union on nape; they then separate and continue to tail where they are rejoined; median gray line interrupted in two places by connecting lines between the two median dark stripes; a very indistinct darker line low on sides; chin and venter uniformly whitish with a peppering of black. Tail banded with black and gray, the basal gray bands including some black; underside of tail blackish with white flecks; gray bands surrounding tail only on distal part; some indistinct lighter flecks on labials; arms and legs with spots or bands of black above, whitish below.

*Measurements in mm. of type and paratype:* Snout to vent, 67, 39; tail, 77, 22 (broken); snout to arm, 32, 16; axilla to groin, 34, 19; width of head, 13, 8; length of head, 18, 13; arm, 21, 13; leg, 26, 17.

*Remarks:* The color pattern of the young male topotypic paratype is quite similar to the type. There is, however, some indication of lighter and darker areas on the head. The distal part of the tail has been lost. In the Malayan specimens the two median stripes are broken sometimes forming a series of spots.

The relationship of this species may be with *Cyrtodactylus oldhami*, however, the absence of the enlarged transverse subcaudal series of scales, and the absence of the curving band about occiput from eye to eye suggests a different relationship. *Oldhami* may occasionally lack pores. Absence of femoral pores would seem to preclude close relationship with *marmoratus*.

The type specimen was found at an elevation of about 400 meters on Khao Chong, under a decaying log. A specimen of *Cnemaspis siamensis* was taken in the immediate vicinity.



*Cyrtodactylus peguensis zebraicus* subsp. nov.

*Type:* No. 35522, taken at Tonka Harbour Tin Dredging Co., Ronpibon, Nakhon Si Thammarat, May 21, 1958, by Edward H. Taylor.

*Diagnosis:* Head somewhat depressed, spotted above; brown bar behind eye more or less confluent with angular band bordering occiput behind; body with pair of spots on neck and eight transverse stripes wider than gray interspaces; certain of these may be discontinuous, while last between legs is broken mesially; eight femoral pores; no ventrolateral fold.

*Description of type:* Head moderately depressed; length of snout a little longer (1.1 mm.) than distance between orbit and ear-opening; strongly depressed area on frontal region extending back between orbits; snout rather compressed with slight depression in front of nostrils; rostral about twice as wide as high, bordering nostril, first labials, pair of supranasals, and two small internasals; nostril surrounded by first labial, rostral, two supranasals one large and one small; postnasal seemingly fused to flap within nostril.

There are 32 scales across snout between posterior ends of 2nd supralabials; across snout between anterior part of fifth labials, 49 scales; occipital region with small scales intermixed with rounded, somewhat conical tubercles, much smaller than tubercles on back; supralabials, 11-11, very small posteriorly followed to angle of mouth by five or six small scales; nine infralabials, followed by four scales to mouth-angle; pair of chinshields, about twice as long as wide forming a common suture for about half their length; mental with labial border distinctly larger than rostral border; second pair of chinshields about half as large as first pair, widely separated by first pair; 77 granules in a row between chinshields and a line drawn at front level of shoulders; from breast to vent, 76 scales; a wide-angled series of eight preanal pores with two angular rows of larger scales between pores and vent; two large lateral postanal tubercles. Tail lost and beginning to regenerate.

Digits short, basal part scarcely widened with two or three flat imbricate scales; distal part somewhat compressed; two scales surround claw; no ventrolateral folds; about 35 scalerows across venter. Scales on sides and dorsum small, equal, interspersed with about twenty rows of enlarged trihedral tubercles. Diameter of ear-opening (1.2 mm. high) four times in diameter of orbit (5 mm.); adpressed leg does not reach axilla.





FIG. 2.—*Cyrtodactylus peguensis zebraicus* subsp. nov. Type. Actual length, snout-vent, 58.5 mm. Ronpibon, Nakhon Si Thammarat, Thailand.



*Color in life:* Above blue-white with transverse brown stripes with blackish edges. Head with about twenty dark spots in a blue-white reticulum; venter and chin cream-white with fine powdering of black, visible under a lens. Dark band from eye passes around occiput, angular rather than curving; lips dark spotted; regenerated tail blackish.

*Measurements in mm.:* Snout to vent, 58.5; snout to arm-insertion, 23; axilla to groin, 26; width of head, 12; head length, 19.4; arm, 22; leg, 28.

*Remarks:* This specimen was taken from a large rotting stump in the forest at Tonka Harbour Tin Mine, Ronpibon, Nakhon Si Thammarat. Its relationship is certainly with *Cyrtodactylus peguensis*.

*Phyllodactylus melanostictus* sp. nov.

*Type:* No. 33333; collected at Mauk Lek Road-Camp (Friendship Highway) Sara Buri; Oct. 1957; Edward H. Taylor collector.

*Paratypes:* Nos. 33331-32; 33334-35. Same date, locality, and collector.

*Diagnosis:* Differs from *Phyllodactylus siamensis* in having a black stripe from tip of snout through eye to shoulder where it widens and continues along the side of the body and then narrows on tail; dorsal spots if present very small, arranged in four longitudinal lines; a series of small dots on dorsal part of tail; arms and legs colored like sides of body; no white rings on tail.

Rows of enlarged trihedral or keeled tubercles present; median rows smaller than the other rows, separated by three rows of small granules; next two rows separated by one row of granules; nine preanal pores in males.

*Description of type:* Rostral large, subquadrangular, wider than high with a median entrant suture in upper mesial part, bordering the nostril; a pair of enlarged internasals forming a straight median suture, and forming part of the border of nostril; behind internasals another slightly enlarged pair of scales; first labial and two tiny postnasals form remainder of border of nostril; 29 scales in a row across head between edges of eyelids, and 28 scales in a row across snout between the posterior edges of third labials; scales on snout slightly larger than those on interocular and occipital regions; granules in temporal areas slightly larger, with some still larger scales intermixed. Nine supralabials, seventh directly below pupil of eye; seven infralabials, fifth below pupil of eye; auricular-opening small, little larger than an internasal scale; mental with larger labial



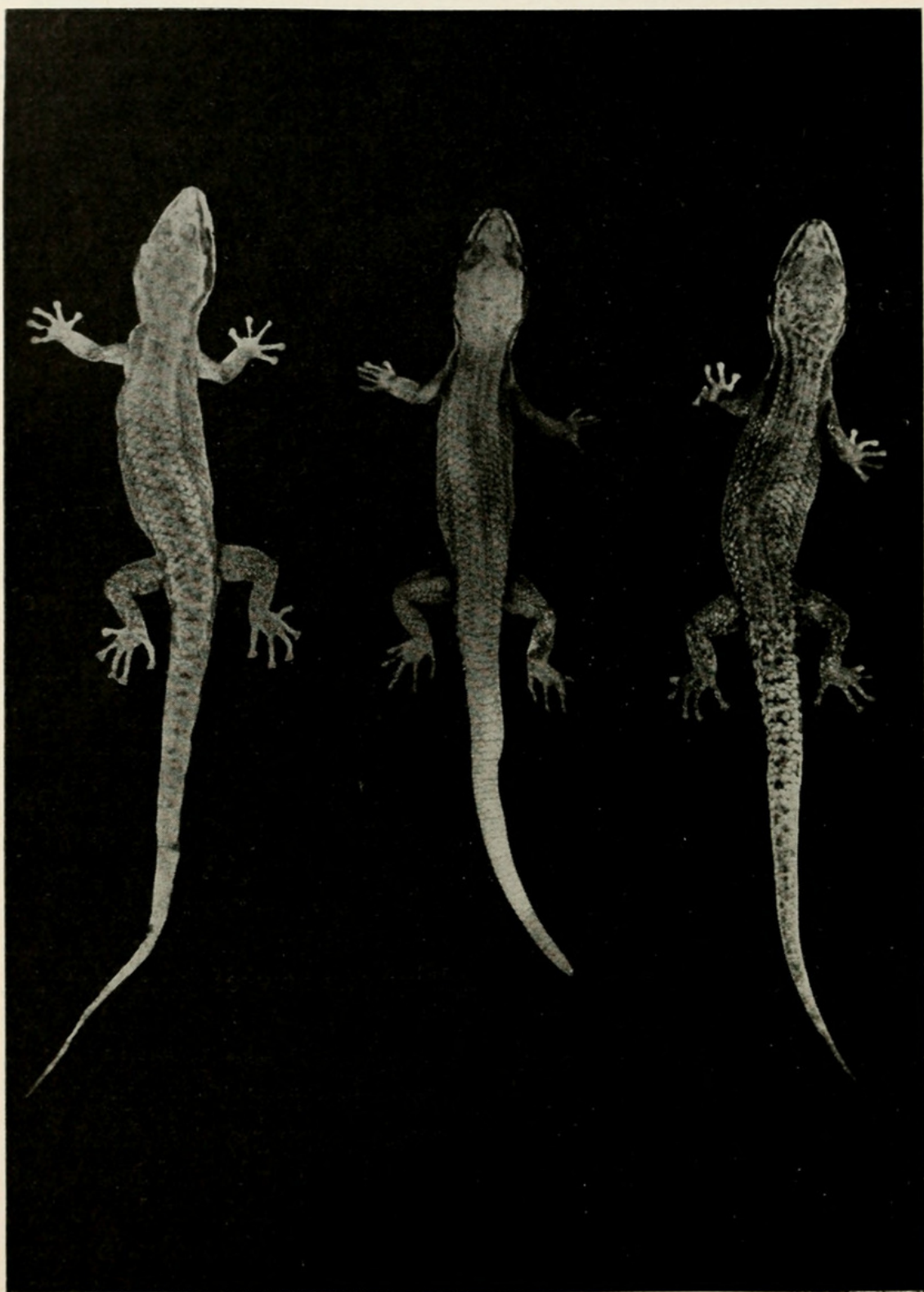


FIG. 3.—*Phyllodactylus melanostictus* sp. nov. Left figure, No. 33335, paratype. Actual length, 97 mm. Middle figure, No. 33334, paratype. Actual length, 79.2 mm. Right figure, type. Actual length, 97 mm. All from Mauk Lek Road Camp, Sara Buri, Thailand.



border than rostral, its posterior sides forming a right angle; a median pair of enlarged postmentals, each followed by two smaller widely separated pairs of scales; granules on chin and throat very small, subequal.

Dorsum covered with rows of trihedral or bluntly keeled tubercles, the two rows near middle separated by three rows of small granules; next row separated from these by an irregular row of granules; subsequent rows are contiguous or with only a few scattered granules between them; about ten or eleven scalerows on sides and dorsum but there is no distinct line of demarcation between these and the flat cycloid scales of venter; latter scales in about 22 rows. A curving row of nine preanal pores; subcaudals enlarged, widened. Two postanal swellings indicate position of hemipenes, two rounded tubercles arising from each swelling. Limbs well developed, each digit with paired leaflike lamellae at tip, between which may be seen a small retractile claw; when limbs are adpressed, toe reaches halfway to elbow. Ten lamellae under longest fingers; fifteen under fourth toes, distal one usually divided. Segments of tail distinct each segment with three or four transverse rows of scales arranged in whorls; posterior row with at least four enlarged keeled scales; on underside of each whorl, two subcaudals, anterior the larger (a total of about 30 segments in a complete tail).

*Color in life:* Above lavender-gray, the top of head lighter, mottled with some darker color; a moderately distinct cream-white stripe from tip of snout through eye, disappearing on shoulder; bordering this below is a black stripe extending from tip of snout onto tail, widening on sides and less distinct; labials and side of neck below stripes, white. Chin, throat, and venter white but under a lens fine pigmentation is evident, less on chin than on venter; latter half of tail regenerated; basal part with a series of black spots marking segments.

Measurements of *Phyllodactylus melanostictus* sp. nov.

| Number.....          | 33333 | 33334 | 33335 | 33331 | 33332 |
|----------------------|-------|-------|-------|-------|-------|
| Sex.....             | ♂     | ♂     | ♂     | ♀     | ♀     |
| Snout to vent.....   | 42.5  | 40.2  | 41    | 35    | 38.5  |
| Tail.....            | 54.5  | 39+   | 56    | 43    | ?     |
| Snout to arm.....    | 18.5  | 18    | 17.3  | 16    | 16    |
| Axilla to groin..... | 19    | 18    | 19    | 17.2  | 16    |
| Arm.....             | 12    | 12.3  | 12.2  | 11    | 11.6  |
| Leg.....             | 17    | 18    | 17    | 14    | 15    |
| Head width.....      | 8.2   | 8     | 8.2   | 7     | 7.4   |
| Head length.....     | 12.8  | 12.4  | 12.8  | 10.5  | 11    |



*Variation:* The following variation is evident:

No. 33334 ♂ : The dorsum is lighter than the type and the stripe on the side of the body is dimly evident. The entire tail has only vague lines marking the segments. There are nine preanal pores. There is no spotting or reticulation on head or body except two or three dark spots on labials.

No. 33331 ♀ : The dorsolateral light stripes can be traced to tail as a series of dots. The pigment on the back is segregated into dark flecks forming four fine broken lines while the median line is nearly as light as the dorsolateral line. The head has numerous brown-lavender flecks. The labials have more distinct spotting; and the subcaudal region is darker.

No. 33332 ♀ resembles No. 33334. The tail is missing, and the lateral body stripe is more distinct.

*Remarks:* The specimens were taken from under logs or boards on wet earth. *Phyllodactylus siamensis* was taken less than 300 meters away. All specimens are from Muak Lek Road Camp, near the town of Muak Lek, on the Friendship Highway, and actually less than three hundred yards from the boundary between the provinces of Sara Buri and Nakhon Ratchasima (Korat).

*Peropus laceratus* sp. nov.

*Type:* EHT-HMS No. 1504; taken 4 km. NW Kanchanaburi, Kanchanaburi, Thailand, July 16, 1959; Edward H. Taylor, collector.

*Paratype:* No. 33471, topotype, October 26, 1957; Nos. 33280-81, Ang Hin, Chon Buri, Oct. 5-7, 1957, Edward H. Taylor, collector.

*Diagnosis:* Preanal pores 20, forming an angular series extending slightly onto femoral region; preanal area covered with enlarged, somewhat pointed scales, but scales on areas lateral to this on underside of femora scarcely half as large. About 48 scales in a line across venter between indistinct ventrolateral folds, the scales pointed posteriorly rather than rounded; no web on hand or foot; ten labials to a point below median part of eye; tail distinctly shorter than body, the subcaudals not widened, median five or six rows similar to scales on venter; segmentation of tail not clearly indicated; dorsal scales very small, nearly uniform.

