ZOOLOGISCHE MEDEDEELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE

Deel XVII.	te LEIDEN	Aflevering 3–4.

IX. — CONTRIBUTIONS TO INDO-AUSTRALIAN HERPETOLOGY

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A complete account of all the reptiles then known to occur in the Indo-Australian Archipelago was published by De Rooij in 1915 and 1917. Since this time several new species have been described, while others have been suppressed or revived. Also the problem of geographical variation begins to penetrate in herpetology more and more. While studying the herpetological collections of the Rijksmuseum van Natuurlijke Historie, Leiden and the Zoological Museum, Amsterdam, it became clear to me that, though De Rooij's books offer a sound basis for further studies on the reptiles of the Indo-Australian Archipelago, a great deal of revisional work must still be done before our knowledge of the herpetological fauna of that region will be fairly complete. As I can devote only a rather small part of my time to this revisional work, I am not yet able to publish a complete revision of whole families or genera, but in the present paper I have brought together revisional notes on a number of species, as well as notes on distribution.

Through the kindness of Dr. L. Stejneger and Miss D. M. Cochran, United States National Museum, Washington, I was supplied with a list of the reptiles [1]) collected by Dr. Abbott and Dr. Boden Kloss on the islands west of Sumatra. As the fauna of this part of the Archipelago is still very insufficiently known, I have included notes on this collection,

1) Besides reptiles some amphibians were collected; the following represent new locality-records:

Ichthyophis glutinosus (L.), 1 ex., N. Pagi, 16. I. 1902, U. S. N. M. no. 31701.

Rhacophorus leucomystax (Kuhl), 1 ex., N. Pagi, 23. XI. 1902, U. S. N. M. no. 31699.

Rana chalconota (Schleg.) 1 ex., Engano, 23. XI. 1904, U. S. N. M. no. 35832; the latter not seen by me.

part of which I received for personal examination. I wish to express my thanks to Dr. Stejneger and Miss Cochran for their permission to make use of the unpublished locality-records in their list.

My heartiest thanks are due to the following persons for the specimens sent to me for personal examination and for the valuable information they gave me: Dr. E. Ahl, Zoologisches Museum, Berlin; Dr. F. Angel, Musée National d'Histoire Naturelle, Paris; Dr. E. Banks, Sarawak Museum, Kuching; Dr. C. Boden Kloss, London; Prof. Dr. L. P. le Cosquino de Bussy, Colonial Institute, Amsterdam; Miss D. M. Cochran, United States National Museum, Washington; Dr. K. W. Dammerman, Zoological Museum, Buitenzorg; the Director of the Raffles Museum, Singapore; Dr. Chr. Fetzer, Naturhistorisches Museum, Wiesbaden; Prof. Dr. R. Gestro, Museo Civico di Storia Naturale, Genova; Dr. H. Hediger, Naturhistorisches Museum, Basel; Dr. W. Meise, Museen für Tierkunde und Völkerkunde, Dresden; Dr. R. Mertens, Senckenberg Museum, Frankfurt a. M.; Dr. G. K. Noble, American Museum of Natural History, New York; Dr. H. W. Parker, British Museum (Natural History), London; Prof. Dr. L. Roule, Musée National d'Histoire Naturelle, Paris; Dr. J. Roux, Naturhistorisches Museum, Basel; Dr. K. P. Schmidt, Field Museum of Natural History, Chicago; Dr. M. A. Smith, British Museum (Natural History), London; Dr. L. Stejneger, United States National Museum, Washington; Dr. M. W. F. Tweedie, Raffles Museum, Singapore; Prof. Dr. D. Vinciguerra, Museo Civico di Storia Naturale, Genova; Dr. G. F. de Witte, Musée du Congo Belge, Tervueren.

For the study of type-specimens I paid short visits to the Musée National d'Histoire Naturelle, Paris (January 1933) and to the British Museum (Natural History), London (November 1933, June 1934). For the study of the post-anal bones in African Gekkonids I visited the Musée du Congo Belge, Tervueren (January 1933).

Textfigures 5—7 were drawn with great skill by Miss O. F. Tassart, London, to whom my thanks are due. Last not least I wish to thank Mr. M. A. Koekkoek, Rijksmuseum van Natuurlijke Historie, Leiden, who prepared all the other drawings, and who with great skill and perseverance solved the numerous difficulties encountered during this work. For the photographs on plate II I am indebted to Mr. H. Cornet, Rijksmuseum van Natuurlijke Historie, Leiden.

GEKKONIDAE.

Before giving the notes dealing with the systematic status of a number of species of this family some remarks may be made upon the post-anal bones and sacs.

In a number of Gekkonids the males are easily recognised by the presence of preanal and/or femoral pores; in other species, however, pores are absent in both sexes, and then it becomes more difficult to discern between males and females. Another character which in a number of cases may serve to distinguish the sexes was first described by Schlegel (1838, p. 103) for *Gekko japonicus* D. B.; in both sexes of this species he found two small sacs in the base of the tail, which opened through two slits behind the cloaca. In males a small semilunar bone was present in the anterior border of the slit, in females the bones were absent. Schlegel was not able to find them in other species, and, therefore, he believed them to be peculiar to *Gekko japonicus* D. B. That this was not true, was shown by Wiedersheim (1876, p. 516, pl. XVIII figs. 8*a*, 8*a'*), who described and figured those of *Phyllodactylus europaeus* Gené. The presence in different species of post-anal slits and sacs was mentioned by several authors, among others by Boulenger (1885, p. 159, 209) for both sexes of the genera *Tarentola* Gray and *Phelsuma* Gray and by Deraniyagala (1932, p. 301) for *Hemidactylus brookii* Gray; other authors did not mention them especially, but showed them in the figures accompanying their descriptions, e. g., Taylor (1922, fig. 11, 12, etc.) for *Gekko mindorensis* Tayl., *Pseudogekko compressicorpus* (Tayl.) and several other species, M. A. Smith (1923 *b*, fig. 3) for *Gekko smilignum* Smith.

The post-anal sacs and bones have been described more extensively and under different names by Ficalbi (1888, p. 147) as "sacchi secernenti cloacali", by W. J. Schmidt (1912, p. 224, 250, textfigs. G—K) as "Cloakensäckchen" and "Sperrknochen des Penis", by Noble (1921, p. 11, fig. 7) as "cloacal bones", by M. A. Smith (1933, p. 9, fig. 1) as "post-anal sacs and bones", by Noble & Bradley (1933, p. 84) as "subcaudal sacs" and "cloacal bones", and by Wellborn (1934, p. 177, figs. 49—51) as "Post-analtasche" and "ossa apoclistica". In some species the bones seem to be present, while the sacs are absent (Noble & Bradley).

Nothing definite is as yet known about the function of the post-anal sacs and bones. The following notes are taken from the papers mentioned above and from my own observations. The slits are always larger in males than in females, and the lining of the sac is shed at the time of moulting. Judging by a number of preserved specimens, the sacs can be partly evaginated. At the posterior extremity a muscle is attached which runs backwards. Smith (1933, p. 10) found glandular cells in the sacwall, but he did not find any secretion in the sac. Schmidt and Smith think it possible that the secretion is periodic and that it takes place during the mating season. Wiedersheim compared the sacs to femoral organs, while Wellborn believes that they possibly serve to store sperma or

secretion. Noble & Bradley observed that in *Tarentola mauritanica* (L.) rubbing of the lateral margins of the caudal cloaca-lip causes both sides of the lip to be drawn caudally; in the male the posterior part of the skin inside the sac is drawn caudally at the same time and the orifice of the sac is widely opened. The bone aids in making the orifice gape widely, while in the females the orifice is closed, when the sides of the posterior cloaca-lip are drawn back. Rhythmically pressing of the tail-base of the male against that of the female would cause the sacs to gape open, producing a slight vacuum. These authors believe that this action would have the same stimulating effect as the rhythmical movements observed by them in two species of *Eumeces*. In their opinion it is highly probable that the post-anal sacs are stimulating organs which tend to quiet the female during the act of copulation. According to Wiedersheim and Schmidt the post-anal bone would serve to close the penis-canal, when the penis is extruded thus preventing this organ from slipping back and steadying it; at the same time it would help to keep the slit open. In the specimens examined by me I found that the post-anal bones differed somewhat in form in the different species. Generally they are semilunar or angulate, their lateral end always lies quite near to the base of the large tubercles, which are found at the sides of the tail-base. The base of these tubercles is strengthened with connective tissue or with cartilage. In *Coleonyx variegatus* (Baird) two pairs of post-anal bones are present (Noble 1921, p. 11, fig. 7*a*), the lateral pair projecting through the skin and covered by a horny scale only (Wellborn, 1934, p. 179). In *Gymnodactylus novae-guineae* Schl. the post-anal bones are very strongly developed; they consist of a thin bony plate with a semilunar thickening in front of the slit, laterally the plate is first directed caudally, then turns forward to form a basal plate, on which the four or five large tubercles of the tail-base are placed (fig. 4). Possibly the bones serve to conduct pressure exercised on the tubercles mesially with the effect that the slit is opened and/or the peniscanal is closed. In *Coleonyx* this would be done by the pair of bones of each side acting together, in the other species by the strengthened base of the tubercles and the post-anal bone. I think, however, that more observations on living specimens as well as on preserved material (fixed during different seasons) are necessary before a definite solution of the problem of the post-anal bones and sacs can be reached.

To obtain some idea as to the generality of the occurrence of these bones among the Gekkonidae I examined a great number of species both from the Indo-Australian Archipelago and from other regions. Besides the specimens in the museums at Leiden and Amsterdam, I was able to

examine a number of species during a short visit to the Congo Museum, Tervueren (Belgium), the Musée d'Histoire Naturelle, Paris and the British Museum, London. In the males of the following species I found well developed post-anal slits and ossicles:

Aeluroscalabotes dorsalis (Ptrs.)
Alsophylax przewalski Strauch
Bavayia cyclura (Gthr.)
Blaesodactylus boivini A. Dum.
Cnemaspis affinis (Stol.)
" *kandianus* (Kel.)
" *kendalli* (Gray)
" *nigridius* (Smith)
Correlophus ciliatus Guich.
Cosymbotus craspedotus (Mocq.)
" *platyurus* (Schn.)
Crossobamon eversmanni Wiegm.
Diplodactylus ciliaris Blgr.
Ebenavia inunguis Bttgr.
Eublepharis macularius Blyth
Geckolepis typicus Grand.
Geckonia chazaliae Mocq.
Gehyra baliola (A. Dum.)
" *interstitialis* Oudem.
" *marginata* Blgr.
" *mutilata* Wiegm.
" *variegata* (D. B.)
" *vorax* Gir.
Gekko brooksi Blgr.
" *gecko* (L.)
" *japonicus* D. B.
" *listeri* Blgr.
" *monarchus* (D. B.)
" *oorti* Kopst.
" *pumilus* Blgr.
" *smaragdinum* Tayl.
" *stentor* (Cant.)
" *vittatus* Houtt.
Gymnodactylus annulatus Tayl.
" *baluensis* Mocq.
" *caspius* Eichw.
" *consobrinus* Ptrs.
" *d'armandvillei* M. Web.
" *fumosus* F. Müll.
" *jellesmae* Blgr.
" *loriae* Blgr.
" *malayanus* De R.
" *marmoratus* (D. B.)
" *miliusii* (Bory)
Gymnodactylus mimikanus Blgr.
" *novae-guineae* Schl.
" *papuensis* Brong. (cf. p. 173)
" *pelagicus* (Gir.)
" *philippinicus* Steind.
" *scaber* Rüpp.
Hemidactylus brookii Gray
" *echinus* O'Shaughn.
" *fasciatus* Gray
" *frenatus* D. B.
" *garnoti* D. B.
" *hecqui* Blgr.
" *ituriensis* Schmidt
" *karenorum* Theob.
" *longicephalus* Boc.
" *mabouia* (Mor.)
" *triedrus* (Daud.)
" *turcicus* (L.)
Hemiphyllodactylus typus Blkr.
" *yunnanensis* (Blgr.)
Hemitheconyx caudicinctus (A. Dum.)
Heteronota binoei Gray
Homopholis wahlbergi Sm.
Hoplodactylus maculatus (Gray)
Lepidodactylus aurolineatus Tayl.
" *guppyi* Blgr.
" *lugubris* (D. B.)
" *planicaudus* Stejn.
" *woodfordi* Blgr.
Naultinus elegans Gray
Oedura lesueurii (D. B.)
" *marmorata* Gray
Pachydactylus bibroni Sm.
" *boulengeri* Torn.
" *formosus* Sm.
" *rugosus* Sm.
" *tuberculosus* (Blgr.)
" *weberi* Roux
Palmatogecko rangei Anderss.
Phelsuma laticauda (Bttgr.)
" *lineatum* (Gray)
" *madagascariense* Gray
Phyllodactylus europaeus Gené
" *lineatus* (Gray)

Phyllodactylus magister Noble
„ *marmoratus* (Gray)
„ *porphyreus* (Daud.)
„ *tuberculosus* Wiegm.
„ spec. (from Venezuela, to be described by Mr. H. W. Parker)
Phyllopezus pollicaris (Spix)
Ptychozoon horsfieldi Gthr.
„ *intermedia* Tayl.
„ *kuhli* Stejn.
Ptyodactylus lobatus Geoffr.
Rhacodactylus auriculatus (Bav.)
Stenodactylus petrii And.
Tarentola annularis (Geoffr.)
„ *delalandi* (D. B.)
„ *mauritanica* (L.)
Thecadactylus rapicaudus (Houtt.)
Torresia australis (Gthr.)
Uroplates fimbriatus (Schn.)

Of a number of species only females were available, in these slits were found; probably ossicles are present in the males. They belong to the following species:

Agamura cruralis Blanf.
Bunopus tuberculatus Blanf.
Cnemaspis africanus Wern.
Coleonyx variegatus Baird
Eurydactylus vieillardi (Bav.)
Goniurosaurus lichtenfelderi (Mocq.)
Gymnodactylus d'orbignyi D. B.
Gymnodactylus lateralis Wern.
Lepidodactylus divergens Tayl.
Paragehyra petiti Ang.
Platypholis fasciatus Blgr.
Rhoptropus braconnieri (Thom.)
Teratoscincus scincus (Schl.)
Tropiocolotes tripolitanus Ptrs.

In some species I could not discover either slits or post-anal bones. They are the following:

Aristelliger praesignis (Hall.)
Coleodactylus zernyi Wettst.
Gonatodes albogularis (D. B.)
„ *atricucularis* Noble
„ *booni* Lidth
„ *humeralis* (Guich.)
Gymnodactylus trachyblepharus Bltgr.
Lepidoblepharis barbouri Noble
„ *xanthostigma* Noble
Lygodactylus capensis (Sm.)
„ *depressus* Schmidt
„ *grotii* Sternf.
„ *gutturalis* (Boc.)
„ *ocellatus* Roux
„ *picturatus* (Ptrs.)
Pristurus flavipunctatus Rüpp.
Saurodactylus mauritanicus (D. B.)
Sphaerodactylus cinereus Wagl.

In some points my observations differ from those of Wellborn. I could not discover either slits or bones in *Gonatodes humeralis* (Guich.) or the *Lygodactylus*-species. Both Noble (1921, p. 11) and Smith (1933, p. 10) state that the bones are absent in the american *Gonatodes*-species. Confirmation of Wellborn's statement would be very important as it would show that these characters are subject to a wide variation within the species. The same pertains to the *Lygodactylus*-species the greater part of which I examined in the Congo Museum. After reading Wellborn's paper, in which he states that the slits of *Lygodactylus* are placed nearer to each other than in the other species examined by him, I became afraid that I had overlooked them. Careful re-examination of specimens of *Lygodactylus capensis* (Sm.) and *L. ocellatus* Roux in the Amsterdam

Museum convinced me that at least in these species slits are absent. Wellborn mentions that only one post-anal opening exists in *Eublepharis* Gray (species not mentioned); in two males of *Eublepharis macularius* Blyth I found the normal two slits. Neither can I support the statement made by Wiedersheim (1876) that the slits are absent in females of *Phyllodactylus europaeus* Gené; in all the specimens examined by me (♂, ♀, juv.) the slits are present, in females they are smaller than in males.

Gymnodactylus d'armandvillei M. Weber.

Gymnodactylus d'armandvillei M. Weber, Zool. Ergebn. Reise Ost-Ind. I, 1890, p. 160, 162, 163, pl. 14 fig. 1; P. & F. Sarasin, Mat. Naturgesch. Celebes III, 1901, p. 76; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 179; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 5, *11*, 351, 353, fig. 6; Mertens, Abh. Senckenb. Natf. Ges. XLII, 1930, p. 149, 154, 165, 173, 175, 181, 190, *240*.

Gymnodactylus defossei Dunn, Amer. Mus. Nov. 288, 1927, p. 1 (= Contr. Dept. Zool. Smith Coll., Northampton 145, 1927, p. 1); Dunn, in Burden, Dragon Lizards of Komodo, 1927, p. 197; Barbour & Loveridge, Bull. Mus. Comp. Zool. LXIX, 1929, p. 271; Mertens, l.c., p. 134, 153, 154, 165, 172, 173, 178, 181, 186, *239*, pl. 6 fig. 7; Burden, Drachenechsen, Forscherfahrt zu den Waranen auf Komodo, 1930, p. 142.

2 ex., ♂♂, cotypes of *G. d'armandvillei*, Sikka, Flores, Mus. Amst.
1 ex., paratype of *G. defossei*, Komodo, A. M. N. H. no. 32043.
1 ex., ♀ Kalao Id., B. M. N. H. no. 96. 4. 29. 15.

In 1890 M. Weber described a new species of *Gymnodactylus* from the island of Flores stating that the males had 18 to 19 femoral pores on each side. This statement was repeated by De Rooij (l.c.). Dunn (1927, p. 1) described another new *Gymnodactylus* (*G. defossei*) from the island of Komodo (near Flores), which was stated to differ from Weber's *G. d'armandvillei* in the absence of femoral pores in the male. Examination of the cotypes of *G. d'armandvillei* showed that, though both specimens are males, femoral and preanal pores are absent. There is, however, a series of enlarged, non-perforated scales on the lower side of the thigh; this probably induced Weber and De Rooij to believe that the types were females, and that these large scales indicated the presence of pores in the males. Comparison with a paratype of *G. defossei*, kindly lent me by Dr. G. K. Noble of the American Museum of Natural History, showed that no differences exist which warrant the separating of these two species.

G. d'armandvilllei has the following distribution: Flores (Sikka, terra typica); Komodo (sea-level, terra typica of *G. defossei*, and 2000 feet), Kalao Id. (north of Flores), Soembawa (Mertens, 1930, p. 239).

Gymnodactylus malayanus De Rooij.

Gymnodactylus malayanus De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 6, 20, fig. 11, 12.

Gymnodactylus baluensis, De Jong, Treubia X, 1928, p. 146.

2 ex., ♂, ♀, types, Indo-Australian Archipelago, Mus. Amst.
1 ex., ♂, Marah, Inner East Borneo, leg. H. C. Siebers, 19.XI.1925, Mus. Amst.

Gymnodactylus malayanus was originally described from a male and a female of which no exact locality was known. A specimen described by De Jong as a female of *G. baluensis* Mocq. proved to be a male of *G. malayanus*. It has rather indistinct preanal pores; the lower surface of the tail is covered with enlarged scales which may fuse into transverse plates. This species differs from *G. baluensis* Mocq. (types examined in the Paris Museum, and in the British Museum) by the very small scales on the lower surface of the thigh and the absence of a preanal groove. In *G. baluensis* the femoral scales are enlarged, and some of them are perforated in the male; the preanal pores of this species are placed in a preanal groove.

Gymnodactylus marmoratus Dum. & Bibr.

Gymnodactylus marmoratus Duméril & Bibron, Erp. Gén. III, 1836, p. 426; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 13, 348; Brongersma, in Dammerman, Treubia XI, 1929, p. 64; Kopstein, Treubia XI, 1930, p. 304, fig. 11 (eggs) and XII, 1930, p. 275.

Gymnodactylus fumosus (part.), De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 16, 348; Mertens, Senckenbergiana XI, 1929, p. 32; Dammerman, Treubia XI, 1929, p. 12, 13; Brongersma, in Dammerman, l. c., p. 64; Kopstein, Treubia, XII, 1930, p. 301, 304, fig. 12 (eggs) and XII, 1930, p. 275.

De Rooij (l. c., p. 16) records *Gymnodactylus fumosus* from Celebes, Halmahera and Java. The specimens from Halmahera were referred to a distinct subspecies, *Gymnodactylus fumosus halmahericus* by Mertens (1929, p. 237). The supposed occurrence of a species in Celebes and Java, while not found on the neighbouring islands was of some interest to zoogeography. Re-examination of the javanese specimens, however, shows that they should be referred to *G. marmoratus* D. B. rather than to *G. fumosus* F. Müll. De Rooij (l. c., p. 5, 6) in her key to the species of the genus *Gymnodactylus* separates these two species as follows:

a. On each side 4—6 femoral pores, 12 or 13 praeanal pores in a longitudinal groove. Tail covered below with small scales. Body light brown above with dark brown spots, sometimes forming cross bands on the back . . . . . *G. marmoratus.*

e. A continuous series of 42 pores; a pubic groove. Ear-opening horizontal. Body grey-brown above with blackish spots, which sometimes form irregular cross bands . . . . . *G. fumosus.*

The differences in coloration are of no great value as the colour is very variable in these species. In both species the tail is covered with small scales, those on the lower surface slightly larger than those on the upper surface. The horizontal ear-opening of *G. fumosus* is due, as supposed by De Rooij (l. c., p. 17), to the state of preservation. The only remaining differences are found in the continuity or discontinuity of the pore-series. Examination of the types and a number of other specimens of *G. marmoratus* D. B. showed that in this species the series of preanal and femoral pores may be continuous as in *G. fumosus* or discontinuous. Of the two cotypes of *G. marmoratus*, collected in Java by Kuhl & Van Hasselt and preserved in the Paris Museum, one is a male, the other a young specimen. This male (Mus. Hist. Nat. Paris no. 2331) has 14 femoral pores on each side and an angular series of 19 preanal pores; the series of femoral pores reaches that of preanal pores, but the scale-rows bearing the pores are not confluent; the row of femoral pores ends on a scale which is placed in front of the one on which the preanal series begins. Of the other males collected by Kuhl & Van Hasselt (Mus. Leid. Herp. no. 2710, 2710*a*) five show a continuous series of 45—54 pores, the femoral and preanal scale-rows being confluent; one has a continuous series of 51 pores, here the rows are not confluent on one side (as in the type), but confluent on the other side; in a seventh male the femoral pores are separated from the preanal pores by two non-perforated scales on each side. A male from Sumatra (Mus. Leid. Herp. no. 2709) has a continuous series of 39 pores. In the British Museum I examined a male from Christmas Island showing an interrupted series of 11—13 femoral and 9 preanal pores.

Hence the differences in the continuity and discontinuity of the pores are of no value to separate these two species. Still the species are not synonymous. *G. marmoratus* has numerous keeled to conical tubercles on the back, while in *G. fumosus* these tubercles are roundish, flat, and only relatively few in number (type examined). The specimens from Java recorded as *G. fumosus* by De Rooij agree in all respects with *G. marmoratus* and differ from the true *G. fumosus* of Celebes and must therefore be referred to thé former species. The anomalous distribution Java-Celebes of *Gymnodactylus fumosus* does not exist. *G. fumosus* in its typical form is restricted to Celebes.

Gymnodactylus novae-guineae Schl. (textfigs. 1—4).

Gymnodactylus marmoratus var. *novae-guineae* Schlegel, Abbild. neuer od. unv. bek. Amph. 1844, p. IX, 10, pl. 2 fig. 1.

Gymnodactylus marmoratus, De Rooij, Nova Guinea V, Zool., 1909, p. 375; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 13, 362 (part.).

Gymnodactylus louisiadensis, De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 15, 362 (part.); De Rooij, Nova Guinea XIII, Zool., 1917, p. 134, 151.

2 ex., ♂♂, cotypes, New Guinea, leg. Müller & Macklot, Mus Leid. Herp. no. 2708.

1 ex., ♂, Manokwari, 2. VI. 1903, Dutch New Guinea Exp. 1903, Mus. Leid. Herp. no. 5280.

9 ex., 5 ♂♂, 4 ♀♀, Kloofbivak on Lorentz-riv. X. 1912—I. 1913, Dutch New Guinea Exp. 1912, Mus. Amst.

1 ex., ♂, Kloofbivak on Lorentz-riv., Dutch New Guinea Exp. 1912, B. M. N. H. no. 1931. 5. 5. 1.

2 ex., ♂, ♀, Alkmaar, New Guinea, 1—2. II. 1910, leg. H. A. Lorentz, Mus. Amst.

1 ex., ♀, Hollandia, N. New Guinea, leg. Van Kampen, 1910, Mus. Amst.

1 ex., juv., Sabang on Lorentz-riv., Dutch New Guinea Exp. 1907, Mus. Amst.

1 ex., ♀, British New Guinea, B. M. N. H. no. 1922, 11. 24. 7.

1 ex., ♀, New Guinea, Tappenbeck, Mus. Berl. no. 16504.

1 ex., ♀, New Guinea, Werner, Mus. Berl. no. 12149.

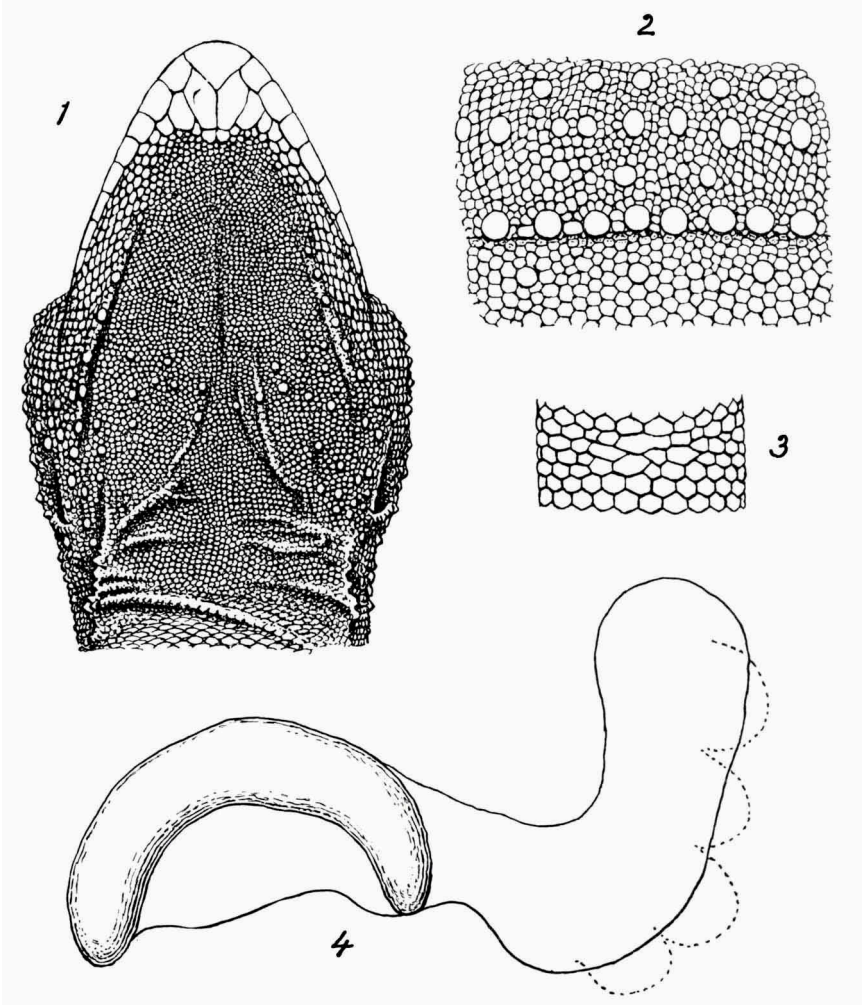
1 ex., ♀, German New Guinea, Bürgers, Mus. Berl. no. 25746.

Head large, oviform, depressed; forehead and lores concave. Snout longer than the distance between the orbit and the ear-opening, twice as large as the diameter of the eye. Ear-opening large, oval, oblique or nearly vertical, its diameter contained twice in that of the eye. Head granular, the granules largest on the snout. Occiput, temples and supraocular-region with small tubercles. Rostral large, from once and a half to nearly twice as broad as high, with a notch and an unforked median cleft behind. Supranasals large, separated from each other by a varying number of scales; the following variations of these scales were found:

1. Cotype: two anterior scales followed by one posterior scale.
2. Cotype: one anterior scale, followed by two rows of three scales each.
3. Manokwari: one single scale.
4. Kloofbivak (B. M. N. H.), one large pentagonal scale in the rostral notch, followed by a single scale which separates the supranasals.
5. Kloofbivak (Mus. Amst.), three scales in a transverse row.
6. id., one scale, followed by three scales in a transverse row.
7. id., four scales, a rather long lateral one on each side, the two median ones small, squarish, one behind the other.

Nostril bordered by rostral, first supralabial, supranasals and three to five small postnasals. Fourteen to fifteen upper labials, last very small; thirteen to fifteen lower labials, last very small. Symphysial large, sub-

triangular, broader than long. Two pairs of chinshields, median largest forming a suture behind the symphysial. The chin-shields bordered behind by small irregular shields. Throat with granules and small roundish,



Figs. 1—3, *Gymnodactylus novae-guineae* Schl., Alkmaar, New Guinea, 1909; fig. 1, throat, × 2; fig. 2, left side of body, × 4; fig. 3, lower surface of tail, × 4.
Fig. 4, *Gymnodactylus novae-guineae* Schl. ♂, Kloofbivak, New Guinea, 1912, post-anal bone, × 12 approx.

convex tubercles (fig. 1). The latter best developed on the sides of the throat, present in all specimens examined. Back covered with small granules and numerous convex to conical tubercles. Lateral fold strongly developed

with large round, convex scales (fig. 2). Belly with small granular scales on the sides, intermixed with large, round, convex scales; the middle of the belly with rather small, cycloid, imbricate scales; 35 to 46 across the belly. Males with a continuous curved series of 38 to 42 preanal and femoral pores; females with a continuous series of enlarged preanal and femoral scales. Tail annulate, roundish, with dorsal and lateral grooves, covered above with small scales and 7 to 9 longitudinal rows of tubercles; each annulus contains about 8 or 9 transverse rows of small scales, and two transverse rows of tubercles. Lower surface of tail with enlarged scales; those of the median two series may be somewhat transversely enlarged and occasionally they fuse into transverse plates. Limbs covered with granules and tubercles. Digits strong, depressed at the base and compressed distally, covered below with transverse lamellae which are best developed under the basal part. Fourth toe with 28 to 33 lamellae. Digits united by a rudiment of web. Three or four tubercles on each side at the base of the tail. Post-anal sacs present; male with post-anal bones (fig. 4).

