

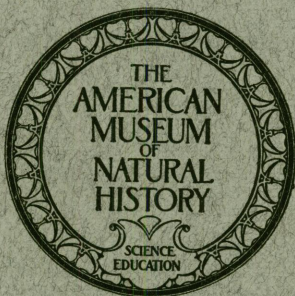
HERPETOLOGICAL RESULTS OF THE WHITNEY SOUTH SEA EXPEDITION. VI

BY CHARLES E. BURT AND MAY DANHEIM BURT

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**Article V.—HERPETOLOGICAL RESULTS OF THE WHITNEY
SOUTH SEA EXPEDITION. VI.**

**PACIFIC ISLAND AMPHIBIANS AND REPTILES IN THE COLLECTION
OF THE AMERICAN MUSEUM OF NATURAL HISTORY**

BY CHARLES E. BURT AND MAY DANHEIM BURT

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INTRODUCTION

On the advice of Dr. Leonard C. Sanford, a trustee and honorary fellow of The American Museum of Natural History, Mr. Harry Payne Whitney decided, in 1920, to finance a zoölogical expedition to the Pacific islands. While the project was planned to be primarily ornithological, no opportunity was lost to obtain desirable material to be used in other fields of study. As a result of this broad and generous policy, the large and valuable collection which serves as the basis of the present report was accumulated.

Three interesting and very readable accounts of the scope, early history, and progress of the Whitney South Sea Expedition have been published by Dr. Murphy (1922, *Science*, LVI, 701-704; 1924, *Natural History*, XXIV, pp. 539-553; and 1925, *Nat. Geogr. Mag.*, XLVIII, pp. 355-426). The second of these relates that the choice of a leader in the field was fixed by virtue of former accomplishment upon Mr. Rollo H. Beck, the well-known exploring naturalist, who had previously rendered valuable service to The American Museum of Natural History in South American waters and elsewhere. The expedition was launched in 1920 with a visit to the classic isle of Tahiti, where, after journeys to several neighboring parts of Polynesia, Mr. Beck purchased the auxiliary schooner 'France,' a step which made the project independent of sailing schedules and trade routes. Thus favored and thus equipped, members of the expedition have continued working in the Pacific area until the present time. The personnel during the period from 1920 to 1930 has changed occasionally and may be indicated as follows:

Mr. R. H. Beck, leader, 1920-1928, assisted by Mr. E. H. Quayle, Mr. J. G. Correia, Dr. F. P. Drowne, Mr. Hannibal Hamlin, and Mr. Guy Richards; Mr. Hannibal Hamlin, leader, 1928-1930; and Mr. W. F. Coultas, leader, 1930, assisted by Mr. W. J. Eyerdam, and Dr. Ernst Mayr.

In addition to these workers, various members of the crew, especially several Polynesians whose names appear frequently on the specimen labels, have given excellent service as collectors.

It seems appropriate at this point to call attention to the fact that Mr. E. H. Bryan, Jr., of the Bishop Museum of Honolulu, while a guest of the Whitney South Sea Expedition in 1925, collected 107 of the lizards reported here (Nos. 41643-41749). These were kindly presented to The American Museum of Natural History through the authorities of the Bishop Museum, and in return for this courtesy a representative series of the Pacific amphibians and reptiles here reported is being sent to Honolulu.

The ornithological collection of the Whitney South Sea Expedition contains many interesting birds, a relatively high percentage of which is new or rare. The valuable preliminary reports on this material written by Murphy, Murphy and Mathews, Hartert, and Mayr, respectively (1924-1932), have appeared in twenty-one numbers of the American Museum Novitates. These bear the collective title, 'Birds Collected During the Whitney South Sea Expedition' and run in consecutive series from I to XXI. For purposes of reference, all of these contributions are listed in the bibliography at the end of this work under the names of the authors given above.

The herpetological collection also contains a number of rare and interesting specimens, although one of its most outstanding features is the remarkable distributional representation that it exhibits, with particular reference to that of some of the common, wide-spread, successful forms. Five preliminary papers dealing exclusively with this material have already appeared. These may now bear the collective title, 'Herpetological Results of the Whitney South Sea Expedition.' The first three of these appeared as unnumbered contributions, but may be assigned the numbers, I to III. The fourth and fifth were designated as numbers IV and V at the time of publication, and the present article is number VI. A general consideration of each of these will follow.

I.—Schmidt, Karl P. 1921. 'A List of the Lizards Collected by R. H. Beck in the Southern Pacific, November, 1920, to May, 1921.' *Copeia*, CI, pp. 90-92.

This article presents distributional data on six species of lizards, *Lepidodactylus lugubris*, *Peropus mutilatus*, *Gehyra oceanica*, *Leiopisma noctua*, *Emoia cyanura*, and *Cryptoblepharis pæcilopleurus*, represented by specimens from seven islands of the Austral, Marquesas, and Society Groups and by a collection from Christmas Island.

II.—Schmidt, Karl P. 1922. 'Second Report on Lizards Secured by the Whitney South Sea Expedition.' *Copeia*, CIV, pp. 23-24.

This account gives additional distributional records on the six species of lizards listed in the first report, these coming from Morea

Island, Society Group, and from various islands in the Paumotu and Marquesas archipelagos.

III.—Ortenburger, A. I. 1923. 'Further Notes on Reptiles Collected by the Whitney South Sea Expedition.' Copeia, CXVII, pp. 59-60.

This contribution, in addition to furnishing further facts concerning the distribution of the six species of lizards previously recorded by Schmidt, adds two forms—a lizard, *Hemidactylus garnotii*, and a turtle, *Chelonia japonica*—to the list of reptiles secured by the Whitney South Sea Expedition. This supplemental material came from the Marquesas, Paumotu, and Society Groups.

IV.—Burt, Charles E. 1930. 'Descriptions of New Species of Lizards from the Pacific Islands (Scincidæ).' Amer. Mus. Novitates, No. 427, pp. 1-3.

In this paper, five new species of skinks are given preliminary diagnoses. These are described in full and figured in the present article. They are *Emoia murphyi* from the Samoan Group and *Emoia whitneyi*, *Sphenomorphus taylori*, *Tribolonotus blanchardi*, and *Tribolonotus schmidtii* from the Solomon Group.

V.—Schmidt, Karl P., and Burt, Charles E. 1930. 'Description of *Emoia sanfordi*, a New Lizard from Islands of the Western Pacific (Scincidæ).' Amer. Mus. Novitates, No. 436, pp. 1-2.

In this article, *Emoia sanfordi* is diagnosed and fully described from islands in the western Pacific area.

Full systematic references to the five preliminary papers just discussed are given below in the synonymy of the various species concerned. The same material reported by our colleagues from the distributional standpoint has now been studied with the view to determining the significance of its colorational and scutellational variations, and the locality records are repeated here only for the sake of completeness. At this point we take pleasure in expressing our appreciation to Mr. Karl P. Schmidt and Dr. A. I. Ortenburger for the aid that they have given us in providing identified series of the South Sea species that they have examined, and to the former for his kind and very helpful criticism of the present work.

The study at hand is based upon not only all of the amphibians and reptiles brought back by the Whitney South Sea Expedition between the years 1920 and 1930, but also upon a supplemental series in the general herpetological collection of The American Museum of Natural History. The latter specimens have been secured chiefly through exchanges with

other museums and have served a useful purpose in enlarging the scope of the present report. The total area considered here is outlined on the accompanying map (Fig. 1), and the section intensively worked by members of the Whitney South Sea Expedition is indicated by the shaded portion. With due appreciation, it suffices to say that the more

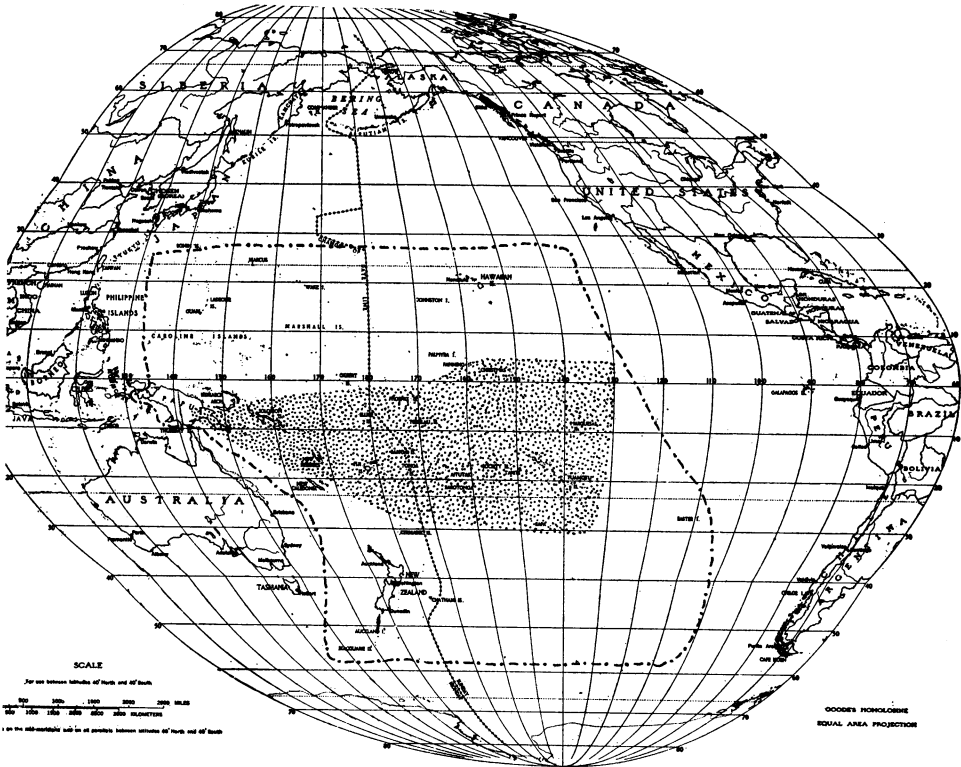


Fig. 1. Map showing the total area considered in this report. The shaded section is the part worked intensively by members of the Whitney South Sea Expedition.

critical material, and therefore the especially significant part, comes from the latter area alone.