*Description of type:* Snout oval, with a frontal depression extending back between orbits to a shallow depression on occiput; areas in front of orbits distinctly swollen; rostral one and three-fourths times as wide as high, its median upper portion with a depression and an entrant groove from above; a pair of enlarged supranasals



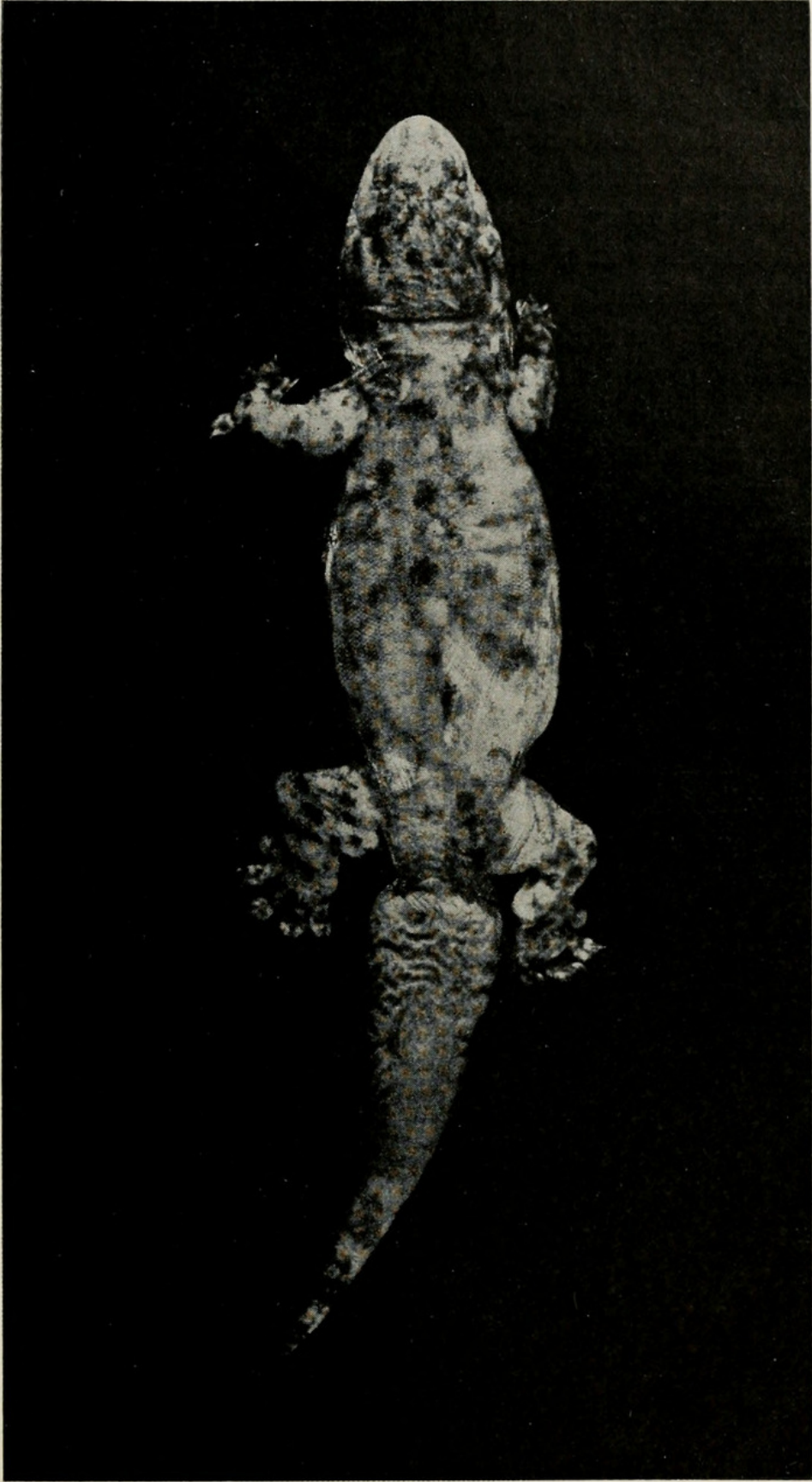


FIG. 4.—*Peropus laceratus* sp. nov. Type. Actual length, 93 mm. Four km. NW Kanchanaburi, Kanchanaburi, Thailand.



separated mesially by a small scale; nostril bordered by rostral, supranasal, first labial, and three small postnasals; 53 scales across snout at level of suture between fifth and sixth labial; twelve supralabials, tenth, or tenth and eleventh below middle of eye; a series of tiny scales from last supralabial to back of mouth angle. Mental moderate, its border on mouth equal to that of rostral, forming a right angle with median pair of chinshields, each of which is pointed anteriorly and rounded behind; second pair of chinshields lateral to first, angular anteriorly, rounded behind; third chinshields small, followed by row of slightly enlarged scales bordering infralabials; ten or eleven infralabials, ninth below eye; last followed by tiny scales to mouth-angle; chinshields somewhat raised and rounded across upper surface, with regular depressions between them; eye moderate; eyelid evident from the median lower edge of eye, running around the front and upper edge of eye; length of snout from orbit (5.5 mm.) greater than diameter of orbit (4 mm.).

Arm moderate, with an indistinct narrow web in front of elbow; all digits widened, the shortest with five, longest with seven paired lamellae and a single anterior one; lamellae following on narrow proximal portion of digit scalelike, paired or single; on outer toe there may be as many as four rows of scales. From middle of upper surface of widened portion of digits, distal clawed joints arise nearly vertically or bend forward on all digits except on inner finger which lacks the terminal phalanges but has a small claw.

Scales of dorsal and lateral surfaces of head and body very small, conelike, tubercles varying somewhat in size on head but tending to form straight longitudinal and diagonal rows. Scales on venter in about 48 rows between the slight ventrolateral folds; scales imbricate, bluntly pointed, rather than rounded, in fairly straight longitudinal rows. In preanal region scales form somewhat angular series, the series bearing 20 preanal pores, a trifle larger in males, some scales following these bearing indistinct depressions; pore-scales followed by four shorter angular series in the region preceding vent; four or five subcaudal scalerows, larger than adjoining scales but median series not widened transversely, the scales resembling those on venter. Segmentation of tail not or scarcely discernible.

No webs between digits on hand or foot; ear small, situated on a level with lower part of eye; tail thickened, widened near base.

*Color:* Above gray on back and sides, with small, darker gray spots of which there are about twenty on head; spots on body and sides a little larger, more widely scattered, with a double row of



very indistinct rounded lighter spots on back; some darker spots on middle of limbs; under surfaces of body cream to whitish yellow.

*Measurements in mm.:* Snout to vent, 55; tail, 38; total length, 93; width of head, 12; length of head, 15; tip of snout to arm-insertion, 18; axilla to groin, 25; arm, 17.5; leg, 21.

*Variation:* No. 33471, a young male topotypic paratype, has the pore-scales forming a highly arched angular series, nine on each side, the median one almost separating the two mesial pore-scales that are normally in contact. The dorsal and lateral caudal scales form distinct transverse scalerows ventrally; the segments can be discerned since the last transverse row of subcaudal scales usually has one a little larger than the others.

A second young male (No. 33280 from Ang Hin, Chon Buri), has a similar series of pores but a median scale separates the two series of pore-scales. No. 33281 has lost all skin from the preanal area.

In markings all are much the same except that the rounded lighter marks are dimly present over entire dorsal and lateral surfaces of body.

*Distribution:* Known only from the type locality and Ang Hin, Chon Buri province. All were found under rocks or logs.

*Peropus fehlmanni* sp. nov.

*Type:* EHT-HMS No. 1503. Collected 4 km. NW Kanchanaburi, Kanchanaburi, Thailand, July 16, 1960, by Edward H. Taylor and Adair Fehlmann.

*Paratype:* No. 3526, Tonka Harbour Tin Mine, Ronpibon, Nakhon Si Thammarat province, Edward H. Taylor, collector.

*Diagnosis:* Scales on dorsal part of head and body not distinctly conical; scales on snout subimbricate, double size of those on occiput and interorbital region; small distinct webs between digits on hands and feet; subcaudal scales at base of tail somewhat enlarged, followed by a single row of greatly enlarged subcaudals; largest body scales in preanal area; femoropreanal pores, 22, forming an arched series extending onto femur for nearly half its length; scales on dorsal surface of slender tail somewhat irregular not forming distinct transverse rows; segments of tail not or scarcely indicated; seventh or eighth supralabial, and seventh infralabial below pupil of eye; third (outer) pair of chinshields separated from infralabials; ventrolateral fold not indicated.

*Description of type:* Rostral twice as wide as high, with a slight median depression on upper border and with an entrant suture





FIG. 5.—*Peropus fehlmanni* sp. nov. Type. Actual length, 70 mm. Four km. NW Kanchanaburi, Kanchanaburi, Thailand.



whose length is slightly less than half height of scale; nostril surrounded by rostral, first supralabial, a supranasal, and two clearly differentiated postnasals; a slight frontal depression; supranasals separated by two small scales one behind the other; about 44 scales across snout between fifth supralabials; eight supralabials, last two small, with a row of about ten small body scales to mouth-angle; seven infralabials, likewise followed by small scales to mouth-angle; mental with labial border equal to that of rostral, shaped like a quarter section of a circle; length of snout (4.2 mm.) greater than diameter of orbit, (3.5 mm.); ear rather large, (.7 to 1.0 mm. in diameter); median pair of chinshields pointed (angular) anteriorly, the width across upper half much greater than width posteriorly; second pair of chinshields much smaller than first, separated by first pair; third pair separated by preceding pairs and separated from infralabials by a scale; lower edges of chinshields forming a curve.

Arm with a very slight web in front of elbow joint; a distinct but small web between fingers; digits widened, each bearing six or seven paired lamellae preceded by a single lamella on under surface of widened part. Toes similarly widened, one-fourth webbed. On all digits except inner, two distal phalanges rise vertically from near middle of upper surface of widened part, all clawed; inner digits lack the two distal phalanges, but a small claw present at anterior edge of widened portion.

Scales on snout irregularly shaped, distinctly not conical, in places subimbricate. Scales on sides and latter half of back large, juxtaposed, flat, and much larger than scales on shoulders, neck, or occiput; venter covered with somewhat larger imbricating scales in about 42 rows; those low on sides and those on sides of venter not or scarcely differentiated from each other; seemingly there are no ventrolateral folds. An angular series of small rounded femoropreanal pores, eleven on each side extending halfway on femora.

Scales on dorsal and lateral surface of tail irregular, suggesting the possibility that the entire tail has been regenerated; tail narrow with fringe along edges of tail, and tapering rapidly to a fine point; subcaudal scales widened, appearing to be normal and not reproduced.

*Color:* Above light brown with black flecks scattered on head, body, limbs, and tail; ventral surface yellowish white, but all scales with small pigment dots; underside of tail more heavily pigmented with brown; the pigment on pore-scales tend to make an indefinite brownish circle on scale, but is not especially conspicuous.



*Measurements in mm.:* Snout to vent, 37; tail, 33; total length, 70; width of head, 8.2; length of head, 11.8; snout to arm-insertion, 15; axilla to groin, 16; arm, 10.5; leg, 13.2.

*Variation:* Not known.

*Distribution:* Known only from the type locality and Ronpibon, Nakhon Si Thammarat.

*Remarks:* The type specimen was taken at night along the edges of a small rain-pool close to the road. It was moving about on the ground when discovered.

The second specimen in the collection, No. 35526 ♀, is from near Tonka Harbor Tin Mine, Ronpibon, Nakhon Si Thammarat. It has a snout-to-vent length of 40 mm. There is a rather sharply defined canthal line of cream dots, bordered below by a darker line passing through the eye and terminating on the side of the neck. Two dark brown marks extend back from nostrils to the frontal region; the back is brownish with small darker brown spots, some arranged transversely and at least two indefinite longitudinal rows of white dots or flecks. The ventral surface has a dense powdering of cinnamon brown. The tail has been lost.

*Luperosaurus amissus* sp. nov.

*Type:* EHT-HMS No. M. 30, collected near Odiongan, Tablas I., Philippines, Jan. 1921, by Edward H. Taylor.

*Diagnosis:* A small gekkonid (snout to vent, 46 mm.; tail, 46 mm.); head wider than body; rostral without a median entrant suture, twice as wide as high, entering nostril; ten or eleven supralabials; a pair of pentagonal chinshields touching mental; fingers and toes with a small web-remnant; lamellae under digits, widened, undivided, extending to near base of digits; inner fingers and toes without compressed distal joint and claw; eight preanal pores in a straight transverse line; no femoral pores; tail narrow, lacking lateral fringe or denticulations; no free skin-flap on arms or sides. Scales small, tubercular, intermixed with larger rounded tubercles.

*Description of type:* Rostral twice as wide as high, bordered posteriorly by two supranasals separated by an internasal, and laterally by first supralabial; nostril surrounded by rostral, first supralabial, supranasal, and two postnasals; ten or eleven supralabials, ninth or tenth below vertical pupil of eye; 46 tubercles across snout between fifth supralabials, those bordering labials largest; eye large, its diameter (3.5 mm.) smaller than length of snout (4.7 mm.); ear-opening vertically oval, its diameter (.95) about



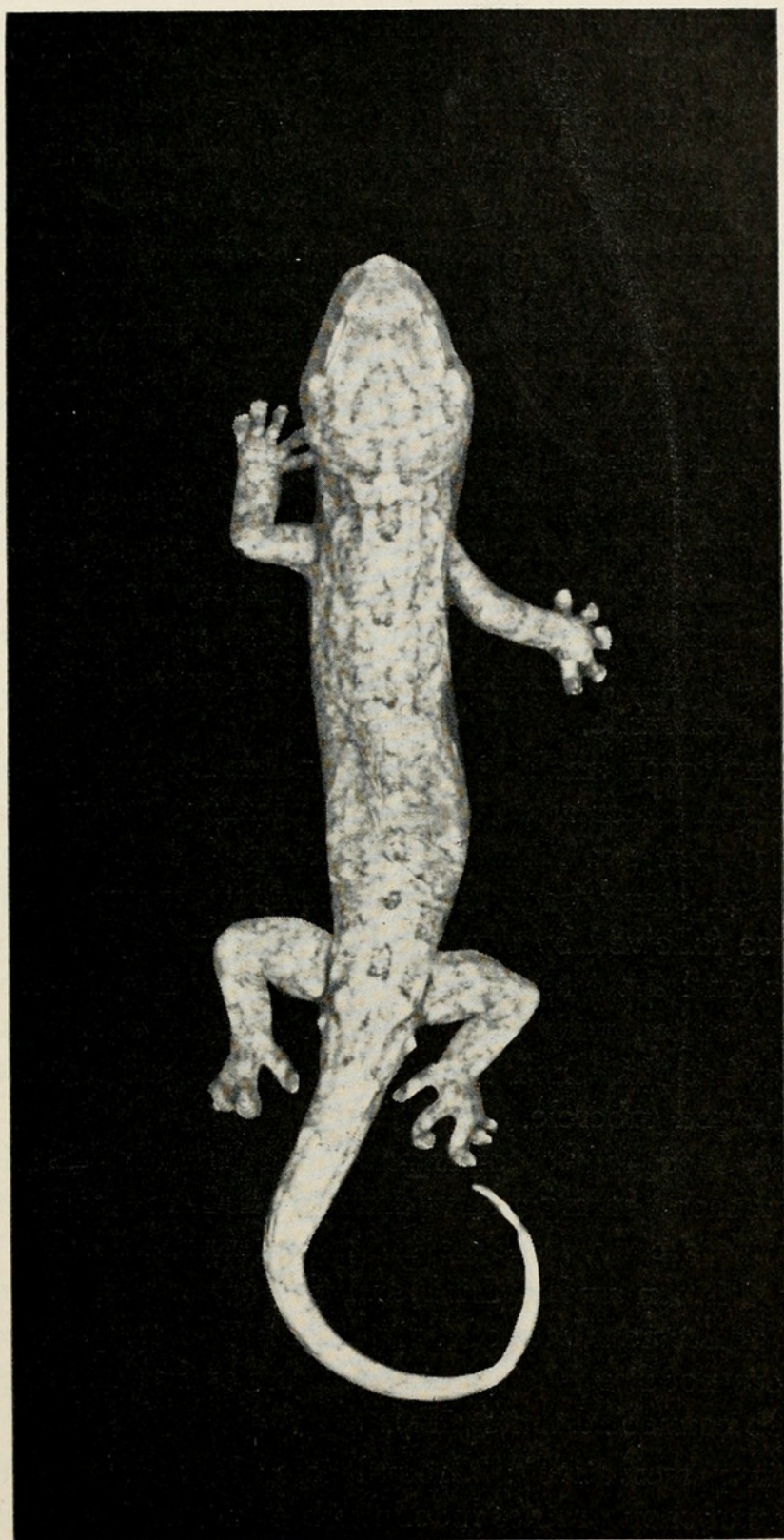


FIG. 6.—*Luperosaurus amissus* sp. nov. Type. Actual length, 92 mm.; near Odiongan, Tablas I, Philippine Islands.