Colour: in the types the colour has completely faded. Light greyish above, a dark brown or blackish band from the snout, through the eye to the nape, meeting its fellow. Back with three or four broad dark brown transverse bands, the anterior on the shoulders and about V-shaped. Tail with dark brown or blackish rings. Lower surface greyish.

Measurements of types (in mm):

Snout to vent	115	129
Tail	118 (of which 32 mm regenerated)	146
Head, long	32	35
Head, wide	21	24
Fore limb	$43^1/_2$	$49^1/_2$
Hind limb	58	62

This species is easily distinguished from the other Indo-Australian species of *Gymnodactylus* by the presence of small tubercles on the throat, and by the enlarged round scales among the granules of the sides of the belly.

Schlegel (l.c., p. 10) mentioned that New Guinean specimens of *Gymnodactylus marmoratus* were larger than those from other localities, and that they had a different coloration. On p. IX, in the list of species described he uses the name *Gymnodactylus marmoratus* var. *novaeguineae,* which is thus available for the present species.

Gymnodactylus papuensis nom. nov.

Gymnodactylus arfakensis, Sauvage, Bull. Soc. Philom. Paris (7) III, 1879, p. 48, 49 (nec Meyer 1874).

Gymnodactylus sermowaiensis, De Jong, Nova Guinea XV, Zool., 1927, p. 308.

Gymnodactylus novae-guineae Brongersma, Zool. Anz. LXXV, 1928, p. 251, figs. 1*a*, 1*b* (nec Schlegel 1844).

1 ex., ♂, type of *G. novae-guineae* Brong., South New Guinea, coll. by Exploring Detachment, 1911, Mus. Amst.

1 ex., ♀, paratype of *G. novae-guineae* Brong., South New Guinea, coll. by Exploring Detachment, 1911, Mus. Amst.

2 ex., ♂♂, New Guinea, leg. Raffray, Mus. Paris no. 5261.

1 ex., ♂, New Guinea, leg. Laglaize, Mus. Paris no. 5260.

At the time I described this species I was not aware of the fact that the name *novae-guineae* had been used already by Schlegel for a *Gymnodactylus*, which he considered to be a variety of *G. marmoratus* and which I believe to be a distinct species (vide supra). *Gymnodactylus novae-guineae* Brongersma 1928 (nec Schlegel 1844) may be replaced by *Gymnodactylus papuensis*.

In the Paris Museum I examined three males of this species. The original description may be emendated as follows: males with 8 to 9 preanal pores in the preanal groove. Re-examination of the type showed that preanal pores are present too, but as the interior of the groove is damaged they had been overlooked, and I have not been able to count them. The pores are hidden under the large scales bordering the groove. Post-anal sacs and ossicles are present in the male. The number of postnasals varies from 2 to 4.

Back dark brown with two series of still darker large spots, a more lateral series of smaller spots may be present on each side. The length from snout to vent of these three males is 65, 63, and 61 mm respectively.

Hemidactylus frenatus D. B.

Hemidactylus frenatus Duméril & Bibron, Erp. Gén. III, 1836, p. 366; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 28, figs. 17, 18.

Hemidactylus tristis Sauvage, Bull. Soc. Philom. (7) III, 1878, p. 48, 49; De Rooij, l. c., p. 36.

2 ex., ♀♀, types, Java, received from Leid. Mus., Mus. Paris no. 5135.

2 ex., ♂♂, types of *H. tristis*, New Guinea, leg. Raffray, Mus. Paris no. 5258.

After examining the types of *H. tristis* and comparing them with those of *H. frenatus*, and after studying numerous specimens of the latter I am convinced that the two species cannot be separated. Previously this had been supposed already by De Rooij (l. c., p. 36).

Gehyra mutilata (Wiegm.).

Gehyra mutilata, De Rooij, Rept. Ind. Austr. Arch. I, p. 41, fig. 28, 1915.

1 ex., Tana Masa, Batoe Ids., leg. Dr. W. L. Abbott, 25. II. 1903, U. S. N. M. no. 31704.

Gehyra papuana A. B. Meyer.

Gehyra papuana A. B. Meyer, Mon. Ber. Ak. Berl. 1874, p. 129, (p. 4 of reprint); Sauvage, Bull. Soc. Philom. Paris (7) II, 1878, p. 31.

Gehyra oceanica (part.), Peters & Doria, Ann. Mus. Civ. Gen. XIII, 1878, p. 369; Boulenger, Cat. Liz. Brit. Mus. I, 1885, p. 152; Meyer, Abh. Mus. Dresd. I, 2, 1886, p. 5; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 44; Schüz, Abh. Mus. Dresd. XVII, 2, 1929, p. 5.

Gehyra lampei Andersson, Jahrb. Nass. Ver. Natk. XLVI, 1913, p. 67, 71, fig. on p. 68; Lampe, Jahrb. Nass. Ver. Natk. XLVI, 1913, p. 81; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 39.

1 ex., type of *G. papuana*, Doré, New Guinea, leg. A. B. Meyer, Mus. Dresden.
1 ex., type of *G. lampei*, Bogadjim, New Guinea, Naturhist. Mus. Wiesbaden.

Gehyra papuana was referred to the synonymy of *G. oceanica* by Peters & Doria (l. c.) on evidence supplied by Meyer. Re-examination of the type of *G. papuana* showed that only the basal lamellae and the small terminal one are single, the others are divided by a median groove, while in *G. oceanica* (Less.) (types examined in the Paris Museum) all the lamellae are single. Comparison of the types of *G. papuana* Mey. and *G. lampei* And. showed that these two species are identical.

The species may be redescribed as follows:

Head longer than broad; snout 1.2—1.5 times the distance from orbit to ear-opening; the diameter of the orbit is equal to the latter distance; forehead concave; ear-opening small, oval, oblique. Rostral quadrangular, twice as broad as high with a slight notch behind, and an unforked median cleft. Nostral bordered by rostral, first upper labial, supranasal and two postnasals. In the type the supranasals are separated by two scales, one behind the other, the anterior one placed in the rostral notch; in the type of *G. lampei* the supranasals are separated by three scales, one anterior placed in the rostral notch, the two posteriors partly entering the notch and forming a median suture. Twelve or thirteen upper labials, last very small, ten or eleven lower labials. Symphysial pentagonal; three pairs of chin-shields, inner pair longest and forming a median suture. The chinshields are followed by a row of irregular small plates. Body depressed, a distinct fold from axilla to groin, another from lower jaw to forelimb, and a third fold bordering the hindlimb posteriorly. A fold from the ear-opening to the shoulder may be present (type). Body

covered with small, flat granules, smallest on the vertebral region. Ventral scales larger, about twice as large as gulars; in the type two ventrals are equal in length to four and a half gulars. An angular series of 37 preanal and femoral pores in the type; 33 pores in the type of *G. lampei*. Tail much depressed, 1.6 (type)—2.1 times as broad as high, with a sharp lateral edge, minutely serrated, above with small flat scales in regular transverse rows, below with a median series of large transverse plates. Limbs flattened, digits short and broad, webbed as far as discoidal part. Basal infradigital lamellae single or semidivided; terminal lamella small, single, other lamellae divided. First toe with 14 to 16 lamellae, of which 8 are divided; fourth toe with 16 to 18 lamellae, 10 or 11 divided. First finger with 13 to 15 lamellae, 7 or 8 divided; fourth finger with 15 to 16 lamellae, 10 or 11 divided. First toe with a very weak claw, thumb clawless.

Colour: type, dark greyish brown above, somewhat lighter below. In the type of *G. lampei* irregular dark dots are present, some of which are arranged along the median line of the tail, lower parts greyish white.

Measurements of type (in mm):

Snout to vent	70	Distance from orbit to ear-opening	5
Tail (partly regenerated)	43	Diameter of orbit	5
Head, long	17.5	Distance from snout to fore limb	20.5
Head, wide	13	Distance from axilla to groin	26
Snout, long	6		

Hemiphyllodactylus typus Blkr.

Hemiphyllodactylus typus, Brongersma, Rés. sci. Voy. Ind. Or. Néerl. Pr. Léop. de Belg., Mém. Mus. roy. Hist. Nat. Belg., hors série V, fasc. 2, 1931, p. 11, 12; id., Zool. Med. Leid. XIV, 1932, p. 211—223 and XVI, 1933, p. 12; M. A. Smith, Rec. Ind. Mus. XXXV, 1933, p. 16.

Hemiphyllodactylus leucostictus, Schmidt & Necker, Occ. Pprs. Bernice P. Bishop Mus. X, 1933, p. 3, 5, 6, 9, fig. 3*b*.

Spathoscalabotes mutilatus, Boettger, Abh. Senckenb. natf. Ges. XXV, 1901, p. 396.

1 ex., Aroe-Ids., surroundings of Manoembai, leg. Dr. H. Boschma, Mus. Leid. Herp. no. 6284.

1 ex., Ata- or Pijlstaart Id., Tonga-group, R. B. Leefa Esq., B. M. N. H. no. 91. 11. 13. 1.

1 ex., Hiva Oa, Marquesas Ids., St. George Exp., B. M. N. H. no. 1926. 1. 20. 38.

1 ex., Takatua, Marquesas Ids., St. George Exp., B. M. N. H. no. 1926. 1. 20. 50.

Since my revision of the Indo-Australian and Pacific species of *Hemiphyllodactylus* appeared I examined the specimens mentioned above. *Hemiphyllodactylus typus* had not yet been recorded from the Aroe-Ids.;

its occurrence there is interesting as it shows that the great discontinuity shown on the chart in my former paper (1932) is due to insufficient collecting rather than to a peculiarity of the species itself. In all probability the species in future will still be discovered in Celebes and New Guinea. From the Tonga-group the species had been mentioned before.

Recently Schmidt & Necker recorded the species from the Marquesas Ids.; they retain the name *Hemiphyllodactylus leucostictus* Stejn. for specimens from these islands and from the Hawaii-Islands. The examination of two specimens from the Marquesas Ids. (though not those described by Schmidt & Necker) convinced me again that *H. leucostictus* is a synonym of *H. typus*, and I am glad that Dr. Schmidt (in litt.) now has the same opinion.

Boettger's paper, cited above, escaped my notice when compiling the synonymy of this species in my former paper (1932).

Torresia nov. gen.

Thecadactylus (part.), Günther, Ann. Mag. Nat. Hist. (4) XIX, 1877, p. 414; Hoffmann, in Bronn, Kl. Ordn. Thierr. VI, 3, II, 1883, p. 1183, 1189; Boulenger, Cat. Liz. Brit. Mus. I, 1885, p. 111; Ditmars, Rept. of the world, ed. 1, 1910, p. 98, ed. 2, 1922, p. 98, ed. 3, 1933, p. 33; Zietz, Rec. S. Austr. Mus. I, 1920, p. 189.

Günther (1877, p. 44) described a new species of Gekkonid lizards from the islands in the Torres-strait as belonging to the genus *Thecadactylus* Oken, and named it *Thecadactylus australis*. The supposed occurrence of a species of this genus in the Australian region was very interesting from a zoogeographical point of view, as the only other species belonging to it, *Thecadactylus rapicaudus* (Houtt.) is found in South America and the West Indies.

During a short stay at the British Museum I could examine the type of *Thecadactylus australis* Gthr. (as far as I am aware the only specimen known), and compare it with some specimens of *Thecadactylus rapicaudus* (Houtt.). This comparison showed that a certain ressemblance between the two species exists, but that there are several important differences which warrant the erection of a new genus for the Australian species. This genus may be named *Torresia*, its diagnosis may read as follows:

Digits strongly dilated, inferiorly with two series of transverse lamellae; inner digit clawless, other digits with a sessile, non retractile claw. Clawsheath bordered distally by one large transverse scale (fig. 6); it opens at the extremity of the digital expansion, in front of the terminal lamellae (fig. 5). Fingers with a rudiment of a web; a web is also present between the inner four toes, absent between the fourth and fifth toe. Back covered

with rather large flat juxtaposed scales. Snout and forehead with rather large rough vermiculated tubercles, confluent with the cranial ossification. Male with a subtriangular patch of preanal pores, no femoral pores. Post-anal slits and ossicles present. Post-anal swelling covered with large hexagonal scales. Pupil vertical.

Type of genus: *Thecadactylus australis* Günther 1877.

The differences between the new genus and *Thecadactylus* Oken (type-species *Gecko laevis* Daud. = *Gekko rapicauda* Houttuyn 1782) are given in the following table:

Torresia.	*Thecadactylus.*
1. Clawsheath covered with rather small scales, terminal scale transversely enlarged (fig. 6).	1. Clawsheath covered with small scales, terminal scales small (fig. 9).
2. Clawsheath opens at extremity of digital expansion, in front of terminal lamellae (fig. 5).	2. Clawsheath does not open at extremity of digital expansion, but opens between terminal lamellae (fig. 8).
3. Claw not retractile.	3. Claw retractile.
4. Snout and forehead with rough tubercles, confluent with cranial ossification.	4. Snout and forehead with small smooth granules, not confluent with cranial ossification.
5. Male with a patch of preanal pores.	5. Male without pores.
6. Post-anal region covered with large hexagonal scales.	6. Post-anal region covered with small scales.

The differences in the position of the claw may be easily seen when examining a toe in front- and in side-view. In *Thecadactylus* the tip of the claw is seen protruding from the expansion at a slight distance from the border of the digit (fig. 10), while in *Torresia* the claw is distinctly seen at the extremity of the digital expansion (fig. 7).

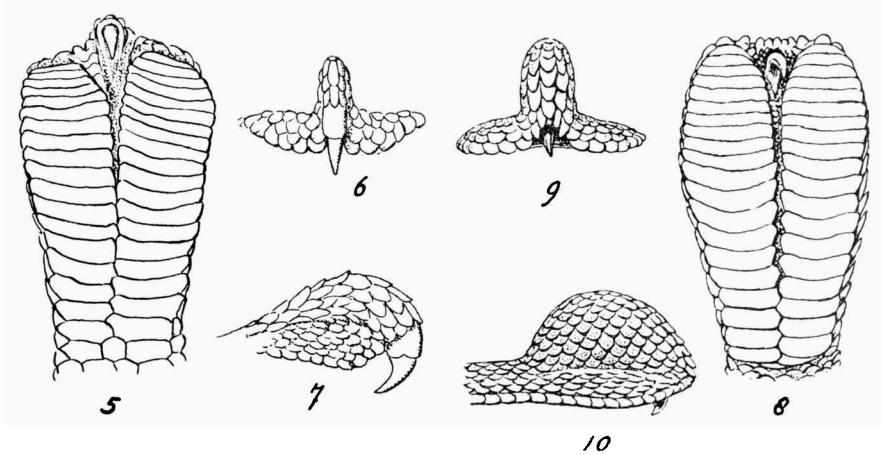
Torresia australis (Gthr.) (textfigs. 5—7).

Thecadactylus australis Günther, Ann. Mag. Nat. Hist. (4) XIX, 1877, p. 414; Boulenger, Cat. Liz. Brit. Mus. I, 1885, p. 112, pl. XI fig. 1; Schaefer, Arch. Natg. 68 Jg., I, 1, 1902, p. 34; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 52, 180; Zietz, Rec. S. Austr. Mus. I, 1920, p. 189.

1 ex., ♂, type, Islands of Torres-strait, leg. Rev. S. Macfarlane, B. M. N. H. no. 77. 3. 3. 12.

Description of type: Head large, oviform, elongate, 1.3 times as long

as broad; snout slightly longer than the distance between orbit and ear-opening, 1.4 times as long as the diameter of the orbit. Ear-opening small, oval, nearly $^1/_5$ the diameter of the orbit. Forehead slightly concave; snout and forehead covered with large rough vermiculated tubercles, confluent with the cranial ossification. Rostral subquadrangular, with a trace of a median cleft above; this cleft is slightly irregular as the upper part of the rostral is partly broken up into smaller scales. Nostril bordered by first (right side) or first and second (left) upper labial, five or six small shields, and some granules. The rostral does not enter the nostril. Symphysial large, trapezoid, somewhat irregular at its posterior border,



Figs. 5—7, *Torresia australis* (Gthr.), type, third toe, × 6; fig. 5, lower view; fig. 6, front view; fig. 7, side view (digital expansion only partly figured).
Figs. 8—10, *Thecadactylus rapicaudus* (Houtt.), third toe, × 6; fig. 8, lower view; fig. 9, front view; fig. 10, side view.

separating two pairs of small chinshields. Thirteen upper- and eleven lower labials. Occiput covered with rather large flat granules; the granules on the neck smaller, those on the back again larger; the latter are arranged in more or less regular transverse rows. Throat minutely granular; ventral scales subhexagonal, not much larger than dorsals, scarcely imbricate. Male with a subtriangular patch of twenty two preanal pores. Post-anal slits and ossicles present. A fold along the lower side of the neck from mandible to forelimb, another fold from axilla to groin. A globular swelling behind the vent, covered with large hexagonal scales. Tail cylindrical, partly regenerated, covered with small flat scales arranged in verticils; those of the median two rows on the lower surface somewhat larger than the others.

Digits with a double series of lamellae; inner digit clawless, other

digits with a strong, not retractile claw, placed at the extremity of the digital expansion. Clawsheath covered with elongate scales, the terminal one transversely enlarged. Fingers with rudiment of web; a web present between the inner four toes, absent between fourth and fifth toe.

First finger with 11 lamellae, fourth finger with 18 lamellae; first toe with 12, fourth toe with 20 lamellae.

Measurements (in mm):

Length of head and body	112
Length of head	29¼
Width of head	22
Length of snout	12
Distance from orbit to ear-opening	10
Diameter of orbit	8½
Diameter of ear-opening	2½
Length of tail (partly regenerated)	59½
Fore limb	33
Hind limb	± 41

Upper parts brownish violet, marbled with reddish; lower surface brownish white.

AGAMIDAE.

Gonyocephalus chamaeleontinus (Laur.).

Gonyocephalus chamaeleontinus, De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 102; Dunn, Amer. Mus. Nov. 288, 1927, p. 4 (= Contr. Dept. Zool. Smith Coll., Northampton 145, 1927, p. 4); Dunn, in Burden, Dragon Lizards of Komodo, 1927, p. 200; Brongersma, in Dammerman, Treubia XI, 1929, p. 64; Brongersma, Treubia XII, 1930, p. 300; Mertens, Abh. Senckenb. natf. Ges. XLII, 1930, p. 162.

Gonyocephalus kuhli, De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 101; Brongersma, in Dammerman, Treubia XI, 1909, p. 64.

2 ex., Poeloe Bankara, Banjak Ids., leg. Dr. W. L. Abbott, 18—30. I. 1902, U. S. N. M. no. 30773—4.

1 ex., Poeloe Toeankoe, Banjak Ids., leg. Dr. W. L. Abbott, 18—30. I. 1902, U. S. N. M. no. 30775.

1 ex., Tana Masa, Batoe Ids., leg. Dr. W. L. Abbott, 22. II. 1930, U. S. N. M. no. 31703.

Judging by one of these specimens (no. 30774) the tail seems to be prehensile.

Calotes cristatellus (Kuhl).

Calotes cristatellus, Fry, Proc. Roy. Soc. Queensl. XXVII, 1915, p. 88; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 121 and II, 1917, p. 334; De Jong, Nova Guinea XV,

Zool., 1927, p. 309; Brongersma, Handel. 24ste Ned. Nat. Geneesk. Congr. 1933, p. 200; Brongersma, Vakblad v. Biologen XV, 1933, p. 27.

1 ex., N. Pagi, leg. Dr. W. L. Abbott, 18. XI. 1902, U. S. N. M. no. 31700.
1 ex., Hollandia, N. New Guinea, leg. K. Gjellerup, 1910, Mus. Amst.

The species was recorded from New Guinea by De Rooij (1917, p. 334). This record was repeated by De Jong (l. c.), who, however, expressed his doubts as to the real occurrence of the species in New Guinea, and I (1933) agreed with him, till recently I found another New Guinean specimen in the Amsterdam Museum, this time with a more definite locality-record. The specimen, which was captured in a bamboo-cabin, seems to belong to the subspecies *moluccanus* Ptrs.

In literature I find one other New Guinean record for this species (Fry, 1915, p. 88), so that now the occurrence seems to be definitely proved.

Physignathus spec.

M. A. Smith, Proc. Zool. Soc. Lond. 1927, p. 202.

Smith mentions having seen in Timor "a large lizard, apparently of the genus *Physignathus*". The presence of this genus in Timor is proved by a very young specimen in the Leiden Museum (leg. Wienecke 1862, Herp. no. 6325). Specific identification is not possible.

VARANIDAE.

Varanus nebulosus (Gray).

Varanus nebulosus, Duméril & Bibron, Erp. Gén. III, 1836, p. 483, pl. 35 figs. 2, 3; Günther, Rept. Brit. Ind. 1864, p. 66, pl. IX fig. D; Werner, Zool. Jahrb. Syst. XIII, 1900, p. 504; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 24, 184; Andersson, Jahrb Nass. Ver. Natk. LXVI, 1913, p. 77; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 145, 348; Chasen & Smedley, J. Mal. Br. Roy. Asiat. Soc. V, 1927, p. 352; Dammerman, Treubia XI, 1929, p. 11, 12; Brongersma, in Dammerman, Treubia XI, 1929, p. 65; Kopstein, Treubia XII, 1930, p. 275; M. A. Smith, J. Bombay Nat. Hist. Soc. XXXV, 1932, p. 615, 617, fig. 4.
Monitor nebulatus, Schlegel, Abbild. neuer od. unv. bek. Amph. 1839, p. 75.

2 ex., Kali Telo, Japara-residency, Central Java, don. R. C. Immink, VI. 1934, Mus. Amst.

Varanus nebulosus was first recorded from Java by Duméril & Bibron, but its occurrence there was doubted by Günther. A new record was published by Werner, which again was doubted by Barbour. In 1913 a definite locality-record (Krawang, W. Java) was given by Andersson. Kopstein bought a specimen near Tasikmalaja (W. Java). The occurrence in more eastern parts of the island is proved by two specimens for which

the Zoological Museum, Amsterdam is greatly indebted to Mr. R. C. Immink, of Kali Telo (Central Java).

The nostril is an oblique slit, which is situated nearly twice as near to the orbit than to the tip of the snout. Ventral scales in 72 to 75 transverse rows.

One specimen is greyish with transverse series of ocelli on the back, the other has a more or less distinct V-shaped marking on the neck and is more or less distinctly marmorated.

Length of head and body	186 mm	183 mm
„ „ tail	279 mm	286 mm

The species has not yet been found in Sumatra; its apparent rarity on Java, and the records from the Rhio-Archipelago by Chasen & Smedley make it very probable that in future it will be discovered on that island too.

SCINCIDAE.

Mabuya rugifera (Stol.) (textfigs. 11—12).

Mabuya rugifera, M. A. Smith, Ann. Mag. Nat. Hist. (9) XVIII. 1926, p. 78.

6 ex., 3 ♂♂, 3 ♀♀, Java, leg. Kuhl & Van Hasselt, Mus. Leid. Herp. no. 6326.

10 ex., 5 ♂♂, 5 ♀♀, Kali Telo, Japara-residency, north coast of Central Java, don. R. C. Immink, VI. 1934, Mus. Amst.

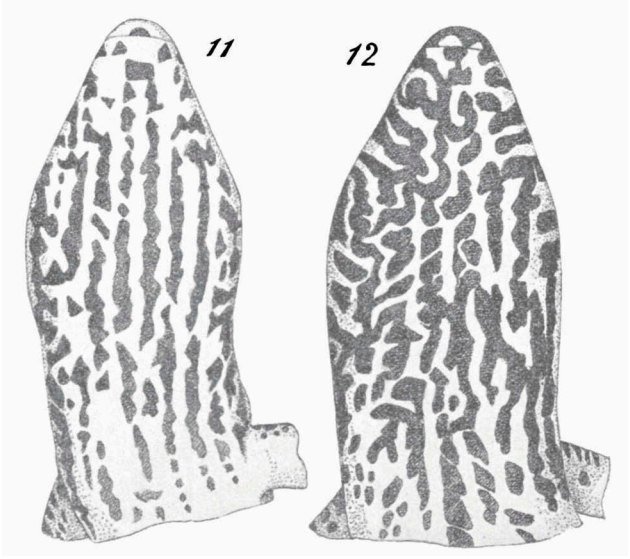
1 ex., ♂, Deli, Sumatra, leg. De Bussy, Mus. Amst.

1 ex., ♂, S. Pagi, leg. Dr. W. L. Abbott, 27. XI. 1902, U. S. N. M. no. 31698.

1 ex., ♂, Sinabang, Simaloer, leg. Dr. E. Jacobson, VII. 1913, Mus. Leid. Herp. no. 4719.

Through the well preserved series from Central Java, for which the Amsterdam Museum is indebted to Mr. R. C. Immink, my attention was attracted to the sexual dimorphism of the javanese specimens of this species. In specimens from other localities it does not seem to be so well marked or it is even absent. The males from Central Java all have the throat heavily spotted with black, the spots arranged more or less distinctly in longitudinal series which may extend on to the belly; these spots are absent in the females. The dark bands and light lines on the back are marked more distinctly and extend farther backwards in males than in females. In the specimens collected by Kuhl & Van Hasselt (probably from West Java, where they made their collections), the spots on the throat are less distinctly marked in one male, and absent in the females. A male from Deli, Sumatra also shows distinct spots on the throat. The throat is uniformly greyish in the males from S. Pagi and Simaloer. On my request Dr. H. W. Parker was so kind as to examine

the specimens of this species in the British Museum. In four males the spots on the throat are present (in one only slightly developed), in four others they were absent; of the six females only one had spots on the throat. The light lines on the back are well marked in four males, slightly marked in one male, absent in two males, while one male has



Figs. 11—12, *Mabuya rugifera* (Stol.) ♂, throat, × 3; fig. 11, specimen from West Java; fig. 12, specimen from Kali Telo, Central Java.

brown lines on the back. Of the six females three have distinctly marked light lines on the back and three had none. The specimens in the British Museum came from the following localities:

B. M. N. H. no.	Loc.	sex	throat spotted	light lines on back
72. 2. 19. 19	Matang, Borneo	♀	—	—
95. 2. 28. 7—10	Sarawak, „	♂, ♀	—	—
	„ „	♂, ♂	+	+
89. 11. 12. 13	Deli, Sumatra	♀	—	+
1920. 1. 16. 10	Lebong Tandai, Sumatra	♂	slightly	slightly
94. 12. 18. 7	Sipora, Mentawei Ids.	♂	+	brown
1926. 3. 18. 11—12	Siberoet, „ „	♂	—	—
	„ „ „	♀	—	+
99. 2. 21. 1	Singapore	♂	—	+ (5)
98. 9. 22. 24	Batu Caves, Selangor	♀	—	—
1933. 7. 5. 9	Betong, Malay Peninsula	♂	—	+
Coll. Smith no. 8136	Gng. Kledang, 2646 ft., Perak	♀	+	+

The available material is too scanty to decide at present whether the strongly marked dimorphism in the javanese specimens is due to geographical variation or not.

Mabuya multifasciata (Kuhl).

Mabuya multifasciata, Smith, Proc. Zool. Soc. Lond. 1927, p. 215.

2 ex., Poeloe Sioemat (east of Simaloer), leg. Dr. W. L. Abbott, 27. XII. 1901, U. S. N. M. no. 30785—6.

1 ex., Poeloe Bankara, Banjak Ids., leg. Dr. W. L. Abbott, 16. I. 1900, U.S.N.M. no. 30784.

1 ex., Tana Masa, Batoe Ids., leg. Dr. W. L. Abbott, II—III. 1903, U. S. N. M. no. 31705.

1 ex., Pinie, Batoe Ids., leg. Dr. W. L. Abbott, II—III, 1903, U.S.N.M. no. 31706.

1 ex., Poeloe Mirbau (near Engano), leg. Dr. W. L. Abbott, 5. XII. 1904, U.S.N.M. no. 35806.

Lygosoma (Sphenomorphus) variegatum Ptrs.

Lygosoma variegatum, De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 196, fig. 76.

Sphenomorphus variegatus, M. A. Smith, Sarawak Mus. Journ. III, Part 1, no. 8, 1925, p. 12.

Lygosoma melanopogon, De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 191 (part.).

2 ex., Menado, leg. Forsten, Mus. Leid. Herp. no. 2533.

These specimens were referred to *Lygosoma melanopogon* D. B. by De Rooij; that they cannot belong to that species is evident, as they have two superposed anterior loreals. Both specimens have six supraoculars; one has 38 scales round the middle of the body, the other has 46. Using De Rooij's key to the species of *Lygosoma* both specimens should be referred to *L. variegatum* on account of the number of supraoculars, but judging by the number of scale-rows, only one of them should be referred to that species, the other to *L. sarasinorum* Blgr., as De Rooij mentions 38—40 scales for the former species and 44—46 for the latter. Smith (1925, p. 12), however, described Bornean specimens of *L. variegatum* which had 40—44 scales round the middle of the body; the number of scales in this species, therefore, is subject to a rather wide variation. The number of scales in *L. variegatum* and *L. sarasinorum* overlap, as is also the case with the number of supraoculars, and in my opinion it is probable that *sarasinorum* will prove to be a synonym, or perhaps a subspecies, of *variegatum*. For the present I refer the two specimens from Menado to *L. variegatum*. I am convinced that *L. melanopogon* is restricted to New Guinea and neighbouring islands, and that it does not occur in Celebes.

TESTUDINIDAE.

Geoemyda spinosa (Gray).

Geoemyda spinosa, De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 300, fig. 111; M. A. Smith, Fauna of British India, Rept. I, 1931, p. 91, figs. 17 A, 17 B.

1 ex., Poeloe Toeankoe, leg. Dr. W. L. Abbott, 2. II. 1902, U.S.N.M. no. 30804.

TRIONYCHIDAE.

Dogania subplana (Geoffr.).

Dogania subplana, De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 326, fig. 126.

2 ex., Poeloe Toeankoe, leg. Dr. W. L. Abbott, 1—2. II. 1902, U.S.N.M. no. 30806—7.

CROCODILIDAE.

Crocodilus siamensis Schn.