It gives us pleasure to acknowledge our indebtedness to those who have co-operated with us in the production of this study. In addition to those mentioned above, we are especially grateful to Dr. R. C. Murphy for his inspiring interest in the project as a whole and for his helpful criticism of and suggestions pertaining to the manuscript, to the

committee in charge of the funds of the Whitney South Sea Expedition (Dr. Leonard C. Sanford, Dr. Frank M. Chapman, and Dr. R. C. Murphy), for financial aid in securing the skilful services of Mrs. William Beutenmüller in the preparation of the line drawings, and to Dr. G. K. Noble for his support of the study. The United States Hydrographic Office has very kindly supplied desirable information pertaining to the location and names of the various Pacific Islands that were not listed in Brigham's Index.

LIST OF PACIFIC ISLANDS FROM WHICH
AMERICAN MUSEUM SPECIMENS ARE RECORDED

William T. Brigham's valuable 'Index to the Islands of the Pacific Ocean' (1900) and the excellent charts prepared by the Hydrographic Office of the United States Navy soon become indispensable to one who studies the distribution of life in the South Seas. Many duplicate names have been given to South Sea Islands, and, in an effort to be consistent, the nomenclature of Brigham is used extensively in the text of the present study. In the following list the names of well-known synonyms appear in parentheses after the various designations thus accepted.

For purposes of organization and convenience the numerous islands of the Pacific area have been given group names whenever possible. These names appear below in large and small capital letters, whereas the names of individual islands are in common type.

AUSTRAL (TUBUAI) GROUP

Motu Karaporo.....	27° 38' 20" S., 144° 18' 40" W.
Rapa (Oparo).....	27° 36' S., 144° 22' W.
Rimitara.....	22° 40' S., 153° 25' W.
Rurutu (Obeteroah, Oheteroa).....	22° 29' S., 151° 20' 25" W.
Tauna, islet off Rapa.....	27° 36' S., 144° 17' W.
Tubuai.....	23° 21' 45" S., 149° 35' 35" W.
Vavitaio (Ravaivai).....	23° 55' S., 147° 48' W.

BANKS GROUP

Gaua (Gog, Santa Maria).....	14° 15' S., 167° 28' E.
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BISMARCK ARCHIPELAGO

Anne.....	4° 57' S., 151° 12' E.
Duke of York.....	4° 9' S., 152° 29' E.
Sable.....	3° 32' S., 154° 36' E.

DANGER GROUP

Nassau.....	10° 53' S., 165° 45' 30" W.
Pukapuka.....	10° 53' S., 165° 45' 30" W.

D'ENTRECASTEAUX GROUP

Dauila (Goodenough).....	9° 31' S., 150° 20' E.
Do bu (Goulvain).....	9° 46' S., 150° 52' E.

Duau (Normanby).....	10° 10'	S.,	151° 14'	E.
Moratau (Fergusson).....	9° 30'	S.,	150° 42'	E.
FLI (VITI) GROUP (including the LAU or EASTERN ISLANDS)				
Aiva.....	18° 21'	S.,	181° 17'	E.
Colo-i-suva.....	16° 14'	S.,	179° 6'	E.
Fulanga.....	19° 4' 30"	S.,	181° 19' 40"	E.
Kanathia.....	17° 16' 30"	S.,	180° 53'	E.
Kandavu (Kadavu).....	19° 5'	S.,	177° 58'	E.
Karoni.....	18° 40'	S.,	181° 28' 40"	E.
Katafanga.....	17° 30' 30"	S.,	181° 19' 30"	E.
Kia.....	16° 14'	S.,	179° 6'	E.
Kioa.....	16° 39'	S.,	179° 55'	E.
Komo levu.....	18° 37' 30"	S.,	181° 20'	E.
Komo ndrity.....	18° 38'	S.,	181° 18' 30"	E.
Koro (Goro).....	17° 13' 30"	S.,	179° 26' 30"	E.
Lakemba.....	18° 13'	S.,	181° 12'	E.
Late i Tonga (Late i Viti).....	17° 54'	S.,	178° 23'	W.
Mango (Mago).....	17° 27' 30"	S.,	180° 53' 30"	E.
Matuku.....	19° 13' 30"	S.,	179° 44'	E.
Moala.....	18° 41'	S.,	179° 53'	E.
Mothe (Moce).....	18° 36' 30"	S.,	181° 26'	E.
Namena (Direction).....	17° 6'	S.,	179° 6'	E.
Namuka i lau.....	18° 47'	S.,	181° 21' 30"	E.
Navandra.....	18° 52'	S.,	178° 26'	E.
Navutuiloma.....	18° 52'	S.,	178° 26' 30"	E.
Ngau (Angau).....	17° 38' 30"	S.,	181° 33' 30"	E.
Niabo.....	18° 47' 15"	S.,	178° 21' 45"	W.
Nuku mbasanga.....	16° 19'	S.,	180° 45' 20"	E.
Oneata.....	18° 24' 30"	S.,	181° 27' 30"	E.
Ongea.....	19° 3'	S.,	181° 30'	E.
Ovalau.....	17° 40' 46"	S.,	178° 52' 40"	E.
Suva, coast of Viti levu.....	18° 8' 45"	S.,	178° 25' 33"	E.
Thikombia (Cicobia).....	15° 47' 40"	S.,	180° 9'	E.
Thithia (Cicia).....	17° 44' 30"	S.,	180° 42'	E.
Totoya.....	18° 56' 30"	S.,	180° 5' 30"	E.
Tuvutha (Tuvuca).....	17° 40'	S.,	178° 49'	W.
Vanua masi.....	18° 5'	S.,	178° 27'	W.
Vanua mbalavu.....	17° 13'	S.,	178° 58'	W.
Vatu vara (Hat).....	17° 25'	S.,	179° 32'	W.
Viti leon (Leonidas).....	16° 34' 24"	S.,	178° 36' 5"	E.
Viwa.....	17° 8'	S.,	176° 54'	E.
Vomo.....	17° 30'	S.,	177° 15'	E.
Wailangilala.....	16° 44' 55"	S.,	179° 7' 5"	W.
Yandua.....	16° 49'	S.,	178° 16'	E.
Yanganga.....	16° 6' 30"	S.,	180° 7'	E.
Yanutha loa.....	17° 13'	S.,	178° 58'	W.
Yasawa.....	16° 43'	S.,	177° 30' 5"	E.
HAWAIIAN GROUP				
Oahu.....	21° 30'	N.,	157° 20'	W.

HERVEY OR COOK GROUP

Rarotonga.....	21° 20'	S., 160°	W.
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KIRIWINA GROUP (Trobriand Islands)

Kaileuna.....	8° 35'	S., 150° 55'	E.
Kitava (Jurien).....	8° 40'	S., 151° 24'	E.

LADRONE (MARIANA) GROUP

Guam (Guajan).....	13° 40'	N., 144° 55'	E.
Saipan (Seypan).....	15° 15'	N., 145° 44'	E.

LOYALTY GROUP

Lifu (Lifou).....	20° 36'	S., 167° 6'	E.
Maré.....	21° 29' 30"	S., 168° 6'	E.

MARQUESAS GROUP

Eiao (Masse, Knox, Hiaou).....	8° 2'	S., 140° 41'	W.
Fatuhiva (Magdalena).....	10° 24'	S., 138° 40'	W.
Fatuhuku (Hood).....	9° 26'	S., 138° 56'	W.
Hivaoa (Dominica).....	9° 47'	S., 138° 47'	W.
Huahuna.....	8° 55'	S., 139° 34'	W.
Huapu (Adams).....	9° 24'	S., 140° 5'	W.
Motane (San Pedro).....	10°	S., 138° 50'	W.
Nukuhiva (Marchand).....	8° 57'	S., 140° 15'	W.
Tahuata (Santa Cristina).....	9° 56' 21"	S., 139° 6'	W.

NEW CALEDONIA.....	21°	S., 165°	E.
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NEW GUINEA

Djamia Island (Dramai).....	4° 1'	S., 134° 14' 4"	E.
New Guinea.....	5°	S., 142°	E.

NEW HEBRIDES GROUP

Aoba (Omba, Leper).....	15° 15'	S., 167° 50'	E.
Api (Tasiko, Volcano, Epi).....	16° 38'	S., 168° 12'	E.
Arag (Pentecost, Whitsuntide).....	15° 25'	S., 168° 7'	E.
Dolphin (Dauphin).....	15° 0' 40"	S., 167° 7' 7"	E.
Espiritu Santo (Santo, Marina).....	15° 38' 8"	S., 166° 46' 30"	E.
Faté (Vaté, Sandwich, Efate).....	17° 40'	S., 168° 20'	E.
Maiwo (Aurora, Maewo).....	14° 50'	S., 168° 5'	E.
Makura.....	17° 5' 30"	S., 168° 19' 30"	E.
Malekula (Mallicolo).....	16° 26'	S., 167° 47'	E.
Malo (St. Bartholemew).....	15° 33'	S., 166° 30'	E.
Mau (Hinchinbrook, Vele).....	17° 28' 45"	S., 168° 29' 30"	E.
Suwarro.....	16° 26'	S., 167° 47'	E.
Tonga (Shepherd).....	15° 36' 12"	S., 167°	E.

NEW ZEALAND

Middle (South) Island.....	44°	S., 171°	E.
Stewart (South, Rakiura).....	47° 10'	S., 167° 50'	E.

PAUMOTU (TUAMOTU, LOW) ARCHIPELAGO

Ahii (Peacock).....	14° 30'	S., 146° 20'	W.
Akamaru (Wainwright).....	23° 8'	S., 134° 55' 30"	W.
Akiaki (Thrum Cap).....	19° 17' 40"	S., 138° 42'	W.
Amanu (Möller).....	17° 43'	S., 140° 39'	W.
Anaa (Chain).....	17° 30'	S., 145° 30'	W.