3½ times in eye diameter; mental much smaller and with shorter labial border than rostral; median pair of pentagonal chinshields border mental followed by two rounded scales half size of chinshields; lateral to the median pair, a second pentagonal pair separated by the first; scales following these somewhat enlarged; infralabials, ten; scales on head granular or tubercular, largest on periphery of snout and on upper eyelids, smallest on occiput; dorsal and lateral body scales small juxtaposed granular tubercles with several irregular rows of larger rounded tubercles; a diagonal row of three or four enlarged scales in temporal area and one or two above ear; from level of shoulders about nine irregular longitudinal rows of enlarged tubercles, widely spaced, not continuing on tail; tail segmented, segments not strongly marked; scales form more or less straight transverse rows, scales larger laterally; median subcaudal scales widened, usually three below each basal segment, the third larger than other two; occasionally subcaudal scales divided; distally, tail much narrowed, flat on undersurface, possibly somewhat prehensile.

Scales on throat small, granular; on breast and venter, scales larger, juxtaposed, or more or less imbricating, arranged in about 34 rows between two indistinct ventrolateral folds; femoral pores eight, pierced along back edge of somewhat elongated preanal scales; these followed by two rows of scales nearly as large as the pore-scales, and these separated from vent by five rows of smaller scales; base of tail with two strong hemipenial swellings covered with somewhat thickened imbricating scales and with a lateral, greatly enlarged tubercle.

Digits widened, four outer fingers and toes with their distal part compressed each bearing a claw; inner digits lack distal compressed parts as well as claw; lamellae under fingers not divided mesially, twelve or thirteen under third and fourth fingers, fifteen under fourth toe; scales near base of digits small. The compressed portion of digit does not rise free, but extends beyond widened part with a slight web connected to its sides.

*Color* (in preservative): Ground color buff-brown with darker area on side of snout; rather indefinite brown markings on head and occiput; lighter median stripe with eight small dark spots; sides, arms, and legs variegated with light and dark brown. Tail very indistinctly and irregularly banded (see figure).

Very fine blackish marks about openings of preanal pores, and blackish edges on some scales on underside of base of tail.



*Measurements in mm.:* Total length, 92; snout to vent, 46; tail, 46; width of head, 10.2; length of head, 13; tip of snout to arm, 17; axilla to groin, 22; arm, 13.2; leg, 17.

*Variation:* Only the type is known.

*Distribution:* Known only from the type locality.

*Remarks:* The reduced number and character of the preanal pores with the absence of femoral pores, the presence of enlarged rows of dorsal tubercles, and absence of large digital webs, amply separates this species from other described forms of this genus. It also differs from the other species in the character of the enlarged chinshields.

The species, collected in 1923, was lost, and rediscovered in 1958 in a jar containing *Hemidactylus frenatus*. The Latin word *amissus*, chosen for the specific name, means *lost*.

*Gekko petricolus* sp. nov.

*Type:* EHT-HMS No. 738; collected at Sanoi River Forestry Station, Ubon, Thailand, Feb. 8, 1960, among sandstone boulders, by Edward H. Taylor.

*Paratypes:* Nos. 34853 (Mar. 23, 1958); Nos. 736-737, 739-742, 744-745, 770 all topotypes taken Feb. 8-11, 1960, by same collector.

*Diagnosis:* None or only merest remnant of a web between digits; inner digits well developed, lacking claws, the subdigital lamellae undivided; body covered with fine subequal granules, intermixed with somewhat enlarged tubercles forming irregular rows, and separated by from two to five granules; postnasal and frontal areas depressed; rostral entering nostril; venter with about 30 rows of larger cycloid scales, somewhat imbricate; subcaudals widened except at base of tail and at tip; each proximal caudal segment with four enlarged tubercles. Tail slender, depressed; nine or ten preanal pores; no femoral pores. Yellow in life with a lavender-gray head; numerous rounded whitish spots evident.

*Description of type:* Rostral a little less than twice as wide as high, its upper edge somewhat concave with a Y-shaped median groove; a pair of large supranasals narrowly in contact mesially; nostril surrounded by rostral, supranasal, two postnasals and first supralabial; supralabials twelve, followed by a number of small scales running back to mouth-angle; mental with a labial border equal to that of rostral; ten or eleven infralabials, followed by small scales bordering mouth to its posterior angle; mental followed by two somewhat elongate chinshields; these flanked on each side by





FIG. 7.—*Gekko petricolus* sp. nov. Type. Actual length, 212 mm. Forestry Station, Sanoi River, Ubon, Thailand.



three (or four) enlarged chinshields in contact with infralabials; this enlarged series continues back on each side for several scales, but these scales are separated from infralabials by one or more series of small scales; scales on chin and throat small, cycloid, imbricating, their posterior edges serrate or tuberculate when seen under a lens; an occipital depression somewhat separated by a ridge from the fronto-interorbital depression; area behind nostril somewhat depressed; about 47 scales across snout between seventh labials; eye large, diameter of orbit (7 mm.), much shorter than snout (10.5 mm.); "eyelid" completely surrounding eye, with a short series of spinous scales on its posterior borders; ear-opening moderate, its greatest (diagonal) diameter about three millimeters; the largest scales are on snout on an area anterior to eye and on supraorbital region; interorbital and occipital areas with smallest scales; about 38 scales across head between median edges of upper eyelids. Dorsal scales small, rather uniform, granular, with about 16 irregular rows of larger rounded moundlike tubercles; tail indistinctly segmented, each segment with ten to twelve transverse rows of small scales and with two or more enlarged flattened scales near the posterior part of segment; scales of basal subcaudal region not greatly enlarged; transversely widened median plates under tail for most of its length, extending to near tip of tail, where the widened scales are replaced by rows of small scales. Tail flattened, narrowed, tapering to a fine point.

Arms and legs well developed; digits with scarcely a trace of webs; divided lamellae under digits except at base; elevated terminal joint with claw extending beyond widened part of digit; claw absent on inner finger, which otherwise is well developed. About 20 lamellae under fourth finger and toe, basal ones broken or divided into small scales; hind leg reaches beyond elbow; a somewhat curved series of nine preanal pores, followed by a preanal area covered by seven rows of widened scales; openings of postanal sacs evident just preceding hemipenial swellings.

*Color in life:* On back, sides of body and tail, yellow with small rather symmetrical yellowish-white marks; some darker flecking visible; head lavender-gray; underside of body and tail yellowish to dirty white. In preservative dull gray, the white spots rather dimly visible.

*Variation:* The type series, all taken in the same locality, was constant in color save that younger specimens failed to show the yellow coloration and were gray and white in color. The femoral



Table of measurements and data on paratype series of *Gekko petricolus* sp. nov.

| Number.....                       | 732   | 742   | 744               | 737   | 739   | 738   | 745   | 741   | 740   | 770   | 34853 |
|-----------------------------------|-------|-------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Sex.....                          | ♂     | ♂     | ♂                 | ♂     | ♂     | ♂     | ♂     | ♂     | ♀     | ♀     | ♀     |
| Snout to vent.....                | 101   | 98    | 92                | 81    | 95    | 98    | 75    | 75    | 75    | 75    | 62    |
| Tail.....                         | 102   | 100   | 111<br>(complete) | 97    | 93    | 114   | 73    | 65    | 62    | 81    | 72    |
| Axilla to groin.....              | 45    | 45.5  | 42                | 37    | 43    | 45    | 33    | 34    | 33    | 39    | 27    |
| Head width.....                   | 22    | 20.3  | 19                | 17.4  | 20    | 20    | 16.2  | 15    | 15.4  | 16    | 13    |
| Head length.....                  | 26    | 25.6  | 25                | 21    | 24    | 25    | 21.5  | 20.5  | 20    | 21    | 17.7  |
| Scales across snout.....          | 43    | 47    | 46                | 47    | 45    | 47    | 41    | 47    | 46    | 46    | 46    |
| Scales between lateral folds..... | 32    | 28    | 27                | 30    | 30    | 28    | 29    | 30    | 29    | 30    | 29    |
| Subcaudals.....                   | ..... | ..... | 109               | 110   | ..... | 105   | reg.  | reg.  | reg.  | reg.  | 104   |
| Lamellae 4th toe.....             | 20    | 20    | 20                | 20    | 20    | 20    | 20    | 20    | 19    | 20    | 20    |
| Pores.....                        | 10    | 10    | 9                 | 10    | 9     | 9     | 10    | 9     | 11    | 11    | 10    |
| Supralabials.....                 | 14    | 14    | 14-13             | 13    | 12-13 | 13-13 | 14-14 | 12-12 | 13-15 | 14-15 | 13-13 |
| Infralabials.....                 | 10-11 | 11-12 | 11-11             | 12-12 | 11-12 | 10-11 | 10-12 | 10-11 | 11-11 | 11    | 10-12 |
| Scales between eyelids.....       | 34    | 41    | 39                | 40    | 40    | 38    | 41    | 41    | 39    | 37    | 40    |



pores were either nine or ten in number, the exudate from them being glass-clear and projecting strongly from the pores. Variation in number of scales across snout between seventh labials is from 43 to 47; across the middle part of venter between the ventrolateral folds, the number of scales varies between 27 and 32.

Sometimes the supranasals are separated from each other by a single scale instead of two scales. The rostral groove in one specimen is X-shaped.

The subcaudal scale-count from vent to tip of tail varies from about 104 to 110, the basal and terminal ones not enlarged.

The color of the adults varies but little. The yellow color disappears in the fixative within 36 hours. One young specimen differs as follows: above generally gray; head somewhat darker with numerous very small blue-white flecks or spots with slightly larger ones on occiput; a few blacker flecks also present; dorsum lighter gray than head with a row of seven small dashlike black marks along the middle line, these marks alternating with rounded bluish-white spots which continue onto tail; a similar dorsolateral and a lateral row of more indefinite dark spots also interspersed with rounded blue-white spots. Arms and legs gray with numerous whitish flecks and spots sometimes tending to form a reticulum; tail light with twelve broad dark-gray bands reaching to ventral surface; entire undersurface of head and body white or cream-white with some yellowish wash; under a lens some scattered fine pigment can be seen, the pigmentation a little heavier under tail.

*Distribution:* Known only from the sandstone hills near the border of Thailand and Laos. It probably occurs also in the mountains between Cambodia and Thailand.

*Remarks:* The weathering of the sandstone exposed along the Laos border leaves boulders and table-rocks in profusion. The species occupies horizontal crevices between the rocks, in which places they were almost invariably found upside down. Eggs are usually placed on ceilings. In certain small overhanging rocks, remnants of dozens of eggs could be seen on ceilings' six or eight feet above the floor. One exception was a pair of eggs placed on a large boulder that offered no crevices. These were on a vertical side of the boulder a few inches from the earth, covered accidentally by a pile of windblown leaves.

The eggs are rather small in diameter (9-11 mm.) and about 8 mm. high. They are somewhat moundlike, the two cemented to-



gether and plastered against rock. It is practically impossible to remove them without breaking them.

A single young specimen, No. 34855, was taken at the type locality in 1958. It was found in a pile of discarded boards not far from a group of boulders. Two of the present series were taken in a shelter house built over exposed boulders at the very edge of the Sanoi River.

At no time did I hear them call.

One pair of embryos taken from eggs, measured 45 mm. (22 mm. snout to vent, the tail, 23 mm.).

*Sphenomorphus lineopunctulatus* sp. nov.

*Type:* EHT-HMS No. 34852, collected at Forestry Station, Sanoi River, Ubon province, Thailand, Mar. 23, 1958, Edward H. Taylor collector.

*Diagnosis:* Dark olive-brown above with irregular rows of black dots on back; a broad black lateral stripe punctated at intervals with cream dots beginning on shoulder but preceded by one or two separate spots, bordered above by a line of ground-color and this in turn by a very narrow (often broken) dotted brownish-white line; this stripe bordered below by a broad light line which in turn is bordered below by a dark line from axilla to groin, its lower edge indefinite; no supranasals; frontonasal single; prefrontals separated; no nuchals; eyelid scaly; no postnasal; three pairs of chinshields all touching labials; 38 scalerows around body; ear-opening nearly as large as eye-opening.

*Description of type:* Rostral large above, not quite reaching level of line between nostrils, forming a broad suture with frontonasal; latter wider than long, broadly in contact with frontal, and bearing a semicircular groove around its anterior part (groove may be accidental or abnormal); prefrontals separated; frontal much longer than its distance from end of snout, slightly longer than combined parietals; frontoparietal divided; interparietal small, enclosed by parietals; nostril in rather large single nasal scale which is separated from its fellow; two loreals, anterior highest and narrowest; large preocular with smaller scale superimposed; two presuboculars, latter partially wedged between fourth and fifth supralabials; ten supraciliaries, first not touching frontal; four large supraoculars, three touching frontal, first touching prefrontal; lower eyelid scaly; seven supralabials, fifth and sixth below eye; two anterior temporals and two larger secondary temporals; ear-opening nearly as large as eye-opening.





FIG. 8.—*Sphenomorphus lineopunctulatus* sp. nov. Type. Actual length, 211 mm. Forestry station, Sanoi River, Ubon, Thailand.



Scales in 38 rows around body; 42 scales around narrowest part of neck; 76 scalerows (transverse) from parietals to above vent; no nuchals; scales on six median dorsal rows transversely widened, especially so on neck; five paired subcaudals basally, followed by a series of 106 single scales (15 regenerated). A pair of enlarged preanals; when limbs are adpressed, toes reach to near elbow; 22 bluntly keeled lamellae under fourth toe; in profile, lamellae forming a strongly serrate row.

*Color in life:* Above generally dark olive-brown with head a little darker than body; small black spots on posterior edge of frontonasal, frontal, frontoparietals, and interparietal, and two spots on posterior edges of supraoculars; black marks on supralabial sutures and on temporals; light marks on loreals; one or two black spots on shoulder in front of, and above arm-insertion; a black stripe on side, two and a half to three scales wide, continued less distinctly on tail, and bearing series of blue-white punctations; narrow whitish dorsolateral line more or less black-edged above, reaching a point above tympanum; dorsum olive with three indistinct rows of black flecks reduced to single median row of larger spots on base of tail; light grayish-white stripe from above arm to groin, but continued on base of tail as a dim dark-gray stripe; legs and to lesser extent arm with darker reticulation enclosing lighter flecks; sides of neck plumbeous gray; chin, throat, and breast dirty-white with occasional flecks of blackish; venter and subcaudal region white.

*Measurements in mm.:* Snout to vent, 84; tail, 127; snout to eye, 6.7; snout to ear, 15; head length, 19.8; head width, 13; snout to arm-insertion, 27.5; axilla to groin, 45; arm, 22; leg, 34.5.

*Remarks:* It is not impossible that this species is related to *Sphenomorphus indicus*, however, the characteristics, especially of the color pattern, are such that it must be regarded as a distinct species rather than as a subspecies of *indicus*.

*Sphenomorphus mimicus* sp. nov.

*Type:* B. M. No. 1935.11.5.15, Dong Paya Fai Mts., N. Siam, Malcolm M. Smith, collector (field no. M. S. 5302).

*Diagnosis:* Small skink, 36 mm. snout to vent; total length 94 mm.; prefrontals in contact, no supranasals, three supraoculars touch frontal; no postnasal; two frontoparietals; parietals enclose interparietal; one pair of nuchals; seven supralabials, the fifth and sixth enlarged; six infralabials, first small; one pair large preanals. Thirty



scalerows about body at middle; ventral scales larger than dorsals; subcaudal scales enlarged. Lower eyelid scaly.