Crocodilus siamensis, Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 22, 203; De Rooij, Rept. Ind. Austr. Arch. I, 1915, p. 336, 338, 349, and II, 1917, p. 333; M. A. Smith, J. Nat. Hist. Soc. Siam III, 1919, p. 217, pls. 4—6; M. A. Smith, J. Bomb. Nat. Hist. Soc. XXXIII, 1929, p. 997, fig. 1, 3; M. A. Smith, Bull. Raffl. Mus. no. 3, 1930, p. 1; Müller, Palaeont. Hung. I, 1923, p. 109, 5 figs.; M. A. Smith, Fauna Brit. Ind. Rept. I, 1931, p. 44.

Champse siamensis, Werner, Das Tierreich 62, 1933, p. 18, fig. 17.

Crocodilus palustris, De Rooij, l.c. I, 1915, p. 336, 339 (part.), p. 349.

1 ex., Java, leg. Kuhl & Van Hasselt, Mus. Leid.

1 ex., Tjikao, Java, leg. Boie & Macklot, 2. III. 1827, Mus. Leid.

The specimen collected by Kuhl and Van Hasselt has a total length of about 226 cm, the one collected by Boie and Macklot is a young one measuring about 125 cm. Both are mounted and it is therefore impossible to examine the premaxillo-maxillary suture. They show the following characters: interorbital ridge present; short ridges in front of the orbits, converging anteriorly; cranial table concave; two pairs of postoccipital scutes; four large nuchals, forming a square, with a smaller one on each side; dorsal scutes well separated from the nuchals, in 16 transverse and 6 longitudinal series, the bony portions of the scutes in contact with one another in the transverse series; smaller scutes outside, forming a more or less regular longitudinal series. The adult specimen has four premaxillary teeth, thirteen teeth in each maxillary, and fifteen in the lower jaw; snout 1.4 times as long as broad. The young specimen has four premaxillary teeth, and fourteen teeth in the maxillary and in the lower jaw; snout 1.8 times as long as broad at the base.

The young specimen was referred to *Crocodilus palustris* Less. by

De Rooij; in my opinion it belongs to *C. siamensis* as it has a much narrower snout, an interorbital ridge, preorbital ridges of the same shape and size as those of *siamensis*, a concave cranial table; dorsal scutes in 6 longitudinal series, a number, which according to Smith (1931, p. 44) is unusual for *C. palustris*. In the larger specimen the snout is slightly broader than is indicated by Smith for specimens from the asiatic mainland.

Crocodilus palustris Less. may safely be struck off the list of the reptiles known to occur in Java; probably it does not occur in the Achipelago at all.

TYPHLOPIDAE.

The species of the genus *Typhlops* Schn. are certainly among the most difficult to identify. Very little is known about their variation. Waite (1918, p. 1—16) in the introduction to his revision of the australian Typhlopidae regards the position of the nasal cleft and the number of scale-rows as constant characters; that these characters are subject to variation is certain. M. A. Smith (1927, p. 219) showed that the nasal cleft in *Typhlops polygrammicus* Schl. may proceed from the first or from the second labial; I found the same in *Typhlops ligorostris* Sm. & Proct. (cf. p. 188). The number of scale-rows is also variable in some species, e. g., *Typhlops diardii* Schl. (M. A. Smith, 1923*a*, p. 52). Still these characters, as well as those taken from the position of the nostril in the nasal, the shape and size of the upper labials, the form of the head, the relation between the total length and the diameter of the body, and the relative size of the tail may be used to a certain extent. The identification of the indo-australian Typhlopidae in the Museums at Leiden and Amsterdam has resulted in the establishing of some new species, which are described in the following pages. To give a better idea of the form of the head and of the shape of the head-shields, drawings of the new species were made by Mr. M. A. Koekkoek. In the tables accompanying the descriptions L stands for total length (in mm), $\frac{L}{W}$ for the relation between total length and the diameter of the body, $\frac{L}{l}$ for the relation between total length and length of tail, $\frac{l}{w}$ for the relation between the length of the tail and its width, $\frac{h}{r}$ for the relation between the width of the head and the width of the rostral.

Typhlops kraali Doria.

Typhlops kraali, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 4.

2 ex., Gng. Daal, Kei Ids., leg. H. C. Siebers, IV. 1922, Mus. Buitenzorg.

The rostral is slightly broader than stated by De Rooij.

L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$
230	38.3	46	1.0	2.1
200	36.3	42.5	1.0	2.1

Typhlops braminus (Daud.).

Typhlops braminus, Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 99, 189; Kopstein, Zool. Med. Leid. IX, 1926, p. 101.

2 ex., Sapoeka besar, Postiljon Ids., leg. Dr. H. Boschma, 21—23. XII. 1929, Mus. Leid. Herp. no. 6216.

8 ex., Sorong, New Guinea, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6330.

1 ex., Pionierbivak on Mamberamo riv., leg. Jhr. W. C. van Heurn, 11. VIII. 1920, Mus. Amst.

The records of the occurrence of this species in New Guinea by Barbour and Kopstein seem to have been overlooked by recent authors.

Typhlops polygrammicus Schl.?

Typhlops polygrammicus, Lidth de Jeude, Notes Leyd. Mus. XXIII, 1901, p. 32.

Van Lidth de Jeude recorded *T. polygrammicus* from Java. Judging by the description he gave of the two specimens examined by him, several differences seem to exist between these javanese specimens and the typical *polygrammicus*. One of these two specimens is in the Leiden Museum, but it is in so bad a state that I do not feel justified to use it as the type of a new species or subspecies. In all probality the true *T. polygrammicus* does not occur in Java.

Typhlops koekkoeki nov. spec. (textfigs. 13—15).

1 ex., type, Boenjoe Id., N. Borneo, don. U. Driebergen, 1924, Mus. Amst.

Snout rounded, slightly angular. Nostril inferior; the nasal cleft proceeding from the first upper labial, hardly extending beyond the nostril. Rostral very broad, its width contained 1.5 times in the width of the head. Preocular present, broader than the ocular, in contact with the second and third upper labials. Ocular in contact with the third and fourth upper labials. First upper labial long and narrow. Eyes indistinctly visible through the preocular, their posterior border just reaching beyond this shield. Rostral followed by three transversely enlarged shields: prefrontal, frontal and interparietal. Supraoculars and parietals also enlarged.

Scales in 26 rows round the middle of the body. Diameter of body contained 40.4 times in the total length; length of tail contained 62.6 times in the total length; tail broader than long, ending in a spine, its width contained 0.6 times in its length. Total length 445 mm.

Colour (in alcohol): greyish-brown above, lighter below.

This specimen is rather soft; after the description had been made some of the posterior head-scales fell off, and the figures have, therefore, been restricted to the anterior part of the head only. The lower jaw was damaged too, and could not be drawn. In the Amsterdam Museum the specimen was labelled *Typhlops lineatus*; probably it was assumed that the preocular was absent, and that the shield through which the eye is visible was the ocular. Comparison with other species shows, however, that the shield which covers the greater part of the eye is the same as the preocular of other species.

The species is named in honour of Mr. M. A. Koekkoek, to whom I wish to express my thanks for all the trouble he took to make drawings of these difficult objects.

Typhlops multilineatus Schl.

Typhlops multilineatus Schlegel, Abbild. neuer od. unv. bek. Amph., 1839, p. 40, pl. 32 figs. 39—42; De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 7 (part.).

Onychocephalus multilineatus, Duméril & Bibron, Erp. Gén. VI, 1844, p. 276.

1 ex., Angadi, New Guinea, Dutch New Guinea Exp., 11. VIII. 1903, Mus. Leid. Herp. no. 4851.

1 ex., Pionierbivak on Mamberamo riv., leg. Jhr. W. C. van Heurn, 12. XII. 1920, Mus. Amst.

1 ex., Upper Sermowai riv., leg. K. Gjellerup, 4. IV. 1911 (in forest under leaves), Mus. Amst.

1 ex., Salawatti, leg. Bernstein, 1866, Mus. Leid. Herp. no. 5626.

The status of this species is somewhat puzzling to me. It was described by Schlegel from a specimen collected by Müller on the west-coast of New Guinea; the number of scale-rows was given as 23 (not counting the midventral series), and in the figure the nasal cleft proceeds from the second upper labial. The species was redescribed by Duméril and Bibron (from the type?), who mention the number of scale-rows as 20 (including the midventral series); they also state that Schlegel's figure is incorrect especially as regards the upper labials. In recent literature the name *multilineatus* is used for a *Typhlops*-species with 20 scale-rows round the middle of the body, a sharp horizontal edge on the rostral, and the nasal cleft proceeding from the first upper labial. The four specimens mentioned above all have these characters. As Dr. R. Mertens

and Dr. J. Roux kindly inform me, the specimens from the Kei Ids. in the Senckenberg Museum and one in the Basel Museum also have the cleft proceeding from the first upper labial.

The specimen figured by Jan (1864, pl. 4 & 5 fig. 4) came from Ceram and must be referred to *T. ligorostris* Sm. & Proct. In the Leiden Museum it was labelled as being the type of *T. multilineatus*; this is, however, impossible, as it is about 110 mm longer than the type; moreover, it was collected in another locality and was received by the museum five years after Schlegel's description was published.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$
Angadi	290	72.5	30.8	2.8
Pionierbivak	360	62.0	34.9	2.4
Sermowai	241	60.2	32.1	2.1
Salawatti	396	60.9	36	1.7

Typhlops ligorostris Sm. & Proct.

Typhlops multilineatus, Jan, Icon. Gén. Oph., livr. 4, 1864, pl. 4 & 5 fig. 4 (nec Schlegel); De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 7 (part.).

Typhlops ligorostris Smith and Procter, Ann. Mag. Nat. Hist. (9) VIII, 1921, p. 353; Kopstein, Zool. Med. Leid. IX, 1926, p. 101.

1 ex., Ceram, leg. Forsten, 1844, Mus. Leid. Herp. no. 3699.
1 ex., Wahaai, Ceram, leg. Moens, 1862, Mus. Leid. Herp. no. 3755.
1 ex., Wahaai, Ceram, leg. Hoedt, 28. IV. 1867, Mus. Leid. Herp. no. 6327.
2 ex., Ambon, leg. Dr. F. Kopstein, VIII. 1923, Mus. Leid. Herp. no. 5108.

The first two specimens agree very well with the original description. In the third the nasal cleft proceeds from the first upper labial, instead of from the second. This is also the case in one of the specimens from Ambon, but on one side of the head only. The amboinese specimens seem to have shrunk after having been in spirit for about ten years; the length as measured by me is smaller than that taken by Kopstein.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$
Ceram	480	63.1	26.6	3.1
Wahaai	460	85.1	30.6	3
„	440	48.8	26.8	2.9
Ambon	440	48.8	29.7	2.4
„	400	61.5	21.7	2.6

Typhlops flaviventer Ptrs. (textfigs. 16—18).

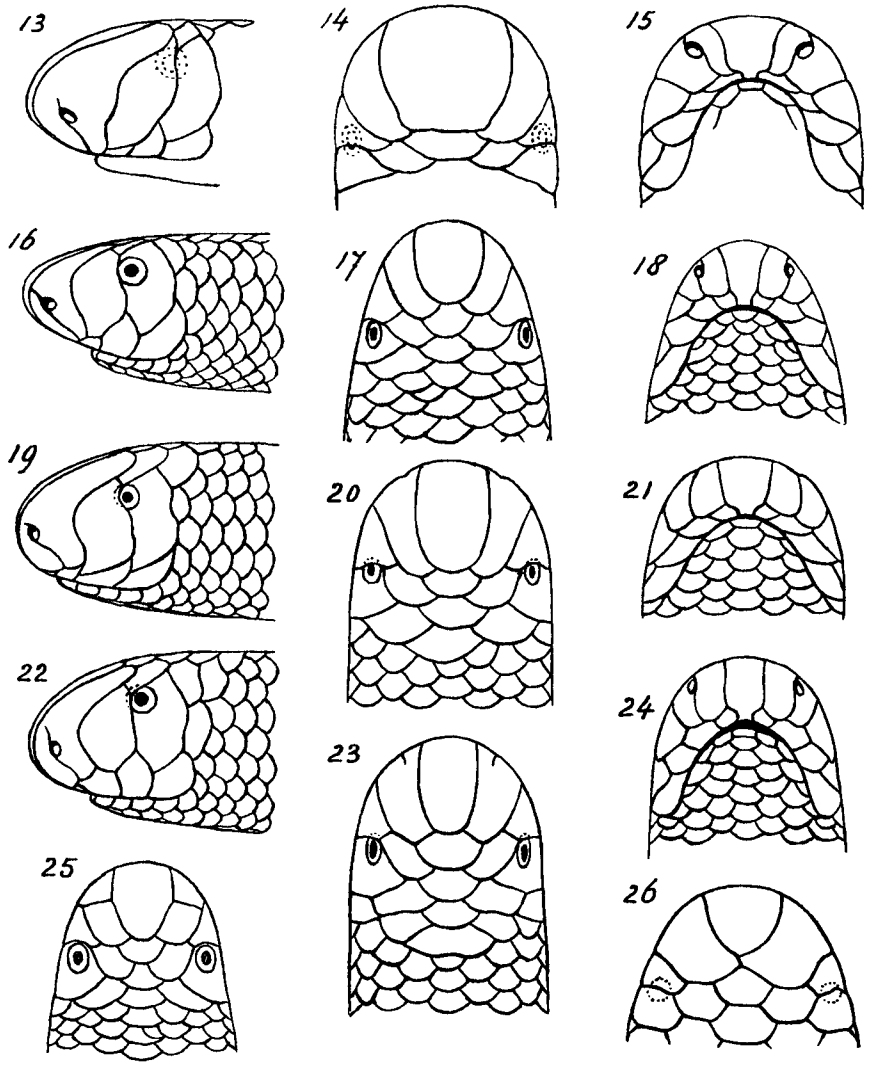
Typhlops flaviventer Peters, Mon. Ber. Ak. Wiss. Berl. 1864, p. 271; De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 11; Werner, Arch. Natg. 87 Jg., 1921, A, Heft 7, p. 275, 281, 298, 334, 335.

1 ex., Ternate, leg. Bernstein, 1866, Mus. Leid. Herp. no. 756.
1 ex., Ternate, leg. Rosenberg, Mus. Leid. Herp. no. 6285.
5 ex., Halmahera, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6286.
2 ex., Batanta, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6287.
1 ex., Sorong, New Guinea, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6288.
1 ex., Andai, New Guinea, leg. Rosenberg, Mus. Leid. Herp. no. 6289.
2 ex., New Guinea or neighbouring islands, don. Utrecht Mission Assoc., Mus. Leid. Herp. no. 6290.
1 ex., Marilakoe, Morotai, leg. Dr. H. J. Lam, 1926, Mus. Amst.
1 ex., Batjan, leg. W. Kükenthal, 1895, Senckenb. Mus.

Snout rounded, strongly projecting. Nostril latero-inferior, about equidistant from rostral and preocular. Nasal completely divided, the cleft proceeding from the second upper labial. Rostral not reaching the level of the eyes, its width contained 2—2.6 times in the width of the head. Preocular present, as broad as the ocular, in contact with the second and third upper labials, its suture with the second labial about horizontal. Ocular in contact with the third and fourth upper labials. Head-scales slightly enlarged. Eyes distinct. Body with 22, rarely 20, scale-rows round the middle, its diameter contained 40.6—58.7 times in the total length. Length of tail contained 27.2—40.7 times in the total length; tail 1.4—2.3 times as long as broad, ending in a spine.

Colour (in alcohol): brown or blackish above (9 or 10 scale-rows), yellowish below. The specimens from the Moluccas are slightly darker than those from New Guinea and neighbouring islands. Snout yellow in the young specimens, with dark spots on rostral and nasals in the adults; these spots strongest in the moluccan specimens.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$	sq.
type (after Peters)	320	57.1	27.8	2.3	?	22
Ternate	385	48.7	40.5	1.5	2.6	22
„	370	48.0	35.9	2.3	2.1	22
Halmahera	371	49.4	34.6	1.7	2.4	22
„	315	47.7	31.5	2	2.5	22
„	252	40.6	28.5	1.9	?	22
„	152	50.6	33.7	1.7	2.2	22
„	137	52.6	27.2	2.0	2.3	22



Figs. 13—15, *Typhlops koekkoeki* nov. spec., type, head, × 4. Figs. 16—18, *Typhlops flaviventer* Ptrs., Ternate, leg. Bernstein, head, × 4. Fig. 19—26, *Typhlops fusconotus* nov. spec., type, head, × 4. Figs. 22—24, *Typhlops similis* nov. spec., type, head, × 4. Fig. 25, *Typhlops supranasalis* nov. spec., type, head, × 4. Fig. 26, *Typhlops ater suturalis* nov. subspec., type, head, × 11 approx.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$	sq.
Batanta	310	54.3	40.7	1.7	2.0	22
„	185	51.4	39.3	1.5	2.1	22
Sorong	294	49.8	31.6	2.0	2.1	22
Andai	292	52.1	34.3	2.2	2.1	22
New Guinea?	305	40.6	37.1	1.4	2.3	22
„	225	43.2	33.0	1.6	2.4	20
Marilakoe	282	58.7	32.4	1.8	2.6	22
Batjan	405	46.1	40.0	1.7	2.5	22

Typhlops supranasalis nov. spec. (textfig. 25).

1 ex., type, Salawatti, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6291.
1 ex., paratype, Salawatti, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6292.

Snout rounded, strongly projecting. Nostril latero-inferior, about equidistant from rostral and preocular. Nasal incompletely or nearly completely divided, the cleft proceeding from the second upper labial. Besides the usual nasal cleft, which divides the nasal in an anterior and a posterior part, there is a transverse suture, which divides the nasal in a lower part (nasal s. s.) and an upper part (supranasal). At the point where this suture reaches the rostral, this shield is more or less angular. Rostral not reaching the level of the eyes, its width contained 2.1—2.4 times in the width of the head. Preocular present, in contact with the second and third upper labials, its suture with the second labial about horizontal. Ocular in contact with the third and fourth upper labials. Head-scales enlarged. Eyes distinct. Body with 22 scales round the middle, its diameter contained 45.2—45.6 times in the total length. Length of tail contained 30.7—31.1 times in the total length; tail 1.9—2.0 times as long as broad, ending in a spine.

Colour (in alcohol): brownish above (9 scale-rows), yellowish below. Snout yellow, with a small median dark spot on the rostral.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$
type	301	45.6	30.7	2.0	2.4
paratype	190	45.2	31.1	1.9	2.1

This species is very closely related to *T. flaviventer* from which it differs in the shape of the rostral and the supranasals.

Typhlops fusconotus nov. spec. (textfigs. 19—21).

1 ex., type, Doré, New Guinea, 1870, Mus. Leid. Herp. no. 6293.
1 ex., paratype, Doré, New Guinea, 1870, Mus. Leid. Herp. no. 6294.
1 ex., paratype, Doré, New Guinea, 1870, Mus. Leid. Herp. no. 6328.

Snout rounded, not strongly projecting. Nostril lateral, nearer to the rostral than to the preocular. Nasal incompletely or nearly completely divided, the cleft proceeding from the second upper labial. Rostral rather narrow, reaching the level of the eyes, its width contained 2.3—2.4 times in the width of the head. Preocular present, broader than the ocular, slightly wedged in between the second and third upper labials. Ocular in contact with the third and fourth upper labials. Head-scales enlarged. Body with 24 or 26 scales round the middle, its diameter contained 26.5—37.3 times in the total length. Tail broader than long, ending in a spine, its width contained 0.4—0.6 times in its length; length of tail contained 83.6—91.4 times in the total length.

Colour (in alcohol): brownish or blackish above (about 15 scale-rows), yellowish below. Snout yellow with a brown spot on the rostral. In the third specimen only the tip of the snout yellow. Scales with more or less dictinct light bases.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$	sq.
type	276	26.5	83.6	0.4	2.4	24
paratype	192	29.0	91.4	0.4	2.3	24
paratype	254	37.3	90.7	0.6	2.3	26

This species is distinguished from *T. flaviventer* Ptrs. by the shorter snout, the broader ocular, the position of the nostril in the nasal, the different shape of the second labial and by the number of scale-rows. From the following species it is distinguished by the position of the nostril in the nasal, the shape of the second labial, and by the number of scale-rows.

Typhlops similis nov. spec. (textfigs. 22—24).

1 ex., type, Doré, New Guinea, Mus. Leid. Herp. no. 6295.
1 ex., paratype, Doré, New Guinea, Mus. Leid. Herp. no. 6296.

Snout rounded, not strongly projecting. Nostril latero-inferior, nearer to the preocular than to the rostral. Nasal incompletely divided, the cleft proceeding from the second upper labial and extending on to the upper surface of the snout. Rostral narrow, reaching the level of the eyes, its width contained 3.1 times in the width of the head. Preocular present,

about as broad as the ocular, in contact with the second and third upper labials. Ocular in contact with the third and fourth upper labials. Head-scales enlarged, in both specimens a large transverse nuchal is present. Body with 20 scales round the middle, its diameter contained 20.6—27.4 times in the total length. Tail as long as broad or slightly broader than long, ending in a spine, its length contained 28.9—35.6 times in the total length.

Colour (in alcohol): brownish above (about 9 scale-rows), yellowish below. Snout yellow, with or without a small median brown spot on the rostral; brown spots on the nasals. A yellow transverse bar across the tail.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$
type	235	27.6	35.6	1	3.1
paratype	165	20.6	28.9	0.8	3.1

This species is distinguished from *T. flaviventer* Ptrs. and the preceding species by the position of the nostril in the nasal; from the first by the shorter snout, the thicker body and the shorter tail; from the second by the shape of the second upper labial and the number of scale-rows.

Typhlops diardii mülleri Schl.

Typhlops mülleri Schlegel, Abb. neuer od. unv. bek. Amph., 1839, p. 39, pl. 32 figs. 25—28; Jan, Icon. Gén., Livr. 4, 1864, pl. VI fig. 2; Werner, Zool. Jahrb. Syst. XIII, 1900, p. 488; De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 12; Brongersma, Zool. Med. Leid. XVI, 1933, p. 14.

Typhlops (Typhlops) mülleri, Jan, Elenco sist., 1863, p. 12; Boettger, Ber. Senckenb. natf. Ges., 1887, p. 42.

Typhlops muelleri, Boulenger, Cat. Sn. Brit. Mus. I, 1893, p. 25; Laidlaw, Proc. Zool. Soc. Lond. 1901, p. 575; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 189; Werner, Arch. Natg. 87 Jg., 1921, A, Heft 7, p. 299; Scortecci, Atti Soc. Ital. Sc. nat. LXVIII, 1929, p. 73.

Typhlops nigro-albus, Duméril & Bibron, Erp. Gén. VI, 1844, p. 295; Lidth de Jeude, Zool. Ergebn. Reise Nied. Ost-Ind. I, 1890, p. 178, 180.

Typhlops nigroalbus, Jan, Icon. Gén., Livr. 4, 1864, pl. VI fig. 3; Boulenger, Cat. Sn. Brit. Mus. I, 1893, p. 24; Laidlaw, Proc. Zool. Soc. Lond., 1901, p. 575; Boulenger, Fauna, Mal. Pen., Rept. Batr., 1912, p. 104, fig. 29; De Rooij, in: Die Insel Nias III, 1915, p. 16; De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 12, figs. 1, 4; Werner, Arch. Natg. 87 Jg., 1921, A, Heft 7, p. 300, fig.; De Rooij, Zool. Med. Leid. VI, 1922, p. 234; Scortecci, Atti Soc. Ital. Sc. nat. LXVIII, 1929, p. 72, fig.

Typhlops (Typhlops) nigroalbus, Jan, Elenco sist., 1863, p. 12.

Typhlops diardi nigroalbus, M. A. Smith, J. Nat. Hist. Soc. Siam VI, 1923, p. 52, 53; M. A. Smith, Bull. Raffl. Mus. no. 3, 1930, p. 39; Smedley, Bull. Raffl. Mus. no. 5, 1931, p. 49.

1 ex., type of *T. mülleri*, Padang, Sumatra, leg. S. Müller, Mus. Leid. Herp. no. 3718.

1 ex., Padang, Sumatra, leg. M. Weber, Mus. Amst.
2 ex., Soerian, Sumatra, Sumatra Exp. 1878, Mus. Leid. Herp. no. 3939.
1 ex., Pakanten, Sumatra, J. Tienen don., Mus. Amst.
1 ex., Sumatra, leg. Wienecke, 1862, Mus. Leid. Herp. no. 6331.
1 ex., Lelewoea, Nias, leg. Kleiweg de Zwaan, Mus. Amst.
2 ex., Sabang, Poeloe Weh, leg. G. Hermans, Mus. Amst.
1 ex., Sabang, Poeloe Weh, leg. Van der Sande, Mus. Leid. Herp. no. 5210.
1 ex., Samarinda, Borneo, don. Dr. Mac Gillavry, Mus. Amst.

After examining the specimens mentioned above, I am convinced that *T. mülleri* and *T. nigroalbus* cannot be separated, as was supposed already by Werner (1900, p. 488). The number of scale-rows varies from 26—28; De Rooij (1917, p. 3) mentions 26 scale-rows for *nigroalbus*, 26—28 for *mülleri*, but two of the specimens referred by her to *nigroalbus* have 28 scales. The width of the rostral is very variable, it is contained 1.6—2.4 times in the width of the head. In one of the specimens examined by me the rostral nearly reaches the level of the eyes, in the others it does not reach so far; this character generally is rather variable, so that I cannot attach much value to it. The width of the body is contained 28.7—45.2 times in the total length, that of the tail 52.8—96 (♀) times. The tail is broader than long, its width is contained 0.4 (♀) —0.8 times in its length.

Typhlops nigroalbus was regarded by Smith (1923*a*, p. 52) as a subspecies of *T. diardii* Schl. This subspecies must be named in future *T. diardii mülleri* Schl.

The figure given by Jan (1864, pl. 6, fig. 3*a*) is incorrect, as the nasal is shown to be in contact with the ocular, which certainly is not the case (cf. fig. 3*c* on the same plate).

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$	sq.
Padang (type)	345	41.5	55.6	0.7	2	26
Padang	351	45.2	66.8	0.7	1.6	26
Soerian	475	35.9	73.0	0.5	2.1	26
„	373	39.2	55.6	0.8	2.0	28
Pakanten	382	31.1	58.7	0.6	1.7	26
Sumatra	429	36	71.5	0.6	1.8	26
Nias, ♀,	336	31.2	96	0.4	2.4	26
Sabang, M. A.,	317	39.6	52.8	0.8	1.8	26
„	292	43.2	53.0	0.8	2	26
Sabang, M. L.,	295	44.6	59	0.8	1.8	28
Samarinda	388	28.7	64.6	0.5	1.8	28

Typhlops torresianus Blgr.

Typhlops torresianus Boulenger, Ann. Mag. Nat. Hist. (6) IV, 1889, p. 362; Boulenger, Cat. Sn. Brit. Mus. I, 1893, p. 34, pl. II fig. 4; Lönnberg & Andersson, Kgl. Svensk. Vetensk. Ak. Handl. LII, no. 7, 1915, p. 7; Waite, Rec. S. Austr. Mus. I, 1918, p. 27, fig. 16, chart 4; Werner, Arch. Natg. 97 Jg., 1921, A, Heft 7, p. 305; Kinghorn, Sn. of Austr., 1929, p. 43, 66, fig.

Typhlops flaviventer, De Jong, Nova Guinea XV, Zool., 1927, p. 297 (part.?).

1 ex., S. New Guinea, leg. Hassan, Mus. Amst.

1 ex., Upper Digoel riv., New Guinea, leg. Dr. E. Kalthofen, Mus. Amst.

In both specimens the nasal cleft extends on to the upper surface of the snout, and then curves forward, as figured by Boulenger, Waite and Kinghorn. The species had not yet been recorded from New Guinea; it was known from Murray Id. in Torres-strait (terra typica), Dunk Id., and Queensland.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$
S. N. Guinea	313	34.0	34.7	1.5
Digoel	200	35.7	20.8	0.9

Typhlops ater Schl.

Mertens (1930, p. 162) mentions *Typhlops ater* among the species of which he doubts the occurrence in Java, as they had been recorded from this island only once, and apparently had not been found there again. Besides the type, which was stated to have been collected in the interior of Java, I have examined two further specimens from this island, one from West Java, the other from the Idjen Highlands, East Java, so that now its occurrence in this island has been definitely proved. Some specimens from the Moluccas and New Guinea all differ from the javanese specimens in the form of the rostral, the nasals forming a suture behind this shield, and the slightly thicker body; they are described as a new subspecies.

Typhlops ater ater Schl.

Typhlops ater Schlegel, Abb. neuer od. unv. bek. Amph., 1839, pl. 32 figs. 29—31; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 33, 190 (part.); De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 13 (part.); Werner, Arch. Natg. 87 Jg., 1921, A, Heft 7, p. 329 (part.); Dammerman, Treubia XI, 1929, p. 12, 13 (part.); Brongersma, in Dammerman, Treubia XI, 1929, p. 66 (part.); Mertens, Abh. Senckenb. natf. Ges. XLII, 1930, p. 162.

1 ex., type, Interior of Java, leg. S. Müller, Mus. Leid. Herp. no. 3714.

1 ex., West Java, don. Bartels, 1890, Mus. Amst.

1 ex., Idjen Highlands, East Java, leg. H. Lucht, VI—VIII. 1921, Mus. Buitenz.

Preocular differing in size, somewhat narrower than the ocular in the

type, very much narrower in the specimen from East Java. Rostral broadly rounded posteriorly, separating the nasals, and not quite reaching the level of the eyes. The nasal cleft proceeds from the second upper labial. Scales in 18 rows.

To this form also belong a specimen from Celebes and one from Cochin-Chine. As Dr. J. Roux kindly informs me in these specimens the nasals are not in contact behind the rostral.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$
type	140	70	33.3	2.2	1.9
W. Java	155.5	69.5	25.9	3	2.5
E. Java	146	63.4	30.4	2.0	2.2

Typhlops ater suturalis nov. subsp. (textfig. 26).

Typhlops ater, Boettger, Abh. Senckenb. natf. Ges. XXV, 1901, p. 349; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 33, 190 (part.), p. 43; De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 13 (part.); Werner, Arch. Natg. 87 Jg., 1921, A, Heft 7, p. 329 (part.).

1 ex., type, Andai, New Guinea, leg. Rosenberg, Mus. Leid. Herp. no. 6297.
1 ex., paratype, Waigeoe, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6277.
2 ex., paratypes, Salawatti, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6298.
3 ex., paratypes, Halmahera, leg. W. Kükenthal, 1895, Senckenb. Mus. no. 7053, 1*a*.