Apataki (Hagenmeister Atoll).....	15° 30'	S.,	146° 20'	W.
Aratika (Carlshov).....	15° 33' 25"	S.,	146° 39'	W.
Arutua (Rurick).....	15° 10'	S.,	146° 40' 20"	W.
Ducie.....	24° 40'	S.,	124° 48'	W.
Faaite (Miloradowitch).....	16° 45'	S.,	145° 10'	W.
Fakarawa (Wittgenstein).....	16° 10'	S.,	145° 35'	W.
Hau (Bow, Harp).....	18° 15'	S.,	140° 55'	W.
Henderson (Elisabeth).....	24° 25'	S.,	128° 19'	W.
Hiti (Eliza, Ohiti, Clute).....	16° 45'	S.,	144° 8'	W.
Katiu (Saken).....	16° 31'	S.,	144° 12' 10"	W.
Kaukura (Aura).....	15° 43'	S.,	146° 50' 36"	W.
Kawehe (Kauehi, Vincennes).....	15° 59' 48"	S.,	145° 9' 30"	W.
Makemo (Makima, Phillips).....	16° 26'	S.,	143° 56'	W.
Mangareva (Peard, Gambier).....	23° 8'	S.,	134° 55' 30"	W.
Manihi.....	14° 30'	S.,	145° 55'	W.
Marutea (Furneaux).....	16° 54'	S.,	143° 20'	W.
Matahiva (Lazareff).....	14° 53' 30"	S.,	148° 43' 30"	W.
Maturei Vavao (Estancélin).....	21° 27'	S.,	136° 28'	W.
Moerenhout (Maria).....	21° 53'	S.,	136° 20'	W.
Napuka (Whytoohee).....	14° 10' 40"	S.,	141° 12' 50"	W.
Niau (Greig).....	16° 11'	S.,	146° 22'	W.
Nihiru (Niheri, Nigeri).....	16° 41'	S.,	142° 53'	W.
Oeno.....	24° 0' 30"	S.,	130° 40'	W.
Pitcairn.....	25° 3' 37"	S.,	130° 8' 23'	W.
Rangiroa (Deans, Nairsa).....	15° 5' 15"	S.,	147° 58' 34"	W.
Raraka.....	16° 8'	S.,	145° 0' 40"	W.
Raroia (Barclay de Tolly).....	15° 56'	S.,	142° 22'	W.
Tahanea (Tchitschagof).....	16° 52'	S.,	144° 58'	W.
Taiaro (King).....	15° 46'	S.,	144° 37'	W.
Takapoto (Oura).....	14° 32' 8"	S.,	145° 14' 30"	W.
Takaroa (Tiokea).....	14° 22' 10"	S.,	144° 58' 30"	W.
Takurea (Takoumé, Wolkonski).....	15° 39' 30"	S.,	142° 6' 15"	W.
Tenararo (Bedford).....	21° 18'	S.,	136° 44'	W.
Tikahau (Krusenstern).....	14° 52'	S.,	148° 15' 15"	W.
Tiku (Anuanurunga).....	20° 35' 35"	S.,	143° 19' 15"	W.
Toau.....	15° 58'	S.,	145° 49' 30"	W.
Tureia (Papakena, Carysfort).....	20° 47'	S.,	138° 30'	W.
PHOENIX GROUP				
Canton (Mary Balcout, Swallow).....	2° 44' 35"	S.,	171° 42'	W.
Hull.....	4° 31' 25"	S.,	172° 18' 15"	W.
Sydney.....	4° 27' 22"	S.,	171° 15' 9"	W.
SAMOAN GROUP				
Manua.....	14° 15'	S.,	169° 26' 30"	W.
Olosenga.....	14° 11'	S.,	169° 32'	W.
Satune (Fatuna).....	14° 16'	S.,	178° 10'	W.
Savaii.....	13° 48' 40"	S.,	172° 17' 30"	W.
Tutuila.....	14° 20' 40"	S.,	170° 48' 14"	W.
Upolu.....	13° 46'	S.,	171° 20'	W.

SANTA CRUZ GROUP

Duff.....	9° 48'	S.,	167° 10'	E.
Lomlom (Nevelo).....	10° 17' 50"	S.,	166° 15' 15"	E.
Naunha.....	11° 34' 30"	S.,	166° 53' 10"	E.
Santa Cruz (Egmont, Nitendi).....	10° 40'	S.,	166° 3'	E.
Tapua (Utupua, Edgumbe).....	11° 17' 30"	S.,	166° 32' 13"	E.
Tinehula (Tinekuri).....	10° 25'	S.,	165° 45'	E.
Tucopia.....	12° 21'	S.,	168° 43'	E.
Vanikoro.....	11° 38'	S.,	166° 54'	E.

SOCIETY GROUP

Fenua ura (Seilly Atoll).....	16° 31'	S.,	154° 43'	W.
Maitea (Mehetia).....	17° 53'	S.,	148° 5'	W.
Moorea (Eimeo).....	17° 34' 15"	S.,	150° 0' 30"	W.
Mopéha (Lord Howe, Maura).....	16° 52'	S.,	154°	W.
Raiatea (Ulietea).....	16° 40'	S.,	154° 40'	W.
Tahiti (Otaheité).....	17° 38'	S.,	149° 30'	W.

SOLOMON GROUP

Arnavon.....	7° 25'	S.,	158°	E.
Bagga.....	7° 47'	S.,	156° 30'	E.
Beagle.....	9° 47' 20"	S.,	160° 47' 25"	E.
Bougainville.....	5° 24'	S.,	154° 38'	E.
Bouka (Buka).....	5°	S.,	154° 35'	E.
Choiseul.....	6° 37'	S.,	156° 27'	E.
Fatura (Fapula).....	18° 16' 45"	S.,	159° 45' 42"	E.
Fauro.....	6° 56'	S.,	156° 4'	E.
Florida.....	9° 2'	S.,	160° 20'	E.
Gatukai.....	8° 47' 17"	S.,	158° 11' 26"	E.
Gizo.....	8° 1'	S.,	156° 48'	E.
Guadalcanar.....	9° 15'	S.,	159° 40'	E.
Isabel (Ysabel, Bogotu).....	7° 18'	S.,	158° 8'	E.
Kulambangara (Kulambangra).....	7° 58'	S.,	157° 5'	E.
Malapa.....	9° 46'	S.,	160° 48'	E.
Moe (Moie).....	9° 43' 35"	S.,	160° 47' 10"	E.
Mono (Treasury).....	7° 21'	S.,	155° 32'	E.
Murray (Buraku).....	8° 59'	S.,	158° 35'	E.
Narovo (Eddystone).....	8° 15'	S.,	156° 28'	E.
Oema.....	8° 40'	S.,	156° 5'	E.
Ramos.....	8° 20'	S.,	160° 10'	E.
Rendova.....	8° 24'	S.,	157° 15'	E.
Rennell.....	11° 40'	S.,	159° 55'	E.
Ronongo (Ganonga).....	8°	S.,	156° 32'	E.
Rubiana (New Georgia, Marovo).....	8° 22'	S.,	157° 17'	E.
Russell (Pavuvu).....	9° 4'	S.,	159° 5'	E.
San Cristóbal (Arossi, Robatu).....	10° 10'	S.,	161° 20'	E.
Santa Ana.....	10° 54'	S.,	162° 25'	E.
Savo.....	9° 8'	S.,	159° 45'	E.
Shortland.....	7° 3'	S.,	155° 45'	E.
Tetipari (Montgomery).....	8° 43' 6"	S.,	157° 33' 7"	E.
Ugi (San Juan).....	10° 15'	S.,	161° 43'	E.
Vangunu (Vanguni).....	8° 40' 55"	S.,	158° 0' 27"	E.

Vella Lavella.....	7° 32'	S., 156° 35'	E.
Whitney.....	7° 1'	S., 155° 37'	E.
TOKELAU (UNION) GROUP			
Fakaafo (Bowditch).....	9° 26' 40"	S., 171° 3' 15" W.	
TONGA (FRIENDLY) GROUP			
Ava.....	18° 42' 13"	S., 174° 2' 53" W.	
Eua.....	21° 20' 30"	S., 175° 2'	W.
Fonuaika.....	20° 12'	S., 174° 39'	W.
Holeva.....	19° 51' 10"	S., 174° 23'	W.
Kelifijia (Falafagea).....	28° 31'	S., 175° 18'	W.
Niuafouu.....	15° 34'	S., 175° 38'	W.
Niuaotobutabu.....	15° 52'	S., 173° 50'	W.
Nomuka Iki.....	20° 17'	S., 174° 48' 30" W.	
Nuku.....	21° 5' 16"	S., 175° 1' 27" W.	
Tafahi (Boscawen).....	15° 52'	S., 173° 50'	W.
Tonomaia.....	20° 28'	S., 174° 43'	W.
Vavau (Vavao).....	18° 38' 20"	S., 174° 1'	W.
TORRES GROUP			
Lo (Saddle).....	13° 20'	S., 166° 35'	E.
TORRES STRAIT			
Murray.....	10° 5'	S., 144° 5'	E.
UNCLASSIFIED OR ISOLATED ISLANDS			
Christmas.....	1° 59'	N., 157° 32'	W.
Fanning.....	3° 51' 25"	N., 159° 22'	W.
Malden (Independence).....	4° 5'	S., 155°	W.
Marcus.....	23° 10'	N., 154°	E.
Nissan Atoll (Sir Charles Hardy).....	4° 30'	S., 154° 7'	E.
Tongareva.....	9° 6' 25"	S., 158° 2' 10" W.	
Uvea (Wallis).....	13° 23' 35"	S., 176° 11' 47" W.	

SUMMARY OF TAXONOMIC ALTERATIONS

The following form is ranked as a subspecies:

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The following are placed in the synonymy of previously described species:

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<i>Typhlops philococos</i> Werner = <i>Typhlops aluensis</i> Boulenger.....	573

Special attention is directed to the synonymizing of certain species that has taken place since the appearance of Boulenger's comprehensive catalogues, as follows:

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Likewise, special attention is directed to the synonymizing of certain genera that has taken place since the appearance of Boulenger's comprehensive catalogues, as follows:

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While many range extensions are made, the most interesting and important of these, from the zoögeographical point of view, seem to be the following additions of East Indian species or their derivatives to the fauna of the Solomon Islands: *Emoia sanfordi* Schmidt and Burt, *Emoia whitneyi* Burt, *Sphenomorphus minutus* (Meyer), *Sphenomorphus taylori* Burt, *Tribolonotus blanchardi* Burt, *Tribolonotus schmidtii* Burt, *Chondropython viridis* (Schlegel), and *Stegonotus modestus* (Schlegel).

LIST OF THE SPECIES AND SUBSPECIES OF PACIFIC AMPHIBIANS AND
REPTILES IN THE COLLECTION OF THE AMERICAN MUSEUM OF
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DISCUSSION OF THE ORIGIN AND AFFINITIES OF THE AMPHIBIANS AND REPTILES OF THE PACIFIC ISLANDS

Through the varied contributions of Lesson, Gray, Boulenger, Barbour, Roux, Sternfeld, Schmidt, Kinghorn, and others, the herpetological fauna of the South Seas has been made relatively well known. With the appearance of these and the present list, it seems unlikely that the total endemic forms will be greatly increased, although several important additions, with particular reference to the area nearest to New Guinea, may reasonably be expected. Furthermore, the recording of new extensions and restrictions of the ranges of the individual species, as well as the making of additional systematic modifications, will obviously result when more specimens become available, not only because of possible errors in the literature and lack of collecting in certain places, but also because of the constant changes that are apparently taking place, due to the destruction of certain species through the ravages of introduced forms and due to the frequent transfers of others from island to island.