*Description of species:* Very small skink; rostral about twice as wide as high, forming a curved suture with frontonasal; latter much wider than long, touching nasal and first loreal laterally; no supranasals; prefrontals forming a broad median suture; frontal longer than its distance from tip of snout, shorter than its distance to nuchals, the sides straight, the scale much narrowed posteriorly; two frontoparietals, larger than interparietal; latter enclosed by large parietals; pair of nuchals (a small scale broken from that on left side); nostril in single nasal; no postnasal; two loreals, second one



FIG. 9.—*Sphenomorphus mimicus* sp. nov. Type. Actual length, 94 mm. Dong Paya Fai Mts., N. Thailand.



only little larger and equally as high as first; two superimposed preoculars, lower larger; three small presuboculars, third notching supralabial series; this followed by three small suboculars the third of which also notches supraocular series; lower eyelid scaled; four large supraoculars, three touching frontal, fourth followed by a small scale that might be interpreted as a fifth supraocular; fifth and sixth supralabials larger than others, and somewhat elongated; six infralabials, the first about half size of second. Buccal border of mental only slightly larger than that of rostral; large undivided postmental; three well-defined pairs of chinshields; first pair in contact, second pair separated by one scale, third pair by three scales; scales in 30 rows about body, dorsal scales little larger than laterals but smaller than ventral scales; pair of enlarged preanals; subcaudal scales, after tenth, become enlarged, wider and longer than adjoining scales; approximately 61 scales from parietals to point above vent; 86 subcaudals from vent to tip of tail; when arm and leg are adpressed, digits barely touch; third and fourth fingers of equal length, each with eight or nine lamellae; fourth toe longest with 16 lamellae.

*Color:* Above variegated fawn with clouding or small indefinite spots of brown; a dorsolateral line from snout, broken or at times continuous, and more or less including some small fawn spots most noticable along shoulder region; line continued along side of tail but growing very indefinite and finally lost; supralabials and infralabials each with a dark brown spot; sides of head reticulated with brown; side of neck and sides with fine flecks of brown; arms and legs strongly spotted with brown and fawn; chin, venter, under-side of limbs, and subcaudal region cream-white.

*Measurements in mm.:* Snout to vent, 36; tail, 58; total length, 94; snout to arm-insertion, 13.2; axilla to groin, 18.4; arm, 8; leg, 13.1.

*Remarks:* This species, known only from the type locality, strongly mimics the small leiolopismas in size, color, and form. Nothing is known of the habits of this particular species.

*Sphenomorphus grandisonae* sp. nov.

*Type:* British Museum No. 1935.11.5.13, "Ban Tong Pheung, N. Siam," M. A. Smith, collector.

*Diagnosis:* Small skink; 34 scalerows around body; six supralabials; five infralabials, median suboculars larger than pre- or post-suboculars, the whole series continuous; temporals, 2 + 3 + 4; no nuchals; dorsal scales smaller than ventrals; subcaudals smaller than



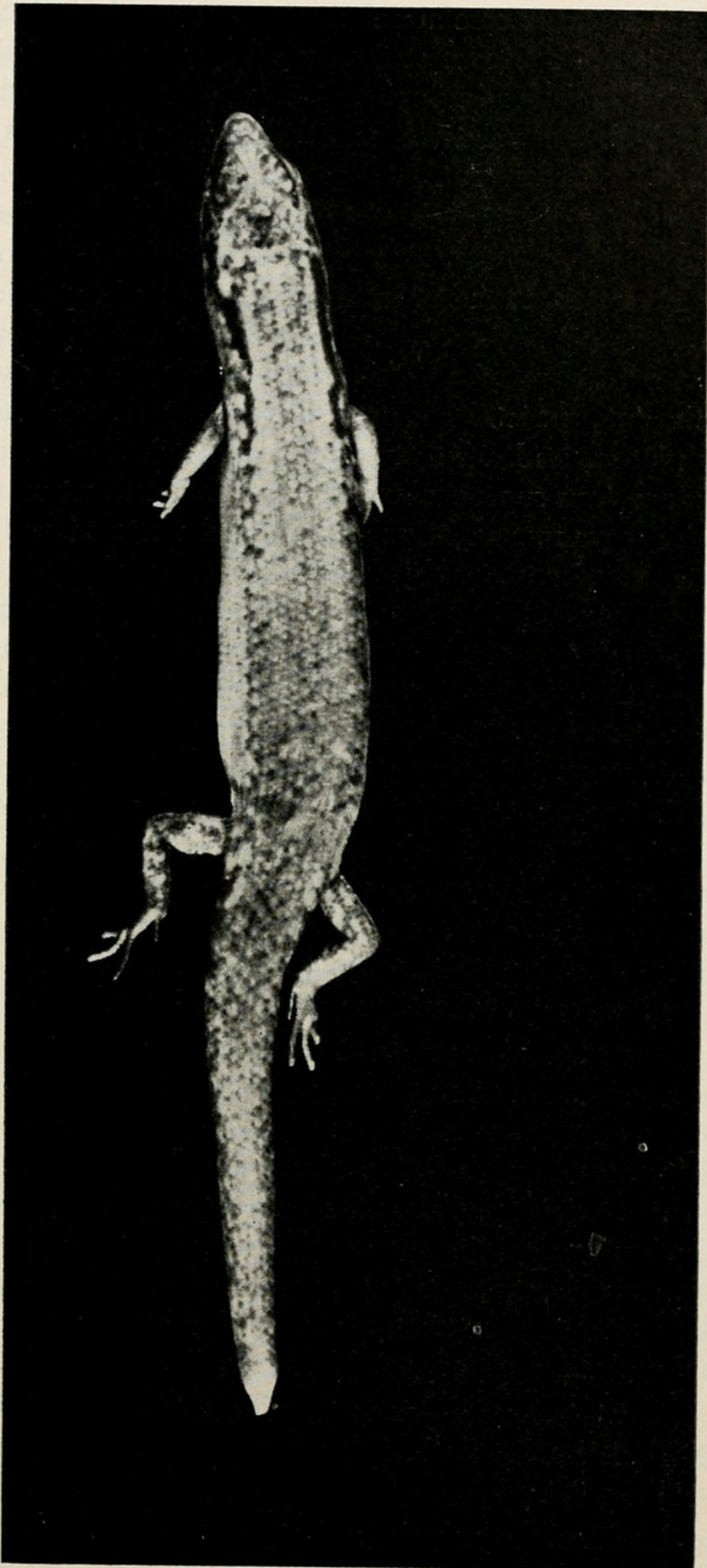


FIG. 10.—*Sphenomorphus grandisonae* sp. nov. Type.  
Actual length, 51.5 mm. Ban Tong Pheung, N Siam.



lateral caudal scales; dorsolateral markings on side reduced; very slight suggestion of a brown stripe dorsolaterally on tail; digits fail to touch when limbs are adpressed; third finger distinctly longer than fourth, all fingers relatively short. Seventy-one scales in a line from parietals to above vent.

*Description of type:* Rostral visible, its posterior border convex, forming a suture with frontonasal; frontonasal wider than long; prefrontals moderate, in contact mesially, separated from first supraocular; frontal longer than its distance from tip of snout, much shorter than its distance from posterior end of parietal; two frontoparietals, the interparietal enclosed by parietals; no nuchals; nasal diagonally placed, undivided; two loreals, first higher than second; two preoculars; four supraoculars, the anterior smallest in area; nine supraciliaries; seven or eight pre-, sub-, and postoculars forming a continuous series, none wedged between supralabials; temporals,  $2 + 3 + 4$ ; six supralabials, fourth below middle of eye; five infra-labials, first largest; mental with larger labial border than rostral; large postmental; three pairs of chinshields touching labials, first pair in contact, second separated by one scale, third by three scales; lower eyelid scaly; tympanum large, superficial; eight scalerows across neck between darker lines; 34 scalerows about middle of body; 24 scales about tail at 14th subcaudal; median subcaudals definitely not larger than adjoining scales, smaller than lateral caudals.

Arm and leg short, toes and fingers separated when legs are adpressed; median finger distinctly longer than two adjoining digits, with six lamellae; twelve lamellae under fourth toe.

*Color:* Above light brown with some minute flecking on dorsal scales but no series of spots; head with supraorbital sutures darkened as are many other head sutures; lips with dark bars on sutures, separated by cream spots; lighter dorsolateral light line on side of neck and shoulders; a brown stripe below the light stripe reaching to shoulder but not continued along side except as very indefinite, scarcely discernible darker flecking with some lighter dots; indistinct dark and light marks on limbs and tail; white or cream on chin, venter, and underside of tail; tail broken and regeneration begun.

*Measurements in mm.:* Snout to vent, 30; tail (broken), 21.5; head width, 4.1; head length, 8.2; snout to arm, 12; axilla to groin, 16; arm, 6.5; leg, 9.4.

*Distribution:* Known only from the type locality.

*Remarks:* The scales are slightly elevated giving the impression that they are very bluntly keeled. However, they are not keeled.



They are arranged in very straight rows, those on the back are of the same size as those on sides, but smaller than most of the ventral scales.

The failure of any of the subocular scales to form a notch between two supralabials and the presence of a large first infralabial equal in size to second are characters not usually present in *Sphenomorphus*. Usually the first labial is only about half the size of the second.

The species is named for Miss Alice Grandison, Keeper of Reptiles and Amphibians, Department of Zoology, British Museum, who has kindly loaned the specimen for study and description.

*Riopa frontoparietalis* sp. nov.

*Type:* EHT-HMS No. 1694, collected in hills near Scout Camp, Sara Buri, Sara Buri, Sept. 26, 1960 by Edward H. Taylor.

*Paratypes:* Nos. 33339-33342, Nakhon Ratchisima but very close to Muak Lek, Sara Buri; 33391 Muak Lek, Sara Buri; 33392, 33393 Pasadet, Sara Buri, same collector.

*Diagnosis:* Similar to *Riopa bowringi* except smaller (snout to vent 41), usually darker brown with the frontoparietal single.

*Description of the type:* Rostral wider than high, visible above; pair of supranasals forming short median suture, touching nasals and anterior loreal laterally, about twice as wide as long; prefrontals quadrangular, widely separated, touching both loreals; frontal truncate anteriorly, longer than its distance to tip of snout, shorter than its distance to nuchal; frontoparietal single, much larger than interparietal, touching three supraoculars; parietals forming a suture behind interparietal; a pair of nuchals; nasal seemingly completely divided without a separate postnasal; two loreals, anterior the higher, posterior slightly larger and subquadrangular; two presuboculars, three postsuboculars connected by a row of tiny scales on lower edge of eyelid; eyelid with several larger scales; two large anterior temporals; three secondary temporals; supralabials, 7-7, fifth below eye; first larger than the three following; seven supraciliaries; mental with an oral border much larger than rostral; one undivided postmental, followed by large pair of chinshields in contact; second pair separated by five scales; six infralabials; ear moderate, the anterior border with two lobules; scalerows about neck, 28; about middle of body, 28.

Scales from nuchal to above vent, 56; when arms and legs are adpressed they are separated by five scales; middle finger extends



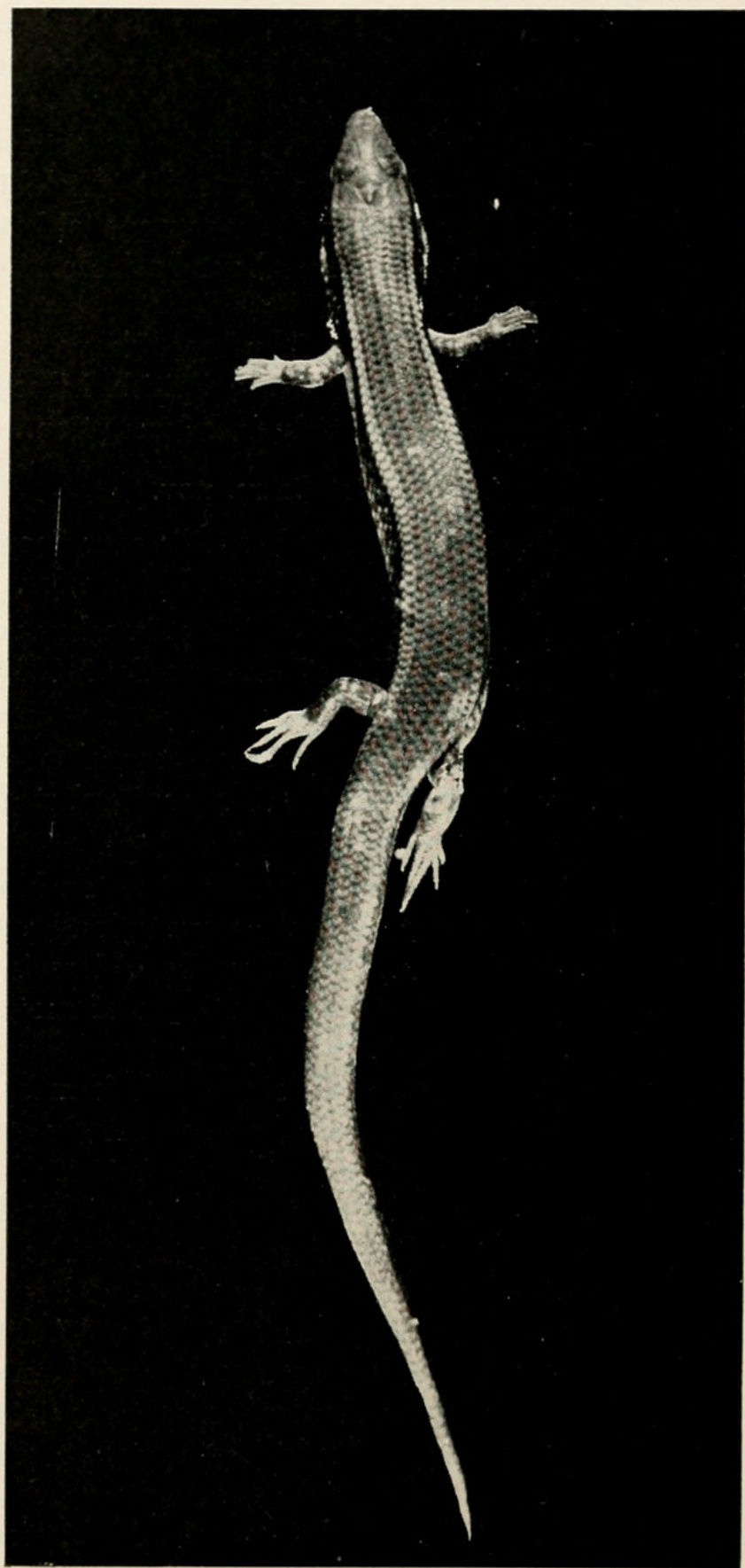


FIG. 11.—*Riopa frontoparietalis* sp. nov. Type. Actual length, 85 mm. Hills near Sara Buri, Sara Buri, Thailand.



a little farther than fourth, the latter with ten subdigital lamellae; fourth toe longest, with 13 lamellae, tubercular proximally, compressed distally; six preanal scales, the two median a little larger than others, and white in color; median subcaudal series of scales slightly enlarged, 78 in all.

*Color in life:* Above dark brown, head nearly uniformly colored above; a pair of light brown dorsolateral lines covering part of two or one whole and two half rows of scales; six median brown scale-rows each row with a dim dark line. Side with black line bordering the dorsolateral light brown line; below this the side of neck and body covered with irregular vertical rows of dark brown and cream scales. Central part of supralabials with an indistinct cream line. Chin and ventral surface of body dirty white; underside of tail, gray; median anal scales pure white. Palm, sole, and underside of digits blackish.

Measurements and data of *Riopa frontoparietalis* sp. nov.

| Number.....                 | 1694 | 33341 | 33342 | 33391 | 33392 | 33393 |
|-----------------------------|------|-------|-------|-------|-------|-------|
| Snout to vent.....          | 38   | 33    | 35    | 41    | 41    | 36.2  |
| Tail.....                   | 47   | 38    | 41.5  | 55    | ..... | 42    |
| Head width.....             | 6.1  | 6.5   | 5.4   | 6.3   | 6.4   | 6     |
| Head length.....            | 9.4  | 8.5   | 9     | 10.4  | 9.3   | 9.5   |
| Arm.....                    | 8    | 6     | 7     | 8     | 8.2   | 8     |
| Leg.....                    | 10.3 | 7.5   | 9.5   | 12    | 11.2  | 11    |
| Scales, nuchal to vent..... | 56   | 59    | 60    | 57    | 59    | 60    |
| Scales around middle.....   | 28   | 30    | 30    | 28    | 28    | 30    |

*Variation:* The scalerows about body vary between 28 and 30.

The type and paratypes are all much the same as regards color and markings.