Snout rounded, nostril lateral. Rostral narrowly rounded, or more or less pointed behind, not reaching the level of the eyes. Nasal completely divided, the cleft proceeding from the second upper labial. Preocular present, narrower than the ocular, separated from the upper labials by a subocular. Ocular in contact with the third and fourth upper labials. Eyes distinct. Four upper labials. 18 rows of scales round the middle of the body. Diameter of body contained 45.1—51.1 times in the total length; length of tail contained 28—36 times in the total length. Tail 1.3—1.8 times as long as broad.

Colour (in alcohol): back uniformly black, or with indications of darker and lighter lines, lighter below.

	L	$\frac{L}{W}$	$\frac{L}{l}$	$\frac{l}{w}$	$\frac{h}{r}$
Andai	129	49.6	28.0	1.6	2.3
Waigeoe	127	45.3	29.5	1.6	?
Salawatti	122	45.1	35.8	1.4	2.1
„	109	49.5	35.1	1.3	2.4
Halmahera	122	48.8	35.8	1.6	2.3
„	123	53.4	32.3	1.7	2.4
„	133	51.1	34.1	1.8	2.4

BOIDAE.

Python reticulatus (Schn.).

Python reticulatus, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 20, fig. 8.

Two specimens of this wide-spread species were collected in the Banjak Ids. by Dr. W. L. Abbott, 17. I. 1902 (U. S. N. M. no. 30770—1, Miss D. M. Cochran, in litt.).

XENOPELTIDAE.

Xenopeltis unicolor Reinw.

Xenopeltis unicolor, Mell, Beitr. Fauna Sinica IV, Grundz. Ökol. chin. Rept., 1929, p. 123.

Mell mentioned *Xenopeltis* among the species which feed on both warm- and cold-blooded vertebrates; in a note he wrote that new researches were necessary to prove the correctness of classifying this species in a group of snakes which generally have a higher number of scale-rows. An adult specimen from Deli, Sumatra (Mus. Leid. Herp. no. 6251) had swallowed a small rodent; a rather young specimen from Lahat, Sumatra (Mus. Leid. Herp. no. 5992) had eaten a *Hemidactylus*.

COLUBRIDAE.

Dendrelaphis caudolineatus caudolineatus (Gray).

Dendrelaphis caudolineatus, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 68, fig. 36.
Dendrophis caudolineatus caudolineatus, Meise & Hennig, Zool. Anz. XCIX, 1932, p. 281.

1 ex., Tana Masa, Batoe Ids., leg. Dr. W. L. Abbott, 26. II. 1903, U. S. N. M. no. 31702.
1 ex., S. Pagi, leg. Dr. W. L. Abbott, 27. XI. 1902, U. S. N. M. no. 31697.

Gonyosoma oxycephalum (Boie).

Coluber oxycephalus, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 104, fig. 43.

1 ex., S. Pagi, leg. Dr. W. L. Abbott, 17. XI. 1902. U. S. N. M. no. 31693.

Elaphe subradiata enganensis (Vinc.) (textfig. 27).

Coluber enganensis Vinciguerra, Ann. Mus. Civ. Gen. XXXII (ser. 2, XII), 1892, p. 524; Boulenger, Cat. Sn. Brit. Mus. II, 1894, p. 63; Roux, Zool. Jahrb. Syst. XXX, 1911, p. 502; Roux, Die Sunda Exp., Ver. Geogr. Statist. Frankf., II, 1911, p. 305; De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 105; De Rooij, Zool. Med. Leid. VI, 1922, p. 235.

Elaphe enganensis, Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 20, 196; Dunn, Amer. Mus. Nov. 287, 1927, p. 2 (Contr. Dept. Zool. Smith Coll. Northampton, 144, 1927, p. 2); Dunn, in Burden, Dragon Lizards of Komodo, 1927, p. 217; Werner, Zool. Jahrb. Syst. LVII, 1929, p. 84, 90.

Elaphe subradiata enganensis, Mertens, Abh. Senckenb. natf. Ges. XLII, 1930, p. 301.

Coluber enganus De Beaufort, Zoogeographie v. d. Ind. Arch., 1926, p. 76 (err.).

1 ex., ♀, cotype, Boea-Boea, Engano, leg. Modigliani, Mus. Civ. Stor. Nat. Gen.
1 ex., ♀, Malaconni, Engano, leg. Modigliani, Mus. Civ. Stor. Nat. Gen.
1 ex., juv., Java (?), don. Dr. A. B. F. A. Pondman, 1921, Mus. Amst.

The locality of the young specimen is somewhat doubtful; Dr. Pondman, who presented it, kindly gave me the following information: the snake was bought from a native fisherman of the north coast of Java, who several times offered snakes for sale, no exact locality being mentioned. Dr. Pondman thinks it highly improbable that the snake would have been

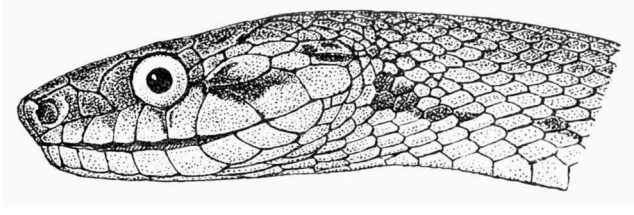


Fig. 27. *Elaphe subradiata enganensis* (Vinc.), cotype, Boea-Boea, Engano, left side of head, × 1.5.

collected in Engano, as the collector certainly would have said so to make a better price. Examination of the other snakes presented by Dr. Pondman to the Amsterdam Museum shows that three others have not yet been recorded from Java either; one of these (*Naja naja leucodira* (Blgr.)) is known from Sumatra only, the two others (*Pseudorhabdium longiceps* (Cant.), *Trimeresurus wagleri* (Boie)) have a wider distribution, including Sumatra, Borneo and Celebes. Except the present species all the other snakes in this collection are known from Sumatra, and it is, therefore, possible that the whole collection (if made in the same locality) came from that island. It may be remarked that both the southern part of Sumatra and the westernmost part of Java are very insufficiently known as far as concerns the occurrence of reptiles.

Elaphe subradiata subradiata and *Elaphe subradiata enganensis* are chiefly separated by the number of upper labials entering the orbit: two in *subradiata*, three in *enganensis*. Several cases, however, have been recorded in literature (Boulenger, 1897, p. 506; Roux, 1911, p. 502; Dunn, 1927, p. 2; Smith, 1927, p. 221; Mertens, 1930, p. 298; Bron-

gersma, 1933, p. 26) in which three labials enter the orbit in *E. s. subradiata*. Of the twenty three specimens of *subradiata* examined by me, seventeen have two upper labials entering the orbit; two have the orbit bordered by two labials on one side, but by three on the other side; three specimens have three labials entering the orbit on both sides of the head, while in one specimen only a single labial enters the orbit. Hence this character is subject to a wide variation in *subradiata*, and it becomes very difficult to separate these two subspecies. Moreover the young specimen mentioned above has 9 upper labials on the left side, the fourth to fifth entering the orbit; on the right side it also has 9 upper labials, but only eight of these border the lip, the shield which represents the fourth labial is separated from the border of the lip, it is wedged in between the third and fifth supralabials, thus resembling the subocular of *subradiata*, except that in the latter the subocular forms a horizontal suture with the underlying labial. Of this young specimen one could say that on the right side only two labials enter the orbit, making the difference between the two subspecies still smaller.

For comparison with this young specimen I examined the two cotypes of *Coluber enganensis* Vinc., which were kindly lent to me by Prof. R. Gestro and Prof. D. Vinciguerra of the Genoa Museum. They may be described as follows: Rostral 1.3 times as broad as high; internasals shorter than the prefrontals; frontal as long as its distance from the tip of the snout, shorter than the parietals, 1.3 times as long as broad; loreal slightly longer than deep. Nine upper labials, of which the fourth to sixth enter the orbit; the specimen from Malaconni has ten upper labials on the left side, fifth to seventh entering the orbit. Two pairs of chinshields, the posteriors longest. Scales in 25 rows on the neck, 23 at midbody, 21 in front of the vent; ventrals $238^1/_2$, 243; anal single; subcaudals 107, 109. The specimen from Boea-Boea has about three series of dark spots on the sides of the body; the other specimen is nearly uniformly brownish. The dark bar behind the eye is indistinct; the upper surface of the head and back is darker than the sides. Belly uniformly light brownish.

In the young specimen the rostral is about 1.2 times as broad as deep; frontal 1.6 times as long as broad; loreal longer than deep; $236^1/_2$ ventrals, a single anal, 101 subcaudals. Scales in 25 rows on neck and at midbody, 21 in front of vent. Sides of body with about three series of dark spots; dark bar behind the eye present; a trace of a dark line across the occiput. The latter character is rather interesting, as a dark line across the occiput is not found in the types of *enganensis*, nor in the *subradiata*-specimens I examined; it is present, however, in *Elaphe*

radiata (Schl.), which seems to be nearly related to *Elaphe subradiata*. A more extensive material of this western form must be examined before definite conclusions as to the status of *enganensis* as a geographical race can be reached. For the present I retain it as such, as it is possible that future studies will show that three labials entering the orbit is the normal case in the western form, while it is abnormal in the eastern form.

Cerberus rynchops (Schn.)

Cerberus rynchops, Smith, Bull. Raffl. Mus. no. 3, 1930, p. 61.

2 ex., ♂♂, Beo, Talaud Ids., in brackish water, leg. Dr. H. Boschma, 14—21. VI. 1930, Mus. Leid. Herp. no. 6262.

In these specimens some of the subcaudals are single.

sq. 23, v. 163, sc. $^{15}/_{15} + 1 + {}^{8}/_{8} + 2 + {}^{40}/_{38} + 1$.

sq. 23, v. 162, sc. $^{4}/_{3} + 4 + {}^{1}/_{1} + 1 + {}^{21}/_{21} + 1 + {}^{2}/_{2} + 1 + {}^{5}/_{5} + 2 + {}^{2}/_{2} + 1 + {}^{11}/_{11} + 1 + {}^{8}/_{8} + 1$.

Boiga dendrophila (Boie).

In his "Catalogue of Snakes in the British Museum" (vol. III, pp. 70—71, 1896) Boulenger described seven colour-varieties of *Dipsadomorphus dendrophilus* (*Boiga dendrophila*). When dealing with the reptile-fauna of the East-Indies, Barbour (1912, p. 125) wrote that "judging by Boulenger's account there seem to be some fairly definite groupings into geographic races". Two of Boulenger's varieties (*multicinctus* and *latifasciatus*) have since been redescribed as valid subspecies by Taylor (1922, pp. 198, 200) in his book on the "Snakes of the Philippine Islands"; at the same time he described a new subspecies (*divergens*) from Luzon, Polillo and Samar. Up to the present time the other five of Boulenger's varieties have not yet been re-studied with respect to their validity as geographical races (subspecies). The object of the present notes is to show that indeed a number of subspecies may be recognised. For this purpose I examined as many specimens as I could get together, about 170 in all, belonging to the following institutions:

British Museum (Natural History), London	30 ex.
Colonial Institute, Amsterdam	2 ex.
Museen für Tierkunde und Völkerkunde, Dresden . .	5 ex.
Naturhistorisches Museum, Basel	12 ex.
Raffles Museum, Singapore	11 ex.
Rijksmuseum van Natuurlijke Historie, Leiden . . .	47 ex.
Sarawak Museum, Kuching	20 ex.

Senckenberg Museum, Frankfurt a.M. . . . . 6 ex.
United States National Museum, Washington, D. C. . 5 ex.
Zoological Museum, Amsterdam . . . . . 36 ex.

After studying these specimens I arrive at the conclusion that the following subspecies may be recognised:

Boiga dendrophila dendrophila (Boie)	Java
Boiga dendrophila melanota (Blgr.)	Eastern Sumatra, Malay Peninsula and neighbouring islands
Boiga dendrophila occidentalis nov. subsp.	Western Sumatra, Nias, Batoe Ids., P. Babi
Boiga dendrophila annectens (Blgr.)	Borneo
Boiga dendrophila multicincta (Blgr.)	Palawan, Balabac
Boiga dendrophila divergens Taylor	Luzon, Polillo, Samar?
Boiga dendrophila latifasciata (Blgr.)	Mindanao, Samar?
Boiga dendrophila gemmicincta (D. & B.)	Celebes

Thus six out of the seven colour-varieties recognised by Boulenger represent distinct subspecies. In my opinion the two Bornean varieties (*annectens* and *regularis*) cannot be maintained as separate races; for the single Bornean subspecies I retain the name *annectens*. On the other hand the specimens from Sumatra and surrounding islands must be referred to two distinct subspecies, one of which (*melanota*) inhabits the eastern part of Sumatra and neighbouring islands, while the other (*occidentalis*) is found in the western part of the island, and on the island-chain off its West-coast. The boundary between the areas of these two races is probably formed by the Barisan Mts., which traverse Sumatra over its whole length.

The subspecies are separated chiefly by differences in coloration. In his description of the Philippine subspecies, Taylor uses the number of yellow bars on the sides of body and tail. Therefore I have recorded the range of variation of these numbers in the subspecies resembling *B. d. multicincta* to enable a comparison, but as in a number of specimens the tail is mutilated I find it much more useful to use the number of bars on the body only. These numbers may be different on the left and right side of one and the same specimen. In the tables of scale-counts and other data following each description I give the number of bars on both sides of the body.

It is remarkable that some subspecies seem to be more closely allied to each other than to the others; while most races may be identified more or less easily with the key I prepared for their determination,

those of the group *occidentalis-annectens-multicincta* which resemble each other very much, are more difficult to separate. The subsp. *annectens* differs from *occidentalis* and *multicinctus* in the lower average number of bars; the subsp. *occidentalis* is to be recognised by the large spot on the parietal, which rarely is absent, and by the frequent fusing of subcaudals. Of some of the races, especially of those of the Philippines only a few specimens were examined, and future studies will be necessary to get a better idea of their relationship to other subspecies.

Somatic variations also occur, but they are not of very great diagnostic value, as some of them are found in specimens of different races, while others, which are found in one race only, are not common to all the specimens of that race. Still some variations occur more frequently in one race than in another and thus become more or less characteristic for a certain race. The more important somatic variations may be shortly described before entering on the descriptions of the different subspecies.

I. Upper labials: generally there are eight upper labials of which the third to fifth enter the orbit: 8 (3. 4. 5.). Several other formulae were found however: 8 (4. 5.), 7 (3. 4. 5.), 7 (2. 3. 4.), 7 (2. 3.), 7 (3. 4.), 9 (4. 5. 6.). In thirty-seven specimens of the subsp. *annectens* the frequency of the variations is the following:

Number of supralabials		Number of specimens
right	left	
8 (3. 4. 5.)	8 (3. 4. 5.)	33
8 (3. 4. 5.)	9 (4. 5. 6.)	2
7 (2. 3.)	8 (3. 4. 5.)	1
7 (3. 4. 5.)	8 (3. 4. 5.)	1

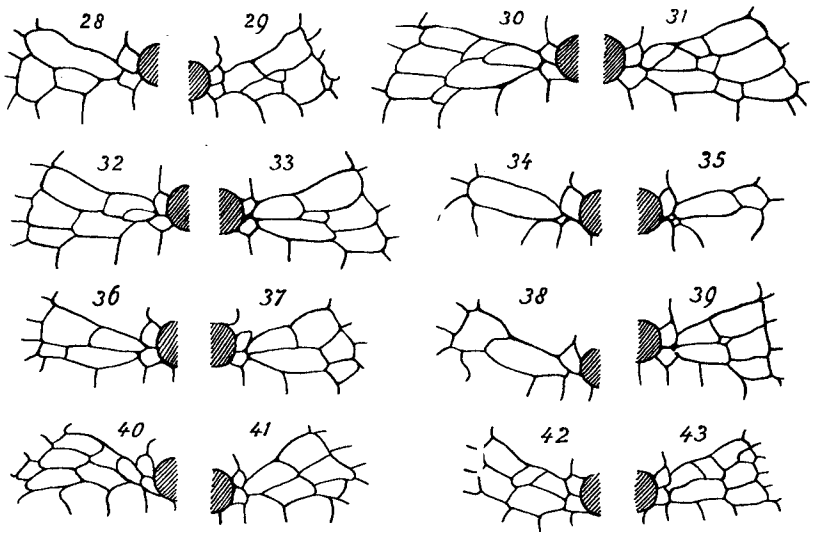
In the subsp. *dendrophila* 9 (4. 5. 6.) was found in four specimens, in one specimen on both sides of the head, in the three others on one side only. Two specimens of the subsp. *occidentalis* have 7 (3. 4. 5.) on one side of the head. In the subsp. *melanota* 8 (4. 5.), 7 (2. 3. 4.), 7 (3. 4. 5.), 7 (3. 4.), were each found once only; 9 (4. 5. 6.) occurred in five specimens, but only once on both sides of the head.

II. Lower labials: the number of infralabials varies from ten to twelve, of which the three to seven anteriors are in contact with the anterior chin-shields. The following variations were found: 10(3), 10(4), 10(5), 11(4), 11(5), 11(7), 12(4), 12(5), 12(6), 13(5). The more usual number in the subsp. *dendrophila*, *annectens*, and *melanota* is 11(5); in the subsp. *occidentalis* and *gemmicincta* 11(4) is more common.

The subsp. *annectens*, of which thirty-two specimens were examined in this respect, shows the following frequency of the variations:

Number of infralabials	Number of specimens showing variation on	
	right	left
10(4)	4	3
11(4)	6	9
11(5)	17	16
11(7)	1	1
12(4)	1	1
12(5)	3	2

III. Loreal: generally one single loreal varying in shape and in size. In some specimens of the subsp. *latifasciata* it is absent; rarely it enters the orbit below the preocular (subsp. *dendrophila* and *latifasciata*[1]);



Figs. 28—43, temporal shields of *Boiga dendrophila* (Boie), all figures natural size. *B. d. dendrophila* (Boie): figs. 28, 29, type, right and left; figs. 30, 31 and 32, 33, Pekalongan, Java, right and left. *B. d. occidentalis* nov. subspec.: figs. 34, 35, type, right and left; figs. 36, 37, paratype, Batang Singalang, right and left; fig. 38, paratype, Poeloe Babi, right. *B. d. annectens* (Blgr.): fig. 39, N. Borneo, left. *B. d. gemmicincta* (B. D. B.): figs. 40, 41 and 42, 43, N. Celebes, right and left.

according to Taylor also *multicincta*). In three specimens of the subsp. *gemmicincta* the lateral part of the prefrontal which is situated between the nasal and the preocular, becomes detached and forms an additional upper loreal; one of these specimens has the two superposed loreals fused into one single large shield on one side of the head.

1) One specimen, mentioned in Boulenger's description of the species and erroneously referred to as specimen E. a. of his catalogue.

IV. Preocular: a single preocular is found in the greater part of the specimens; in a few specimens of the subsp. *melanota* and *dendrophila* two preoculars are present, the lower of which may be granular. Occasionally the orbit is bordered anteriorly by the loreal as well (vide supra).

V. Postoculars: generally two postoculars. Seven specimens of the subsp. *occidentalis* have only one postocular on one or both sides of the head (fig. 34); in another specimen of this race the left orbit is bordered posteriorly by two postoculars and the parietal (fig. 37). A single postocular is also found in two specimens of the subsp. *latifasciata*.

VI. Temporals: these shields are very variable in shape, in size and in number; they vary from one single shield to 1 + 1, 2 + 2, 2 + 3, 3 + 3 shields. The lower anterior temporal may be in contact with the postoculars or separated from them. Often two or three shields have fused, or additional shields have been formed. Therefore, in most cases it is impossible to write down their number and position in the usual formula; moreover the sides of the head often show differences in the number of temporals. Some of the variations are shown in figs. 28—43.

VII. Scale-rows: nearly all specimens have 21 scale-rows, a few of the subsp. *melanota* have 23.

VIII. Ventrals: the counts of the ventral shields of the different races overlap, but some differences in the average numbers are found, e. g., the average number of ventrals of the subsp. *melanota* is about nine lower than that of the subsp. *occidentalis*. The average number of ventrals is generally slightly higher in females than in males.

IX. Subcaudals: in the greater number of the specimens all subcaudals but the terminal are paired. In some specimens of the subsp. *occidentalis*, as well as in one specimen of the subsp. *gemmicincta* one or more anterior ventrals are single.

Synonymy: I have not tried to give complete lists of synonyms, as in most cases it is impossible to know what subspecies is meant, except when judging by the locality records and these are not always to be trusted. For instance Bleeker recorded *Triglyphodon gemmicinctum* not only from Celebes (1857 *b*, p. 232; 1857 *c*, p. 242), but also from Java (1857 *c*, p. 238), Sumatra (1857 *a*, p. 472; 1858, p. 262), and Borneo (1857 *a*, p. 473, 475). Those specimens of his collection that are now in the Museums at Amsterdam and Leiden are labelled: Arch. Ind., so that it is impossible to recognize the specimens referred to in his papers.

Key for the identification of the subspecies.

A. Throatshields and -scales uniformly yellow.

1. Belly black with a series of yellow spots (the basal parts of the bars) along each side, and a mid-ventral series of more or less

transverse yellow spots extending on to the posterior part of the belly; 37—53 rather broad yellow bars extending across the back (Java). . . . . *B.d. dendrophila*, p. 205.

2. Belly with lateral spots, but without the midventral spots; the bars never quite extending across the back, often reduced to triangular or roundish yellow spots (E. Sumatra, Malay Peninsula and neighbouring islands) . . . . . *B.d. melanota*, p. 207.

B. Throatshields and -scales with black tips or edges.

1. Yellow bars narrow.

§ Interspaces between the bars uniformly black.

† Belly with one or two longitudinal midventral series of squarish yellowish spots; 76—103 yellow bars on the body, often broken up into transverse series of small round spots (Celebes) . . . *B.d. gemmicincta*, p. 219.

†† Belly not with longitudinal midventral series of spots.

a. Upper labials with very broad black borders; usually a large yellow oval or semilunar spot on parietal; 56—77 bars on body (74—98 on body and tail together) (W. Sumatra and neighbouring islands) . . . . . *B.d. occidentalis*, p. 211.

b. Black edges of upper labials usually not so large; no large yellow spot on parietal; 42—69 bars on body (63—90 on body and tail together) (Borneo) . *B.d. annectens*, p. 213.

c. Black edges of upper labials as in b.; no large spot on parietal; 58—80 bars on body (85—111 on body and tail together) (Palawan, Balabac) . . *B.d. multicincta*, p. 216.

§§ Bars bordered with black, interspaces with a bluish-grey wash (Luzon, Polillo, Samar). . . . . *B.d. divergens* p. 217.

2. Bars broad, yellowish (white in spirit) with a black reticulation reaching downward to the middle of the belly, alternating or fusing across the belly; ventrals wholly or partly yellowish with black posterior edges (Mindanao, Samar?). . *B.d. latifasciata*, p. 218.

Boiga dendrophila dendrophila (Boie).

(Pl. I fig. 1; textfigs. 28—33).

Boiga dendrophila F. Boie, Isis XX, 1827, p. 549; Wagler, Descr. Icon. Amph., 1828, pl. VIII; Schinz, Natg. Rept., 1838, p. 141, pl. 56; Schlegel, Abb. neuer od. unv. bek. Amph., 1844, p. 133 (part.), pl. 45 figs. 1—9.

Boiga dendrophila var. *javana* Schlegel, Abb. neuer od. unv. bek. Amph., 1844, p. XII.

Triglyphodon dendrophilum var. A, Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, p. 1089.

Dipsadomorphus dendrophilus dendrophilus, Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 70.

Dipsadomorphus dendrophilus, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 197 (part.).

22 specimens examined:

1. 1 ex., ♀, (one of the types), Java, leg. Reinwardt, Mus. Leid. Herp. no. 932.
2. 1 ex., ♂, Krawang, leg. L. du Puy, 20. I. 1920, don. Jhr. W. C. van Heurn, Mus. Leid. Herp. no. 5345.

3— 4. 2. ex., ♂♂, Slopes of Mt. Gedeh, leg. Dr. P. Buitendijk, Mus. Leid. Herp. no. 6264.

5— 7. 3 ex., 2 ♂♂, 1 ♀, Pekalongan, leg. H. A. Wolf, Mus. Amst.

8— 9. 2 ex., ♂♂, Soerabaja, leg. Neeb, Mus. Leid. Herp. no. 6224.

10. 1 ex., ♂, Tengger Mts., don. Dr. H. Langen 1891, Mus. Basel no. 1808.

11—12. 2 ex., ♂, ♀, Java, leg. Boie and Macklot, Mus. Leid. Herp. no. 937.

13. 1 ex., ♂, Java, leg. Engelhard, Mus. Amst.

14. 1 ex., ♀, Java, don. Prof. Studer, 1877, Mus. Basel no. 1806.

15. 1 ex., ♂, Java, don. Dr. O. Gelpke, 1866, Mus. Basel no. 1807.

16. 1 ex., ?, Java, Mus. Dresden no. 547.

17. 1 ex., ♂, Java, Zoological Society Coll., B. M. N. H.

18—20. 3 ex., 2 ♂♂, 1 ♀, Van Lidth de Jeude Coll., purchased of Mr. Damon, B. M. N. H.

21—22. 2 ex., ♂♂, from Bleeker's Coll., Mus. Amst.

Terra typica: Java. Distribution: Java.

Description: Colour (in alcohol): head black above, uniform or with some small yellow spots; most specimens have a yellow spot on the preocular, others have yellow spots on the upper surface of the head as well. Upper labials yellow with narrow black bars on the sutures. Throat uniformly yellow. Body black above with 37 to 53 (average 42.7) vertical yellow bars, some of which are placed alternatingly; the greater part, however, extend across the back and fuse with those of the other side. At midbody the bars are $2^1/_2$ to 3 ventrals wide at their base, they are separated by 3 or 4 ventrals. In two specimens from the Bleeker Collection (no. 21, 22) the basal parts of the yellow bars are extended along the side of the belly, fusing with each other and forming a yellow lateral band that connects three or five bars. Anteriorly the bars reach downward to the middle of the belly, alternating with those of the other side, and forming together with the black interspaces a checkered design; these squarish yellow spots fuse at their corners or are separated by narrow black lines. At midbody the bars only just reach the ventrals, forming a lateral series of yellow spots on the sides of the belly. More or less transverse yellow spots are present on the middle of the belly; they are rarely confluent with the bars, and they may be indistinct on the hindermost part of the belly. Tail black with 13 to 20 (average 15.1) yellow spots or crossbands; these spots reach downward on to the

lower surface of the tail, where they may alternate, fusing at their corners and forming a more or less undulating yellow band.

Ventrals: 212—227, average 218; subcaudals 95—105, average 100.6. Upper labials 8 (3.4.5.), rarely 9 (4.5.6.); lower labials generally 11(5), then follows 11(4), the other variations: 12(4), 12(5), 10(4) and 10(5) being rare. One preocular, rarely two preoculars or the loreal entering the orbit. Scales in 21 rows. Some variations of the temporal shields are shown in figs. 28—33.

no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals	no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals
1.	♀	39	38	216	103	12.	♀	38	38	221	104
2.	♂	44	42	219	100	13.	♂	44	45	214	96 +
3.	♂	45	43	212	97	14.	♀	43	40	224	102
4.	♂	39	45	216	95	15.	♂	40	43	215	54 +
5.	♂	49	53	216	105	16.	?	38	41	212	98
6.	♂	43	40	214	84 +	17.	♂	43	45	216	92 +
7.	♀	49	51	218	94 +	18.	♂	42	42	218	94
8.	♂	41	43	218	96 +	19.	♀	47	46	225	94
9.	♂	39	40	218	101	20.	♂	42	43	220	75 +
10.	♂	43	46	221	111	21.	♂	39	37	220	99
11.	♂	41	41	217	103	22.	♂	46	45	227	104

Boiga dendrophila melanota (Blgr.).
(Pl. I figs. 4, 9; Pl. II figs. 8, 9).

Triglyphodon melanotus Bleeker (in museo).

Triglyphodon dendrophilum var. C, Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, p. 1090.

Dipsas dendrophila, Cantor, J. As. Soc. Beng. XVI, 1847, p. 923 (= Cat. Rept. Mal. Pen., 1847, p. 76); Blanford, Proc. Zool. Soc. Lond. 1881, p. 215.

Dipsadomorphus dendrophilus var. *melanotus* Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 71.

Dipsadomorphus dendrophilus, Flower, Proc. Zool. Soc. Lond. 1896, p. 889; Flower, Proc. Zool. Soc. Lond. 1899, p. 601, 606 (part.); De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 197 (part.); Brongersma & Wehlburg, Misc. Zool. Sum. LXXIX, 1933, p. 4.

Boiga dendrophila, M. A. Smith, Bull. Raffl. Mus. no. 3, 1930, p. 65.

40 specimens examined:

23. 1 ex., ♀, cotype of *melanotus* Blgr., East Coast of Sumatra [1]), leg. Mrs. Findlay, B. M. N. H. no. 93. 6. 5. 5.

24. 1 ex., semiad. (♂ ?), cotype of *melanotus* Blgr., from Bleeker's Collection, B. M. N. H.

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1) In the "Catalogue" Boulenger mentions W. Sumatra as the locality for this specimen; this is a misprint, both in the register and on the label is written E. Coast of Sumatra.