The amphibians and reptiles occurring on islands in the Pacific Ocean are obviously derived from East Indian elements, which in turn show strong Asiatic and Australian affinities. With the exception of some peculiar New Caledonian sea-snakes of the subfamily Hydrophiinae (*Aipysurus* and *Emydocephalus*), the forms of Australia and New Zealand show little relationship with those of the South Seas, excepting indirectly through, or in conjunction with, the populations in the New Guinean region. An exception to this now presents itself in the case of the snakes of the genus *Denisonia*, which occur, so far as is known, only on the Solomon Islands and in Australia and Tasmania. This does not mean, however, that certain wide-spread terrestrial forms besides *Denisonia* may not occur both in the South Seas and in Asia or Australia. We merely emphasize the fact that the genera of the South Sea amphibians and reptiles, when not purely endemic, are characteristically represented by stock in the New Guinean region, irrespective of their further distribution.

The species on the numerous islands which surround New Guinea are most often identical with those on the larger land mass, although a certain percentage of the completely isolated populations has become distinct from the New Guinean prototypes. These latter forms, for the most part, are decidedly limited in range. This all appears to be in exact accordance with the conclusions presented by Barbour (1912, p. 58) in specific reference to the herpetological fauna of the Bismarck Archipelago.

Before going further with our discussion, we must call attention to the fact that, at least herpetologically, the New Guinean fauna is richer by far than that of any island or group of islands in the Pacific Ocean and that in number of species it rivals those of all of the Pacific Islands put together. This would not be true if many species were not RESTRICTED or endemic to the immediate New Guinean area, in which, for

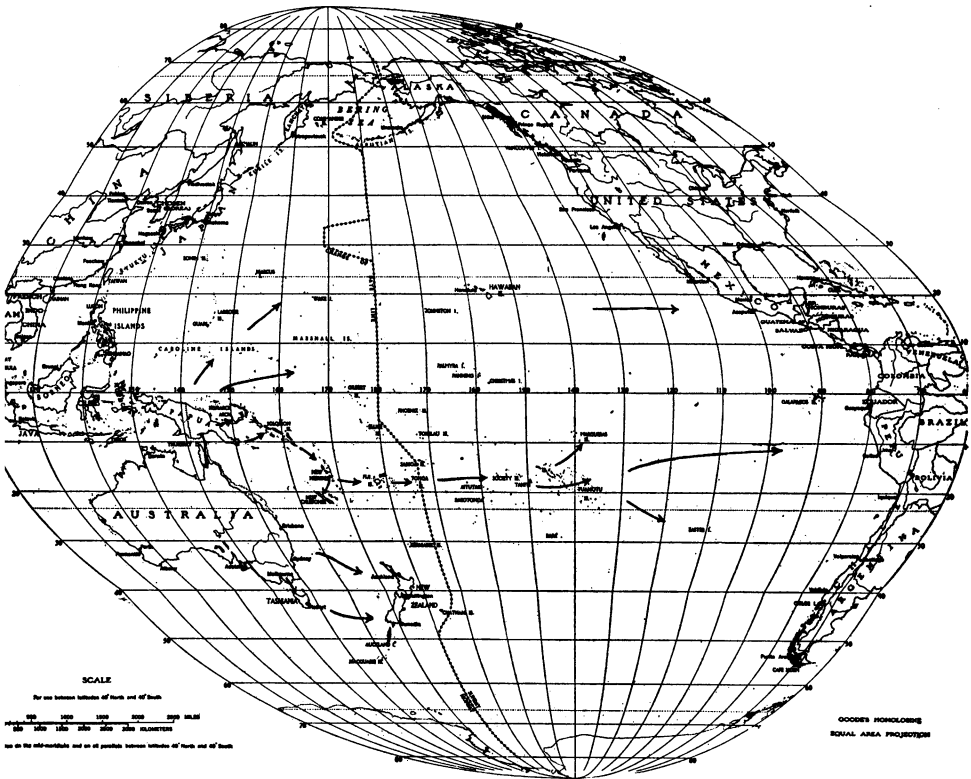


Fig. 2. Map showing the main highways of dispersal used by the Pacific amphibians and reptiles.

the purpose of the present study, we may include the nearby D'Entrecasteaux Group and the Bismarck Archipelago.

The herpetological fauna of the north Pacific is relatively little known. The species on the outlying islands in most cases are only the wide-spread forms that are so successful in the southern Pacific. At this point, it seems of interest to note that the East Indian blind-snake,

Typhlops braminus (Daudin), which Slevin (1930) has reported from the Hawaiian Islands, has succeeded in reaching Guam, but that it does not occur undifferentiated on the land masses of the Solomon Group or on other South Pacific islands.

Granting, then, that the herpetological fauna of the South Seas has been derived from New Guinean (or Papuan) elements, we may now trace its eastward migration. Upon consideration we find at once rather a well-marked highway of dispersal open to it (see Fig. 2). This extends through the Solomon, Banks, Santa Cruz, and New Hebrides Groups to New Caledonia and the Loyalty Islands in the west and to the Fiji Group and points still closer to America in the east. It is apparent that as this distributional pathway has been utilized by the oriental fauna as a whole, a PROGRESSIVE AND CONTINUAL REDUCTION in the number of species inhabiting the more distant areas has taken place. With reference to centers of differentiation, it may be remarked that the islands of the Solomon Group and those in the New Caledonian region are particularly rich in purely endemic forms, although a number of remarkable species have also evolved in the Fiji region and elsewhere.

A detailed analysis of the distribution of the amphibians and reptiles of the South Seas follows. First let us consider the Solomon Group. Here the following species, which are likewise common to New Guinean lists,¹ apparently became restricted in their eastward journey.

<i>Rana krefftii</i> Boulenger	<i>Engyrus asper</i> (Günther)
<i>Rana solomonis</i> (Boulenger)	<i>Chondropython viridis</i> (Schlegel)
<i>Gonocephalus godeffroyi</i> (Peters)	<i>Boiga irregularis</i> (Merrem)
<i>Gymnodactylus lousiadensis</i> De Vis	<i>Stegonotus modestus</i> (Schlegel)
<i>Lepidodactylus guppyi</i> Boulenger	<i>Varanus indicus</i> (Daudin)
<i>Sphenomorphus minutus</i> (Meyer)	<i>Typhlops aluensis</i> Boulenger

Whereas, the following forms have, through the process of speciation, become endemic in the Solomon area after an apparent period of isolation:

Hyla thesaurensis Peters
Batrachylodes vertebralis Boulenger
Ceratobatrachus guentheri Boulenger
Cornufer guppyi Boulenger
Hypsirana heffernani Kinghorn
Rana bufoniformis Boulenger
Rana guppyi Boulenger
Corucia zebrata Gray
Emoia whitneyi Burt
Sphenomorphus concinnatus (Boulenger)

¹Lists of the species of amphibians and reptiles recorded from New Guinea and from other islands in the Indo-Australian Archipelago have been prepared and presented by De Rooij (1915 and 1917) and Van Kampen (1923). These may be consulted for purposes of reference.

Sphenomorphus solomonis (Boulenger)
Sphenomorphus taylori Burt
Sphenomorphus woodfordi (Boulenger)
Leiolopisma anolis (Boulenger)
Tribolonotus blanchardi Burt
Tribolonotus schmidtii Burt
Denisonia par (Boulenger)
Denisonia woodfordii (Boulenger)
Micropechis elapoides (Boulenger)
Typhlops cumingii mansuetus Barbour
Typhlops infralabialis Waite
Typhlops olivaceus reduncus Barbour

Going further with our consideration, we find that the species listed below were unable (so far as known) to migrate beyond the limits of the Banks and Santa Cruz Groups:

Gekko vittatus Houttuyn
Dasia smaragdina perviridis Barbour
Riopa albofasciolata (Günther)
Enygrus carinatus (Schneider)
Ahaetulla calligaster (Günther)

Yet the peculiar variant, *Emoia werneri* (Vogt), was able to travel as far as the New Hebrides, while *Emoia sanfordi* Schmidt and Burt, after becoming differentiated from the New Guinean *E. cuneiceps* (De Vis) in the Solomon Group has pushed onward to approximately the same point as *werneri* before giving rise to *Emoia samoensis* (Duméril), which takes its place as the eastward dispersal is continued.

The New Caledonian region has already been mentioned as an area particularly rich in endemic forms. The following species apparently are confined to the rather large island of New Caledonia itself:

Rhacodactylus leachianus (Cuvier)
Rhacodactylus chahoua Bavay
Rhacodactylus trachyrhynchus Bocage
Rhacodactylus auriculatus (Bavay)
Rhacodactylus sarasinorum Roux
Rhacodactylus ciliatus (Guichenot)
Eurydactylus viellardi (Bavay)
Eurydactylus symmetricus Andersson
Leiolopisma euryotis (Werner)
Leiolopisma novæ-caledoniæ (Parker)
Leiolopisma variabilis variabilis (Bavay)
Leiolopisma variabilis aubriana (Bocage)
Leiolopisma tricolor (Bavay)
Leiolopisma steindachneri (Bocage)
Homolepida deplanchei (Bavay)
Siaphos gracilis (Bavay)
Siaphos mariei (Bavay)

Whereas, the species listed below are found not only on New Caledonia, but also on islands of the neighboring Loyalty Group:

Bavaya cyclura (Günther)
Bavaya sawagei (Boulenger)
Riopa garnieri (Bavay)
Leiopisma nigrofasciolata (Peters)
Emydocephalus annulatus Krefft
Typhlops willeyi Boulenger

Only three of the remaining forms apparently are wholly endemic to the general area occupied by the New Hebrides and Loyalty Groups and New Caledonia. These are *Leiopisma austro-caledonica austro-caledonica* (Bavay), *Leiopisma austro-caledonica metallica* (O'Shaughnessy), and *Perochirus guentheri* Boulenger. The last two have not been recorded from New Caledonia. In contrast to the forms just mentioned, *Emoia samoensis* (Duméril) and *Laticauda schistorhyncha* (Günther) are endemic South Sea species which manage to bridge the gap from the New Hebrides to the Fiji Islands and adjacent territory.