*Distribution:* It would appear that this form has originated and is still confined to the central mountains on the eastern part of the Khorat plateau. This range is generally known as the Dong Paya Fai Mts.

This range is also the home of *Riopa koratense*; *Cyrtodactylus angularis*, *Phyllodactylus melanostictus*, etc.

*Remarks:* All the specimens taken in this region, Nos. 33339-33342 Nakhon Ratchisima on border of Sara Buri; 33391 Muak Lek, Sara Buri; 33392-33393 Pasadet, Sara Buri, agree with the type in the presence of a single frontoparietal.

In some hundred specimens of *R. bowringi* this fusion was observed in one specimen in which the frontoparietals, partially



fused, were united to the interparietal (probably due to an injury).

Malcolm Smith reports a specimen with a single frontoparietal from the Langbian Plateau, Annam.

*Riopa haroldyoungi* sp. nov.

*Type:* EHT-HMS No. 53, collected at the base of Doi Suthep, near Chiang Mai, Chiang Mai province, Sept. 2, 1959 by Harold Young.

*Diagnosis:* An elongate-bodied skink; distance between tip of snout and insertion of arm contained in axilla to groin measurement about  $3\frac{1}{2}$  times; arm length in axilla to groin distance about 9 times; ear-opening small distinct; nostril in nasal and almost bordering supranasal; rostral, first supralabial, mental, first infralabial, nasals and supranasals somewhat thickened (bluish to ultramarine in color); first supralabial twice as large as the three subsequent supralabials.

A white band crossing head behind parietals; body with 32 irregular transverse light bands often broken, sometimes tending to form reticulations.

*Description of type:* Body greatly elongated, adpressed limbs widely separated; head moderately large, scarcely as wide as body in postaxillary region. Tip of snout rounded; rostral large, well visible above, posteriorly forming an angle; internasals completely free from nasal, subtriangular in shape, in contact mesially; fronto-nasal much wider than long, laterally in contact with anterior loreal; frontal relatively short (4 x 3.7 mm.), the broad contact with fronto-nasal nearly a straight line; prefrontals small, widely separated, each touching both loreals; a single large frontoparietal, wider than long (5 x 3.5 mm.) mesially notched posteriorly by small interparietal; parietals elongate (6 mm.) diagonally placed, not or barely enclosing interparietal; no distinct nuchals; nostril in a single nasal nearly twice as long as high; two loreals the anterior highest; four supra-oculars, the anterior triangular, second largest, fourth barely touching parietal; six supraciliaries; five subocular and preocular scales; upper eyelid greatly reduced; lower lid with at least three rows of small scales.

Nine supralabials anterior twice as large as any other labial, in contact with anterior loreal behind nasal; three rather enlarged temporals border parietal; mental with a larger labial border than rostral, partially fused to first infralabial; nine or ten infralabials, first largest; an azygos postmental; first chinshields in contact, partly



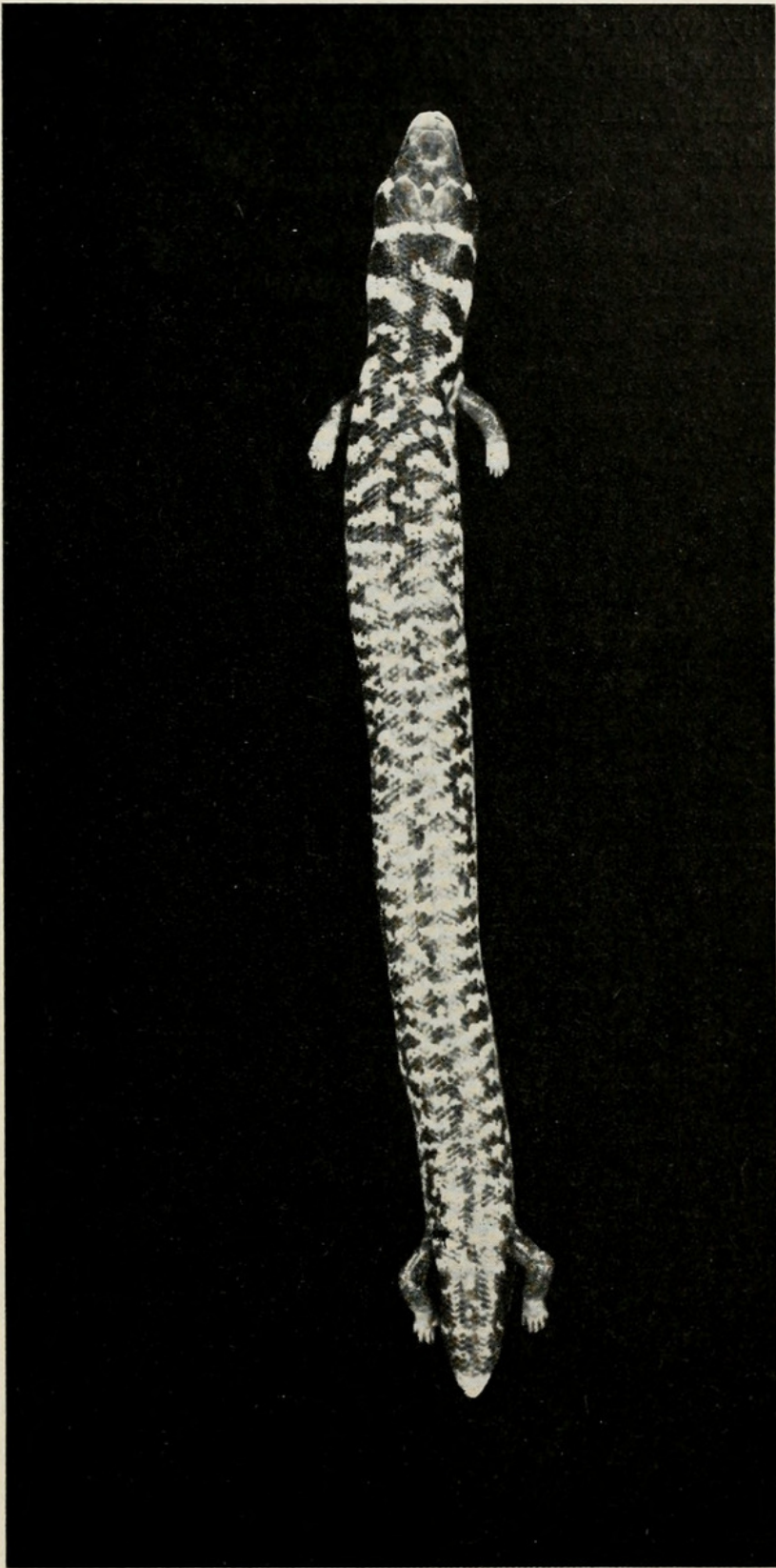


FIG. 12.—*Riopa haroldyoungi* sp. nov. Type. Actual length, 150 mm. Base of Doi Suthep near Chiang Mai, Chiang Mai, Thailand.



fused, touching labials on one side only; second pair of chinshields separated by two or three scales and also separated from labials by one scale; third pair of chinshields scarcely differentiated.

Ear-opening small distinct, upper anterior part partially covered by an overhanging scale or scales; limbs short. Arms short, pentadactyl, clawed, the three median digits subequal, their length with claw, measuring about 1.5 mm., twice length of two outer digits; subdigital lamellae five or six; palm with rounded or somewhat flattened tubercles; four outer toes longer than inner, strongly curving, with strong well-developed claws; six or seven lamellae under longer toes; tympanum very deeply sunk.

Forty-seven smooth scales in a row about neck; 40-42 scalerows about body at middle; vent bordered anteriorly by ten slightly differentiated scales; basal subcaudals not enlarged or differentiated; distal portion of tail missing with regeneration recently begun; 143 scales in row from parietals to point above vent.

*Color in life:* Generally dull black and yellowish ivory; snout tip rather gray-ultramarine because of thickening of scales; head blackish above with slight clouding of ivory; two ivory marks on chin run back then run up on side of head to eye; this followed by a similar dark band also proceeding to eye; next ivory band reaches front of parietal; followed by a black band, narrow below, but widening on temporal region; next ivory band encircles head behind parietals; from here on, alternating bands are dull blackish and dirty ivory, often broken, sometimes tending to form reticulations; limbs somewhat darker, light flecks indistinct.

*Measurements in mm.:* Snout to vent, 136; tail broken (regeneration begun), 14; tip of snout to arm-insertion, 29; axilla to groin, 97; arm, 11; leg, 12; width of head, 12; length of head, 18; snout to ear-opening, 16; snout to arm-insertion in axilla-to-groin distance 3.35 times; distance between adpressed limbs equals slightly more than 6.5 times length of arm; greatest body width 13.6.

*Remarks:* Only the type is known. It was taken at the base of Doi Suthep Mountain by Mr. Harold Young. It was kept alive at his zoo for some days but in trying to escape it fell in a water tank and was drowned.

The species is named for its discoverer.

*Leiolopisma pootipongi* sp. nov.

*Type:* EHT-HMS No. 34858; from Forest Station, Sanoi River, tributary of the Moon River; collected Mar. 23, 1958, by Edward H. Taylor.



*Diagnosis:* A diminutive skink (38 mm.) with frontoparietal single; prefrontals broadly in contact; no transversely enlarged nuchals; dorsolateral whitish line separated from its fellow by six scalerows; lateral dark stripe, its lower edge very irregular with some white dots; 4th toe reaches to wrist when limbs are adpressed; preanals large; 18 lamellae under fourth toe; 30 scalerows about body; posterior subcaudals widened; anterior subcaudals about size of adjoining scales.

*Description of type:* Rostral large, much wider than high, forming broad suture with frontonasal, separating nasals; frontonasal nearly twice as broad as long touching first loreal laterally; prefrontals large, broadly in contact, touching laterally both loreals and in contact with first supraocular; frontal narrowed to a blunt point posteriorly, touching two oculars, little longer than its distance from tip of snout, shorter than length of combined parietals; four supraoculars, anterior triangular; eight supraciliaries; nasal single; anterior loreal higher and narrower than second; three presuboculars, third wedged between fourth and fifth labials; seven supralabials, fifth and sixth below eye; two temporals between sixth labial and the very large temporal bordering parietal, one between seventh labial and large temporal; lower eyelid with an undivided transparent disc; ear-opening large; six infralabials, first very small; mental with larger labial border than rostral; one large azygos postmental; first chinshields in contact, second pair largest, narrowly separated by one scale; third pair separated by three scales; fourth pair separated by four scales; all four pairs bordering infralabials.

Scales smooth, 30 scalerows around middle of body (one millimeter farther forward the count is 32); eight scalerows on back, those behind occiput somewhat widened; subcaudal scales near base not noticeably enlarged; behind this, distinctly wider than adjoining scalerows; preanals well enlarged; arms and legs overlapping when adpressed, fourth toe reaching to wrist; 18 lamellae under fourth toe; 66 scales from parietals to above vent.

*Color in life:* Above olive-brown, head, especially in supraocular areas, darker; pair of dorsolateral light lines confined to parts of two scalerows; on middle of back, row of dark spots paired anteriorly; an indefinite darker streak along dorsum of tail with wide dorsolateral stripe bordered laterally by an indefinite darker stripe; dark lateral stripe beginning behind eye passing distinctly above ear, very irregular on its lower edge and bearing several small punctate light spots; dark color widens and extends down almost to



arm-insertion and here shows a whitish bordering line; lower flanks, chin, venter, underside of limbs, and subcaudal region immaculate white but subcaudal area somewhat pinkish; labials cream with sutures widely bordered with darker pigment; arms and legs brownish, reticulated, enclosing lighter spots.

*Measurements in mm.*: Snout to vent, 37.2; tail, 18 (broken); snout to ear, 7.6; head length, 9.4; head width, 5; snout to arm-insertion, 13.7; axilla to groin, 19; arm, 10; leg, 13.8.

*Remarks*: I do not regard the single frontoparietal as an anomaly. It is a form probably related to the Indian *L. palnicum* Boettger which likewise normally has an undivided frontoparietal.

The species is named for M. R. Pootipong Nupartpat Varavudhi, Instructor in Zoology, Chulalongkorn University, my assistant who obtained many interesting specimens for the collection.

*Dibamus alfredi* sp. nov.

*Type*: EHT-HMS No. 1385 ♂, collected Na Pradoo, Pattani, Thailand at base of Bukit Besar, June 8, 1960, by Edward H. Taylor.

*Paratypes*: Nos. 1386 ♀. Topotype. Same date and collector. Nos. 1374-1375. Topotypes, Nai Prayoon Kananuracks collector, 1961.

*Diagnosis*: Snout conical, covered with large rostral; a large anterior supralabial fused with rostral anteriorly, but with an entrant suture from ocular on level with eye, extending forward, but not reaching forward to level of nostril; frontal smaller than interparietal; 20 scalerows around body; four preanal pores.

*Description of type*: Rostral large, rounded anteriorly, and in profile; nostrils lateral, pierced in rostral somewhat back of anterior-most point; snout projecting beyond mouth; posterior border of rostral forming an obtuse entrant angle; small median frontal twice as wide as long, somewhat lens-shaped, bordered behind by a somewhat larger interparietal; latter bordered behind by five scales, shaped somewhat like regular body scales but distinctly larger; an ocular plate borders frontal and interparietal on side; eye covered, but visible in lower anterior part of scale; supralabial scale below ocular. Anterior to ocular at level of eye is an entrant suture extending forward, failing to reach as far forward as vertical level of nostril by a third of length of suture. A large infralabial on each side separated by a trapezoidal mental.

Body scales smooth, subcycloid, or subhexagonal; 24 scalerows around back part of head; 22 on neck, 20 around middle of body and



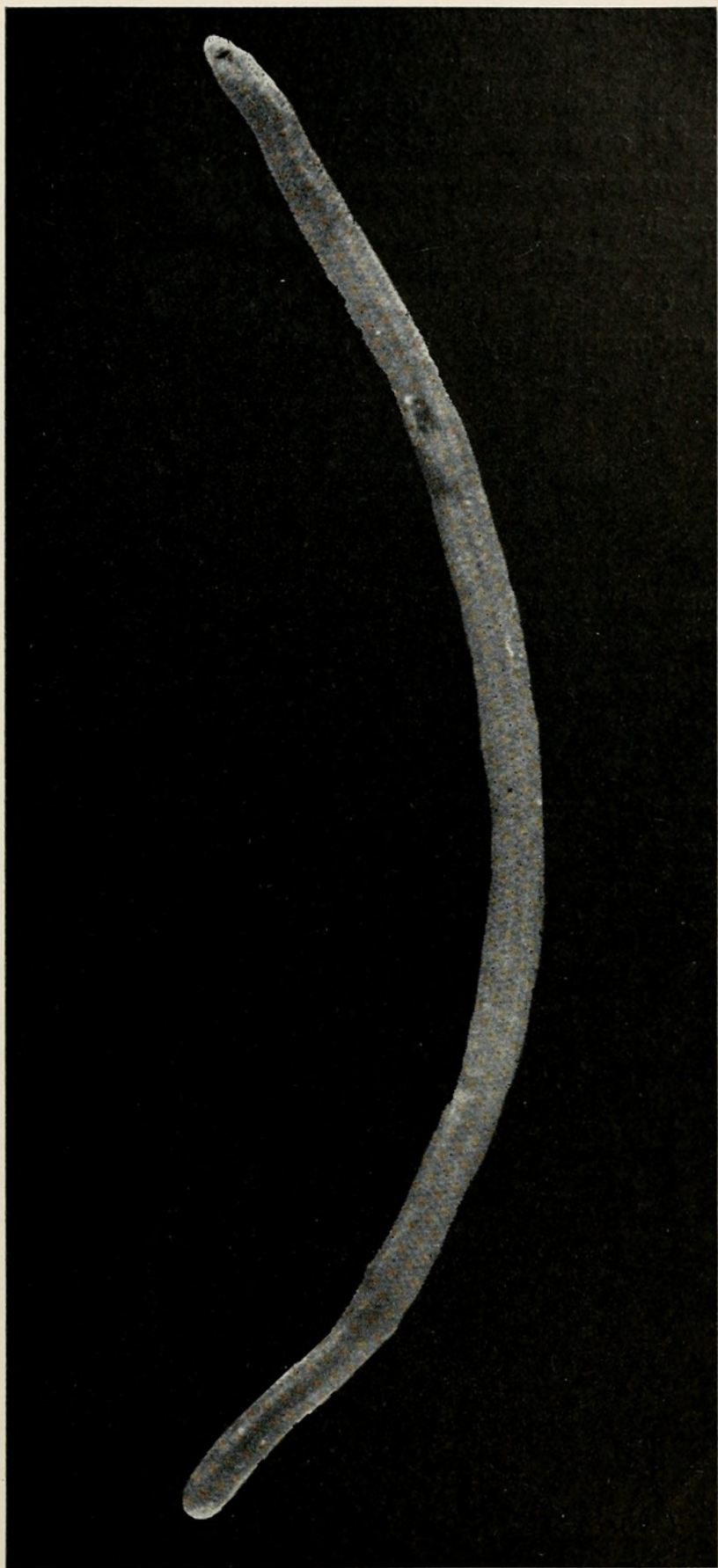


FIG. 13.—*Dibamus alfredi* sp. nov. Type. Actual length, 94 mm. Na Pradoo, Pattani, Thailand.



preceding vent; 20 around tail; tail short, blunt at tip, not ending in a spine. Legs flattened on ventral surface, covered with three scales at base followed by three pairs of scales and an elongate terminal scale; on dorsal surface covered with about 18 scales; pre-anal pores two on each side, covered by a pair of somewhat enlarged scales through which elongate pores are visible. Triangular pre-anal area between folded limbs occupied by two transverse rows of three scales each, and an elongate terminal scale, its posterior half free. No ear-opening; eyes dimly visible through ocular.