25—26. 2 ex., ♂, ♀, Deli, don. Deli-Batavia Cy., Colonial Inst. Amst.
27. 1 ex., ♂, Deli, leg. De Bussy, Mus. Amst.
28—29. 2 ex., ♂, ♀, Deli, leg. De Bussy, 1908—1909, Mus. Amst.
30—31. 2 ex., ♂, ♀, Deli, don. Dr. Benecke, 1891, Senckenb. Mus. no. 9071 a, 9071 b.
32. 1 ex., ♂, Deli, leg. Neeb, 1876, Mus. Leid. Herp. no. 6223.
33. 1 ex., ♀, Deli, don. J. A. de Bruine, 18. V. 1912, Mus. Amst.
34. 1 ex., ♂, Kisaran, leg. Jhr. F. C. van Heurn, Mus. Amst.
35. 1 ex., ♀, Tebing Tinggi, leg. Jhr. F. C. van Heurn, Mus. Amst.
36. 1 ex., ♀, Serdang, don. F. K. Baron van Dedem, Mus. Amst.
37. 1 ex., ♀, East Coast of Sumatra, don. Salm, Mus. Amst.
38. 1 ex., ♂, Lahat, don. J. H. F. Ligtenberg, III. 1886, Mus. Leid. Herp. no. 6230.
39—40. 2 ex., juv., Palembang, leg. P. van Kan, Mus. Amst.
41—42. 2 ex., ♂, ♀, Palembang, 1887, Mus. Amst.
43. 1 ex., ♂, Palembang, don. Dr. A. Buxtorff, 1904, Mus. Basel no. 5138.
44. 1 ex., ♀, Tandjong near Moeara Enim, don. H. Nieuwenhuijs, 1925, Mus. Amst.
45. 1 ex., ♂, Krelii, Batang Hary, Djambi, don. P. E. Moolenburgh, Mus. Amst.
46—48. 3 ex., ♂, ♀, juv., Indragiri, don. A. von Meckel, 1899—1900, Mus. Basel no. 1809, 1810, 1811.
49. 1 ex., ♂, Ringgat, leg. Kleiweg de Zwaan, Mus. Amst.
50. 1 ex., ♀, Silago, Sumatra-Exp. 1878, Mus. Leid. Herp. no. 3990.
51. 1 ex., ♀, Lankat, leg. Prakken, Mus. Leid. Herp. no. 6226.
52. 1 ex., ♂, Sumatra, leg. Rogers, B. M. N. H. no. 1928. 8. 10. 1.
53. 1 ex., juv., Benkalis, Siak, leg. Dr. Losgert, 1863, Mus. Leid. Herp. no. 927.
54. 1 ex., Banka, leg. Van den Bossche, Mus. Leid. Herp. no. 926.
55—56. 2 ex., ♂, juv., Banka, don. Natuurkundige Vereeniging, XII. 1866, Mus. Leid. Herp. no. 6218.
57—58. 2 ex., ♂, juv., Banka, leg. Buddingh, 1869, Mus. Leid. Herp. no. 6219.
59. 1 ex., ♀, Loc.?, from Bleeker's Collection, Mus. Leid. Herp. no. 6227.
60—61. 2 ex., ♂♂, Loc.?, Mus. Leid. Herp. no. 6225, 6266.
61a. 1 ex., ♂, Loc.?, Zoological Gardens Amsterdam, Mus. Amst.

As far as I am aware the name *Triglyphodon melanotus* was used by Bleeker on museum-labels only, and was never published by him. Boulenger was the first to publish the name *melanotus* together with a short diagnosis of this subspecies, and thus must be considered to be its author; the specimens enumerated in the "Catalogue" then are the cotypes of the subspecies.

Terra typica restr.: East Coast of Sumatra. Distribution: Eastern Sumatra, Malay Peninsula and neighbouring islands, Peninsular Siam.

Description: Colour (in alcohol): head uniformly black above; upper labials yellow with very narrow black bars on the sutures; some lower labials with narrow black edges, but all the throatshields and the anterior ventrals uniformly yellow. Body black with a series of yellow

vertical bars on each side; these bars do not extend across the back except one or two on the hindermost part of the body. Anteriorly they are about as high as broad and triangular in shape; at midbody they are somewhat narrower, each bar being about two ventrals wide at the base, higher than broad or they are reduced to roundish spots. The subspecies distinctly tends to melanism, which commences with the reduction of the bars to spots; these spots sometimes become so small as to cover one single scale only, not reaching the ventrals. In a specimen from Silago (no. 50) the spots have completely disappeared on the anterior part of the body; on the hindermost part of the body this specimen has three spots on the right side and only one on the left. In the other specimens the number of bars or spots varies from 21 to 41 (average 26.1) on each side, the more usual numbers being 23 to 29. The highest number is found in a male from Sumatra (no. 52). The Banka-specimens differ somewhat from those of Sumatra as the bars are not reduced to the same extent; they sometimes reach the tenth scale-row. The bars are separated by 5 to 11 ventrals (generally 6—7, 5 in a specimen from Banka). The anterior 10 to 23 ventrals are uniformly yellow, then over a short distance the bars reach downward to the middle of the belly, and as they alternate, a checkered pattern of yellow and black spots is formed. At midbody and posteriorly the belly is black with a series of yellow spots (the basal parts of the bars) along each side. Tail black with 7 to 13 (average 10.3) yellow spots or crossbands above; below black with a series of yellow spots on each side.

Ventrals 202—231, average 220.1; subcaudals 93—109, average 100.7.

In eighteen males the number of ventrals varied from 208—224, average 217.2; fourteen females had 219 to 231 ventrals, average 225.1. The number of subcaudals varied from 95—109, average 100.5 in thirteen males; thirteen females had 96—108 subcaudals, average 102.

Thirty-five specimens have 21 scale-rows, five have 23 rows. Upper labials 8 (3. 4. 5.), rarely 8 (4. 5.), 7 (2. 3. 4.), 7 (3. 4. 5.), 7 (3. 4.) or 9 (4. 5. 6.); lower labials generally 11(5), then follow 11(4) and 12(5) in about equal numbers, rarely 10(4). Generally one preocular, a few specimens have two preoculars, the lower one of which may be granular.

The following two specimens also belong to this race:

62. 1 ex., ♂, Java, don. Horndorffer, 1878, Mus. Amst.
63. 1 ex., ♀, Djombang near Soerabaja, don. A. Nieuwenhuijs, 1925, Mus. Amst.

These locality records are positively wrong. Probably the first specimen was collected in eastern Sumatra, but was sent to Europe from Java; this was often done in the old times, and on arrival it was presumed

that the specimens had been collected in Java. Many of the older records of species which have been mentioned from Java only once may be explained in this way. The second specimen was received by the Zoological Museum, Amsterdam, together with snakes from various other localities, including some from eastern Sumatra (cf. specimen no. 44); probably some of the labels have been mixed up.

To the subsp. *melanota* I refer provisionally the following specimens from Peninsular Siam, the Malay Peninsula, Penang, Singapore, Pulu Ubin, and Battam Island. Future studies perhaps will show that they belong to a distinct subspecies.

64. 1 ex., ♂, cotype of *melanotus*, Alor Star, Kedah, leg. S. S. Flower, 28. V. 1898, B. M. N. H. no. 98. 9. 22. 54.

65. 1 ex., ♂, cotype of *melanotus*, Penang, leg. Dr. Cantor, B. M. N. H. no. 60. 3. 19. 1235.

66. 1 ex., ♂, cotype of *melanotus*, Singapore, don. Dr. Dennys, B. M. N. H. no. 80. 9. 10. 10.

67. 1 ex., ♀, cotype of *melanotus*, Singapore?, don General Hardwicke, B. M. N. H.

68. 1 ex., ♂, Nakon Si Tamarat, Siam, leg. Dr. M. A. Smith, B. M. N. H. no. 1916. 3. 27. 35.

69. 1 ex., ♀, Perak, Perak River Exp., leg. Surgeon Major W. Collis, don. Army Medical College, B. M. N. H. no. 1908. 12. 28. 74.

70. 1 ex., head only, Pahang River, leg. F. N. Chasen, 5. XI. 1921, Raffles Mus. (length of specimen 2325 mm).

71. 1 ex., ♂, K. Sepibong, S. Coast Johore, leg. T. Savage, IX. 1904, Raffles Mus.

72. 1 ex., ♂, Changi, Singapore, leg. Dr. H. Stevens, IX. 1927, Raffles Mus.

73. 1 ex., ♀, Changi, Singapore, leg. Dr. H. Stevens, II. 1928, Raffles Mus.

74. 1 ex., ♀, Singapore, 2. VI. 1919, Raffles Mus.

75. 1 ex., ♀, Pulu Ubin near Singapore, 13. III. 1921, Raffles Mus.

76. 1 ex., ♀, Battam Island, Rhio-Arch., leg. C. Boden Kloss, 20. IX. 1905, (from mangrove), Raffles Mus.

These specimens differ slightly from those from East-Sumatra in the higher number of bars on body and tail. The bars are rather narrow but they do not extend across the back: their number varies from 26 to 42, average 34.5 or 8.4 more than in the Sumatra-specimens. Tail with 10 to 17 spots or crossbands, average 13.3 (3 more). 208 to 230 ventrals, average 219.4 (0.7 less); 93 to 100 subcaudals, average 95.8 (4.9 less). In other characters, viz., the uniform black upper surface of the head, the narrow black edges of the upper labials, uniform yellow throat, they agree completely with the specimens from Sumatra.

These specimens as well as those from Banka seem to be the connecting link between the typical *melanota*-specimens from eastern Sumatra and the other races.

A single specimen:

no. 77., ♂, Pegoh estate, Malacca, 13. II. 1914, Raffles Mus.

is quite different; it probably belongs to the Bornean subspecies. As no other specimens from Malacca are at hand, I am not able to form an opinion on the status of this specimen. In my opinion it is highly improbable that the Bornean or a similar race should inhabit Malacca, while the rest of the Malay Peninsula is inhabited by the subsp. *melanota*.

no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals	scales
23	♀	24	25	222½	104	
24	semi-ad. ♂?	24	25	210	95	23
25	♀	24	24	228	102	
26	♂	23	24	216	102	
27	♂	23	23	211	95	
28	♂	25	25	216	103	
29	♀	27	26	225	108	
30	♂	27	28	222	101	
31	♀	28	28	229½	100	
32	♂	28	28	222	105	
33	♀	28	28	231	100	
34	♂	26	24	219	100	
35	♀	26	24	228	102	
36	♀	28	26	224	35 +	
37	♀	29	26	226	108	
38	♂	29	29	210½	97	
39	juv.	24	25	222	99	
40	juv.	23	24	221	102	
41	♂	23	23	218	99	
42	♀	25	25	224	102	23
43	♂	26	27	222	100	23
44	♂	26	25	224	103	
45	♂	28	28	222½	99 +	
46	♂	27	25	224	58 +	
47	♀	28	26	219	99	
48	juv.	27	27	220	105	
49	♂	29	28	215	51 +	
50	♀	1	3	228	103	
51	♀	30	30	220	99	
52	♂	37	41	220	49 +	
53	♂ juv.	26	25	215	101	23
54	juv.	29	27	213	98	
55	♂	23	24	208	99	
56	juv.	36	38	216	93	
57	♂	29	26	218	101	
58	juv.	25	26	219	98 +	
59	♀	21	21	222	96	
60	♂	34	31	208	96	
61	♂	28	28	224	109	
61a	♂	28	27	219	105	
62	♂	29	31	219	100	
63	♀	24	22	214	101	
64	♂	39	39	220	100	
65	♂	28	28	215	97	
66	♀	30	30	223	89 +	
67	♀	37	35	217	95	23
68	♂	34	38	207½	93	
69	♀	31	31	230	88 +	
70	—	—	—	——	—	head only
71	♂	37	38	213	94	
72	♂	42	38	220	98	
73	♀	42	41	225	95	
74	♀	26	26	219½	95	
75	♀	36	35	221	76 +	
76	♀	34	33	221	84 +	
77	♂	61	58	227	106	

Boiga dendrophila occidentalis nov. subsp.

(Pl. I figs. 2, 14; Pl. II figs. 5, 7; textfigs. 34—38).

Dipsadomorphus dendrophilus var. *multicincta* (part.) Boettger, Katalog Rept.-Samml. Mus. Senckenb. Ges. (Schlangen), 1898, p. 93 (non Boulenger).

Dipsadomorphus dendrophilus (part.), De Rooij, Rept. Ind.-Austr. Arch. II, 1917, p. 197.

15 specimens examined:

78. 1 ex., ♀, type, Nias, leg. Kleiweg de Zwaan, Mus. Amst.

79. 1 ex., ♂, paratype, Nias, leg. Kleiweg de Zwaan, Mus. Amst.

80. 1 ex., ♂, paratype, Lofau, Nias, 29. III. 1903, U. S. N. M. no. 31667.

81. 1 ex., ♀, paratype, Lofau, Nias, 30. III. 1903, U. S. N. M. no. 31668.

82. 1 ex., ♂, paratype, Nias, U. S. N. M. no. 35793.

83. 1 ex., ♀, paratype, Nias, U. S. N. M. no. 35794.

84. 1 ex., ♂, paratype, Nias, 27. III. 1905, U. S. N. M. no. 36272.

85. 1 ex., ♂, paratype, Poeloe Tello, Batoe Ids., leg. Horner, IX. 1837, Mus. Leid. Herp. no. 936.

86. 1 ex., juv., paratype, Poeloe Tello, Batoe Ids., leg. Horner, Mus. Leid. Herp. no. 929.

87. 1 ex., ♀, paratype, Poeloe Babi (2° 7'N, 96° 40'E), leg. E. Jacobson, VIII. 1913, Mus. Leid. Herp. no. 5504.

88. 1 ex., ♀, paratype, Padang, Sumatra, leg. S. Müller, Mus. Leid. Herp. no. 934.

89. 1 ex., ♂, paratype, Batang Singalang, Sumatra, leg. S. Müller, Mus. Leid. Herp. no. 935.

90. 1 ex., ♂, paratype, Moeara Kiawai, Ophir Districts, Sumatra, leg. E. Jacobson, VI. 1915, Mus. Leid. Herp. no. 6269.

91. 1 ex., ♀, paratype, Airbangis, Padang Lowlands, Sumatra, leg. E. Jacobson, Mus. Amst.

92. 1 ex., ♂, Deli (?), Sumatra, don. Dr. C. Flack, Senckenb. Mus. no. 9071,3b.

Terra typica: Nias. Distribution: Nias, Batoe Ids., P. Babi, W. Sumatra.

Description: Colour (in alcohol): head black above, with some yellow spots on preocular, supraocular, and parietal; generally each parietal bears two spots, a small one latero-anteriorly, and a large posterior one. Some of these spots may be absent. Upper- and lower labials with broad black bars on the sutures. Throatshields and -scales with black edges. Body black with 56 to 77 (average 69.2) narrow vertical yellow bars, alternating or fusing across the back with those of the other side. The anterior bars are two ventrals wide at the base, those at midbody are only one ventral wide, and separated from each other by two ventrals. Belly black; with a series of yellow spots (the basal parts of the bars) along each side. Tail black with 18 to 22 (average 19.6) crossbands; lower surface of tail black with a lateral series of yellow spots. The total number of bars on body and tail varies from 74 to 98 in the specimens with a complete tail. The average as calculated from these specimens is 86.4; in reality the average certainly is somewhat higher as five out of eight specimens with an incomplete tail show an average number of 88.1 bars, i. e., 1.7 more than the average calculated from the specimens with a complete tail.

Ventrals 215—238, average 229.0; subcaudals 94—106, average 102.1.

A remarkable feature of this subspecies is that in six out of fifteen specimens ($40^0/_0$) some subcaudals are single instead of paired; this varia-

tion was found only once in another subspecies (*gemmicincta*), in one out of twenty-three specimens (4.3%).

In seven males the number of ventrals varies from 226—232, average 228.8; six females have 215—238 ventrals, average 228.6. Upper labials 8 (3. 4. 5.); two specimens have 7 (3. 4. 5.) on one side of the head, on the other side they have the usual number. Generally 11(4) lower labials, less common numbers are 10(4), 10(3), and 11(5). Seven specimens have only one postocular on one or both sides of the head; in one specimen the orbit is bordered posteriorly by two postoculars and the parietal. Some variations of the temporals are shown in figs. 34—38.

To this subspecies also belongs the specimen (no. 92) recorded by Boettger (l. c.) as the var. *multicinctus*; in all characters it agrees with the West-Sumatran race. Probably it was not collected in Deli proper, but in some more western locality in the interior of Sumatra.

It is probable that the following specimen also belongs to this subspecies:

93. 1 ex., ♂, Java, Mus. Leid. Herp. no. 933.

The locality-record is certainly wrong, and may be explained in the same way as was done for a *melanota*-specimen (no. 62, cf. p. 209).

no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals	no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals
78	♀	67	66	234	86 + [1])	87	♀	74	71	229	93 +
79	♂	74	73	226½	88 +	88	♀	64	66	232	2/2 + 2 + 71/69 +
80	♂	73	71	226	66 +						
81	♀	65	65	224	2/2 + 5 + 96/96 + 1	89	♂	57	56	229	106
						90	♂	72	67	230½	104
82	♂	70	70	232	30 +	91	♀	65	62	238	3/3 + 4 + 92/93 + 1
83	♀	76	74	215	69 +						
84	♂	68	69	226	76 +	92	♂	69	70	232	2/2 + 4 + 2/2 + 2 + 90/90 + 1
85	♂	77	73	228	2/2 + 3 + 95/96 + 1						
86	juv.	77	75	236 + 2 × ½	1/1 + 7 + 97/97 + 1	93	♂	68	68	224	104

Boiga dendrophila annectens (Blgr.).

(Pl. I fig. 3; textfig. 39).

Dipsadomorphus dendrophilus var. *annectens* Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 71.

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1) Only in those cases where anterior subcaudals are single, the paired ones are indicated separately, in all other cases where only one number is given this indicates the number of pairs + a single terminal shield.

Dipsadomorphus dendrophilus var. *regularis* Boulenger, l. c.

Dipsadomorphus dendrophilus, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 197 (part.).

42 specimens examined:

94. 1 ex., ♀, type of *annectens*, Borneo, don. Sir H. Low, B. M. N. H.

95. 1 ex., ♀, cotype of *regularis*, Borneo, leg. Mr. Stokes, B. M. N. H. no. 58. 10. 30. 4.

96. 1 ex., ♂, cotype of *regularis*, Borneo, leg. Mr. Wright, B. M. N. H.

97— 98. 2 ex., ♀♀, cotypes of *regularis*, Borneo, don. Sir E. Belcher, B. M. N. H.

99—100. 2 ex., ♂♂, Balikpapan, Dutch Borneo, don. H. Harvey, B. M. N. H. no. 1912. 6. 26. 13—14.

101. 1 ex., ♂, Kudat, North Borneo, leg. S. S. Flower, B. M. N. H. no. 97. 12. 28. 24.

102—103. 2 ex., ♂♂, N. E. Borneo, leg. J. Chr. Prakke, V. 1891, Mus. Leid. Herp. no. 6229.

104. 1 ex., ♂, British N. E. Borneo, don. Stoffen, 30. VI. 1899, Mus. Amst.

105. 1 ex., ♂, Samarinda, leg. H. A. Lorentz, 24. V. 1909, Mus. Amst.

106. 1 ex., ♂, Bandjermasin, leg. Moens, 1862, Mus. Leid. Herp. no. 928.

107—108. 2 ex., ♂♂, Smitau, Kapoeas, leg. Büttikofer, 11—12. XII. 1893, Mus. Leiden Herp. no. 6231.

109. 1 ex., ♂, Pontianak, W. Borneo, 1898, Raffles Mus.

110. 1 ex., ♂, Long Mujam, Batam Riv., Sarawak, 5. X. 1920, Raffles Mus.

111. 1 ex., ♂, Sadong Riv., Sarawak, Raffles Mus.

112. 1 ex., ♀ juv., Rejang, Sarawak, don. Hon. C. A. Bampfylde, Sarawak Mus. specimen k.

113. 1 ex., ♀, Santubong, Sarawak, don. Dr. E. P. France, Sarawak Mus. specimen f.

114. 1 ex., ♂, Kuching, Sarawak, VIII. 1891, Sarawak Mus. specimen b.

115. 1 ex., ♂, Kuching, Sarawak, don. Dr. G. D. Haviland, VIII. 1898, Sarawak Mus. specimen c.

116. 1 ex., ♂, Kuching, Sarawak, don. Dr. G. D. Haviland, 1889, Sarawak Mus. specimen d.

117. 1 ex., ♂, Kuching, Sarawak, 1889, Sarawak Mus. specimen e.

118. 1 ex., ♀, Kuching, Sarawak, don. Hon Chon Nong, V. 1895, Sarawak Mus. specimen g.

119. 1 ex., ♂, Kuching, Sarawak, 1894, Sarawak Mus. specimen h.

120. 1 ex., ♂, Kuching, Sarawak, don. Mrs. Joyce, 2. IX. 1895, Sarawak Mus. specimen i.

121. 1 ex., ♀, Kuching, Sarawak, X. 1895, Sarawak Mus. specimen j.

122—125. 4 ex., 2 ♂♂, 2 ♀♀, Kuching, Sarawak, 1900, Sarawak Mus. specimens m—p.

126—131. 6 ex., 2 ♂♂, 4 ♀♀ Kuching [1]), Sarawak, Sarawak Mus.

132. 1 ex., ?, Borneo, Mus. Dresden no. 1097.

133. 1 ex., ♂, E. Coast of Borneo, don. Dr. A. Buxtorff, 104, Mus. Basel no. 5137.

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1) Received without locality-labels. Dr. Banks, Curator of the Sarawak Museum, kindly informed me that they were all collected in the neighbourhood of Kuching.

134. 1 ex., ♀, Bulongan, N. E. Borneo, don. Dr. W. Holtz, 1912, Mus. Basel no. 7521.

135. 1 ex., ♂, Moeara Djawa, leg. H. A. Lorentz, 28. V. 1909, Mus. Amst.

Terra typica: Borneo. Distribution: Borneo.

Description: Colour (in alcohol): head black above, uniform or with some small spots, of which a small spot on each prefrontal next to their median suture is most constant. Upper labials yellow with rather broad black bars on the sutures; these bars are always broader than those of the subsp. *melanota*, and generally narrower than those of te subsp. *occidentalis*. Throat yellow, some of the scales with black posterior tips. The anterior ventrals are yellow, with dark hindborders. Body with (36) 42 to 69 (average 57.4) yellow bars, most of which fuse across the back with those of the other side; some others do not quite extend across the back and alternate with those of the other side. The bars are one ventral wide, and are separated from each other by about three ventrals. A few of the anterior yellow bars reach downward to nearly the middle of the belly. At midbody and posteriorly the belly is black with a series of yellow spots (the basal parts of the bars) along each side. Tail black with 15 to 26 (average 20.1) yellow crossbands; lower surface with a lateral series of yellow spots. The total number of bars on body and tail together varies from (36) 63 to 90, average 77.7.

One specimen from Moeara Djawa (no. 135) shows a somewhat aberrant coloration. It has only 36 bars on the body, and these are slightly broader than usual. Some of the yellow scales have dark edges, forming a dark reticulation on the yellow bar. Several of the bars of this specimen are forked at the lower end, the rami extending backward and forward along the sides of the belly, connecting the bars. The tail shows only one large yellow spot anteriorly on the right side, further backward and on the left side it is black with numerous small yellow dots. This specimen also has the lowest number of ventrals (221) and subcaudals (95) of the Bornean specimens examined.

Ventrals 221—253, average 232.1; subcaudals 95—118, average 107.2.

In twenty-two males the number of ventrals varies from 221—241, average 228.5; fifteen females have 227—253 ventrals, average 238.1. Twenty males with a complete tail have 95—118 subcaudals, average 107.0; in twelve females the subcaudals vary from 103—112, average 107.1. Upper labials 8 (3. 4. 5.), rarely 7 (2. 3.), 7 (3. 4. 5.), 9 (4. 5. 6.) (cf. p. 202). Lower labials generally 11 (5), 11 (4) is less common; 10 (4), 11 (7), 12 (4), 12 (5) are rather rare (cf. p. 202). One preocular, and two postoculars.

A variation of the temporals is shown in fig. 39.

no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals	no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals
94.	♀	50	49	232	106	115.	♂	69	66	238	114
95.	♀	60	60	235	112	116.	♂	59	58	233	114
96.	♂	61	62	223	84 +	117.	♂	57	52	226½	106
97.	♀	62	62	243	111	118.	♀	53	55	241	105
98.	♀	63	61	242	107 +	119.	♂	64	63	227	101
99.	♂	69	69	230	105	120.	♂	66	64	231	106
100.	♂	65	64	224	112	121.	♀	55	52	237	107
101.	♂?	57	53	233	110	122.	♀	46	48	229	103
102.	♂	61	60	223	109	123.	♀	42	45	241	22 +
103.	♂	64	59	234	101	124.	♂	64	66	223	112
104.	♂	54	51	225	103	125.	♂	58	60	224	103
105.	♂	67	64	229	82 +	126.	♀	57	57	245	107
106.	♂	53	53	222	106	127.	♀ juv.	60	61	234	112
107.	♂	46	44	228	53 +	128.	♀	56	59	234	107
108.	♂	53	52	231	118	129.	♂	57	60	227	44 +
109.	♂	56	60	228	106	130.	♂	47	48	229	105 +
110.	♂	65	64	235	104	131.	♀	62	64	233	105
111.	♂	60	59	230	104	132.	?	59	60	233	109
112.	♀ juv.	51	54	253	108	133.	♂	62	61	241	112
113.	♀	61	60	227	103	134.	♀	50	49	246	114 +
114.	♂	62	60	231	110	135.	♂	36	36	221	95

Boiga dendrophila multicincta (Blgr.).

Dipsadomorphus dendrophilus var. *multicinctus* Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 71 (part.).

Boiga dendrophila multicincta, Taylor, Snakes Philippine Ids., 1922, p. 200, pl. 25, pl. 26 figs. 4—6.

4 specimens examined:

136—137. 2 ex., ♂, juv., cotypes, Puerta Princesa, Palawan, leg. A. Everett, B. M. N. H. no. 79. 4. 16. 16. 32.

138. 1 ex., ♀, cotype, Palawan, leg. A. Everett, B. M. N. H. no. 94. 6. 30. 54,

139. 1 ex., ♂, Palawan, received in exchange from Dr. E. H. Taylor. 1923, Mus. Amst.

Terra typica restr.: Puerta Princesa, Palawan. Distribution: Palawan, Balabac.

Description: this subspecies resembles the Bornean race very much. The head is black above, uniformly or with yellow spots; the first bar sometimes bends forward and reaches the parietal. Upper labial with dark bars on the sutures; these bars are of about the same width as in the Bornean subspecies. Sometimes the bars fuse across the supralabials, dividing the yellow space into an upper and a lower yellow spot. Throatshields and -scales yellow with black edges. Body black with 58 to 80 (average 71.8) yellow bars, most of which extend across the back, fusing

with those of the other side. The bars are one ventral wide and are separated from each other by about three ventrals. Tail black with 21 to 29 (average 24) crossbands. Belly black with a lateral series of yellow spots (the basal parts of the bars). In the four specimens examined by me the total number of bars on body and tail varies from 85 to 107, average 96.3; the eleven specimens described by Taylor (l. c., p. 201) had 93 to 111 bars. Taking his data and mine together, the total number of bars varies from 85 to 111, average 101.9 or 23 more than the average found for the subsp. *annectens*.

Ventrals 221—230 (—240, Taylor), average (including Taylor's specimens) 230; subcaudals 106—112 (—115, Taylor), average (including Taylor's specimens) 110.8. Upper labials 8 (3. 4. 5.), or rarely, as recorded by Taylor 9 (3. 4. 5.) and 9 (4. 5. 6.). Lower labials generally 11(5), rarely 10(4). In one specimen examined by Taylor the loreal entered the eye.

no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals	no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals
136.	♂	80	78	226	111	138.	♀	77	78	230	106
137.	juv.	70	74	225	107	139.	♂	58	60	221	117

Boiga dendrophila divergens Taylor.

(Pl. I figs. 5, 11; Pl. II fig. 4).

? *Triglyphodon gemmicinctum* (part.) Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, p. 1091.

Dipsadomorphus dendrophilus var. *multicinctus* (part.) Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 71; Boettger, Katalog Rept.-Samml. Mus. Senckenb. Ges. II (Schlangen), 1898, p. 93.

Boiga dendrophila divergens Taylor, Snakes Philippine Ids., 1922, p. 201; Taylor, Philipp. J. Sci. XXI, 1922, p. 299.

2 specimens examined:

140. 1 ex., ♂, Philippine Ids., leg. H. Cuming, B. M. N. H. (cotype of var. *multicinctus* Blgr.).

141. 1 ex., ♂, Dingalan, Prov. Nueva Ecija, Luzon, don. Dr. O. Fr. v. Moellendorf, 1893, Senckenb. Mus. no. 9071,3*a*.

Terra typica: Mt. Maquiling, Laguna, Luzon. Distribution: Luzon, Polillo, Samar? (the latter locality doubtful, Taylor 1922, p. 299).

Description: Colour (in alcohol): head above blackish with a greyish wash and some yellow spots; the first pair of bars bend forward and extend across the parietal to the upper postocular. Upper labials yellow with rather broad black bars on the sutures; all lower labials, throatshields and -scales with sharply marked edges. Body with 76 to 79 yellowish bars extending across the back and bordered with black; the interspaces between the bars with a bluish-grey wash. Belly greyish with a lateral

series of yellowish spots (the basal parts of the bars). The bars are about one ventral wide and they are separated by one or two ventrals. Tail with 25 to 27 crossbands.

Including the specimens described by Taylor the number of ventrals varies from 219—228, average 223.3; subcaudals 80—94, average 90. Upper labials 8(3.4.5.); lower labials 10(5) or 10(4). The loreal enters the orbit in two specimens examined by Taylor.

no.	sex	bars on body		ventrals	subcaudals
		L	R		
140.	♂	76	77	225	94
141.	♂	77	79	222	90

Boiga dendrophila latifasciata (Blgr.).

(Pl. I figs. 6, 8, 10; Pl. II figs. 10, 12).

Triglyphodon dendrophilum var. B, Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, p. 1090.

Dipsadomorphus dendrophilus var. *latifasciatus* Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 71.

Boiga dendrophila latifasciata, Taylor, Snakes Philippine Ids., 1922, p. 198.

9 specimens examined:

142. 1 ex., ♂, cotype, Zamboango, Mindanao, leg. A. Everett, B. M. N. H. no. 79. 4. 16. 14.

143—144. 2 ex., ♂♂, cotypes, Butuan, Mindanao, leg. A. Everett, B.M.N.H. no. 77. 10. 9. 60—1.

145—146. 2 ex., ♂, juv., Cotobato Coast, Mindanao, exch. Dr. E. H. Taylor, 1923, Mus. Amst.

147. 1 ex., ?, Cotobato Coast, Mindanao, exch. Dr. E. H. Taylor, 1923, Mus. Basel no. 8509.

148. 1 ex., ?, Kapitan, Mindanao, Mus. Dresden no. 1644.

149. 1 ex., ♀, Mindanao, don. Dr. O. Fr. v. Moellendorf, Senckenb. Mus. no. 9071,5*a*.

150. 1 ex., ♂, Samar, don. Dr. O. Fr. v. Moellendorf, Senckenb. Mus. no. 9071,5*b*.

Terra typica: Mindanao. Distribution: Mindanao, Samar?