Speaking again of the forms which have been dispersed along the general highway of migration outlined above, we find that the following have successfully preserved their specific characters after transportation from the New Hebrides Group into the Fijian region (including, for the purpose of the discussion here, Samoa, the Tongas, the Danger Group, and Savage Island). Moreover, they have often gone southward into the New Caledonian region as well:

Crocodylus porosus Schneider
Emoia nigra Hombron and Jacquinot
Enygrus australis (Montrouzier)
Enygrus bibroni Hombron and Jacquinot
Laticauda colubrina (Schneider)
Laticauda laticaudata (Linné)

Those species listed below are probably strictly endemic to the Fijian region, as defined above:

Cornufer dorsalis Duméril
Platymantis vitianus (Duméril)
Lepidodactylus manni Schmidt
Lepidodactylus gardineri Boulenger
Brachylophus fasciatus (Brongniart)
Emoia adspersa (Steindachner)
Emoia lawesii (Günther)
Emoia murphyi Burt
Riopa microlepis (Duméril and Bibron)
Ogmodon vitianus Peters

All of the New Guinean land-reptiles whose ranges extend oceanward toward the realm of islands beyond the Danger, Samoan, and Tongan Groups are very wide-spread, successful forms. Of these, those listed below are confined to the archipelagos of the open seas, inasmuch as our present knowledge indicates, and thus they do not reach the western coast of America:

Gehyra oceanica (Lesson)
Gymnodactylus pelagicus (Girard)
Hemidactylus garnotii Duméril and Bibron
Hemiphyllodactylus typus Bleeker
Lepidodactylus lugubris (Duméril and Bibron)
Emoia cyanogaster (Lesson)
Leiolopisma noctua (Lesson)

So far as our records go, the pelagic *Chelonia japonica* (Thunberg) also belongs here.

Apparently three species of lizards are the only land reptiles which have succeeded in crossing the wide oceanic gap between the oriental realm and the New World. The Marine turtle, *Eretmochelys squamosa* (Girard), has been found off the west coast of Lower California; and the sea-snake, *Pelamis platurus* (Linné), reaches the Bay of Panama in abundance. One of the lizards, *Peropus mutilatus* (Wiegmann), has become established in southern Mexico, where it was once described as a new species; another, *Emoia cyanura*, has been collected on Clipperton Island, which lies about 700 miles off the west coast of Mexico¹; and still another, *Cryptoblepharus boutonii poecilopleurus* (Wiegmann), has been recorded from islands off the west coast of Ecuador and Peru. It is interesting to note that the latter form, a skink, was described from "islands at Pisacoma, Peru," as early as 1835. That haphazard means of dispersal were used by these very successful migrants is at once suggested by their transoceanic occurrence at such varied localities.

We shall now consider the more general aspects of the problem under discussion. We have outlined what appears to be the chief pathway of dispersal across the Pacific area, the use of this line culminating in a few instances in the actual transplantation of oriental forms into the New

¹In a recent interview Mr. Karl P. Schmidt very kindly called our attention to the fact that *Lygosoma arundelii* Garman (1899) from Clipperton Island represents *Emoia cyanura* there, and that very probably it is merely a chance introduction from the South Sea islands to the west. We do not attempt to settle the systematic status of the two supposed forms here, since there are no specimens from Clipperton Island in the present collection.

World. Chance dispersal has occurred very often here and the pathway of distribution apparently has been determined largely by the linear order in which the greater land masses are arranged. (See Fig. 2, p. 477.) While the New Guinean region, including the area occupied by the Bismarck Archipelago, the D'Entrecasteaux Group, and the Solomons, may have been at one time a confluent land mass, as suggested by Barbour (1912), it seems highly probable that such was not the case for the great majority of insular groups and separate isles in the more eastern section of the Pacific Ocean. Great gaps have been bridged, and great depths have been transgressed in the open Pacific, not only in single instances, but also by series of species, of which the skinks and the geckos have been the most successful examples.

Directing our attention to the general oceanic dispersal of the amphibians and reptiles as separate groups, we find, as already indicated, that the reptiles are by far the most wide-spread and successful in the Pacific area.

"The Fijian frogs occupy the extreme outposts to which amphibian migration in the Pacific has reached," wrote Barbour in his interesting study of the frogs of that group (1923, p. 112), "and, as might be expected, the genera to which they belong are characteristic of the Papuan fauna and its extensions into the New Britian and Solomon archipelagos." Although the reptiles extend eastward farther than the amphibians, this same generalization must apply to them, as an analysis of their present distribution has, we believe, most clearly shown.

SYSTEMATIC TREATMENT OF THE FORMS OF AMPHIBIANS AND
REPTILES FROM THE PACIFIC ISLANDS REPRESENTED IN THE
COLLECTION OF THE AMERICAN MUSEUM OF NATURAL
HISTORY

AMPHIBIA

SALIENTIA

Brevicipitidæ

ASTEROPHRYS Tschudi

Asterophrys turpicula (Müller)

Ceratophrys turpicula MÜLLER, 1844, in Schlegel, 'Abbild. Amphibien,' p. 30. Pl. x, fig. 4 (type locality, west coast of New Guinea).

Asterophrys turpicula BOULENGER, 1882, 'Cat. Batr. Sal. British Mus.,' p. 444. VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 133.

The single representative of this species in the present collection (No. 35405) was taken in the Northern Division of Papua (New Guinea). It has poorly developed vomerine teeth and twelve strong, triangular denticles in the dermal ridge which crosses the palate. The ground color of the back is light brown, darker posteriorly, while the sides are light brown like the fore part of the back. An extensive, elongated, black patch appears on the back of the thighs and extends below the vent, and another one is found to extend from the heel to the toes of each hind foot. Other dark spots occur just anterior to the insertion of the forelimbs, along the posterior surface of the forelimbs, just above the tympanum on each side, and at the tip of the chin.

COPIULA von Méhelÿ

Copiula oxyrhina (Boulenger)

Phrynizalus oxyrhinus BOULENGER, 1898, Proc. Zool. Soc. London, pp. 476 and 480 (type locality, St. Aignan Island, British New Guinea).

Copiula oxyrhina VON MÉHELÿ, 1901, Termész. Füzetek, XXIV, p. 243. VAN KAMPEN, 1923, Amph. Indo-Australian Arch.,' p. 135.

The hind legs are marked with alternate bars of dark brown and white in the single specimen of this species at hand (No. 23575), a young example from New Guinea, secured through an exchange with the Zoological Museum of Berlin.

GENYOPHRYNE Boulenger

Genyophryne thompsoni Boulenger

Genyophryne thompsoni BOULENGER, 1890, Proc. Zool. Soc. London, p. 327 (type locality, Südest Island between New Guinea and the Louisiade Archipelago).

A specimen of this form from the Albert Edward Range of British New Guinea (No. 23822), secured through an exchange with the British

Museum of Natural History, has a strong transverse dermal ridge in front of the pharynx which contains fourteen toothlike denticles. In front of this is a second, much feebler ridge which extends across the roof of the mouth between the openings of the eustachian tubules. This has a row of small denticles near the median line. *Asterophrys*, which resembles *Genyophryne* in general appearance, has only one distinct (posterior) ridge across the roof of the mouth instead of two.

HYLOPHORBUS MacLeay

***Hylophorbus montanus* (Boettger)**

Phrynizalus montanus BOETTGER, 1895, Zool. Anz., p. 133 (type locality, North Halmahera).

Hylophorbus montanus VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 139.

A representative of this species (No. 23583) from New Guinea, secured through an exchange with the Zoological Museum of Berlin, has rather smooth, wrinkled skin and large digital expansions.

SPHENOPHRYNE Peters and Doria

Sphenophryne PETERS AND DORIA, 1878, Ann. Mus. Stor. Nat. Genova, XIII, p. 430. VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 104.

Chaperina MOCQUARD, 1892, Mém. Soc. Zool. France, V, p. 194.

Austrochaperina FRY, 1912, Rec. Australian Mus., IX, p. 87.

***Sphenophryne fusca* (Mocquard)**

Chaperina fusca MOCQUARD, 1892, Mém. Soc. Zool. France, V, p. 194 (type locality, Sintang, Borneo).

Sphenophryne fusca VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 109.

Two specimens of this species (Nos. 23604-23605) from German New Guinea were secured through an exchange with the Zoological Museum of Berlin.

***Sphenophryne macrorhyncha* (Van Kampen)**

Chaperina macrorhyncha VAN KAMPEN, 1906, Nova Guinea, V, 1, p. 168 (type locality, Manikion Gebiet, Dutch New Guinea).

Sphenophryne macrorhyncha VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 107.

The heel of a specimen of this form (No. 23601) from New Guinea (secured through an exchange with the Zoological Museum of Berlin) reaches forward to the middle of the eye.

XENOBATRACHUS Peters and Doria**Xenobatrachus rostratus** Von Méhely

Choanacantha rostrata VON MÉHELY, 1898, Termész. Füzetek., XXI, p. 175 (type locality, Erima, New Guinea).

Xenobatrachus rostratus VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 127.

An example of this form (No. 23584) from German New Guinea, secured through an exchange with the Zoological Museum of Berlin, exhibits a very narrow, white, vertebral line. The back is rich brown in color and the sides are dull blackish-brown. The ground color of the under surface is light brown, but this is broken by a network of prominent dark brown patches.

XENORHINA Peters**Xenorhina oxycephala** (Schlegel)

Bombinator oxycephalus SCHLEGEL, 1858, 'Handl. Dierk., Breda,' II, p. 58, Pl. IV, fig. 74 (not available to the authors).

Xenorhina oxycephala BOULENGER, 1882, 'Cat. Batr. Sal. British Mus.,' p. 179. VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 132.

The skin of the specimens listed below is rather smooth in the vertebral region, but roughened and warty on the sides. The warts are small and usually have yellow or orange centers. The back is black, and the underparts are yellowish, uniform, or with light spots anterior to the forelimbs. The groins and hind limbs have conspicuous orange spots or bars.

NEW GUINEA

New Guinea, two specimens, Nos. 35406-407, secured at Mount Lamington.

Hylidæ**HYLA** Laurenti**Hyla cærulea** (White)

Rana cærulea WHITE, 1790, 'Journal of a Voyage to New South Wales,' London p. 248 (type locality, New South Wales).

Hyla cærulea BOULENGER, 1882, 'Cat. Batr. Sal. British Mus.,' p. 383.