*Color in life:* Generally violet to purplish brown, not or scarcely lighter below on ventral surfaces; underside of snout, a large area about nostril, sides of head and anterior part of chin, cream to ivory-white. Preanal scales and dorsal surface of limbs white. On ventral surface of type, about 50 scattered ivory-white scales.

*Measurements in mm.* (No. 1386 ♀, 1385 ♂ respectively): Snout to vent, 98, 94; tail, 15.6, 17.2; width of head, 3.1, 3.2; width of body, 4, 3.4; length of leg, —, 3.

*Variation:* The female taken with the male agrees in most characters. The legs are absent in females. The ocular is bordered behind by two "postoculars"; and there are 20 (or 21 rows) around middle of body, while there are but 16 around middle of tail. There are 178 transverse scalerows on body, and 41 on tail.

At the base of the anal flap, there is a pair of larger scales separated by a smaller scale. Behind this a transverse series of five scales is followed by a transverse series of three, bordering vent. In the female I find only a single preanal pore on each side.

*Distribution:* B.M. No. 1903.4.13.69, an egg containing a young specimen of a *Dibamus* discovered on Bukit Besar by Robinson (1903), and reported by Boulenger, is in the British Museum. I have examined this specimen but the scale sutures on the head are not discernible. It is to be presumed that it is the same species since the egg was found in the general vicinity where my two adults were taken.

*Typhlops khoratensis* sp. nov.

*Type:* No. 3182, collected October 10, 1957, Muak Lek, Friendship Highway, Sara Buri province by Edward H. Taylor.

*Paratypes:* No. 33325, topotype; Nos. 267-268, Chiang Mai, Chiang Mai province, Thailand; 612 Hua Hin, Prachuap Khiri Khan province; Nos. W.291, 292 (N. M. W.) locality unknown.



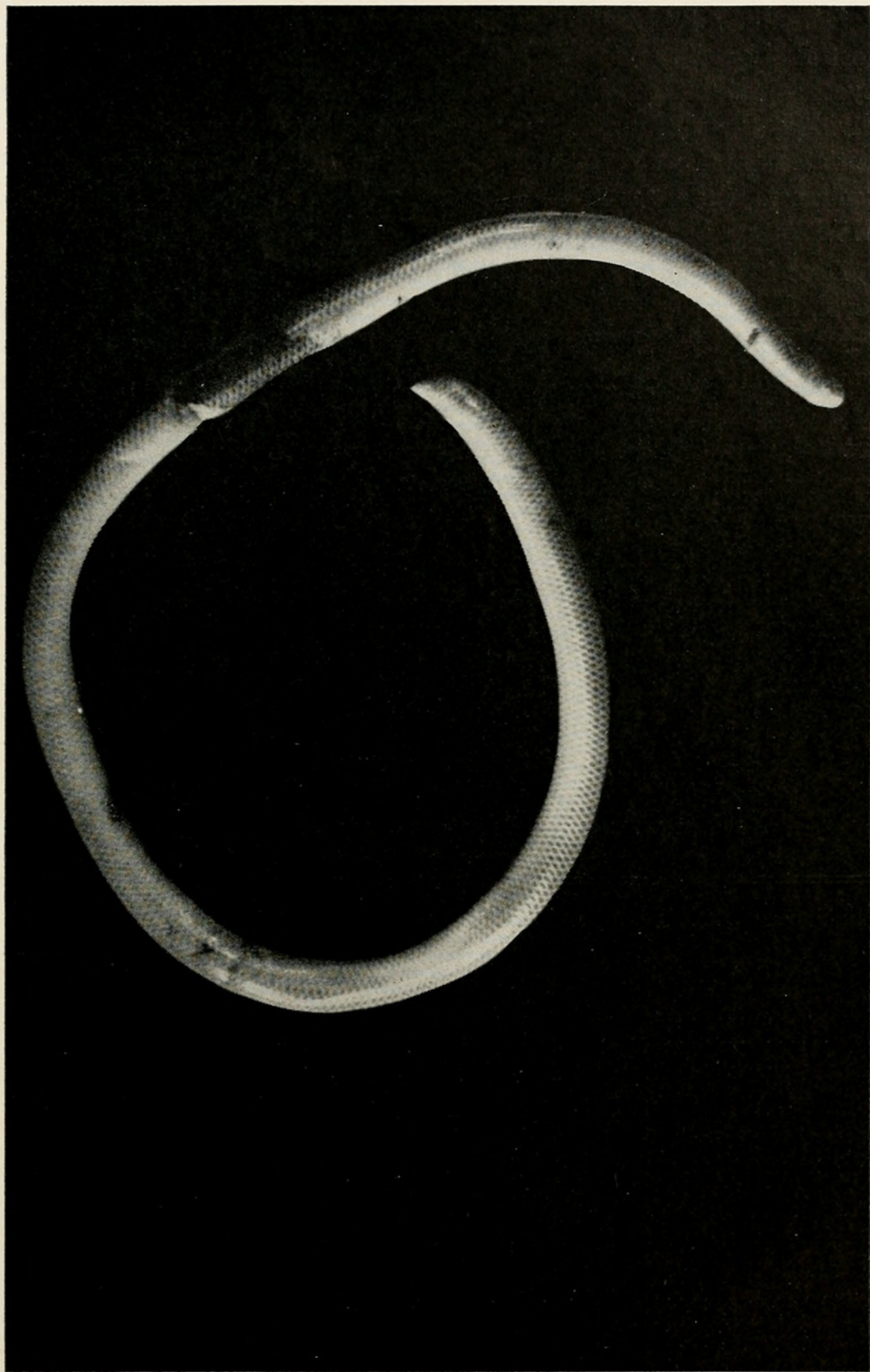


FIG. 13a.—*Typhlops khoratensis* sp. nov. No. M. 268, paratype Chiang Mai, Chiang Mai province, Thailand. Actual length 107 mm. (The dark mark on body is due to an injury.)



*Diagnosis:* Body width in total length approximately 28-43 times; rostral about  $\frac{1}{3}$  as wide as head at eye level, failing to reach level of eyes; supralabials and infralabials relatively large; nasal completely divided, the suture from preocular; two pairs of parietals differentiated; prefrontal, frontal, and interparietal large, subequal; 20 scalerows throughout body; transverse scalerows approximately 315-326.

*Description of type:* Rostral short, about  $\frac{1}{3}$  as wide as head at eye-level, failing to reach eye-level by a considerable distance; nasals completely divided, the suture arising from preocular; upper nasals not in contact behind rostral; prefrontal relatively large, as large as frontal or interparietal; supraocular only slightly smaller than frontal, its suture with ocular crosses the eye; two pairs of parietals; preocular smaller than ocular, the suture between them not crossing eye; eye only dimly visible; supralabials relatively large and distinct, especially fourth; a single postocular behind ocular between fourth labial and parietal; ocular and preocular relatively small, the pre-ocular largest; infralabials relatively large.

Scales in 20 rows along entire body; transverse scalerows about \* 315.

*Color:* Nearly uniform gray, the scales about mouth and under-side of snout whitish.

Measurements and scale-counts of type and paratypes of  
*Typhlops koratensis* sp. nov.

| Number.....                | 3183 | 267  | 268  | 612  | W.291 | W.292 | 33325 |
|----------------------------|------|------|------|------|-------|-------|-------|
| Length, snout to vent..... | 125  | 103  | 105  | 104  | 119.7 | 118   | 100   |
| Tail.....                  | 3    | 2    | 2    | 2    | 2.3   | 3     | 2     |
| Total length.....          | 128  | 105  | 107  | 106  | 121   | 121   | 102   |
| Scalerows at:              |      |      |      |      |       |       |       |
| neck.....                  | 20   | 20   | 20   | 20   | 20    | 20    | 20    |
| middle of body..           | 20   | 20   | 20   | 20   | 20    | 20    | 20    |
| before tail.....           | 20   | 20   | 20   | 20   | 20    | 20    | 20    |
| Transverse scalerows.....  | 315  | 320  | 326  | 319  | 321   | 319   | 331   |
| Width of head.....         | 2.8  | 2.45 | 2.5  | 2.5  | 2.9   | 2.8   | 2.3   |
| Width of rostral....       | .75  | .7   | .7   | .7   | .7    | .7    | .6    |
| Rostral reaches eye        | no   | no   | no   | no   | no    | no    | no    |
| Body width.....            | 3    | 2.8  | 2.4  | 2.5  | 3.6   | 4     | 3     |
| Width in length....        | 41.5 | 37   | 43.7 | 40 ± | 33    | 28    | 33    |
| Nasal divided.....         | yes  | yes  | yes  | yes  | yes   | yes   | yes   |
| Suture from preocular..... | yes  | yes  | yes  | yes  | yes   | yes   | yes   |
| Parietals two pairs..      | yes  | yes  | yes  | yes  | yes   | yes   | yes   |

\* The scales are counted in a row; occasionally there are intercalated scales or the row is incomplete hence the counts are close approximations.



*Remarks:* This species occurs with and resembles *Typhlops braminus*, especially specimens when they develop a grayish to a silvery-gray color before shedding. The character of the head scales easily separate them and in the case of *T. braminus* the presence of distinct glands following the head sutures is distinctive.

The two specimens from the Vienna Museum kindly loaned by Dr. J. Eiselt without certain locality data, are probably from Laos or Thailand. The data was lost in movement of the collections during the war.

The species is named for the Khorat Plateau area of Central (Eastern) Thailand.

*Typhlops trangensis* sp. nov.

*Type:* EHT-HMS, No. 35754; collected at Khao Chong, Forest Experiment Station, Trang province, May 20, 1958, by Edward H. Taylor.

*Diagnosis:* A short (155 mm.), relatively thick-bodied species, width in length approximately 30 times; 370 transverse scalerows from rostral to tail-spine. Vertebrae, 206; nasal incompletely divided, suture reaching to second labial; 24 longitudinal scalerows; rostral, nasals, oculars, preoculars, prefrontal, frontal, supraoculars, parietals, and perhaps also interparietals cover a distinct pit or depression visible through posterior part of scale; no trace of eye visible; gray to ultramarine above (11 rows), the 13 ventral rows cream-white, the dividing line rather sharply marked.

*Description of type:* A short, thick-bodied species, the tail ending in a spine and bending down at tip so that terminal spine is on a level with venter; snout rounded, seen from above, equally as wide as body; head width 5 millimeters, greatest dorsal width of rostral 1.65 mm. about one third width of head; rostral forming a suture with prefrontal; suture, partly dividing nasal, ends at second labial, scarcely passing beyond nostril above; prefrontal smaller than frontal; frontal about as large as supraoculars; interparietal a little larger than frontal and notched mesially on posterior border, a little wider than parietals but slightly shorter; preocular about size of ocular, wedged between second and third supralabials; ocular without trace of eye, wedged between third and fourth supralabials, and bordered posteriorly by two postoculars and partly by parietal; four supralabials; snout projecting 1.4 mm. beyond mouth; scales in 24 rows, the anterior median rows largest; vent bordered by five scales, two outer largest; 370 transverse scalerows counted along dorsal midline to spine on tail; (about eleven rows on tail); verte-



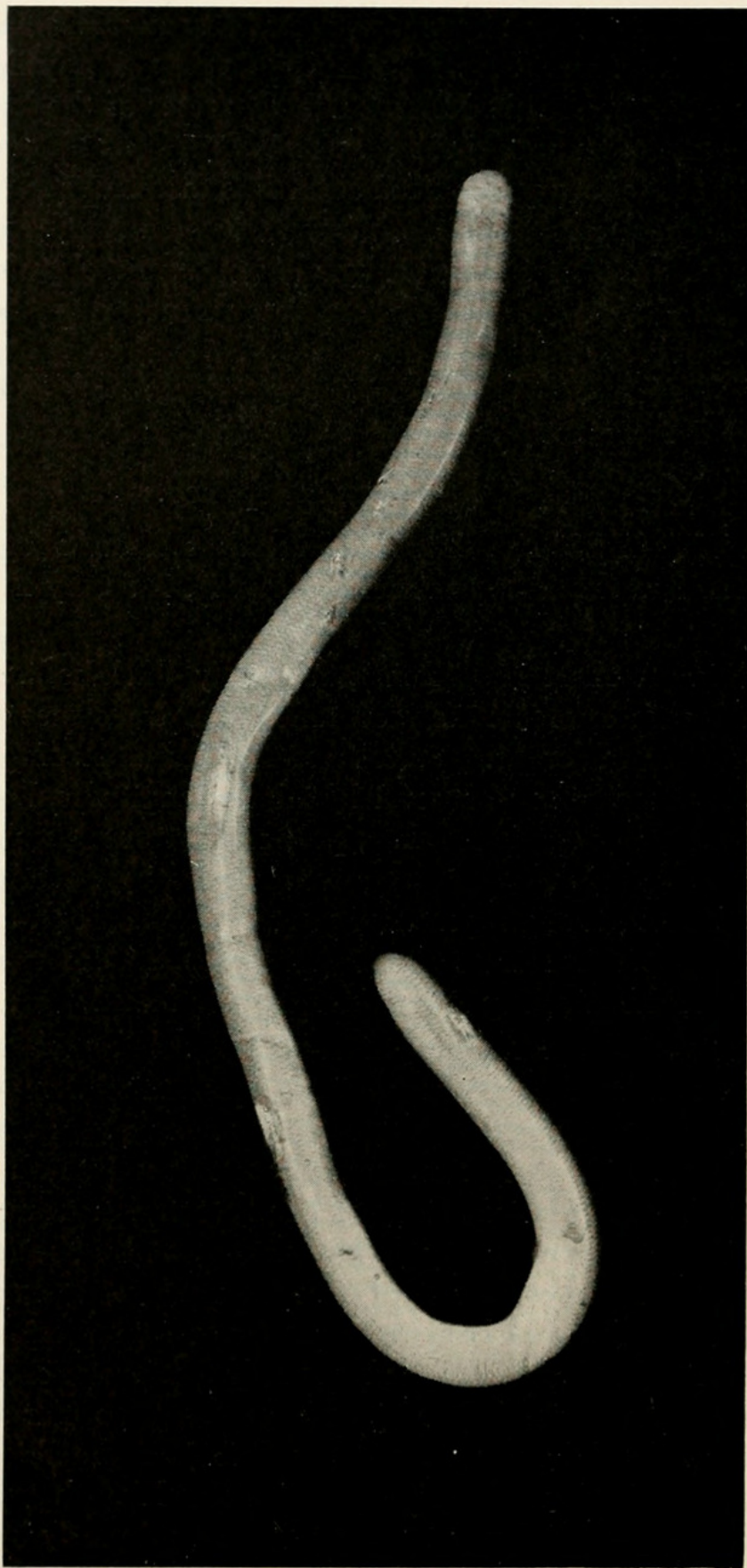


FIG. 14.—*Typhlops trangensis* sp. nov. Type. Actual length, 155 mm. Khao Chong Forest Station, Trang, Thailand.



brae, 206, the terminal four or five very small; tail broader than long; a gland under ventral section of nasal; pits (glands)? under major head scales.