Description: Colour (in alcohol): head black with bluish-white spots (yellow in life). Upper labials whitish with rather narrow black bars on the sutures. Throatshields and -scales whitish with very distinctly marked black edges. Bars rather wide, consisting of whitish scales with black edges; these edges forming a black reticulation. The first bar bends forward and reaches the parietal. The other bars alternate or fuse across the back with those of the other side. At midbody the bars are three or four ventrals wide, and they are separated from each other by as many ventrals. The number of bars varies from 34 to 49, average 41.8.

Tail with 12 to 19 cross bands, average 16.1. The anterior ventrals are white with black hindborders; at midbody the black interspaces between the bars reach downward to the middle of the belly, alternating or fusing across the belly. The ventrals of the light interspaces white with black posterior edges.

Ventrals (including the records given by Taylor) 207—223, average 215.6; subcaudals 93—102, average 97.7. In two specimens (nos. 145, 150) the loreal is absent; this same variation was found by Taylor in three out of seven specimens. In one specimen (no. 142) the loreal is very long and low, it enters the orbit below the preocular. A single postocular is found in two specimens (nos. 143, 150). Upper labials 8 (3. 4. 5.); lower labials 10(4), rarely 11(5).

Judging from the description (coloration, absence of loreal) of Duméril, Bibron & Duméril's var. B, their specimen belongs to the present subspecies. The locality (Java) is obviously wrong.

Both this subspecies and the subsp. *divergens* have been recorded from Samar; future collecting on this island must show which subspecies occurs here.

no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals	no.	sex	bars on body L.	bars on body R.	ventrals	subcaudals
142.	♂	39	37	218	102	147.	?	43	44	219	99
143.	♂	49	47	219	97	148.	?	38	40	223	78 +
144.	♂	47	47	222	100	149.	♀	44	44	223	93
145.	♂	40	42	217	100	150.	♂	34	35	209	94
146.	juv.	41	43	216	100						

Boiga dendrophila gemmicincta (Dum., Bibr. & Dum.).

(Pl. I figs. 7, 12, 13; Pl. II fig. 11; textfigs. 40—43.)

Triglyphodon gemmi-cinctum Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, p. 1091 (part.).

Dipsadomorphus dendrophilus var. *gemmicinctus*, Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 71.

Dipsadomorphus dendrophilus, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 197 (part.).

23 specimens examined:

151—153. 3 ex., 1 ♂, 2 ♀♀, Menado, Celebes, leg. Van Delden, 1836, Mus. Leid. Herp. no. 931.

154—162. 9 ex., 6 ♂♂, 3 ♀♀, N. Celebes, leg. Rosenberg, 1864, Mus. Leid. Herp. no. 6220.

163. 1 ex., ♀ juv., Kema, Celebes, don. Drs. P. & F. Sarasin, 1900, Mus. Basel no. 1812.

164. 1 ex., juv., Kema, Celebes, don. Drs. P. & F. Sarasin, 1904, Mus. Basel no. 5219.

165. 1 ex., ♂, Kema, Celebes, leg. Sarasin, B. M. N. H. no. 96. 12. 9. 73.
166. 1 ex., ♂, Posso, Celebes, leg. A. C. Kruijt, 1898, Mus. Amst.
167. 1 ex., juv., S. Celebes, Mus. Dresden, no. 792.
168. 1 ex., juv., Bonthain, S. Celebes, Mus. Dresden no. 1248.
169. 1 ex., juv., Celebes, don. Moreau, 1. X. 1894, Mus. Leid. Herp. no. 6268.
170. 1 ex., ♀, Celebes, Leyden Museum, B. M. N. H. no. 44, 2. 22. 20.
171. 1 ex., ♀, loc.? from Bleeker's Collection, Mus. Leid. Herp. no. 3958.
172—173. 2 ex., ♂, juv., loc.?, Mus. Amst.

Terra typica restr.: Celebes [1]). Distribution: Celebes.

Description: Colour (in alcohol): head black above, with numerous yellow spots. Generally a pair of large yellowish, more or less crescentic spots on occiput and nape; the spots are sometimes confluent with the first bars, and may be extended across the parietal reaching the upper postocular. Upper labials yellowish with broad black borders which in most specimens are not sharply marked off against the yellow parts, the latter becoming dusky. The extreme is reached in an adult male from N. Celebes, in which the head is uniform blackish with only very faint traces of the light colour on the labials. Throatshields with broad black borders enclosing lighter centres; the dark colour of the borders passing gradually into the light colour of the centres, the latter may become dusky or even blackish. Back with 76 to 103 (average 86.1) very narrow yellow bars, alternating or fusing across the back with those of the other side. On the sides of the body the bars are often interrupted by black scales, they then become transverse rows of small round yellow spots (hence the name *gemmicincta*). The bars are $^1/_2$ to 1 ventral wide at the base; they are separated by 1 to $1^1/_2$ ventral. All sorts of variations occur, neighbouring bars fusing with each other and becoming Y, λ, H, X or ∩ shaped. In the dark specimen from N. Celebes the anterior bars have become indistinct. Belly anteriorly checkered with blackish and yellow; at midbody blackish with a lateral series of yellow spots (the basal parts of the bars) along each side, and one or two median series of rather small squarish yellow spots. The lateral and median spots are often placed on alternate ventrals. Tail black above, with 20 to 38 (average 30.9) crossbands; below black with a lateral series of yellow spots; these spots sometimes confluent, forming an undulating yellow band on the lower surface of the tail. The total number of bars on body and tail varies from 101 to 138, average 117.7.

Ventrals 217—233, average 225.6; subcaudals 95—107, average 101.6.

Ten males have 217—229 ventrals, average 223.4; eight females

1) In the original description Duméril, Bibron & Duméril mention a specimen from Manila which may belong to the subsp. *divergens*.

have ventrals 224—232, average 228.3. The number of subcaudals varies in eight males from 100—106, average 103.3; five females have 100—107 subcaudals, average 101.8.

A young specimen from Bonthain has one subcaudal single; in the other races this variation is only found in the subsp. *occidentalis*, where it is much more common (cf. p. 212). Upper labials 8 (3. 4. 5.); the greater number of specimens have 11(4) infralabials; 11(5), 12(5), 12(4) occurring rarely. The loreal enters the orbit on one side of the head in a single specimen (no. 164). Two superposed loreals are present on both sides of the head in two specimens (no. 165, 172); in another specimen (no. 151) two loreals are present on the left side of the head, on the right side they have fused into a single shield.

Some variations of the temporals are shown in figs. 40—43.

no.	sex	bars on body L	bars on body R	ventrals	subcaudals
151.	♂	85	86	229	105
152.	♀	76	80	230	101
153.	♀	79	81	229	89+
154.	♂	80	83	220	103
155.	♀	88	84	224	100
156.	♀	91	93	232	103
157.	♂	84	82	225	106
158.	♀	88	84	229	100
159.	♂	101	96	219	105
160.	♂	81	80	226	100
161.	♂	79	80	217	83+
162.	♂ juv.	76	76	219½	102
163.	♀ juv.	84	86	229	102
164.	juv.	76	77	222	102
165.	♂	88	86	225	72+
166.	♂	103	100	229	100
167.	juv.	98	99	220	97
168.	juv.	93	94	223	1/1 + 1 + 97/97 + 1
169.	juv.	99	100	233	95
170.	♀	81	77	231	107
171.	♀	88	89	223	82+
172.	♂	84	86	224	106
173.	juv.	82	80	232	98

Stomach-contents: In a number of specimens the stomach-contents were examined, with the following results:

subsp. *dendrophila*:

specimens no. 4, 8, 13, 15 had the remains of a rat in their stomach; specimen no. 20 had eaten a bird.

subsp. *melanota*:

specimen no. 25, 45: rat;
no. 53 (juv.): a small rodent;
no. 61: remains of a mammal (rodent ?);
no. 44: feathers;
no. 28: remains of a scincid lizard;
no. 56 (juv.): 2 ex. *Tachydromus sexlineatus* Daud.

subsp. *occidentalis*:

specimen no. 90: feathers;
86 (juv.): remains of a *Calotes*.

subsp. *annectens*:
specimen no. 113: remains of a bird (beak);
105: bird;
112 (juv.): *Calotes cristatellus* (Kuhl).

subsp. *divergens*:
specimen no. 140: frog.

subsp. *latifasciata*:
specimen no. 149: *Lygosoma* spec.

subsp. *gemmicincta*:
specimen no. 170: foot of a bird;
171: one complete bird, remains of a second bird (feet and feathers);
160: 1 ex. *Psammodynastes pulverulentus* (Boie) (which at its turn had swallowed a *Lygosoma*);
153: *Lygosoma* (*smaragdinum*, *acutirostre* (Oudem.)?);
152: 2 eggs of *Calotes* spec.

Summarizing: Mammals: 8; Birds: 7; Snakes: 1; Lizards: 6 (Scincids 3; Agamids 2; Lacertids 1); Frogs: 1; Eggs 1.

Judging from the material at hand it seems that the young specimens generally feed on reptiles and the adults on mammals and birds, though reptiles and even frogs are also taken. Taylor mentions that a specimen of the subsp. *latifasciata* had eaten a bat; M. A. Smith (1930, p. 65) examined a specimen from the Malay Peninsula which had eaten an adult *Agkistrodon rhodostoma* (Boie) and another that had swallowed a *Chrysopelea ornata* (Shaw) which was longer than itself. A specimen in the Amsterdam Zoo swallowed a *Natrix piscator* (Schn.), and died in the act, the tip of the tail of the *Natrix* still protruding from its mouth. De Rooij (l. c.) also mentions fish among the food of *Boiga dendrophila*; as a specimen (no. 76) was taken in a mangrove it is quite probable that occasionally fish will be eaten.

The snake generally known as **Pseudelaps mülleri** (Schleg.).

While studying a collection of Reptiles from some of the West-Papuan islands I arrived at the conclusion that the snake known in recent literature as *Pseudelaps mülleri* really is a composite of two distinct species. A search through the older literature on this species showed that these two species had been separated already by Günther (1872, pp. 34, 35), but that they had been united again by Boulenger (1896, p. 316).

Before entering on the discussion of my reasons for separating them again, some remarks must be made on the name of the genus to which

they belong. The name *Pseudelaps* Dum. 1853 cannot be used for this genus as is shown by the following facts:

1. Duméril (1853, p. 517) proposed the name *Pseudelaps* for a genus of snakes containing three species:

P. mülleri (*Elaps mülleri* Schleg.)

P. psammophidius (*Elaps psammophis* Schleg.)

P. squamulosus (at the time a nomen nudum, described only a year later by Duméril, Bibron & Duméril 1854, p. 1235).

The name *Pseudelaps* had, however, been used previously by Fitzinger (1843, p. 28)[1]) for a genus of snakes of which *Elaps furcatus* Schn. (= *Maticora intestinalis* (Laur.)) was the type by original designation. *Pseudelaps* Dum. 1853, which is the same in name as *Pseudelaps* Fitz. 1843, but which is different in contents must therefore be suppressed as a homonym.

2. Fitzinger (1843, p. 28) proposed the name *Aspidomorphus* for a new genus of snakes of which *Elaps mülleri* Schleg. was the type by original designation. *Aspidomorphus* Fitz. 1843, which antedates *Pseudelaps* Dum. 1853 (nec Fitz. 1843) by ten years must therefore replace the latter.

Another generic name, *Brachysoma* (type *Calamaria diadema* Schleg. proposed by Fitzinger (1843, p. 25) for a species contained in the present genus, and which has page-priority over *Aspidomorphus*, cannot be used as it is preoccupied by *Brachysoma* J. F. Brandt 1835 (for a Medusa, fide Sherborn, Index Animalium, Sect. II, Part. IV, 1924, p. 855).

Furina Dum. 1853 must also be considered a synonym of *Aspidomorphus* Fitz. Originally (Duméril 1853, p. 517) four species were included; of these only one, *F. diadema* (*Calamaria diadema* Schleg.), had been described before; the other three, *F. bimaculata*, *F. calonotos* and *F. textilis*, were nomina nuda and were described a year later by Duméril, Bibron & Duméril (1854, p. 1240, 1241, 1242). *F. diadema* must, therefore, be considered the type of the genus *Furina*, and as such it was already fixed by Jan (1859, p. 124). As *Furina diadema* is at present incorporated in the genus *Aspidomorphus*, *Furina*[2]) passes into the synonymy of the latter genus.

The synonymy of the genus *Aspidomorphus* is the following:

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1) Not to be confused with *Pseudoelaps* Fitz. 1826.

2) *Furina* as it is used by Boulenger (1896. p. 405) must be replaced by *Vermicella* Günther (1858, p. 236).

Aspidomorphus Fitz.

Elaps, Schlegel, Essai Phys. Serp. II, 1837, p. 435, (part.); Gray, Zool. Miscellany, 1842, p. 55; Traill, transl. of Schlegel's Essay, 1843, p. 178, (part.); Schlegel & Müller, Verh. Nat. Gesch. Ned. Overz. Bezitt., Zool., Amph., 1844, p. 63, (part.).

Calamaria, Schlegel, Essai Phys. Serp. I, 1837, p. 129 and II, 1837, p. 25 (part.); Traill, transl. of Schlegel's Essay, 1843, pp. 129, 245, 251, (part.).

Brachysoma Fitzinger, Syst. Rept., 1843, p. 25 (type *Calamaria diadema* Schleg.); Günther, Cat. Colubr. Sn, 1858, pp. 210, 228 (part.); Günther, Proc. Zool. Soc., 1858, p. 384 (p. 12 of separate) (part.); Günther, Ann. Mag. Nat. Hist. (3) XI, 1863, p. 23; Krefft, Snakes of Australia 1869, p. 48 (part.); Hoffmann, Bronn's Kl. Ordn. Thierr. VI, 3, Rept. III, 1886, p. 1612.

Aspidomorphus Fitzinger, Syst. Rept., 1843, p. 28 (type *Elaps mülleri* Schleg.).

Pseudelaps Duméril, Mém. Ac. Sc. Paris XXIII, 1853, p. 517 (part.), (p. 121 of separate), (nec Fitzinger 1843); Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, p. 1231 (Pseudélaps, id. VII, 1854, p. 1190 and IX, 1854, p. 376) (part.); Boulenger, Cat. Sn. Brit. Mus. III, 1896, pp. 310, 315; Boettger, Kat. Rept. Samml. Senckenb. II, 1898, Schl., p. 115; Werner, Zool. Anz. XXVI, 1903, p. 251; Werner in Brehm's Tierleben, 4. Aufl. V (Lurche u. Kriechtiere II), 1913, p. 459; Fry, Proc. R. Soc. Queensland XXVII, 1915, p. 94; De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 264; Ditmars, Rept. of the World, 1922, p. 213; Werner, Arch. Natg. 89 Jg., 1923, A., Heft 8, p. 169; Kinghorn, Snakes of Australia, 1929, pp. 44, 65—70.

Furina Duméril, Mém. Ac. Sc. Paris XXIII, 1853, p. 517 (p. 121 of separate) (type *Calamaria diadema* Schleg.); Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, p. 1237 and IX, 1854, p. 376 (part.); Jan, Rev. Magas. Zool. 1859, p. 123; Hoffmann, Bronn's Kl. Ordn. Thierr. VI, 3, Rept. III, 1886, pp. 1607, 1610.

Rabdion, Girard, Proc. Ac. Philad., 1857, p. 181.

Demansia, Günther, Cat. Colubr. Sn., 1858, pp. 209, 211 (part.); Hoffmann, Bronn's Kl. Ordn. Thierr. VI, 3, Rept. III, 1886, p. 1612.

Diemansia Günther, Cat. Colubr. Sn. 1858, p. 254 (part.); Günther, Proc. Zool. Soc., 1858, p. 384 (p. 12 of separate) (part.); Günther, Ann. Mag. Nat. Hist. (3) IX, 1862, p. 129, and (3) XI, 1863, p. 24.

Glyphodon Günther, Cat. Colubr. Sn. 1858, pp. 209, 210; Günther, Proc. Zool. Soc., 1858, p. 384 (p. 12 of separate) (part.); Hoffmann, Bronn's Kl. Ordn. Thierr. VI, 3, Rept. III, 1886, p. 1612, 1786 (part.).

Pseudoelaps, Jan, Rev. Mag. Zool. 1859, p. 123 (type *P. mülleri*) (nec Fitzinger 1826); Jan, Elenco sist. Ofid., 1863, p. 115; Jan & Sordelli, Icon. Gén. Oph., Livr. XLIII, pl. V, 1873 (part.); Hoffmann, Bronn's Kl. Ordn. Thierr. VI, 3, Rept. III, 1886, p. 1614, 1785 (not of p. 1600).

Cacophis Günther, Ann. Mag. Nat. Hist. (3) XII, 1863, p. 361 (type *Cacophis krefftii* Gthr.); Krefft, Snakes of Australia 1869, p. 73; Krefft, Proc. Zool. Soc., 1869, pp. 318, 320; Hoffmann, Bronn's Kl. Ordn. Thierr. VI, 3, Rept. III, 1886. p. 1789; Cope, Proc. Amer. Phil. Soc. XXIII, 1886, no. 124, p. 497 (part.); Aflalo, Sketch Natural History of Australia 1896, pp. 168, 179; Cope, Rep. U. S. Nat. Mus. for 1898, 1900, p. 1117 (part.).

Diemennia, Günther, Proc. Zool. Soc., 1863, p. 58 (part.).

Petrodymon Krefft, Sn. Sydney (Trans. Phil. Soc. N. S. W. for 1865), 1865, p. 55, (type *P. cucullatum* (Gthr.), = *squamulosus* D. B. D.), non vidi; Krefft, Snakes of Australia 1869, p. 72; Hoffmann, Bronn's Kl. Ordn. Thierr. VI, 3, Rept. III, 1886, p. 1790.

Diemenia, Krefft, Snakes of Austr., 1869, p. 38 (part.); Cope, Proc. Amer. Phil. Soc. XXXIII, 1886, no. 124, p. 497 (part.); Cope, Rep. U. S. Nat. for 1898, 1900, p. 1117 (part.).

Diamenia, Sauvage, Bull. Soc. Philom. Paris (7) II, 1878, p. 33.

As stated above the species which is generally known in recent literature as *Pseudelaps mülleri* is a composite of two distinct species. Their history is as follows:

In 1837 Schlegel (I, p. 182; II, p. 452; pl. XVI, figs. 16, 17) described his *Elaps mülleri* from two specimens collected in 1828 near the Triton Bay, Dutch New Guinea by Salomon Müller. Fitzinger (1843, p. 28) transferred the species to the newly erected genus *Aspidomorphus*, but it was again redescribed and figured as *Elaps mülleri* by Schlegel & Müller in 1844 (p. 66, pl. IX, figs. 1, 2). Duméril (1853, p. 517), and Duméril, Bibron & Duméril (1854, p. 1206, 1232) referred this species to the genus *Pseudelaps* Dum. (nec Fitz.).

Günther (1872, pp. 34, 35), who was the first to recognize the two components, placed them in the genus *Diemenia* (= *Demansia* Gray). In the original description Schlegel had stated already that the types differed widely in coloration and in the number of ventrals. The differences in colour were clearly shown in the figures of pl. IX of Schlegel & Müller's paper. The specimen shown in fig. 1 of that plate has 148 ventrals, that shown in fig. 2 has 176 ventrals. These differences were used by Günther (l. c.) to separate the two distinct species, which he described under the names *Diemenia mülleri* (Schleg.) and *Diemenia schlegelii* Gthr. Unfortunately Günther erroneously connected Schlegel & Müller's figures with the wrong scale-counts, thus creating some confusion. On p. 34 of his paper he wrote about Schlegel's types: "The one (fig. 1) has 176 ventrals and 32 caudals, and the other (fig. 2) only 148 ventrals and 24 caudals", and on the same page "I retain the name given by Schlegel for the species figured on pl. 9, fig. 1. The specimen in the British Museum is from North Ceram, and agrees in every respect with the figure referred to: it has 178 ventral shields and 34 subcaudals, numbers nearly identical with those of the typical example". On p. 35 the second species, of which he examined two specimens from the island of Misool, is described as follows: "For the second species I propose the name of *Diemenia schlegelii*... This is a conspicuous shorter species having only (148, Schlegel), 149 or 155 ventral shields, and (24, Schlegel) 24 or 21 subcaudals".

His error is evident from these citations, as:

1. The specimen from North Ceram referred to the typical *mülleri* has the high number of ventrals as mentioned, and agrees with the type figured by Schlegel & Müller on pl. IX fig. 2.

2. The two types of *Diemenia schlegelii* Gthr. (in the British Museum) agree with Schlegel's other type, figured on pl. IX fig. 1, in coloration as well as in scale counts.

Meyer (1874, p. 137) did not notice Günther's error and recorded specimens of the true *mülleri* as *Diemenia schlegelii*, and those of *schlegelii* as *Diemenia mülleri* as I could conclude from a re-examination of his specimens.

Günther's error was corrected by Peters & Doria (1878, p. 408), who used the name *Diemenia müllerii* (Schleg.) for the species with the higher number of ventrals and agreeing in coloration with the type figured by Schlegel & Müller on pl. IX fig. 2, while *Diemenia schlegelii* was used for the species with the lower number of ventrals, and agreeing with Schlegel & Müller's fig. 1 on pl. IX. Boulenger did not regard these two as distinct species, but united them again under the name *Pseudelaps muelleri*. Subsequent authors accepted his conclusions, and no recent attempts have been made to separate them. The existing confusion was somewhat enlarged as De Rooij (1917, p. 266, fig. 107) identified and figured specimens of the true *mülleri* as *Diemenia psammophis* (Schleg.).

Two varieties, *Pseudelaps muelleri* var. *lineaticollis* and *Pseudelaps mülleri* var. *concolor*, described by Werner, and a subspecies *Pseudelaps muelleri insulae* described by Barbour will be discussed when dealing with the separate species.

In my opinion the two species which must now stand as *Aspidomorphus mülleri* (Schleg.) and *Aspidomorphus schlegelii* (Gthr.) are certainly distinct from one another. They may be separated as follows:

1. Snout more or less convex, curving downward anteriorly (pl. II figs. 2, 6); ventrals 149—182 (average 167.7; rarely less than 157); subcaudals 29—41; a light band along the sides of the head, broadly interrupted by an oblique dark bar below the eye; upper surface of head with larger and smaller roundish to oval dark spots with light borders; larger species (largest specimen measured by me 730 mm total length); tail 7.1—8.1 times in total length . . *A. mülleri*, p. 227.
2. Snout flat, in the same plane as parietals and supraoculars (pl. II fig. 3); ventrals 138—161 (average 147.7, rarely more than 157); subcaudals 19—30; light band on side of head not interrupted by a broad oblique bar below eye; upper surface of head not with numerous large dark, light-edged spots (a few small ones rarely present); smaller species (largest specimen measured by me 425 mm); tail 8.1—9.6 times in total length . . . . . *A. schlegelii*, p. 234.

With regard to the coloration it must be noted that uniform grey or brown specimens occur in both species.

The following characters are common to both species: Six, rarely seven [1]) upper labials, of which the third and fourth enter the orbit; one preocular, two postoculars; temporals 2 + 2, the lower anterior large, not reaching the postocular, wedged in between the fifth and sixth upper labials, sometimes nearly reaching the border of the lip[1]). Scales in 15 rows.

The variation of the number of ventrals and subcaudals in the specimens of *Aspidomorphus mülleri* and *Aspidomorphus schlegelii* examined by me is shown in the following table, in which each 0 stands for one specimen of the former, and each — for one specimen of the latter.

Number of ventrals	Number of ventrals	Number of subcaudals
138 — — —	161 0 —	19 — —
139 —	162 0 0	20 — — —
140 —	163	21 — —
141 —	164 0 0 0 0 0	22 — — — —
142 — — —	165 0 0	23 — — — —
143 —	166 0 0 0	24 — — — — — —
144 — — —	167 0 0 0	25 — — — — — — — —
145 — — —	168 0 0	26 — — — — — —
146 — —	169 0 0	27
147 — —	170 0	28 — — — — —
148 — — —	171 0 0 0 0 0	29 0 — —
149 0 — —	172 0 0	30 0 0 0 —
150 — — —	173 0 0 0 0	31 0 0 0 0
151 — — —	174 0	32 0 0
152 — —	175 0 0 0	33 0 0 0 0 0
153 — —	176 0	34 0 0 0
154 — —	177 0 0	35 0 0 0 0 0 0 0 0 0 0
155	178 0 0	36 0 0 0 0
156 0 0 —	179	37 0 0 0 0 0 0 0 0 0 0
157 — — —	180	38 0 0 0
158 0 0 —	181	39 0 0
159 0	182 0	40 0 0
160 0 0		41 0

It has been impossible to incorporate all the records from literature in the synonymies, as in a great number of cases no indication exists as to which of the two species is meant.

Aspidomorphus mülleri (Schleg.).

Of this species several geographical races can be recognized, which are described in the following pages.

1) Some records in literature of seven upper labials may be explained by the lower anterior temporal having been counted as a supralabial.

Aspidomorphus mülleri mülleri (Schleg.).
(Pl. II figs. 1, 2).

Elaps mülleri Schlegel, Essai Phys. Serp. I, 1837, pp. 182, 243 (part.), pl. XVI figs. 16, 17; Traill, transl. of Schlegel's Essay, 1843, pp. 181, 235, 251 (part.); Schlegel & Müller, Verh. Nat. Gesch. Ned. Overz. Bez., Zool., Amph., 1844, p. 66 (part.), pl. IX fig. 2.

Elaps müllerii, Schlegel, Essai Phys. Serp. II, 1837, p. 452 (part.).

Aspidomorphus mülleri, Fitzinger, Syst. Rept., 1843, p. 28 (part.).

Pseudelaps mulleri, A. M. C. Duméril, Mém. Ac. Sci. Paris XXIII, 1853, p. 517 (p. 121 of separate) (part.); Duméril, Bibron & Duméril, Erp. Gén. IX, 1854, p. 376 (part.); Fry, Proc. R. Soc. Queensl. XXVII, 1915, p. 94 (part.).

Pseudelaps mülleri, Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, pp. 1206, 1233 (part.); Bleeker, Nat. Tijdschr. Ned. Ind. XVI (ser. 4, II), 1859, p. 422 (part.); Werner, Mitt. Zool. Samml. Berl. I, 4, 1900, table after p. 12, p. 107 (part.); De Rooij, Rept. Ind. Austr. Arch. II, 1917, pp. 264, 311, 314 (part.), p. 309; De Rooij, Bijdr. Dierk. XXI, 1919, pp. 82, 94; De Jong, Nova Guinea XV, Zool., 1927, p. 306 (part.); Schüz, Abh. Mus. Dresd. XVII, 2, 1929, p. 16 (part.).

Demansia mülleri, Günther, Cat. Colubr. Sn., 1858, p. 213 (part.).

Pseudoelaps mülleri, Jan, Prodr. Icon. Oph., 1859, pp. 17, 20 (= Rev. Mag. Zool. 1859, pp. 123, 126) (part.).

Pseudoelaps (Pseudoelaps) mülleri, Jan, Elenco sist., 1863, p. 115, (part.).

Diemennia mülleri, Günther, Proc. Zool. Soc. Lond., 1863, p. 58.

Diemenia mülleri, Krefft, Snakes Austral., 1869, p. 41 (part); Günther, Ann. Mag. Nat. Hist. (9), IV, 1872, p. 34; Günther, Proc. Zool. Soc. Lond., 1877, p. 128 (part.); Meyer, Abh. Mus. Dresd. I, 2, 1886, p. 13 (part.); Brongersma, Handel. 24ste Ned. Nat. Gen. Congr., 1933, p. 200; Brongersma, Vakblad v. Biologen XV, 1933, p. 31.

Diemenia müllerii, Peters & Doria, Ann. Mus. Civ. Gen. XIII, 1878, pp. 408, 444.

Pseudelaps muelleri, Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 316 (part.); Werner, Zool. Anz. XXVI, 1903, p. 251; Barbour, Bull. Mus. Comp. Zool. LI, 1908, p. 320; Van Lidth de Jeude, Nova Guinea V, Zool., 1911, p. 527 (part.); Van Lidth de Jeude, Nova Guinea IX, Zool., 1911, p. 281 and pp. 285, 286 (part.) (excl. plate); Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, pp. 133, 201 (part.); De Rooij, Bijdr. Dierk. XIX, 1913, p. 17; Werner, in Brehm's Tierleben, 4. Aufl. V (Lurche u. Kriecht. II), 1913, p. 460 (part.), fig. on p. 459 (reprinted 1920); Boulenger, Trans. Zool. Soc. Lond. XX, 1914, p. 265 (reprinted with same pagination in Rep. B. O. U. Exp. & Wollaston Exp. I, 1916); Werner, Arch. Natg. 89 Jg., 1923, A, Heft 8, pp. 169, 170 (part); Kinghorn, Snakes of Australia, 1929, pp. 44, 128 (part.; excl. figure?).

Diemenia schlegelii, Meyer, Mon. Ber. Ak. Wiss. Berl., 1874, p. 137 (p. 12 of separate), (nec Günther 1872).

Diamenia schlegeli, Sauvage, Bull. Soc. Philom. Paris (7) II, 1878, p. 33.

Diemenia psammophis, De Rooij, Rept. Ind. Austr. Arch. II, 1917, pp. 266, 304 (part.), fig. 107; De Rooij, Bijdr. Dierk. XXI, 1919, pp. 82, 94.

1. 1 ex., ♀, type, Lobo, Triton-bay, New Guinea, leg. S. Müller 1828, Mus. Leid. Herp. no. 1402.

2. 1 ex., ♂, between Kasawari and Bronbeek, leg. Van Kampen, 16. V. 1910, Mus. Amst.

3. 1 ex., ♂, Berkombor on Tor-riv. (on wooded riverbank), leg. K.Gjellerup, 12. XI. 1911, Mus. Amst.

4. 1 ex., ♀, Hollandia, ± 100 m (on hill in forest), leg. K. Gjellerup, 4. VIII. 1910, Mus. Amst.

5. 1 ex., ♂, Hollandia, leg. Van Kampen, 1910, Mus. Amst.

6. 1 ex., juv., Prauwenbivak on Idenburg riv., leg. Jhr. W. C. van Heurn, 12. IX. 1920, Mus. Amst.

7. 1 ex., ♀, Upper Sermowai riv., ± 400 m (in forest), leg. K. Gjellerup, 24. IV. 1911, Mus. Amst.

8. 1 ex., ♂, Lake Sentani, from a small river, leg. K. Gjellerup, IV. 1911, Mus. Amst.

9. 1 ex., ♂, near Lake Sentani, 6. IV. 1903, Mus. Leid. Herp. no. 6332.

10. 1 ex., ♀, Etnabay, leg. Dr. Koch, Mus. Leid. Herp. no. 6299.