A specimen of this species collected at Mer, Murray Island, in the Torres Straits, by H. L. Clark (No. 6734) and secured through an exchange with the Museum of Comparative Zoölogy shows indistinct light areas on the upper surface of the body. Van Kampen (1923, p. 58) regarded White's original description of this frog as "very insufficient" and has called attention to the fact that the name *cærulea* may be incorrectly applied to the present form.

***Hyla infrafronata* Günther**

Hyla infrafronata GÜNTHER, 1867, Ann. and Mag. Nat. Hist., (3) XX, p. 56 (type locality, Cape York, northeastern Australia). VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 51.

Calamita dolichopsis COPE, 1867, Journ. Acad. Nat. Sci. Phila., (2) VI, p. 204 (type locality, Amboina).

Hyla dolichopsis BOULENGER, 1882, 'Cat. Batr. Sal. British Mus.,' p. 384.

Hyla dolichopsis tenuigranulata BÖTTGER, 1895, Zool. Anz., XVIII, p. 136 (type locality, Halmahera and Ternate).

This much confused species apparently resembles *thesaurensis* very closely, but differs in the assumption of a larger maximum size and in the constant possession of a purplish black or dark bluish dorsal coloration (said to be grass-green in life). The vomerine teeth are indefinitely placed between the choanæ, so that it is very hard to conclude whether they are "between the choanæ" or "between the posterior borders of the choanæ," a distinction used in the key presented by Van Kampen (1923, p. 26).

The hind foot is webbed to the base of the distal expansions of the toes, with the exception of the fourth toe, which is more than half-webbed and which, in addition, exhibits a narrowed, bladelike extension of the web along the side to the distal expansion. The toes of the front foot are about half-webbed.

The largest individual in the collection measures 140 millimeters in body length, although the rest are much smaller.

D'ENTRECASTEAUX GROUP

Dauila, twelve specimens, Nos. 35359-35368 and 35370-35371.

KIRIWINA GROUP

Kaileuna, one specimen, No. 35382.

***Hyla thesaurensis* Peters**

Hyla thesaurensis PETERS, 1877, Monatsb. Berlin Akad. Wiss., p. 421 (type locality, Treasury Island, Solomon Group).

Hyla macrops BOULENGER, 1883, Ann. and Mag. Nat. Hist., (5) XII, p. 164 (type locality, Treasury Island, Solomon Group).

Hyla lutea BOULENGER, 1887, Proc. Zool. Soc. London, p. 337 (type locality, Fauro Island, Solomon Group).

Hyla solomonis VOGT, 1912, Sitzungsber. Ges. naturf. Freunde, Berlin, p. 10 (type locality, Bougainville Island, Solomon Group).

Barbour (1921, p. 93), in an excellent discussion, has shown that the characters upon which *thesaurensis*, *macrops*, and *lutea* were established are variable and unreliable as diagnostic features. The specimens

in the present collection with a dark ground color show transition from the three-striped *thesaurensis* phase to the unstriped *macrops* phase, and also lead one to question the usefulness of the distinction "fingers

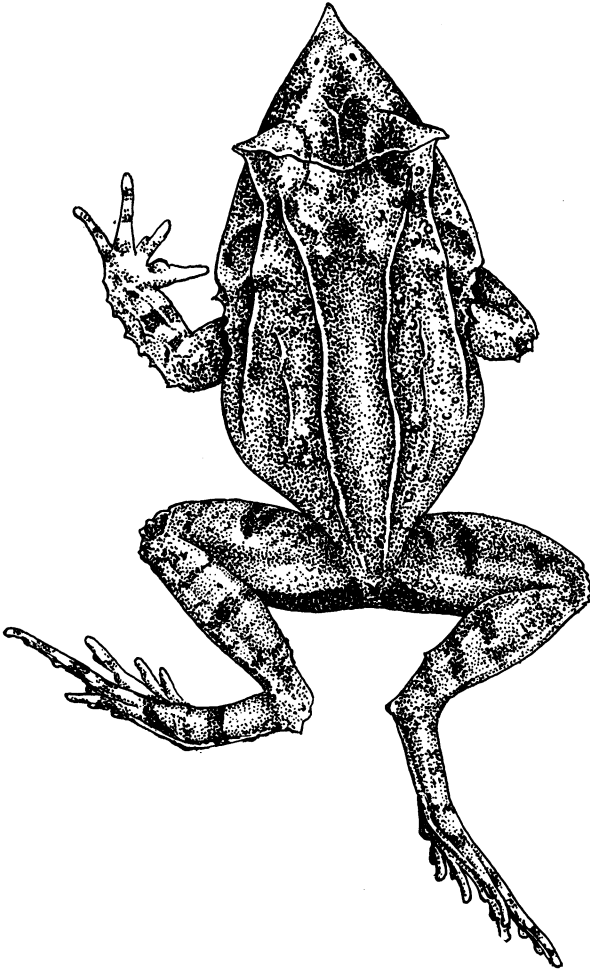


Fig. 3. *Ceratobatrachus guentheri* Boulenger. Dorsal view (after Boulenger).

webbed at the base" as applied against the criterion "fingers one-third webbed at the base." Most of our lemon-yellow individuals are of the same size and from the same island (Bougainville). These show fingers that are almost half-webbed, but an example from Mono Island is intermediate in coloration and in webbing.

In separating *solomonis*, a form not considered by Barbour, Van Kampen (1923) used the size of the disk of the fingers as applied against the tympanum. This distinction is found to be useless. In the first place, two variables are being compared, so that a differentiation in either would magnify or reduce the net result. In the second place, the terminology is vague, for the individual disks on the various fingers are of varying sizes, the inner two usually being decidedly reduced. Thus, while the largest disk is usually sufficient to hide the tympanum, the smallest is always decidedly inadequate when put to such a task.

SOLOMON GROUP

Bougainville, nine specimens, Nos. 34272-34273, 35327, 35339, and 35342-35346; Mono, one specimen, No. 35423.

Ranidæ

CERATOBATRACHUS Boulenger

Ceratobatrachus guentheri Boulenger

Ceratobatrachus guentheri BOULENGER, 1884, Proc. Zool. Soc. London, p. 212 (type locality, Treasury, Shortland, and Fauro Islands, Solomon Group); 1886, Trans. Zool. Soc. London, XII, 1, p. 56.

The colorational and scutellational variation of this abundant species has been well treated in a paper by Boulenger (1886). The examples in the present collection are listed below.

SOLOMON GROUP

General record for the group, two specimens, Nos. 5334-5335; Bougainville, one hundred and three specimens, Nos. 34275-34307, 35235-35302, and 35336-35337; Choiseul, five specimens, Nos. 34638, 35388, and 35552-54; Florida, four specimens, Nos. 35397-35398 and 35411-35412; Gizo, one specimen, No. 35426; Guadalcanar, four specimens, Nos. 35381, 35399, and 35431-35432; Kulambangara, nine specimens, Nos. 35384, 35400, 35413-35418, and 35422; Mono, two specimens, Nos. 35374 and 35440; Narovo, one specimen, No. 35395; Rendova, two specimens, Nos. 22859-22860; Ronongo, eight specimens, Nos. 35402-35403, 35419-35420, 35428-35430, and 35433; Russell, five specimens, Nos. 35393-35394 and 35408-35410; Shortland, one specimen, No. 35373; Vangunu, one specimen, No. 22858; Vella Lavella, two specimens, Nos. 35434-35435.

CORNUFER Tschudi

Cornufer dorsalis Duméril

Cornufer dorsalis DUMÉRIL, 1853, Ann. Sci. Nat., III, 18, p. 174 (type locality, incorrectly listed as Java). BARBOUR, 1923, Proc. Acad. Nat. Sci. Phila., p. 112.

A specimen (No. 23614) from Viti Levu, Fiji Group, is in a poor state of preservation but shows the characteristics attributed to this species. Excellent systematic notes pertaining to *C. dorsalis* have been presented by Barbour (1923).

***Cornufer guppyi* Boulenger**

Cornufer guppyi BOULENGER, 1884, Proc. Zool. Soc. London, p. 211 (type locality, Treasury Island, Solomon Group).

This species is grayish, blackish, brownish, or pinkish above, and is usually spotted or dotted with brown. The limbs are cross-barred and the lower surfaces are whitish.

SOLOMON GROUP

Arnavon, one specimen, No. 35385; Bougainville, thirty-four specimens, Nos. 34267, 34268-34271, 34308-34318, 34319-34323, 34325, 34329, 35331-35335, 35338,

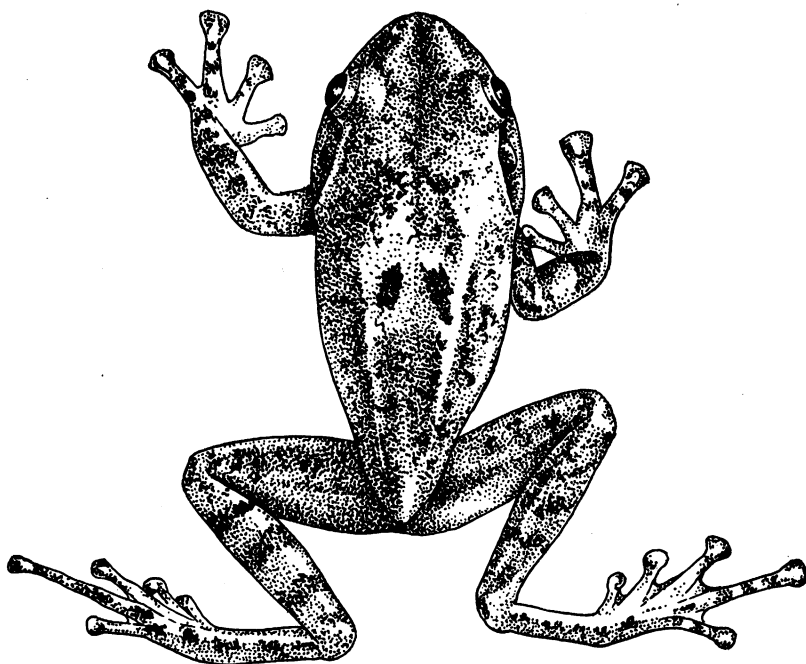


Fig. 4. *Cornufer guppyi* Boulenger. Dorsal view (after Boulenger).

35347, and 35349-35352; Choiseul, four specimens, Nos. 34635-34637 and 35387; Guadalcanar, one specimen, No. 35380; Mono, three specimens, Nos. 35376, 35390, and 35424; Ronongo, one specimen, No. 35427.