*Color in life:* Ultramarine on eleven dorsal scalerows; lower 13 scalerows cream-white; dorsal head scales lighter than body, the pits beneath them showing a little darker; underside of head cream-white.

*Measurements in mm.:* Total length, 155; body width, 5.1; tail length, 2.8; tail length in total length about 55 times; body width in total length, 30 times.

*Remarks:* The relationship of the species is not known; the larger size of the dorsal head scales and the pits appear to separate this species very distinctly from other members of the genus occurring in Thailand. The pits are a significant feature and show with reasonable clarity in the photograph reproduced here.

The specimen was found under a rotting log about 30 meters from the shelter house at the first waterfall at the Khao Chong Forest Experiment Station, Trang province. The species is named for the province (Changwat) of Trang.

*Typhlops klemmeri* sp. nov.

*Type:* EHT-HMS No. M176, Koh Phai, near Kuala Lumpur, Malaya.

*Diagnosis:* A rather thick-bodied species, width contained in length about 28 times; nasal partially divided beyond nostril, nasal suture arising from second labial; width of rostral above, two fifths width of head between eyes; nasals narrowly separated behind rostral; interparietal not or scarcely differentiated; a preocular but no subocular; 23 scalerows around body; about 292 transverse scalerows from rostral to caudal spine; no gland or pit under imbricating portion of nasal.

*Description of type:* Rostral reaching back to anterior level of eyes, two fifths as wide above as width of head between eyes; prefrontal small touching rostral and narrowly separating nasals; frontal distinctly wider than prefrontal, a little larger than supraoculars; interparietal not differentiated from body scales; a pair of parietals as wide as frontal but scarcely as large; supraocular suture with ocular above not crossing eye; suture between preocular and ocular crossing eye; nasal suture arising from second supralabial passes slightly beyond nostril, not dividing scale completely; two postoculars between fourth supralabial and parietal; 23 scalerows around



body from neck to vent; transverse scalerows 291 or 292 (count on two sides); anal scales not or scarcely differentiated; tail ending in a strong spine directed downward. Width of body in total length about 28 times.

*Color:* Above medium brown; venter light yellowish brown, the colors without any distinct line of demarcation, with an indistinct median ventral cream line. Subcaudal region as dark as dorsum. Head and nuchal scales have a symmetrical pattern of yellowish glands following sutures.

*Measurements in mm.:* Total length, 151; tail, 2.5; width of body, 5.2; width of head, 4.3.

*Remarks:* This species probably is related to the *braminus* group but the body is distinctly stouter and the color of body and pattern of glands on head differs materially in the two forms. In *braminus* the body width in length averages between 35 and 36 times, and the nasal is completely divided. The species is named for Dr. Konrad Klemmer, Curator of Herpetology at the Senckenberg Museum of Frankfurt, in recognition of his many courtesies on my visits to the Senckenberg Museum.

*Calamaria fraseri* sp. nov.

*Type:* EHT-HMS No. M. 29; taken on Fraser's Hill, Malaya, elev. 3800 ft. June 28, 1960, by Edward H. Taylor.

*Diagnosis:* A diminutive species, bluish black above, growing slightly brownish laterally; head somewhat grayish-blue on snout; a cream spot on each side of neck covering six scales, the spots narrowly separated by a single scale on median line; entire venter bright yellow (fading to dull white after a few days in preservative). Four supralabials; no preocular; ventrals and subcaudals reduced; anal single; scalerows, 13.

*Description of type:* Snout rounded, projecting beyond mouth; rostral well visible above; prefrontals and internasals fused into a pair of large scales as long as, but larger than frontal; frontal regularly hexagonal, about three times width of supraocular, its length equal to its distance from tip of snout; parietals elongate their length about equal to their distance from tip of snout; four supralabials, third (much the smallest) and, second bordering orbit; small postocular; fourth supralabial bordering parietal; rather large secondary temporal behind fourth supralabial bordering posterior part of parietal; nostril pierced in a minute nasal about one tenth size of first labial; five infralabials, first pair in contact behind rather



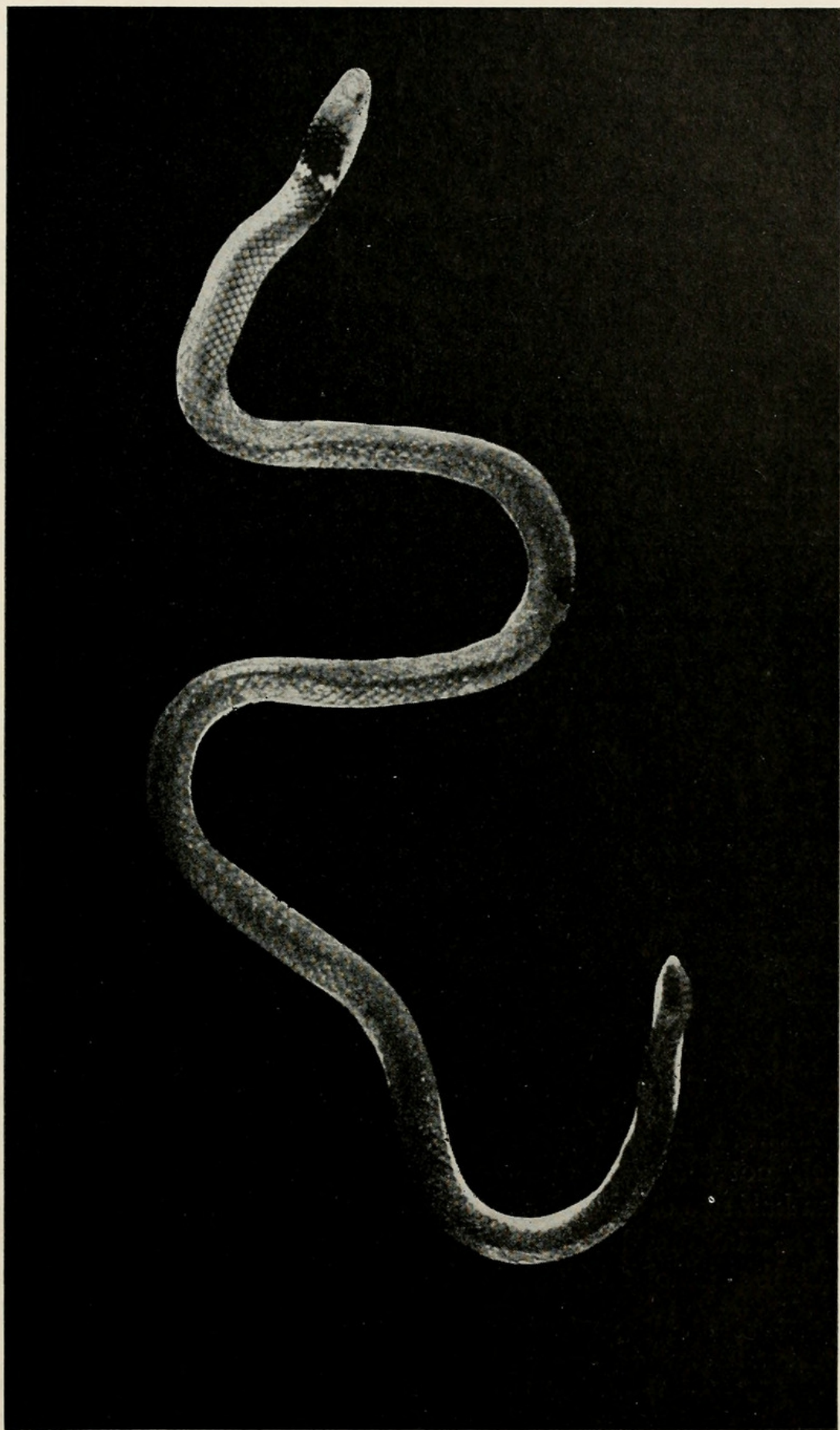


FIG. 15.—*Calamaria fraseri* sp. nov. Type. Actual length, 171 mm. Fraser's Hill, 3800 ft., Malaya.



large mental; first chinshields (touching three infralabials) twice size of second pair which borders fourth and fifth infralabials; scales in 13 rows throughout body, smooth, without apical pits; ventrals, 161; subcaudals, 15; anal single.

*Color:* Above blackish, with a bluish iridescence, growing lighter and somewhat brownish laterally; venter bright yellow; first and second supralabials gray, third and fourth whitish; entire chin and infralabials yellow; outer scalerow partly yellow; pair of lateral cream spots on neck at 7th transverse scalerow.

*Measurements in mm.:* Total length, 171; tail, 10.5; width of head, 3.2; length of head, 5.7.

*Remarks:* This species has seemingly been confused with *Calamaria gimletti*. Thus Tweedie remarks (Snakes of Malaya, 1954, p. 51): "The variable color pattern is a curious feature, and one specimen [*gimletti*] has been recorded with only 165 ventrals, but this is probably best regarded as an abnormality."

*Fraseri* differs from *gimletti* in lacking the yellow spots on the body, in having a yellow bar on the neck some seven transverse scalerows behind parietals. It likewise differs from that species in having only 161 ventrals, while *gimletti* is reported as having 200-239 ventrals, 9-17 subcaudals. The specimen mentioned by Tweedie as an abnormal *gimletti* is very probably a normal specimen of this species.

Tweedie also mentions a *gimletti* taken from the stomach of *Maticora intestinalis* having 188 ventrals, a count likewise low for that species. This latter may be a female of *fraseri* since the females of certain species of *Calamaria* frequently average twenty more ventrals than the males. However the possibility of a species with the males having only 161 ventrals, and females 239 ventrals, is very remote.

From the Bornean *Calamaria schmidtii* Marx and Inger, it differs in having a higher number of ventrals; frontal less wide and definitely not triangular in shape; the third supralabial smallest, less than half size of second; the suture between the combined prefrontals and internasals about half length of scales; the nasal about one tenth the size of the first labial instead of about one half as shown in Marx and Inger's fig. 27. The ventral coloration is uniformly yellow, not purplish posteriorly.

The species may also be compared with a species described by Brongersma from Doerian, an island in the Rhio Linga Archipelago, *Calamaria doerianense*.



Probably the most significant difference is in the coloration; *fraseri* is black above, the scales almost uniformly colored except two outer scalerows anteriorly and single outer scalerow posteriorly which is yellow with some black flecks; the underside of the body is bright yellow throughout except in the subcaudal region. There is a yellow nuchal ring, and the subcaudal region is white lacking a median brown line. The fourth supralabial is very much larger than the second or first, the third is less than half of second.

*Calamaria doerianense* has each dorsal scale with a dark fleck anteriorly, while posteriorly the scale is whitish. There is a median brown line under the tail. A yellow nuchal collar is lacking. The ventral surfaces are white.

The second and fourth supralabials are subequal in size.

The ventral count given for *doerianense* is 184 with 20 subcaudals, totaling 204 scales (sex?). The count for *fraseri* is 161 ventrals and 15 subcaudals, a total of 176 (male), a difference of 28 scales. This number is significant if the type of *doerianense* is a male. Both species lack a preocular. The second chinshields are strongly in contact in *fraseri*: in *doerianense* they barely touch, and are proportionally smaller. *Doerianense* measures 166 mm., snout to vent, the tail 13 mm. Tail in head-body length, 12.8 times, while *fraseri* measures 171 mm., snout to vent, the tail, 10.5. Tail in head-body length, 16.3 times.

The type of *fraseri*, was obtained somewhat above the village on Fraser's Hill. I was paused, watching some ants migrating across the path, when this tiny snake came crawling out of the short grass into which the ants were disappearing.

The snake has a swelling on the throat that suggests the presence of a disease.

The species is named for the mountain, Fraser's Hill.

*Keiometopon* gen. nov.\*

Type of genus, *Keiometopon booliati* sp. nov.

*Diagnosis:* Small snake, with a median continuous suture extending from median nuchal to rostral; the left internasal, prefrontal, and left half of frontal fused, as are the scales on right side of suture; parietals large, normal; supraoculars widened; pre- and postoculars present; nostril pierced in a single tiny nasal; five supralabials; a posterior temporal; first labials touching behind mental; two pairs of normal chinshields. Ten maxillary teeth, subequal, each bent at an

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\* Greek. *Keio*, split; *metopon*, forehead. In reference to the split frontal.



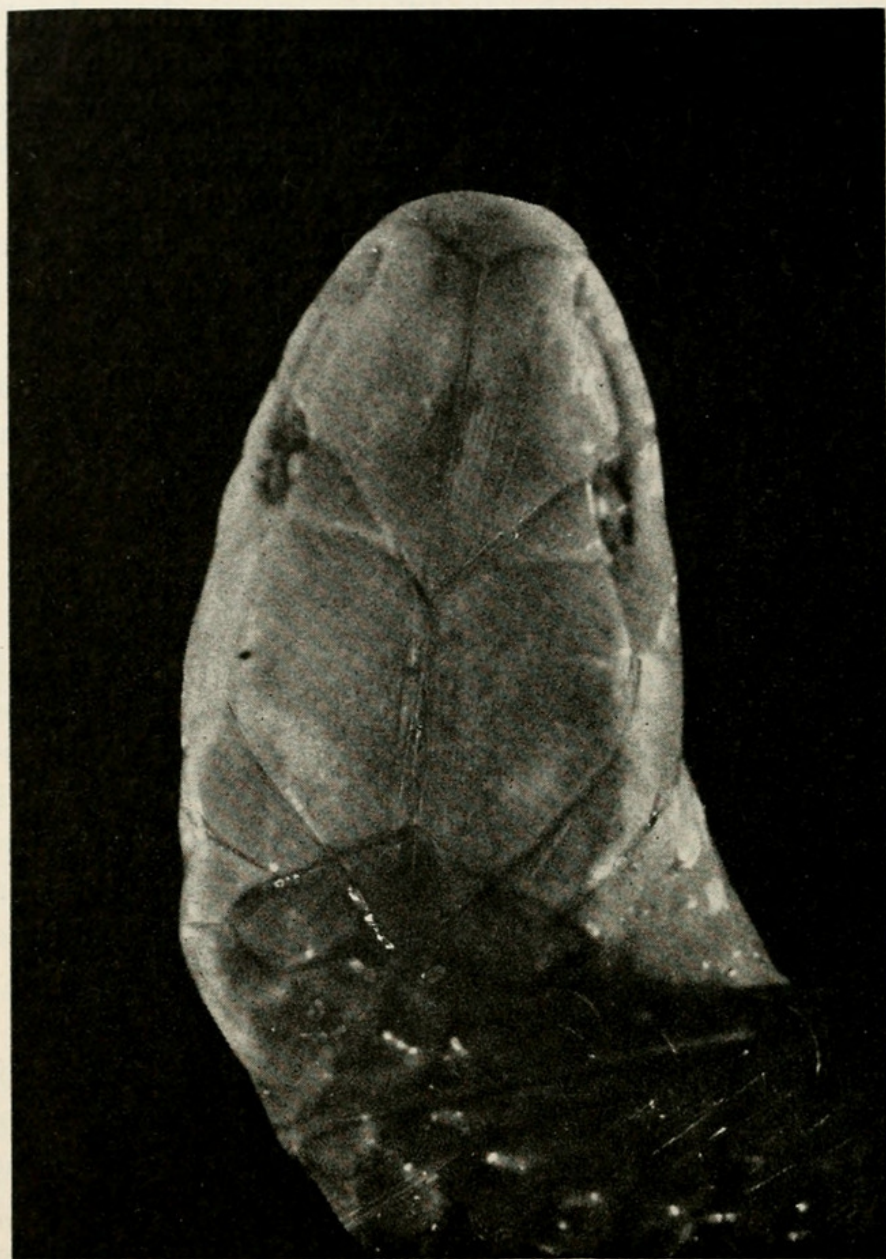


FIG. 16.—*Keiometopon* genus nov. Head of the type-species *Keiometopon booliati* sp. nov., Fraser's Hill, Malaya. Head width, 5.9 mm.

angle; eleven mandibular teeth, becoming smaller posteriorly, teeth not bent at an angle; anal single; subcaudals divided. Scalerows, 10 or 11 as far as 25th ventral; then, 13 to vent.