11. 1 ex., ♂, Fak-Fak, leg. A. E. Pratt, B. M. N. H. no. 1909. 4. 30. 14.

12—13. 2 ex., ♂♂, Fak-Fak, leg. Palmer van den Broek, rec. IX. 1908, Mus. Leid. Herp. no. 6300.

14—15. 2 ex., ♂, ♀, Setekwa riv., Camp III, 2500 ft., B. M. N. H. no. 1913. 11. 1. 12—13.

16. 1 ex., ♂, Rubi, Mus. Dresden no. 847.

17. 1 ex., ♀, Mansinam, purchd. of M. Boucard, B. M. N. H. no. 78. 2. 11. 11.

18. 1 ex., ♂, Misool, leg. Hoedt, 1867, Mus. Leid. Herp. no. 5584.

19—21. 3 ex., ♂, ♀, semiad., Salawatti, Bernstein 1866, Mus. Leid. Herp. no. 6301.

22. 1 ex., ♀, N. Ceram, B. M. N. H.

23. 1 ex., ♂, loc.?, Mus. Leid. Herp. no. 6302.

24. 1 ex., ?, loc.?, Mus. Leid. Herp. no. 6303.

Terra typica: Lobo, Triton-bay, Dutch New Guinea, in the forest at the base of Mt. Lamantsiri.

Distribution: Western New Guinea and surrounding islands: Mansinam, Misool, Salawatti and Ceram.

Description: Colour (in alcohol): head olive greenish above with numerous smaller and larger, oval or roundish dark spots, each spot with a light border; the large spots are arranged more or less symmetrically. Sides of head with a light band which is broadly interrupted below the eye by a dark oblique bar. The part of the light band in front of this oblique bar is less distinct than that behind, it is more or less obscured by a great number of very small blackish dots and vermiculations. The sutures of the upper labials are marked with very narrow dark lines. The light band is bordered above by a black one; both are continued on the neck and the anterior part of the body, the black one may be connected with its fellow by a transverse black bar across the neck. Nape with small blackish spots and two parallel black streaks or a Y shaped marking. The rami of this bifurcation are often continued as a series of spots on the head, meeting anteriorly and forming an oval marking.

Body brownish, more or less rufous. Throat dark grey with some light spots or uniformly black. Belly very variable in colour: anterior ventrals black, or whitish powdered with black, or with dark anterior

borders. In most specimens the belly is lighter posteriorly, sometimes powdered with greyish or with about seven longitudinal rows of dark spots, or the belly is whitish with very small grey dots. Subcaudals whitish, sometimes powdered with greyish.

Some specimens (nos. 2, 4, 9) are uniformly greyish throughout, with a few very small spots on the head. A young specimen (no. 6) also lacks the usual markings; it has two roundish dark spots behind the head.

The following notes on the coloration in life were made by the collectors:

no. 6: "Belly very light-greenish, back purplish-brown".

no. 7: "Spots and bands on head and neck bright sulphur-yellow".

Ventrals: 164—178; subcaudals: 30—40.
♂ Ventrals: 164–177, average 169.4; subcaudals: 35–40, average 37.5.
♀ „ 171–178, average 174.2; „ 30–37, average 33.1.

no.	sex	v.	sc.	no.	sex	v.	sc.
1.	♀	173	31	13.	♂	173	40
2.	♂	165	37	14.	♂	170½	36
3.	♂	166	37	15.	♀	178	31
4.	♀	175	37	16.	♂	166	37
5.	♂	164	40	17.	♀	172	30
6.	juv.	173	36	18.	♂	167	37
7.	♀	171	34	19.	♂	171	38
8.	♂	164	37	20.	♀	177	35
9.	♂	171	38	21.	semiad.	178	33
10.	♀	172	32	22.	♀	176	35
11.	♂	177	29 +	23.	♂	172½	35
12.	♂	175	39	24.	?	175	32

Aspidomorphus mülleri lineaticollis (Wern.).

Pseudelaps muelleri var. *lineaticollis* Werner, Zool. Anz. XXVI, 1903, p. 251; Werner, Arch. Natg. 89 Jg., 1923, A, Heft 8, pp. 169, 170.

Pseudelaps mülleri var. *lineaticollis*, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 265.

? Diemenia muelleri, Méhelÿ, Termesz. Füzetek XVIII, 1895, pp. 78, 135.

Pseudelaps muelleri, Boettger, Abh. Mus. Dresd. VI, no. 7, 1896, p. 3.

? *Pseudelaps muelleri*, Méhelÿ, Termesz. Füzetek, XXI, 1898, p. 173.

Terra typica: New Guinea.

Judging by the number of ventrals (182) mentioned by Werner, his var. *lineaticollis* belongs to *Aspidomorphus mülleri*. The original description is too short to warrant a definite opinion on its status. Provisionally I refer the following specimen to it:

25. 1 ex., ♂, Bongu, Astrolabe-bay, New Guinea, leg. C. Wahnes, Mus. Dresden no. 1350.

This specimen has 174 ventrals and 41 subcaudals; the pupil is distinctly elliptic. Upper surface of head with the usual dark, light-edged spots of *A. mülleri*; the light band on the side of the head is rather indistinct; the oblique bar below the eye is present. Most of the horny scale-coverings have fallen off, so that the body which probably was brownish in life, now is of a light lead-grey colour. The anterior part of the back with a narrow dark lead-grey line on the second scale-row, and a much broader one on the sixth scale-row. Between the dark line and the dark band the scales bear small dark spots.

This specimen had been described already by Boettger (l. c.). Three other specimens from the same region (1 ex., Astrolabe-bay; 2 ex., Stephansort) were described by Méhelÿ (1895, 1898); judging by his notes they agree closely with the typical *A. m. mülleri*. Re-examination of these specimens and of the type is necessary to arrive at a conclusion on the status of this subspecies.

Aspidomorphus mülleri interruptus nov. subsp.

(Pl. II fig. 6).

Diemenia mülleri, Günther, Proc. Zool. Soc. Lond., 1877, p. 128 (part.).

Diemenia muelleri, Boettger, Denkschr. Medic. Naturw. Ges. Jena VIII, 1894, (= Semon, Zool. Forschungsr. Austr. Mal. Arch. V), p. 121.

Pseudelaps muelleri, Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 316 (part.); Boulenger, Ann. Mus. Civ. Gen. XXXVIII (ser. 2, XVIII), 1897, p. 706 (part.); Boettger, Kat. Rept. Samml. Senckenb. Mus. II (Schlangen), 1898, p. 115; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 201 (part.).

Pseudelaps mülleri, Werner, Zool. Anz. XXI, 1898, p. 555; Werner, Mitt. Zool. Samml. Berl. I, 4, 1900, table after p. 12, pp. 8, 16, 107 (part.), figs. 40, 41; De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 264 (part.); Hediger, Zool. Jahrb. Syst. LXV, 1934, pp. 450, 480, 532, 564.

Diemenia schlegelii, F. Müller, Verh. Ges. Basel VII, 1885, p. 690 (nec Günther).

14 specimens examined:

26. 1 ex., ♀, type, Jacquinot-Bay, New Britain, leg. H. Hediger, Mus. Basel, no. 11764.

27. 1 ex., ♀, paratype, Jacquinot-Bay, New Britain, leg. H. Hediger, Mus. Basel, no. 11765.

28. 1 ex., ♀, paratype, New Britain, don. Dr. F. Müller, 1884, Mus. Basel, no. 2165.

29. 1 ex., ♂, paratype, Gazella Peninsula, New Britain, leg. A. Willey, B M. N. H. no. 98. 3. 3. 27.

30. 1 ex., juv., paratype, Rataul, New Britain, don. C. T. Backhouse, B. M. N. H. no. 1931. 10. 5. 3.

31. 1 ex., juv., paratype, New Britain, purchd. of Godeffroy Mus., B. M. N. H. no. 83. 3. 17. 14.

32. 1 ex., juv., paratype, Duke of York Id., leg. G. Brown, B. M. N. H. no. 77. 2. 24. 22.

33. 1 ex., ♂, paratype, Muliama, New Ireland, leg. Dr. Schlaginhaufen, Mus. Dresden.

34. 1 ex., ♀, paratype, Moroka, Brit. N. Guinea, leg. L. Loria, VII—VIII. 1893, B. M. N. H. no. 97. 12. 10. 126.

35—36. 2 ex., ♂♂, paratypes, Mt. Victoria, Owen Stanley Range, N. Guinea, leg. A. S. Anthony, B. M. N. H. no. 96. 10. 31. 23—24.

37. 1 ex., ♂, paratype, Madew, St. Joseph-riv., Brit. N. Guinea, 2—3000 ft., leg. W. Stalker, B. M. N. H. no. 1908. 10. 14. 13.

38. 1 ex., ♂, paratype, Albert Edward Range, N. Guinea, 6000 ft., leg. H. S. Rohu, B. M. N. H. no. 1901. 11. 27. 13.

39. 1 ex., ♂, paratype, Kokoda, 1200 ft., Brit. N. Guinea, B. M. N. H.

Terra typica: Jacquinot-Bay, New Britain.

Distribution: New Britain, New Ireland, Duke of York Island, British New Guinea.

Description: Colour (in alcohol): as in the typical *mülleri*, but the light band on the sides of head and neck is not continued along the sides of the body; on the neck it is interrupted by a dark transverse band. The light colour in front of this transverse band may extend on the nape, forming a light collar, which is made more or less indistinct by numerous dark spots. Behind the dark transverse band a whitish or yellowish spot bordered with black, sometimes a second light spot more posteriorly.

The specimens from the Bismarck Archipelago agree exactly with those from British New Guinea in coloration, but they are generally somewhat smaller. Those from New Guinea measured 420—660 mm, those from New Britain 215—460 mm.

Ventrals: 161—182; subcaudals 31—39.

♂ ventrals 161 —167, average 164.8; subcaudals 34—39, average 36.1.

♀ „ 167½—182, average 172 ; „ 30—32, average 31.3.

no.	sex	v.	sc.	no.	sex	v.	sc.
26.	♀	167½	27 +	33.	♂	167	37
27.	♀	169	32	34.	♀	182	31
28.	♀	169	31	35.	♂	166	39
29.	♂	161	36	36.	♂	167	34
30.	juv.	165½	35	37.	♂	164	35
31.	juv.	164	33	38.	♂	162	37
32.	juv.	170	33	39.	♂	165	35

Aspidomorphus mülleri lineatus nov. subsp.

Diemenia muelleri, Boulenger, Ann. Mag. Nat. Hist. (6), XVI, 1895, p. 32.
Pseudelaps muelleri, Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 316 (part.);

Boulenger, Ann. Mus. Civ. Gen. XXXVIII (ser. 2, XVIII) 1897, p. 706 (part.).

Pseudelaps mülleri, Werner, Mitt. Zool. Samml. Berl. I, 4, 1900, table after p. 12, p. 107 (part.); De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 264 (part.); Burt & Burt, Bull. Am. Mus. N. H. LXIII, 1933, p. 570 (part.).

12 specimens examined:

40. 1 ex., ♂, type, Woodlark Id., leg. A. S. Meek, B. M. N. H. no. 96. 7. 8. 16.

41—43. 3 ex., 2 ♂♂, 1 ♀, paratypes, Woodlark Id., leg. A. S. Meek, B. M. N. H. no. 96. 7. 18. 13—15.

44—47. 4 ex., ♂♂, paratypes, Fergusson Id., leg. A. S. Meek, B. M. N. H. no. 95. 4. 26. 66—9.

48. 1 ex., ♂, paratype, Fergusson Id., leg. A. S. Meek, B. M. N. H. no. 1904. 11. 1. 61.

49—51. 3 ex., 2 ♂♂, 1 juv., paratypes, Trobriand Id., leg. A. S. Meek, B. M. N. H. no. 95. 10. 17. 49—51.

Terra typica: Woodlark Id.

Distribution: Woodlark Id., Fergusson Id., Trobriand Id.

Description: This subspecies differs from the others by the reduction of the number of spots on the upper surface of the head and the more or less distinct dark lines on the back. The head bears only a few rather large dark spots on its upper surface, especially anteriorly; these spots are symmetrically arranged. In a specimen from Fergusson Id. (no. 44) each internasal and prefontal bears a spot; the frontal has a median dark stripe; each parietal bears a dark longitudinal stripe, bending inward anteriorly and just reaching the frontal. Occiput with a median dark stripe. The type has only a few dark spots anteriorly. A light streak on the side of head and neck, extending on to the body, interrupted below the eye by a dark oblique bar. This light streak sometimes bordered above by a dark band. The light band is most distinct behind the eye. Throat thickly powdered with grey; belly whitish, powdered with grey anteriorly or dark-coloured over its whole length. Back light brown with dark spots on the scales; these spots forming longitudinal lines, which are most distinct in the specimens from Woodlark Id. One specimen (no. 43) has the upper lip, the throat and belly uniformly whitish; its back is pinkish, as the horny scale coverings have fallen off.

Future studies of a more extensive material must show whether Woodlark Id., Fergusson Id. and Trobriand Id. are all inhabited by the same subspecies or that each has its own race. The specimens examined by me all are easily distinguished from the other races, but the small differences found between specimens of these islands in my opinion are not sufficient to split this subspecies into three different races.

Ventrals (149) 156—168; subcaudals 29—38.

♂ ventrals 156—164, average 159.7; subcaudals 30—38, average 34.2.
♀ „ 168; subcaudals 33.
Total length of largest specimen examined (Fergusson Id.) 520 mm.

no.	sex	v.	sc.	no.	sex	v.	sc.
40.	♂	160	38	46.	♂	161½	37
41.	♂	158	31	47.	♂	159	35
42.	♀	168	33	48.	♂	158	30 +
43.	♂	156	35	49.	♂	159½	30
44.	♂	163½	34	50.	♂	156	33
45.	♂	164	35	51.	juv.	149	29

Aspidomorphus mülleri subsp.

Pseudelaps mülleri, Werner, Mitt. Zool. Samml. Berl. I, 4, 1900, table after p. 12, p. 107 (part.); De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 264 (part.); Werner, Arch. Natg. 89 Jg., 1923, A, Heft 8, p. 169 (part.).

52. 1 ex., ♂, St. Aignan Id., leg. A. S. Meek, B. M. N. H. no. 98. 3. 31. 8.

A specimen from St. Aignan Id. is different from the other specimens examined. As it is but a single specimen I do not feel justified to describe it as a separate race. The head is rather light brownish above with a golden tinge. A series of longitudinal spots in the median line, smaller ones on the sides more or less symmetrically arranged. Each spot with a light edge. A light band from snout on to the sides of neck, interrupted by a dark oblique bar below the eye. Upper labials with a dark brown lower border. Throat at the sides thickly powdered with grey, lighter in the middle; belly powdered anteriorly, whitish posteriorly. Total length 450 mm.

no. 52. ♂ v. 171, sc. 36.

Aspidomorphus schlegelii (Gthr.).
(Pl. II fig. 3).

Elaps mülleri Schlegel, Essai Phys. Serp. I, 1837, pp. 182, 243 (part.); Traill, transl. of Schlegel's Essay, 1843, pp. 181, 235, 251 (part.); Schlegel & Müller, Verh. Nat. Gesch. Ned. Overz. Bez., Zool., Amph., 1844, p. 66 (part.), pl. IX fig. 1.

Elaps müllerii, Schlegel, Essai Phys. Serp. II, 1837, p. 452 (part.).

Aspidomorphus mülleri, Fitzinger, Syst. Rept., 1843, p. 28 (part.).

Pseudelaps mulleri, A. M. C. Duméril, Mém. Ac. Sci. Paris XXIII, 1853, p. 517 (p. 121 of separate) (part.); Duméril, Bibron & Dumeril, Erp. Gén. IX, 1854, p. 376 (part.); Fry, Proc. R. Soc. Queensl. XXVII, 1915, p. 94 (part.).

Pseudelaps mülleri, Duméril, Bibron & Duméril, Erp. Gén. VII, 1854, pp. 1206, 1233 (part.); Bleeker, Nat. Tijdschr. Ned. Ind. XVI (ser. 4, II), 1859, p. 422 (part.); Werner, Mitt. Zool. Samml. Berl. I, 4, 1900, table after p. 12, p. 107 (part.); De Rooij, Rept. Ind. Austr. Arch. II, 1917, pp. 264, 311, 314 (part.), fig. 106; De Jong,

Nova Guinea XV, Zool., 1927, p. 306 (part.); Schüz, Abh. Mus. Dresd. XVII, 2, 1929, p. 16 (part.).

Demansia mülleri, Günther, Cat. Colubr. Sn., 1858, p. 213 (part.).

Pseudoelaps mülleri, Jan, Prodr. Icon. Oph., 1859, pp. 17, 20 (= Revue Mag. Zool. 1859. pp. 123, 126) (part.).

Pseudoelaps (*Pseudoelaps*) *mülleri*, Jan, Elenco sist., 1863, p. 115, (part.).

Diemenia mülleri, Krefft, Snakes Austral., 1869, p. 41 (part.); Meyer, Mon. Ber. Ak. Wiss. Berl., 1874, p. 137 (nec Schlegel, emend. Günther (1872); Meyer, Abh. Mus. Dresd. I, 2, 1886, p. 13 (part.).

Diamenia mulleri, Sauvage, Bull. Soc. Philom. Paris (7) II, 1878, p. 33 (nec Schlegel, emend. Günther 1872).

Pseudelaps muelleri, Boulenger, Cat. Sn. Brit. Mus. III, 1896, p. 316 (part.); Lidth de Jeude, Nova Guinea V, 1911, p. 527 (part.); Lidth de Jeude, Nova Guinea IX, Zool., 1911, pp. 285, 286 (part.), pl. VIII fig. 6; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 201 (part.); Werner, in Brehms Tierleben 4. Aufl., V (Lurche u. Kriecht. II), 1913, p. 460 (part., excl. fig.) (reprinted 1920); Kinghorn, Snakes of Australia, 1929, pp. 44, 128 (part.).

Diemenia schlegelii Günther, Ann. Mag. Nat. Hist. (9) IV, 1872, pp. 14, 35; Peters & Doria, Ann. Mus. Civ. Gen. XIII, 1878, pp. 405, 445.

Pseudelaps schlegelii, Barbour, Bull. Mus. Comp. Zool. LI, 1908, p. 320; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912; Brongersma, Handel. 24ste Ned. Nat. Gen. Congr., 1933, p. 200; Brongersma, Vakblad v. Biologen XV, 1933, pp. 29, 31 (on latter page as *schlegeli*, err. typ.).

Trimeresurus ikaheka, Sauvage, Bull. Soc. Philom. Paris (7) II, 1878, pp. 33, 43 (part., supposed juv.).

Pseudelaps muelleri insulae, Barbour, Bull. Mus. Comp. Zool. LI, 1908, p. 320; Barbour, Mem. Mus. Comp. Zool. XLIV, 1912, p. 132; Werner, Arch. Natg. 89 Jg., 1923, A, Heft 8, pp. 169, 170 (as var.); Barbour & Loveridge, Bull. Mus. Comp. Zool. LXIX, 1929, p. 324; Mertens, Zoologica, XXXII, 6, Lfg. 84, 1934, pp. 92, 160, 198 (mutant).

Pseudelaps mülleri insulae, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 256; Kopstein, Zool. Med. Leid. IX, 1926, p. 111.

Pseudelaps muelleri var. *insularis*, Lidth de Jeude, Nova Guinea, V, Zool., 1911, p. 529 (also as subsp.).

P(*seudelaps*) *insularis*, Lidth de Jeude, Nova Guinea, IX, Zool., 1911, p. 281.

Pseudelaps muelleri var. *concolor* Werner, Sitz. Ber. Ak. Wiss. Wien, Math.-Naturw. Kl., Abt. I, CXXXIV, 1925, p. 63.

45 specimens examined:

53. 1 ex., ♂, cotype of *schlegelii* Gthr., Misool, purchd. of Mr. Jamrach, B.M.N.H. no. 70. 8. 30. 149.

54. 1 ex., ♀, cotype of *schlegelii* Gthr., Misool, purchd. of Mr. Jamrach, B.M.N.H. no. 70. 8. 30. 150.

55. 1 ex., ♂, cotype of *mülleri* Schl., Lobo, Triton-bay, New Guinea, leg. S. Müller, 1828, Mus. Leid. Herp. no. 1403.

56. 1 ex., ♂, Sermowai riv., leg. K. Gjellerup, 25. III. 1911 (on ground, near mouth of river), Mus. Amst.

57. 1 ex., ♂, Upper Tor riv., at base of Gauthier Mts., ± 300 m, leg. K. Gjellerup, 8. XI. 1911, Mus. Amst.

58. 1 ex., ♀, Rotanbrugbivak on Doorman riv., leg. Jhr. W. C. van Heurn, 27. IX. 1920, Mus. Amst.

59. 1 ex., ♂, Pionierbivak on Mamberamo riv., leg. Jhr. W. C. van Heurn, 24. VIII. 1920, Mus. Amst.

60. 1 ex., ♀, Prauwenbivak on Idenburg riv., leg. Jhr. W. C. van Heurn, XI. 1920, Mus. Amst.

61. 1 ex., juv., Arfak Mts., leg. C. Mulié, 1875, Mus. Leid. Herp. no. 6304.

62—63. 2 ex., ♂, ♀, Doré, Mus. Dresd. no. 844, 846.

64—65. 2 ex., ♂, ♀?, near Lake Sentani, 1903, Mus. Leid. Herp. no. 6305.

66. 1 ex., ♂, Hollandia, leg. K. Gjellerup, 22. II. 1911, Mus. Amst.

67. 1 ex., ♀, Eitape, leg. Dr. Schlaginhaufen, VIII. 1907, Mus. Dresd. no. 2350.

68. 1 ex., ?, Fak-Fak, leg. A. E. Pratt, B. M. N. H. no. 1905. 11. 29. 20.

69. 1 ex., ?, Fak-Fak, leg. A. E. Pratt, B. M. N. H. no. 1908. 6. 30. 11.

70—71. 2 ex., ♂, juv., Fak-Fak, leg. A. E. Pratt, B.M.N.H. no. 1909. 4. 30. 14 a–b.

72—73. 2 ex., ♂, ♀, Fak-Fak, leg. Palmer v. d. Broek, IX. 1908, Mus. Leid. Herp. no. 6306.

74—75. 2 ex., ?, Mansinam, purchd. of Mr. Boucard, B.M.N.H. no. 78. 1. 11. 14 and 78. 2. 11. 12.

76—78. 3 ex., ♂♂, Salawatti, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6307.

79. 1 ex., ♂, Waigeoe, leg. Bernstein, 1866, Mus. Leid. Herp. no. 5623.

80. 1 ex., ♂, Batanta, leg. Bernstein, 1866, Mus. Leid. Herp. no. 6308.

81. 1 ex., ♂, Kordo on Mysore (Schouten Ids.), Mus. Dresd. no. 850.

82. 1 ex., ♀, Jobi, leg. Rosenberg, 1869, Mus. Leid. Herp. no. 6309.

83. 1 ex., ♂ juv., North Coast of Brit. New Guinea, 900 ft., B. M. N. H. no. 1905. 1. 30. 28.

84. 1 ex., juv., Kokoda, Brit. New Guinea, 1200 ft., B. M. N. H.

85. 1 ex., ♂, loc.?, Mus. Amst.

86—95. 10 ex., 7 ♂♂, 3 ♀♀, North Western New Guinea and/or neighbouring islands, don. Utrecht Mission Association, Mus. Leid. Herp. no. 5918.

96. 1 ex., ♀, Tomaramè, Bintoeni-bay, W. New Guinea, leg. Kopstein X. 1923, Mus. Leid. Herp. no. 5107.

97. 1 ex., ♂, loc.?, Mus. Leid. Herp. no. 6310.

Terra typica: Misool.

Distribution: New Guinea (especially western part) and surrounding islands on the Sahul-shelf.

Description: Colour (in alcohol): general colour brownish, sides of head and body with alternating light and dark bands: a light band along the upper labials not interrupted below the eye by a broad dark bar, at the most by a narrow dark line. This light band is bordered above by a brown band with still darker edges. Above this dark band again a light one; a second dark band from the supraocular region on to the neck and body, separated from its fellow by a light vertebral band, commencing on the occiput. All these bands are extended on to the anterior part of the body. The throat may be almost completely black or it is thickly powdered with brown. In one specimen the throat is black ante-

riorly; this black colour is continued backward as two diverging bands separated by a light coloured wedge.

Some specimens are very darkly coloured and the light bands then become indistinct or the colour becomes uniformly brown above. The light vertebral band is the last to disappear. A specimen from the surroundings of Lake Sentani is uniformly greyish with only a slight indication of the markings. Such uniform dark specimens have been described as the subsp. *insulae* by Barbour and as var. *concolor* by Werner; in my opinion they are not real subspecies and for the present I consider them as individual variations only.

The belly is very variable in colour: the ventrals may be dark spotted, thickly or thinly powdered with blackish or even uniformly whitish. Often the anterior part of the belly is very dark, the powdering becoming lighter posteriorly and then the hindermost part of the belly is whitish.

Two small specimens from British New Guinea (no. 83, 84) slightly resemble *A. m. mülleri*; they are, however, easily distinguished from the latter by the low number of ventrals and subcaudals.

Ventrals 138—161, average 148.0; subcaudals 19—30, average 23.8.
♂ Ventrals 138—156, average 146.3; subcaudals 23—29, average 25.7.
♀ „ 138—161, average 151.5; subcaudals 20—28, average 23.

no.	sex	v.	sc.	no.	sex	v.	sc.
53.	♂	145	23	76.	♂	141	25
54.	♀	152	21	77.	♂	142	23
55.	♂	147	26	78.	♂	145	23
56.	♂	140	24	79.	♂	150	26
57.	♂	143	26	80.	♂	154	25
58.	♀	144	21	81.	♂	148	28
59.	♂	138	26	82.	♀	151	24
60.	♀	144	23	83.	♂	142	24
61.	juv.	± 155	20	84.	juv.	148	25
62.	♂	156	28	85.	♀	150	22
63.	♀	157	24	86.	♂	152	25
64.	♂	138	19 +	87.	♂	150½	25
65.	♀?	142	22	88.	♂	152 +	29
66.	♂	139	25	89.	♂	153	29
67.	♀	146	24	90.	♂	149	26 +
68.	?	138	24	91.	♂	150	28
69.	?	147	19	92.	♂	153½	28
70.	♂	145	22	93.	♀	161	28
71.	juv.	151	19	94.	♀	157	22
72.	♂	144	26	95.	♀	158	25
73.	♀	149	20	96.	♀	147½	20
74.	?	157	26	97.	♂	146	25
75.	?	153	30				

The species *mülleri* and *schlegelii* have been referred alternately to *Pseudelaps* Dum. (= *Aspidomorphus* Fitz.) and to *Demansia* Gray. That these genera are strongly alike, is shown by the fact that several species which were originally described as belonging to "*Pseudelaps*" later were referred to *Demansia*, as they proved to be young specimens of species of the latter genus (Longman 1912, p. 24; Fry 1915, p. 95).

Tabulating the characters of these genera, as given by Boulenger (1896, p. 315, 321) and Kinghorn (1929, p. 39) the following differences are found:

Demansia	*Aspidomorphus*
1. Canthus rostralis distinct	1. No canthus rostralis
2. Eye moderate or large	2. Eye small
3. Pupil round	3. Pupil vertically elliptic
4. Tail moderate or long	4. Tail moderate or short

The material of these genera in our museums is very scanty, so that I cannot arrive at a definite valuation of the importance of these characters; the following remarks are made after studying the available specimens and literature:

1. The canthus rostralis is very distinct in the specimens of *Demansia psammophis* (Schl.) which I examined, as the sides of the head are nearly vertical, while in *A. mülleri* and *A. schlegelii* the sides of the head are more or less oblique, making the canthus rostralis indistinct. In the description of *Demansia ingrami* Boulenger (1908, p. 333) mentions however that the canthus is feeble, so that this character does not seem to be so very important.

2. The diameter of the eye, as compared to its distance from the mouth, and to the length of the snout, varies as follows:

	A. schlegelii	*A. mülleri*	*D. psammophis*
$\frac{\text{diameter of eye}}{\text{distance from mouth}}$	1.2—1.6	1.5—1.6	1.6—1.8
$\frac{\text{length of snout}}{\text{diameter of eye}}$	1.8—2.4	1.6—2	1.7—1.8

The eyes of *A. schlegelii* and *A. mülleri* generally are smaller than those of *D. psammophis*, but the differences are not very great, as the ranges of variation slightly overlap.

3. The pupil of *A. schlegelii* is vertically elliptic, that of *A. mülleri* mostly roundish like that of *Demansia*, in some specimens, however, it is distinctly elliptic. The pupil-form is a very important character when dealing with living specimens, but in preserved specimens it often seems

to be changed (Walls, 1932, p. 68) and then not too much stress must be laid on it. Longman (1918, p. 40) describes the pupil of living specimens of *Pseudelaps harriettae* (Krefft) (= *A. harriettae*) as being almost circular, and judging from the figures given by Kinghorn (1929, p. 124—128) this also is the case in other species of the genus.

4. The relation $\frac{\text{total length}}{\text{length of tail}}$ in the different species of the genera *Aspidomorphus* and *Demansia*, as calculated from the measurements given by Boulenger, and those obtained from the specimens examined by myself, varies as follows:

Aspidomorphus squamulosus (D.B.D.)	6.8	*Demansia psammophis* (Schl.)	4.1–4.3
„ *krefftii* (Gthr.)	7.7	„ *torquata* Gthr.	4
„ *harriettae* (Krefft)	7.5–9.2	„ *olivacea* (Gray)	4.2
„ *diadema* (Schl.)	5.5–7.5	„ *modesta* (Gthr.)	5.4
„ *mülleri* (Schl.)	7.1–8.1	„ *textilis* (D. B. D.)	5.8
„ *schlegelii* (Gthr.)	8.1–9.6	„ *nuchalis* (Gthr.)	7
		„ *ingrami* (Blgr.)	6.2

At first I (1933*d*, p. 200; 1933*e*, p. 31) believed that *mülleri* had to be placed in the genus *Diemenia* (= *Demansia*). Taking into consideration the rather indistinct canthus rostralis, the slightly smaller eye, the elliptic pupil (sometimes, however, almost circular), and the shorter tail, I think that both *mülleri* and *schegelii* are best referred to the genus *Aspidomorphus* Fitz.