RANA* Linné**Rana bufoniformis* Boulenger**

Rana bufoniformis BOULENGER, 1884, Proc. Zool. Soc. London, p. 210 (type locality, Treasury Island, Solomon Group). VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 184. KINGHORN, 1928, Rec. Australian Mus., XVI, p. 126.

Rana opisthodon BOULENGER, 1884, Proc. Zool. Soc. London, p. 211 (type locality, Fauro and Treasury Islands, Solomon Group). VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 185.

Barbour (1921, p. 99) has shown that the differences said to exist between *Rana bufoniformis* and *R. opisthodon* are inconstant and not diagnostically reliable, being "chiefly of degree, and not of kind." Since the present collection shows variation in the wartiness of the body, in the size of the tympanum, and in other ways, we have no hesitation in accepting this conclusion.

SOLOMON GROUP

Bougainville, eleven specimens, Nos. 34274, 34327-34328, 35353-35358, and 35437-35438; Choiseul, seven specimens, Nos. 35443-35449; Fauro, one specimen, No. 35436; Gatukai, one specimen, No. 22855; Mono, two specimens, Nos. 35441-35442; Rendova, two specimens, Nos. 22853-22854; Ronongo, twenty-two specimens, Nos. 35450-35471.

Rana guppyi Boulenger

Rana guppyi BOULENGER, 1884, Proc. Zool. Soc. London, p. 211 (type locality, Treasury Island, Solomon Group).

Rana guppyi and *R. bufoniformis*, although both large, are apparently well-differentiated species. The representatives at hand may be distinguished at once by the fine granulation of the skin and the small size and scarcity of the warts on the back of *guppyi* and the coarser, less refined granulation of the skin and the increased size and larger number of warts on the back of *bufoniformis*.

SOLOMON GROUP

Bougainville, four specimens, Nos. 34326, 34330-34331, and 35330; Kulam-bangara, one specimen, No. 35421.

Rana krefftii Boulenger

Rana krefftii BOULENGER, 'Cat. Batr. Sal. British Mus.,' p. 64 (type locality, San Cristóbal, Solomon Group).

In the Solomon Group this species may be distinguished at once on the basis of its smaller size, longer limbs and froglike appearance, as compared to the noticeably larger size, shorter limbs and somewhat toad-like aspect of *guppyi* and *bufoniformis*.

D'ENTRECASTEAUX GROUP

Daula, one specimen, No. 35369; Duau, one specimen, No. 35404.

SOLOMON GROUP

Bougainville, one specimen, No. 35341; Mono, five specimens, Nos. 35375, 35377-35379, and 35392.

***Rana papua* Lesson**

Rana papua LESSON, 1830, 'Zoologie,' in Duperrey, 'Voyage Autour du Monde . . . sur . . . "La Coquille,"' II, part 1, p. 59 (type locality, Waigiou Island, off northwestern New Guinea).

This common New Guinean frog is represented in the present collection by three specimens: No. 23890 from Fak-Fak, purchased from W. F. H. Rosenberg, and Nos. 23540-23541 from the Territory of New Guinea, secured through an exchange with the Zoological Museum of Berlin.

***Rana rugata*¹ Van Kampen**

Rana rugata VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 190 [new name for *Rana corrugata* (Duméril), preoccupied].

A representative of this species, which shows the typical longitudinal ridges on the back, was secured through an exchange with the Zoological Institute of Vienna. It bears the number 24014 and was collected on Ralum Island, Bismarck Archipelago, by F. Dahl.

***Rana solomonis* (Boulenger)**

Cornufer solomonis BOULENGER, 1884, Proc. Zool. Soc. London, p. 212 (type locality, Shortland, Treasury, and Fauro Islands, Solomon Group).

Platymanthis solomonis BOULENGER, 1918, Ann. and Mag. Nat. Hist., (9) I, p. 373. KINGHORN, 1928, Rec. Australian Mus., XVI, p. 129.

Rana solomonis VAN KAMPEN, 1923, 'Amph. Indo-Australian Arch.,' p. 191.

The bars on the hind limbs of this species are usually distinct, but sometimes they are indistinct or even absent. Also the two light dorso-lateral streaks may be distinct, indistinct, or absent.

ADMIRALTY GROUP

Two specimens, Nos. 23545-23546.

D'ENTRECASTEAUX GROUP

Dauila, one specimen, No. 35372.

KIRIWINA GROUP

Kaileuna, one specimen, No. 35383; Kitava, fourteen specimens, Nos. 34332-34345.

SOLOMON GROUP

Arnavon, one specimen, No. 35386; Bougainville, forty-three specimens, Nos. 34257-34260, 35303-35336, 34324, 35328-35329, 35340, and 35348; Bouka, two specimens, Nos. 23756-23757; Choiseul, three specimens, Nos. 34733, 35389, and 35425; Fauro, one specimen, No. 23820; Mono, one specimen, No. 35391; Narovo, one specimen, No. 35396; Vangunu, two specimens, Nos. 22856-22857; Vella Lavella, one specimen, No. 35439.

¹This species was originally described as *Hylodes corrugatus* by Duméril, 1853, Ann. Sci. Nat., (3) XIX, p. 176.

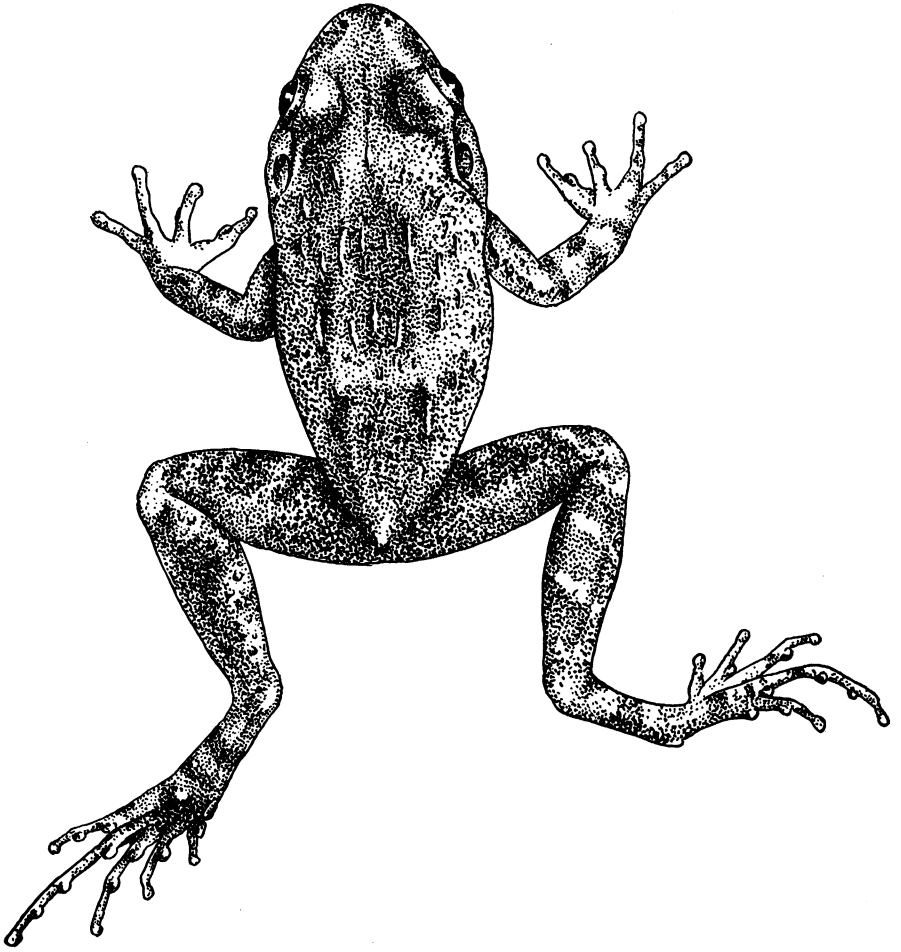


Fig. 5. *Rana solomonis* (Boulenger). Dorsal view (after Boulenger).

REPTILIA
TESTUDINATA

Cheloniidæ

CHELONIA Latreille

Chelonia japonica (Thunberg)

Testudo japonica THUNBERG, 1787, Svensk. Vetensk. Acad. Nya Handl., VIII, p. 178, p. vii, Fig. 1 (type locality, Japan).

Chelonia japonica STEJNEGER, 1907, Bull. U. S. Nat. Mus., LVIII, p. 509.
ORTENBURGER, 1923, Copeia, CXVII, p. 59.

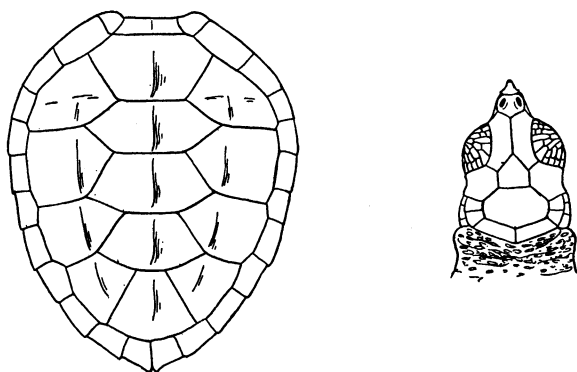


Fig. 6. *Chelonia japonica* (Thunberg). Dorsal view of carapace and of head. Note the four costal shields and the single pair of prefrontals exhibited by this species (after Stejneger).

This species has been excellently discussed by Stejneger (1907). It is readily separated from the following form, *Eretmochelys squamosa*, by the possession of only one pair of prefrontal shields instead of two. The examples listed below seem perfectly typical.

SOCIETY GROUP

Fenua ura, two specimens, Nos. 22305-22306.

ERETMOCHELYS Fitzinger

Eretmochelys squamosa (Girard)

Caretta squamosa GIRARD, 1858, 'U. S. Explor. Exp. Herpet.,' p. 442, Pl. xxx, figs. 1-7 (type locality, Sulu Seas and Indian Ocean).

Caretta rostrata GIRARD, 1858, 'U. S. Expl. Exped., Herpet.,' p. 446, Pl. xxx, figs. 8-13 (type locality, Fiji Islands).

Eretmochelys squamosa STEJNEGER, 1907, Bull. U. S. Nat. Mus., LVIII, p. 511.