*Keiometopon booliati* sp. nov.

*Type:* EHT-HMS No. M28. Fraser's Hill, Malaya.

*Diagnosis:* Characters of genus. Tail ending in a point; five supralabials, third and fourth enter eye; eye very small, its diameter (.8 mm.) in snout length (2.8 mm.) three and one-half times. Scales smooth without apical pits; right internasal, right prefrontal and right half of frontal fused into a single scale (same on left side);



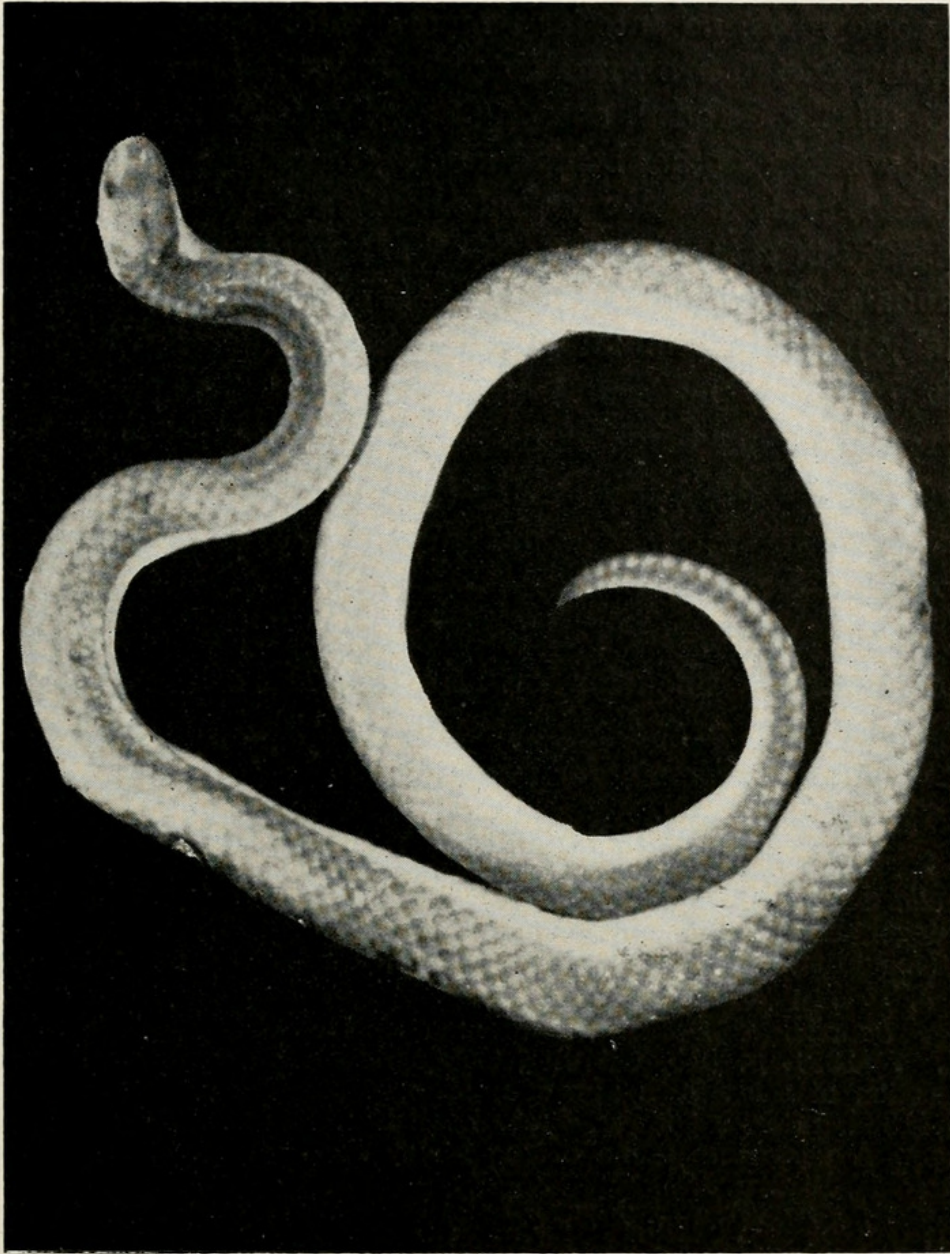


FIG. 17.—*Keiometopon booliati* sp. nov. Type. Actual length, 270 mm. Fraser's Hill, Malaya.

supraoculars much wider than long; three enlarged scales behind parietals.

*Description of type:* Rostral large, its major portion visible from above, angular posteriorly; large scales (fused internasal, prefrontal, and half of frontal) much longer than wide, ending posteriorly in a sharp point, laterally touching nasal, two supralabials, preocular, supraocular, and anterior part of parietal; parietals large but distinctly shorter than preceding scales, bordered behind by a large secondary temporal and rather large median "nuchal"; supraoculars narrowly separated mesially. Nasal small, scarcely more than a rim about nostril, followed by a depression; a narrow preocular; one (or



two) postoculars; no anterior temporal, fifth labial broadly in contact with parietal; five supralabials in following order of size: 1, 4, 3, 2, 5, third and fourth entering eye; five infralabials, first pair in contact with each other behind mental; three anterior touching first chinshields which are longer but about same width as second pair (both pairs in contact with each other); ventrals, 154, anal, single, subcaudals, 25, paired except last. (First ventral is severed longitudinally.) Scale formula: 10-11, 13, 13, without apical pits.

*Color:* Nearly uniform brown, edges of some scales slightly darker; top of head lighter than body, all ventral surfaces, outer scalerow, and supralabials light, somewhat orange in life.

*Measurements in mm.:* Snout to vent, 243; tail, 27; total length, 270; width of head, 8.

*Remarks:* The generic relationship is possibly with *Calamaria*.

The species is named for Mr. Lim Boo-Liat of the Medical Institute, Kuala Lumpur, who generously provided me with numerous herpetological specimens for my study.

### *Liopeltis baliodeirus* Boie (in Boie)

*Coronella baliodeira* Boie (in Boie) Isis, 1827, 539 (type locality, Java); Schlegel, Essai sur la physionomie des serpents, 1837, p. 64, pl. 2, figs. 9, 10 (including a *var.* in Sumatra); Cantor, Journ. Asiat. Soc. Bengal, vol. 16, pt. 2, 1847, p. 913.

*Ablabes baliodeirus* Duméril, Bibron, and Duméril, Erpétologie générale . . . 1854, p. 313, Günther, Catalogue of the colubrine snakes in the collection of the British Museum, 1858, p. 29; The reptiles of British India, 1864, p. 224; Flower, Proc. Zool. Soc. London, 1899, p. 673; Boulenger, A vertebrate fauna of the Malay Peninsula . . . Reptilia and Batrachia, 1912, p. 152.

*Diadophis baliodeirus* Jan, Arch. Zool. Anat. Fis., vol. 2, 1863, 263; Jan and Sordelli, Iconographie générale, livre 15, pl. 5, fig.

*Gongylosoma baliodeirum* M. Smith, Bull. Raffles Mus., no. 3, 1930, pp. 56-57.

*Gongylosoma baliodeirum* Sworder, Singapore Nat., no. 2, 1922, p. 65, *ibid.*, no. 3, 1921, p. 22 (Singapore).

It is obvious from the variation reported, that several subspecies of this snake exist. Schlegel recognized a *var.* in Sumatra (Schlegel, Atlas, Tableau servant à illustrer la repartition des serpent à la surface du globe). J. A. Fisher described *Ablabes baliodirus var. cinctus* (Abh. naturh. Ver. Hamburg, vol. 9, 1886, p. 8, pl. 1, fig. 2), from Nias.

I have not seen specimens of this species from Malaya. It is known in Penang, Province Wellesley and on Bujong Malacca, Perak (*fide* Boulenger, 1912).

Whether these specimens are the same as the form described here, remains to be ascertained.



*Liopeltis baliodeirus cochranæ* subsp. nov.

*Type:* U. S. N. M. No. 94826 (6343) Khao Soi Dao, Thailand.

*Diagnosis:* Thirteen scalerows around body; nostril between two nasals, fused above nostril; head scarcely distinct from neck; two preoculars, two postoculars; eight supralabials, the fourth and fifth border eye; 24-25 maxillary teeth; neck with eight or nine dark bands (reaching to ventrals and separated by fawn-colored bands) all except first, third, and fourth interrupted on median dorsal line.

*Description of type:* Head a little wider than neck; rostral not twice as wide as high, narrowly visible above on snout; internasals wider than long, much smaller and narrower than prefrontals, latter much broader than long, laterally touching loreal, posterior nasal, and upper preocular; frontal shield-shaped, longer than its distance from tip of snout, shorter than parietals; nostril between two nasals that are fused above nostril; the posterior part largest, distinctly higher than anterior nasal; a small loreal; two preoculars, upper not reaching upper surface of head; supraoculars large, not as wide as frontal, two postoculars; a single large anterior temporal followed by two superimposed temporals much shorter than anterior; eight supralabials in the following order of size: 3, 2, 1, 6, 4, 5, 8, 7; the fourth and fifth enter orbit; mental triangular, first labials in contact behind it; seven infralabials, first three touch first chinshields which are much shorter than second pair.

Scalerow formula: 17 (occiput), 13, 13, 13; scales smooth, without apical pits. Ventrals, 118; subcaudals, 72; anal divided.

*Color:* Head nearly uniform light brown; on side of head very slight dark marks evident along sutures of some labials and a fine dark rim on edges of scales marking outline of orbits; on occiput the brown tends to become blackish in front of first cream bar which is angulate anteriorly and almost broken on side; this followed by a series of eight or nine blackish bars (some of which are broken by a mid-dorsal light line), and separated by dull cream or fawn-colored bars; dark and light bars becoming less distinct posteriorly where they fade into the uniform, finely reticulate pattern of violet brown, each scale with a diamond-shaped light gray-lavender center, a pattern that continues to tip of tail. Outer edge of ventrals and subcaudals with a violet-brown line separating the uniform whitish color of underside of head, body, and tail from the dorsal coloration; a suggestion of black marks along sutures of infralabials, absent in supralabials.



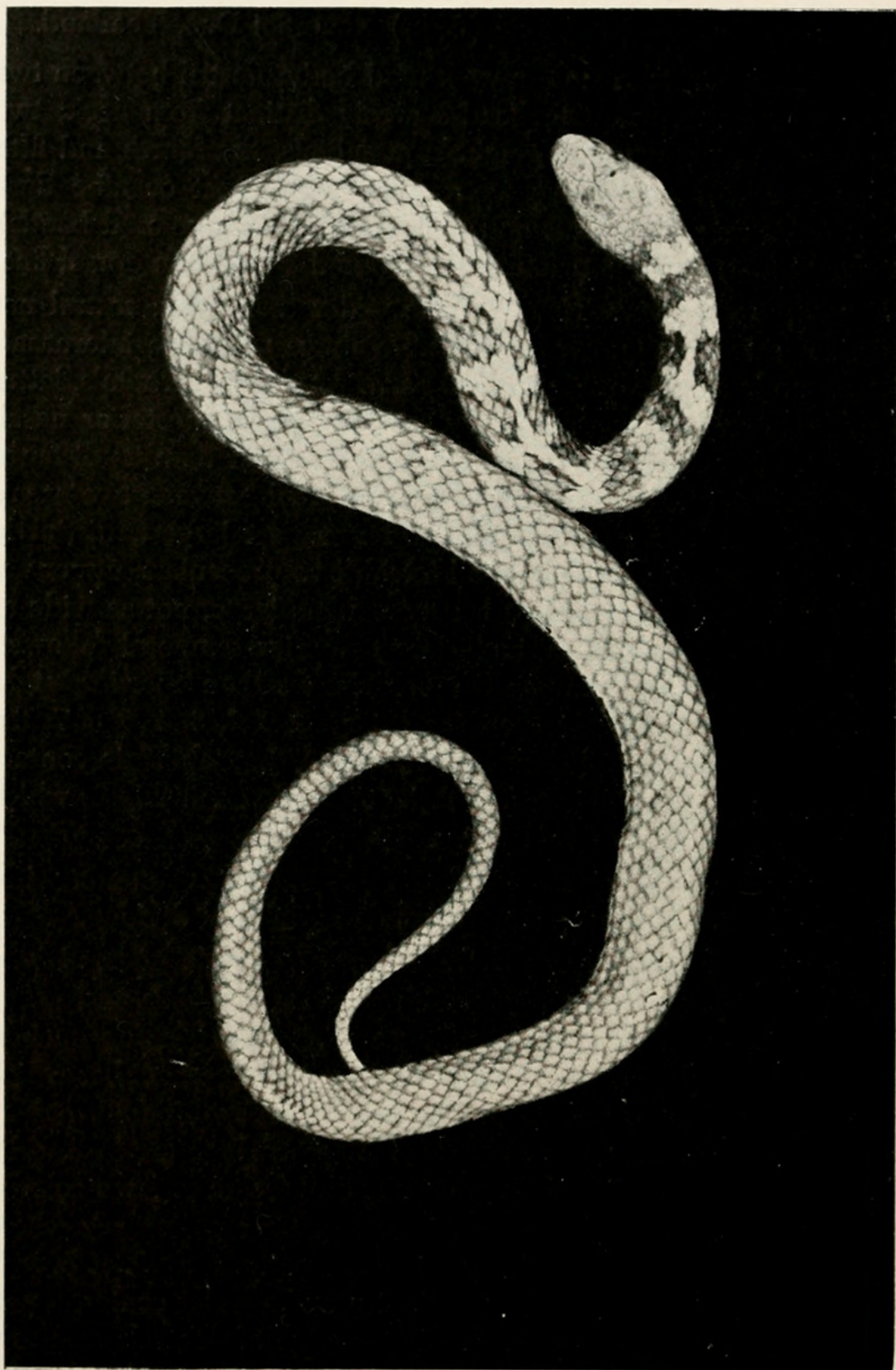


FIG. 18.—*Liopeltis baliodeirus cochranæ* subsp. nov. Type. Actual length, 374 mm. Khao Soi Dao, Thailand.



*Measurements in mm.:* Snout to vent, 256; tail, 118; total length, 374; width of head, 9.1; length of head, 14.

*Remarks:* Another species of the genus, *Liopeltis scriptus* (Theobald), also occurs in peninsular Thailand and specimens have been taken in the Nakhon Si Thammarat Mountains (Khao Luang and Ronpibon), and on Pulau Panjang (Island), of Phuket.

The differences are considerable in these two forms although both have 13 scalerows about the body. In *baliodeirus* the ventrals are fewer, 118-137 compared with 126-145; the subcaudals fewer, 58-72, compared with 87-98. There are two instead of three scales bordering orbit; the nasals are partly fused (two separate), and the anterior temporal is wider and somewhat shorter than in *L. scriptus*. The markings also are different in the two forms.





Taylor, Edward Harrison. 1962. "New Oriental reptiles." *The University of Kansas science bulletin* 43(7), 209–263. <https://doi.org/10.5962/bhl.part.13346>.

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