It is remarkable that *Demansia ornaticeps* (Macleay) shows the same colour-pattern as *A. mülleri* (cf. Kinghorn 1929, fig. on p. 142). Kinghorn (1929, p. 128) mentions that, though no official record is available, it has been reported to him that *A. mülleri* exists in northern Australia; perhaps specimens of *D. ornaticeps* have been mistaken for the similarly coloured *Aspidomorphus mülleri*. These two species seem to be very closely related and I doubt whether they can be placed in different genera.

HYDROPHIIDAE.

Laticauda laticaudata (L.).

Laticauda laticaudata, M. A. Smith, Mon. Sea-Sn., 1926, p. 4, fig. 5.

Platurus colubrinus, De Jong, Résult. Zool. Exp. Néerl. Buru I, 1925, p. 11 (= Treubia VII, 1926, p. 95).

The specimen from Leksoela, Boeroe, which was identified by De Jong (l. c.) as *Platurus colubrinus*, has 19 scale-rows and a dark upper lip, and must, therefore, be referred to *Laticauda laticaudata*.

Miss D. M. Cochran (in litt.) records a specimen from Poeloe Morsala (or Mansalor, off Sibolga, Sumatra; U. S. N. M. no. 30761).

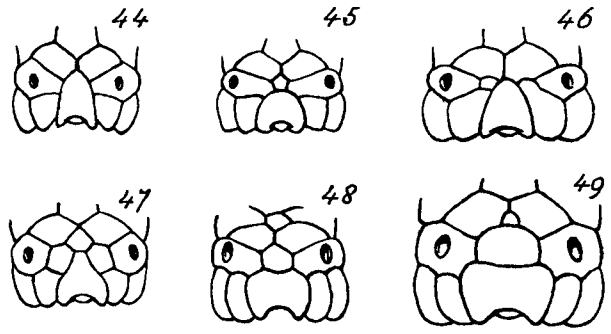
Laticauda colubrina (Schn.).

(Textfigs. 44—47).

Platurus colubrinus, De Rooij, Rept. Ind.-Austr. Arch. II, 1917, p. 217.
Laticauda colubrina, M. A. Smith, Mon. Sea-Sn., 1926, p. 6, fig. 3.

De Rooij (l. c.) places this species in the section in which the rostral is in contact with six shields. Though this is normally the case several specimens were found in which the rostral is bordered by five shields only. The following variations were found:

1 ex., Ambon, stat. 181, Siboga-Exp., Mus. Amst.; a small additional shield is present between the rostral, nasals and internasals, separating the latter from the rostral (fig. 45).



Figs. 44—47, snout-shields of *Laticauda colubrina* (Schn.): fig. 44, loc.?, normal, × 3; fig. 45, Ambon, var., × 3; fig. 46, N. Coast of Flores, var., × 3; fig. 47, loc.?, var., × 3; Figs. 48—49, snout-shields of *Laticauda semifasciata* (Reinw.): fig. 48, Java Sea, normal, natural size; fig. 49, Sikka, var., × 3.

1 ex., Koer, Taam Ids., stat. 252, Siboga-Exp., Mus. Amst.; as the specimen mentioned above, but with a second small additional shield separating the left nasal from the rostral.

1 ex., locality unknown, Mus. Amst.; three small additional shields separating nasals and internasals from the rostral (fig. 47).

1 ex., North Coast of Flores, 121° 25′ E., 8° 34′ S., IX. 1908, leg. Van der Sande, Mus. Amst.; nasals separated from rostral, on right side by a small additional shield, on the left side by the first upper labial and the internasal forming a suture (fig. 46).

1 ex., Indian Ocean, Mus. Amst., left first upper labial in contact with internasal.

1 ex., Island Rau, leg. Bernstein, Mus. Leid. Herp. no. 1505; right internasal separated from rostral by left internasal and right nasal.

In two specimens (Indian Ocean, Mus. Leid. Herp. no. 1478 and Kei-Ids., Mus. Amst.) one of the internasals is nearly separated from the rostral by the internasal from the other side. Thirty-two specimens are quite normal, the rostral being bordered on each side by the first labial, the nasal and the internasal.

The azygous shield between the prefrontals is absent in one specimen (Aroe Ids., leg. Van Stockum, Mus. Leid. Herp. no. 4597); in all other characters it agrees completely with *L. colubrina*. Scalerows 23—25, upper lip with a yellow border.

Miss D. M. Cochran (in litt.) records a specimen from Simaloer (U.S.N.M. no. 30760) and one from the Batoe Ids. (U.S.N.M. no. 31707).

Laticauda semifasciata (Reinw.).
(Textfigs. 48—49).

Platurus schistorhynchus, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 216 (part.).
Laticauda semifasciata, M. A. Smith, Mon. Sea-Sn., 1926, p. 11, fig. 6; Mertens, Abh. Senckenb. natf. Ges. XLII, 1930, p. 325.

After examination of the specimens from E. Flores and Poeloe Kambing in Strait Lobetobi recorded by De Rooij as *Platurus schistorhynchus* I can confirm the supposition of Smith and Mertens that these specimens must be referred to *Laticauda semifasciata*. The following specimens were examined by me:

1 ex., ♀, type, Moluccas, leg. Reinwardt, Mus. Leid. Herp. no. 1468. Sq. 23, V. 199 + 2/3, A. 1/1, Sc. 35/35 + 1; 38 bands on body; total length 1145 mm, tail 135 mm.

1 ex., juv., Wahaai, Ceram, leg. Moens, 1862, Mus. Leid. Herp. no. 1660. Sq. 23, V. 195 + 2/3, A. 1/1, Sc. 34/34 + 1; 38 bands on body.

1 ex., juv., Sikka, E. Flores, leg. Dr. H. ten Kate, 1891, Mus. Leid. Herp. no. 6267.

Sq. 23, V. 196 + 3/3, A. 1/1, Sc. 41/41 + 1; 38 bands on body; a small scale between internasals and upper rostral (fig. 49).

2 ex., ♂♂, South Coast of E. Flores, 122° 18′ E., 14. I. 1909, leg. Van der Sande, Mus. Amst.

1. Sq. 23, V. 199 + 3/3, A. 1/1, Sc. 3/3 + 3 + 34/34 + 1; 39 bands on body; a small additional scale between the upper rostral and the internasals; two small shields between the prefrontals, the left one is largest and is in contact with the frontal; total length 1125 mm, tail 150 mm.

2. Sq. 23, V. 202 + 2/3, A. 1/1, Sc. 2/2 + 1 + 37/37 + 1; 37 bands

on body; total length 940 mm, tail 113 mm; median prefrontal hardly touching frontal.

1 ex., juv., South Coast of E. Flores, 122° 23′ E., 300 m from coast reef, 13. I. 1909, leg. Van der Sande, Mus. Amst.

Sq. 23, V. 195 + 5/5, A. 1/1, Sc. 36/36 + 1; 38 bands on body; total length 880 mm, tail 84 mm.

1 ex., ♂, Poeloe Kambing in Strait Lobetobi, in a rockpool, 9. XII. 1908, leg. Van der Sande, Mus. Amst.

Sq. 23, V. 204 + 4/3, A. 1/1, Sc. 3/3 + 3 + 34/35 + 1; 35 bands on body; total length 925 mm, tail 125 mm.

1 ex., 116° 16′ E., 7° 54′ S. (Java Sea), 30. I. 1930, leg. Dr. H. Boschma, Mus. Leid. Herp. no. 6270; only head and tail have been preserved, so that no absolute certainty exists about the identification of this specimen; taking the locality into consideration I am convinced that it must belong to this species.

Last three ventrals double, A. 1/1, Sc. 2/1 + 2 + 37/37 + 1; length of tail 150 mm.

VIPERIDAE.

Trimeresurus hageni (Lidth).

Trimeresurus hageni, Brongersma, Zool. Med. Leid. XVI, 1933, p. 6.

1 ex., Pagi Ids., leg. Dr. W. L. Abbott, XI. 1902, U. S. N. M. no. 31695.
1 ex., S. Pagi, leg. Dr. W. L. Abbott, 22. XI. 1902, U. S. N. M. no. 31694.

Trimeresurus puniceus (Boie).

Lachesis puniceus, De Rooij, Rept. Ind. Austr. Arch. II, 1917, p. 286.

1 ex., N. Pagi, leg. Dr. W. L. Abbott, 20. XI. 1902, U. S. N. M. no. 31696.

REMARKS ON DISTRIBUTION.

Several cases of supposed discontinuous distribution of indo-australian reptiles are mentioned in literature. As sometimes rather far-reaching conclusions are derived from such distributions it may be worth while briefly to discuss some of these cases. The best known example of discontinuity in the distribution of an indo-australian reptile is perhaps that of *Cnemaspis kandianus* (Kel.). This species was recorded by De Rooij (1922, p. 219, 236), De Beaufort (1926, p. 75) and Harrison (1928, p. 377) from two widely separated regions: from Southern India and Ceylon on one side, from the islands west of Sumatra on the other side, while it was not known from Sumatra, nor from the asiatic continent (except S. India). Harrison sees in the distribution of this species an argument

in favour of a former direct land-connection between the Archipelago and Southern India; in his opinion the genus *Gonatodes* (in part. = *Cnemaspis* [1])) reached the Archipelago over a Lemurian arc, which included Southern India, Ceylon, the Andamans and Nicobars, and which was continued eastward over the Lesser Sunda Islands; this arc was widely separated from Sumatra (Harrison, l. c., fig. 20). There are, however, several objections against this hypothesis.

The authors mentioned above, when dealing with the distribution of *Cnemaspis kandianus* omitted from their lists of localities a record of this species from Preparis Id., probably because *Gymnodactylus wicksii* Stol., on which the record was based, was referred by Boulenger (1890, p. 77) with some doubt to the synonymy of *Cn. kandianus*; the record was repeated by Annandale (1905, p. 91) and Sarasin (1910, p. 134), and at present there is no reason to doubt its correctness [2]). The presence in Preparis Id. is interesting as it extends the range over a considerable distance toward Lower Burma, from which (Boden Kloss, 1928, p. 800, map facing p. 797) this island is separated by shallow water only (less than 40 fathoms). Recently Mertens (1934, p. 45) mentioned the species from Poeloe Weh, a small island just north off Sumatra, while at present it is also known from the Andamans [3]). Thus the species has a much wider distribution than was supposed; it is very probable that in future it will be discovered in Sumatra, perhaps even in Burma. The distribution of the species as it is known at present does not make it necessary to accept a direct connection between Southern India, Ceylon and the Archipelago. Moreover, the genus is represented by several species in Borneo and the Malay Peninsula; as yet these species are not known from any locality included by Harrison in his Lemurian arc; in my opinion they do not offer any evidence for the former existance of this arc.

The presence of *Cnemaspis timorensis* (D.B.) in Timor might be explained by its reaching this island over the Lemurian arc, which in Harrison's reconstruction (1928, fig. 20) includes the Lesser Sunda Islands, were it not that it is still doubtful whether this species is congeneric with the species of the western part of the Archipelago and the asiatic

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1) Recently M. A. Smith (1933, p. 10) showed that the old-world species included by Boulenger (1885, p. 56) in the genus *Gonatodes*, belong to a separate genus: *Cnemaspis* Str.

2) A specimen identified by Dr. M. A. Smith examined by me in the British Museum. Dr. Smith will deal with the synonymy of *Cnemaspis kandianus* (Kel.) in his forthcoming revision of the British-Indian lizards. I am indebted to him for the permission to include the present notes.

3) Vide note 2.

continent. If it were necessary to accept a landbridge between the islands west of Sumatra, Southern India and Ceylon to explain the distribution of *Cnemaspis kandianus*, there is just as much reason to accept a direct connection between Ceylon and Sumatra to account for the presence of a species of the genus *Cophotis* Ptrs. on each of these islands, while not known from the asiatic continent. Probably in the past this genus had a wider distribution, including the continent. From the distribution of these reptiles I do not believe that any evidence can be derived for the former existance of a direct land-connection between the Archipelago and Southern India, be it the Lemurian arc proposed by Harrison or the Praelanca-continent proposed by Toxopeus (1930, p. 124) for the explanation of the distribution of some Lepidoptera.

Examination of the list of reptiles and amphibians from the islands west of Sumatra published by De Rooij (1922, p. 234—235) and Van Kampen (1923, p. 279), made up to date by including the additions and changes published by later authors (Roux, 1925, p. 319; M. A. Smith, 1926, p. 78—81; De Jong, 1928, p. 2; Brongersma, 1933*a*, p. 3—11, and 1933*b*, p. 1), shows that of the 89 non-marine species of reptiles, 7 species and one or two subspecies (as far as our present knowledge goes) are restricted to this island chain, while of the remaining 79 species of reptiles and of the 23 species of amphibians, which all have a wider distribution, 8 species are not known from Sumatra. Of these *Cnemaspis kandianus* has been discussed above, while the possibility of the occurrence on Sumatra of *Elaphe subradiata enganensis* (Vinc.) has been dealt with on p. 197; the other species are: *Lygosoma modiglianii* Blgr., which is known from Sipora and Borneo; *Lygosoma atrocostatum* (Less.), known from Simaloer, Sinkep, Singapore, Java, and numerous other localities; *Calamaria everetti* Blgr., from Siberoet, Borneo and Palawan; *Calophrynus punctatus* Ptrs., from Sipora and Borneo; *Philautus pictus* (Ptrs.), Siberoet, Borneo and Singapore; *Philautus horridus* (Blgr.), Siberoet, Malay Peninsula. For three of these species Borneo is the nearest locality known, for two others it is Singapore and the Malay Peninsula. If we wanted to explain these facts in the way so often used in such cases, we should have to accept the former presence of a direct connection between the Mentawei Ids. and Borneo or the Malay Peninsula; this connection cannot include Sumatra as the species have not been found there, hence it probably would have been a viaduct. In all probability these species are still to be discovered in Sumatra too, as was the case with *Lygosoma vittigerum* Blgr., which was recorded by De Rooij (1915, p. 231) from Sipora, Borneo and the Malay Peninsula, and of which De Jong (1928, p. 2) showed that it occurred in Sumatra. The herpetolog-

ical fauna of Sumatra still is very insufficiently known, as was shown recently (Brongersma & Wehlburg, 1933, p. 2) by the discovery in this island of *Xenelaphis ellipsifer* Blgr., a rather large snake, which hitherto had been considered an endemism of Borneo. Even the presence of such large mammals as *Rhinoceros sondaïcus* Desm. was proved definitely only a few years ago (cf. De Beaufort, 1928, p. 43). It is therefore not to be wondered that a number of so much smaller animals as these reptiles and amphibians has escaped the notice of collectors.

De Rooij (1922, p. 238) arrives at the conclusion that the Batoe Ids. were separated from Sumatra at a later time than the other islands, as their reptile fauna includes: *Varanus dumerili* (Schl.), *Geoemyda spengleri* (Gmel.), *Geoemyda spinosa* (Gray), species also known from Sumatra, but not from the other islands of this chain. *Boiga dendrophila* (Boie) which also occurs on Nias (De Rooij, 1922, p. 235) and Poeloe Babi (cf. p. 211), cannot be used as convincing evidence for her supposition. *Geoemyda spinosa* (Gray), however, is now known to occur in the Banjak Ids. too (cf. p. 184); these islands are also inhabited by a freshwater turtle (*Dogania subplana* (Geoffr.), cf. p. 184), which at present is known to occur in Sumatra, but has not been found on other islands of this chain. Therefore there is as much reason to believe that the Banjak Ids. were connected with Sumatra just as long as the Batoe Ids. were. In their mammal fauna these two groups also show a close resemblance to Sumatra; all the mammals known from the Batoe Ids. are also found on Sumatra, from the Banjak Ids. one endemism is known, while the other mammal species are known from Sumatra too (Boden Kloss, 1927, p. 806). I shall not try to solve the problem of the connections which may have existed between Sumatra and the islands off its west coast, as this is a problem to be solved by geologists rather than by zoologists. All I can say is that the herpetological fauna of the island-chain west of Sumatra shows a great resemblance to that of Sumatra itself, as is shown for instance by the presence on some of these islands and in Sumatra of the same race of *Boiga dendrophila* (Boie) (cf. p. 211). I do not think it impossible that *Lygosoma relictum* (Vinc.) which at present is known from some of the islands west of Sumatra (Simaloer, Nias, Sipora, Engano) only and which is sometimes used to prove that these islands once were connected with each other, may still be found in Sumatra when the western part of that island becomes better known.

A number of species are mentioned from Java and the asiatic continent, while not known from Sumatra (cf. Dammerman, 1929, p. 12; Brongersma, 1929, p. 64—68, and 1930, p. 299). One of these cases is solved in the present paper (p. 184), where I showed that the specimen

on which De Rooij (1918, p. 339) based her record of *Crocodilus palustris* Less. from Java, in reality belongs to *Crocodilus siamensis* Schn.; it is true that *Cr. siamensis* shows the same abnormal distribution, but as this species is very rare (if still existant) in Java, it is possible that for the same reason it has been overlooked in Sumatra, or that it has become extinct in the latter island. *Python molurus* (L.), which shows the same discontinuity in its distribution, also seems to be rare in Java, as De Rooij (1917, p. 22) did not mention an exact locality on this island; that it really exists there was shown by Kopstein (1930, p. 273) who mentions specimens from Tasikmalaja and Pameungpeuk (West Java); its not having been found in Sumatra perhaps may be explained in the same way as for *Cr. siamensis*.

Of several species it was proved that their records for Java were based on wrong identifications; thus Mertens (1929, p. 26) showed that the record of *Mimetozoon craspedotum* (Mocq.) was based on specimens of *Cosymbotus platyurus* (Schn.). In a former paper I (1933, p. 319—320) could prove that the record for Java of *Gonyocephalus borneensis* (Schl.) was based on specimens of *Calotes jubatus* (D. B.) and *Calotes cristatellus* (Kuhl), that of *Calotes versicolor* Daud. also on *Calotes jubatus*, while the record of *Lygosoma albopunctatum* Gray was based on a specimen of *L. temminckii* D. B.

In the older literature *Vipera russelii* (Shaw) was mentioned from Java (Duméril, Bibron & Duméril, 1854, p. 1436) and Sumatra (Strauch, 1869, p. 87), but later it was assumed that these records were erroneous and that the species was restricted to the asiatic continent; recently, however, the species was discovered on the Lesser Sunda Islands (Dunn, 1927, p. 4; Mertens, 1927, p. 182); this makes the occurrence on Java and Sumatra more probable, and I do not see any reason to doubt the correctness of the locality Sumatra for the specimen in the Leiden Museum (Herp. no. 1608) on which Strauch based his record.

In his reconstruction of the island chains of the Indo-Australian Archipelago Harrison (1928, fig. 20) regards the islands Boeroe and Ceram as a part of an arc which connected the southeastern peninsula of Celebes with the western part of the Archipelago, and thus he was induced to suppose (l. c., p. 376) that *Gymnodactylus fumosus* F. Müll., which at the time had been recorded from Celebes and Java should turn up in the intermediate islands Boeroe and Ceram; as I showed in the present paper (p. 168) the Java record was based on wrongly identified specimens of *G. marmoratus* D. B., and *fumosus* does not occur on Java at all.

The occurrence on Java of *Typhlops polygrammicus* Schl., at least in its typical form, is extremely doubtful (p. 186).

A remarkable case of discontinuous distribution of a genus (*Thecadactylus*) of which one species is restricted to the neotropical region, while a second species was described from the islands in the Torres-strait, is shown (p. 176) not to exist, as the species from the australian region was distinctly different, and had to be referred to the new genus *Torresia*.

These notes may serve to show that our knowledge of the herpetological fauna of the Indo-Australian region is does not yet suffice to permit far-reaching conclusions to be drawn from the distribution of reptiles. Though I am well aware that researches in the field are indispensable for the study of zoogeography, and that these researches will have to enlighten us on many problems which are unsolvable for the museum-worker, I cannot agree with Hesse (1924, p. VI) when he writes: „Reiseausbeuten aus Tierbälgen und Alkoholmaterial haben wir zunächst genug"; on the contrary, a great deal of collecting and revisional work must be done before we shall have reached a satisfactory knowledge of the distribution of the reptiles in the Indo-Australian Archipelago and of the systematic status of many species.

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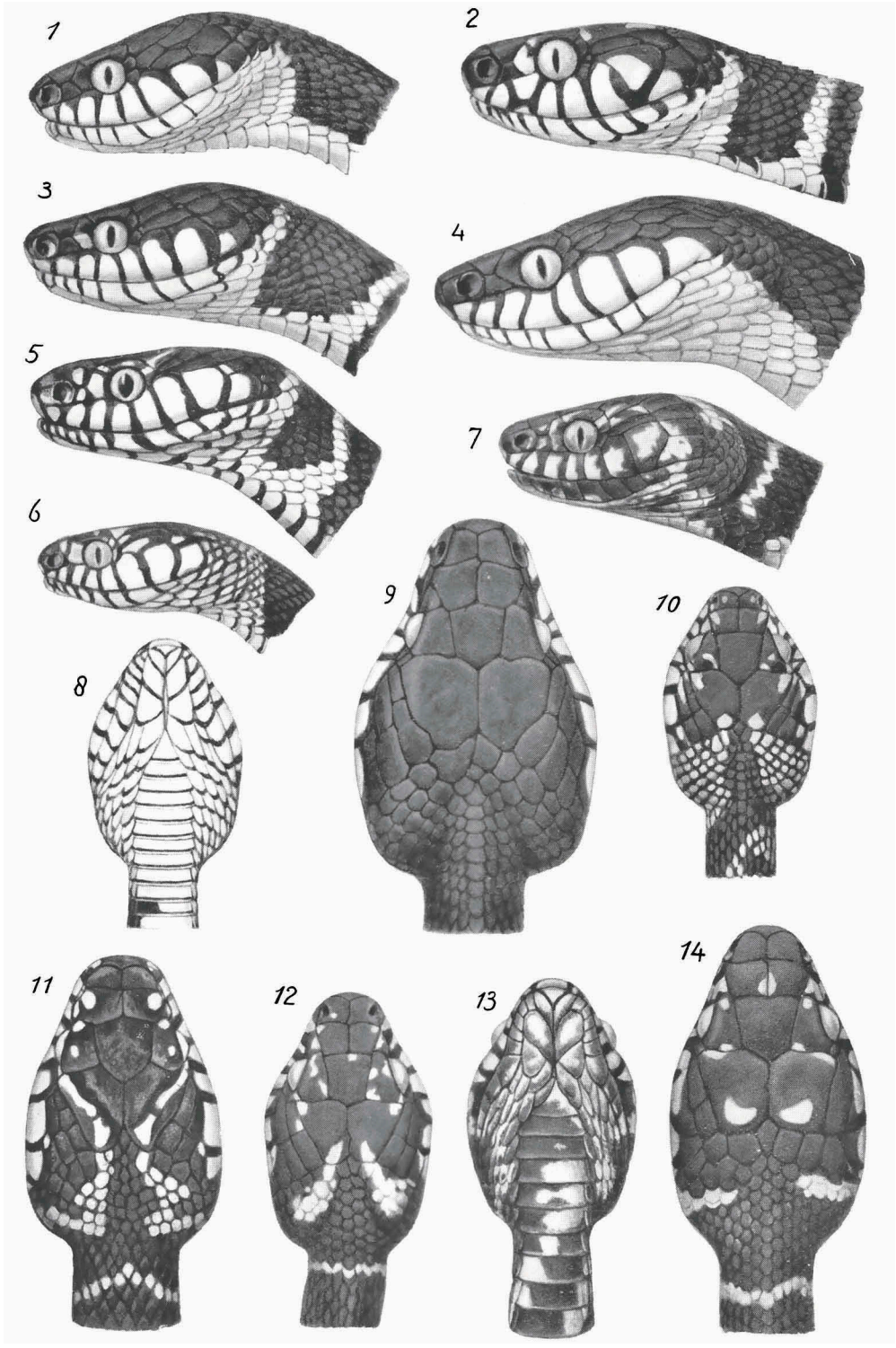
EXPLANATION OF THE PLATES

Plate I, subspecies of *Boiga dendrophila* (Boie); all figures natural size.

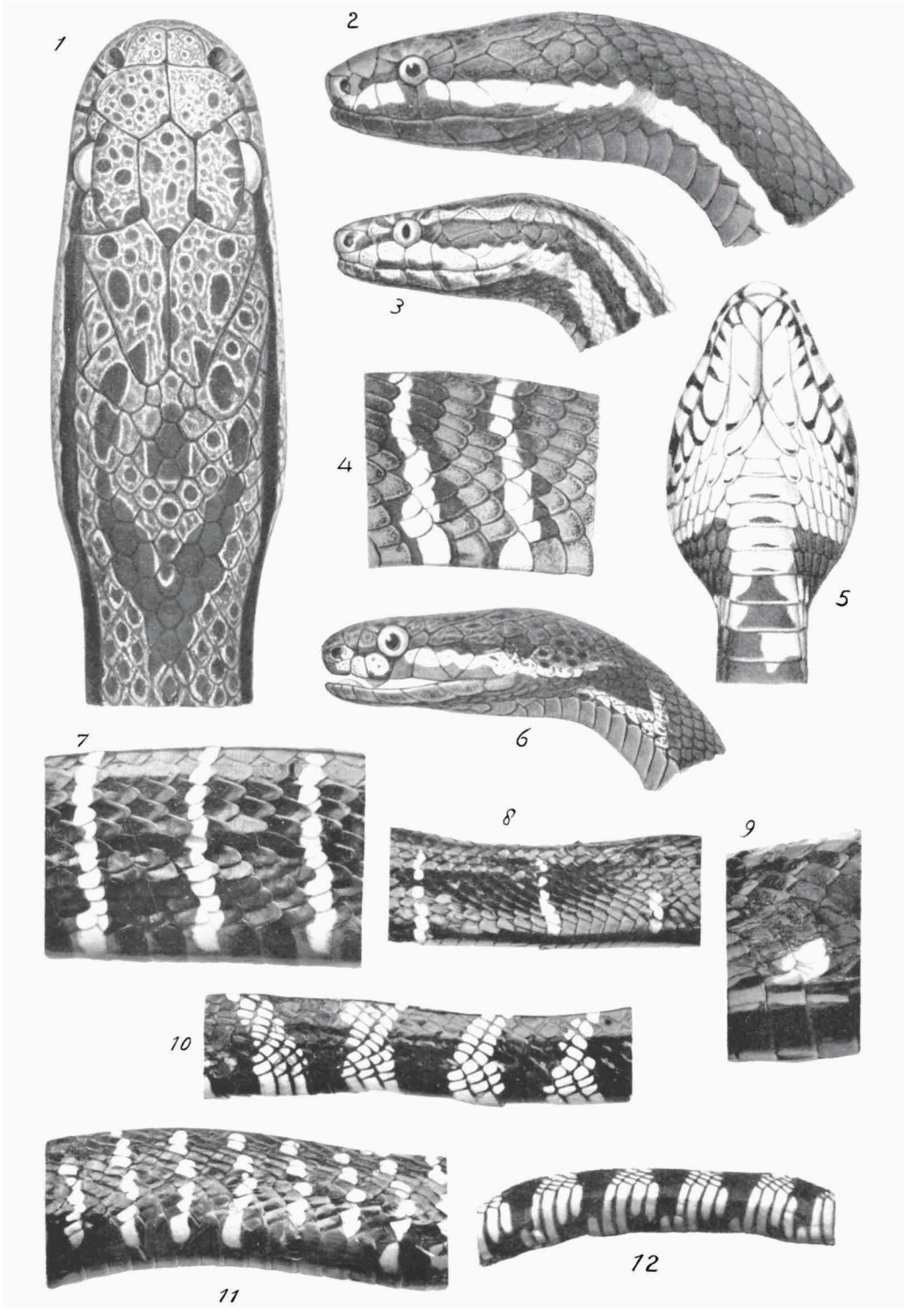
Fig. 1, *B. d. dendrophila* (Boie), type, head, side view;
2, *B. d. occidentalis* nov. subspec., type, head, side view;
3, *B. d. annectens* (Blgr.), N. E. Borneo, leg. Prakke, head, side view;
4, *B. d. melanota* (Blgr.), Lankat, leg. Prakke, head, side view;
5, *B. d. divergens* Tayl., Luzon, Senckenb. Mus., head, side view;
6, *B. d. latifasciata* (Blgr.), Mindanao, Mus. Amst. head, side view;
7, *B. d. gemmicincta* (D. B. D.), Menado, leg. Van Delden, head, side view;
8, *B. d. latifasciata* (Blgr.), Mindanao, Mus. Amst., head, lower view;
9, *B. d. melanota* (Blgr.), Lankat, Prakke, head, upper view;
10, *B. d. latifasciata* (Blgr.), Mindanao, Mus. Amst., head, upper view;
11, *B. d. divergens* Tayl., Luzon, Senckenb. Mus., head, upper view;
12, *B. d. gemmicincta* (D. B. D.), Menado, leg. Van Delden, head, upper view;
13, *B. d. gemmicincta* (D. B. D.), Menado, leg. Van Delden, head, lower view;
14, *B. d. occidentalis* nov. subspec., type, head, upper view.

Plate II, subspecies of *Boiga dendrophila* (Boie) and species of *Aspidomorphus* Fitz.

Fig. 1, *Aspidomorphus mülleri mülleri* (Schl.), Salawatti, head, upper view, × 3;
2, *Aspidomorphus mülleri mülleri* (Schl.), Misool, head, side view, × 2;
3, *Aspidomorphus schlegelii* (Gthr.), near Lake Sentani, head, side view, × 2;
4, *Boiga dendrophila divergens* Tayl., Luzon, Senckenb. Mus., left side of body, nat. size;
5, *Boiga dendrophila occidentalis* nov. subspec., type, head, lower view, nat. size;
6, *Aspidomorphus mülleri interruptus* nov. subspec., type, head, side view × 2;
7, *Boiga dendrophila occidentalis* nov. subspec., type left side of body, about nat. size;
8, *Boiga dendrophila melanota* (Blgr.), juv., Siak, left side of body, about nat. size;
9, *Boiga dendrophila melanota* (Blgr.), Deli, leg. Neeb, left side of body, showing reduced bar, about natural size;
10, *Boiga dendrophila latifasciata* (Blgr.), Mindanao, Mus. Amst., left side of body, about natural size;
11, *Boiga dendrophila gemmicincta* (D. B. D.), N. Celebes, leg. Rosenberg, left side of body, about natural size;
12, *Boiga dendrophila latifasciata* (Blgr.), juv., Mindanao, Mus. Amst., ventral surface of body, about natural size.



M. A. Koekkoek del.



Figs. 1—6, M. A. Koekkoek del.; Figs. 7—12, H. Cornet phot.