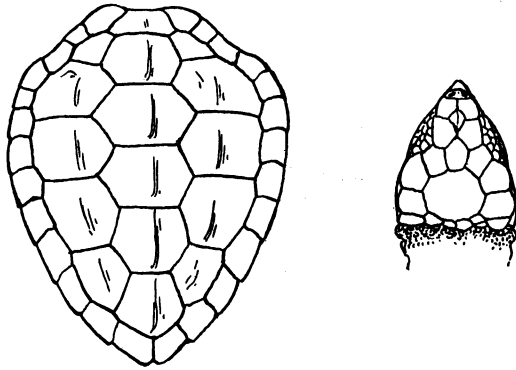


Fig. 7. *Caretta caretta* (Linné). Dorsal view of carapace and of head. Note the five costal shields and the double pair of prefrontals. The characters of this species are very close to those of *Caretta olivacea* (Eschscholtz), (after Stejneger).

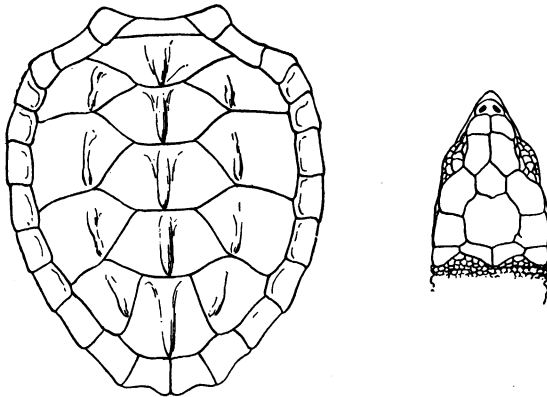


Fig. 8. *Eretmochelys squamosa* (Girard). Dorsal views of carapace and of head. Note the four costal shields and the double pair of prefrontals. Also, compare the neural plates with those of *Eretmochelys imbricata* (Linné), Fig. 9 (A. M. N. H. No. 41943, Mothe, Fiji Group).

This species is commonly known as the hawksbill or tortoise-shell turtle. It is distinguished by having four pairs of costal shields and two pairs of prefrontal plates. Both of the young examples listed below resemble the figures of *E. imbricata* presented by Stejneger (1907, pp. 512-513), with the exception that the neural scutes are blunt posteriorly, instead of sharply pointed, and the anterior pair of prefrontals are smaller.

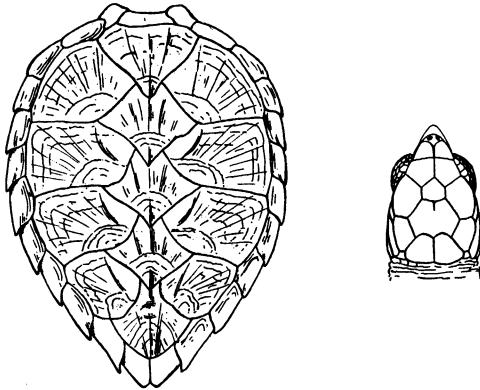


Fig. 9. *Eretmochelys imbricata* (Linné). Dorsal view of carapace and of head. Note the four costal shields and the double pair of prefrontals (after Stejneger).

The numbers of pairs of neural (5), costal (4), marginal (12), and abdominal (6) plates are the same in both *squamosa* and *imbricata*.

FLJ GROUP

Mothe, two specimens, Nos. 41942-41943.

LORICATA

Crocodylidae

CROCODYLUS Laurenti

Crocodylus porosus Schneider

Crocodylus porosus SCHNEIDER, 1801, 'Hist. Amph.,' II, p. 159 (type locality, unknown). DE ROOIJ, 1915, 'The Reptiles of the Indo-Australian Archipelago,' I, p. 337, Fig. 131.

This crocodile is distinguished by having the snout from one and one-half to twice as long as it is broad at the base and by the absence of postoccipitals. The two specimens listed below are perfectly typical. The large one (No. 42162), with a snout length of 56 mm. and a width

at the base of 32 mm., shows a length-width ratio of 1.75 per cent, whereas the small one (No. 42256), with a snout length of 30.5 mm. and a width of 20 mm., shows a ratio of 1.52 per cent.

SOLOMON GROUP

Guadalcanar, one specimen, No. 42256.

SANTA CRUZ GROUP

Tucopia, one specimen, No. 42162.

RHYNCHOCEPHALIA

Sphenodontidæ

SPHENODON Gray

Sphenodon punctatum (Gray)

Hatteria punctata GRAY, 1842, Zool. Misc., p. 72 (type locality, Karewa, Bay of Plenty, off North Island, New Zealand).

Sphenodon punctatum GRAY, 1872, 'Cat. Shield Reptiles,' (British Mus.), II, p. 30.

NEW ZEALAND

Two specimens, Nos. 3 and 26676 and a series of eggs, No. 6377, secured by H. Travers at Wellington.

SQUAMATA

SAURIA

Agamidæ

GONOCEPHALUS Kaup

Gonocephalus KAUP, 1825, Isis (Oken), p. 590.

Goniocephalus KAUP, 1827, Isis (Oken), p. 614.

Gonyocephalus WAGLER, 1830, 'Nat. Syst. Amph.,' p. 150. BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 282.

Gonycephalus AGASSIZ, 1846, 'Nom. Zool., Index Universalis,' p. 166.

Gonocephalus godeffroyi (Peters)

Lophura (Hypsilurus) godeffroyi PETERS, 1867, Monatsb. Berlin Akad. Wiss., p. 707 (type locality, Pelew Islands).

Gonyocephalus godeffroyi BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 295. DE ROOIJ, 1915, 'Reptiles Indo-Austr. Arch.,' I, p. 112. BARBOUR, 1921, Proc. New Eng. Zool. Club, VII, p. 102. KINGHORN, 1928, Rec. Australian Mus., XVI, p. 153.

The largest of these lizards in the collection at hand has a total length of 850 mm. The claws of *Gonocephalus godeffroyi*, like those of *Brachylophus fasciatus*, are unusually sharp, and these no doubt serve their owner well in combat.

Boulenger (1885) and De Rooij (1915) have listed this lizard from the Fiji Group, but, in the absence of additional specimens from that locality in the present collection and in others recently reported, we are

inclined to agree with Barbour (1921) that the record should be queried. It seems significant that Boulenger did not list a collector for the specimens which served as the basis of his Fiji record. Neither did he know the "particular island" from which they came (see 'Cat. Liz. British Mus.,' I, p. 296).

SOLOMON GROUP

One specimen, No. 20884; Bougainville, four specimens, Nos. 42028-42030 and 44001; Santa Ana, one specimen, No. 42170; San Cristóbal, eight specimens, Nos. 40351-40354 and 42171-42174.

Gonocephalus modestus Meyer

Gonyocephalus (Hypsilurus) modestus MEYER, 1874, Monatsb. Berlin Akad. Wiss., p. 130 (type locality, Jobi Island, coast of New Guinea).

Gonyocephalus modestus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 294.

An example of this species from New Guinea, No. 20885, was obtained through an exchange with the Australian Museum.

Gekkonidæ

BAVAYIA Roux

Bavayia ROUX, 1913, 'Reptiles,' in Sarasin and Roux, 'Nova Caledonia, A. Zoologie,' II, 2, p. 85.

This genus is distinguished from *Lepidodactylus* by the presence of a very rudimentary claw on the inner finger of the fore foot.

Bavayia cyclura cyclura (Günther)

Peripia cyclura GÜNTHER, 1872, Ann. and Mag. Nat. Hist., (4) X, p. 422 (type locality, New Caledonia).

Bavayia cyclura ROUX, 1913, 'Reptiles,' in Sarasin and Roux, 'Nova Caledonia, A. Zoologie,' II, 2, p. 87.

The specimens listed below have rounded tails and, in this regard, resemble *Lepidodactylus guppyi* rather than *L. lugubris*. They were collected by Drs. Sarasin and Roux and were secured through an exchange.

LOYALTY GROUP

Lifu, three specimens, Nos. 24681-24683, collected at Képénéé.

Bavayia sauvagii sauvagii (Boulenger)

Lepidodactylus sauvagii BOULENGER, 1883, Proc. Zool. Soc. London, p. 122 (type locality, New Caledonia).

Bavayia sauvagei ROUX, 1913, 'Reptiles,' in Sarasin and Roux, 'Nova Caledonia, A. Zoologie,' II, 2, p. 91.

The back of this form is crossed by a series of dark brown undulating bands like those described for *Lepidodactylus woodfordii* of the Solomon Islands. Otherwise it resembles *B. cyclura*, in which the dark markings are less conspicuous. Structurally, *cyclura* and *sauwagii* have been separated as follows by Boulenger (1883, p. 120):

Digits strongly dilated; males with two series of preanal pores.

B. cyclura cyclura (Günther).

Digits very feebly dilated; males with a single series of preanal pores.

B. sawagii sawagii (Boulenger).

These differences exist in the material at hand and are said to apply to the respective subspecies of these variants as well.

LOYALTY GROUP

Maré, two specimens, Nos. 24689-24690, taken by Dr. Jean Roux.

GEHYRA Gray

Gehyra oceanica (Lesson)

Gecko oceanicus LESSON, 1830, in Duperrey, 'Voyage Autour du Monde . . . sur . . . "La Coquille," 'Zoologie,' II, part 1, p. 42 (type locality, "Des îles d'O-Tahiti et de Borabora," Pacific Ocean).

Gehyra oceanica GRAY, 1845, 'Cat. Liz. British Mus.,' p. 163. SCHMIDT, 1921, Copeia, CI, p. 91; 1922, Copeia, CIV, p. 24. ORTENBURGER, 1923, *loc. cit.*, CXVII, p. 60.

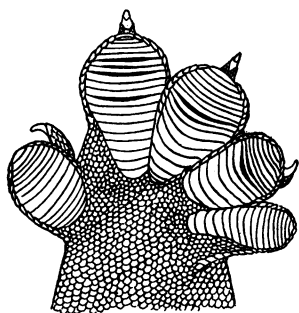


Fig. 10. *Gehyra oceanica* (Lesson). Forelimb. Note the undivided digital pads (after Kinghorn, after DeRooy).

In 1857 *Gehyra vorax* Girard was described from the Fiji Islands. Since that time it has been recorded from various localities in the Pacific area, and it has generally been admitted that the species is very closely allied to *oceanica*, although, up to this date, no one has seriously considered the status of the former species.

According to Boulenger (1885, 'Cat. Liz. British Mus.,' I, p. 153) *vorax* differs from *oceanica* in the possession of from 50 to 60 femoral pores (in the male)¹ instead of from 25 to 40, by the presence of a fold of skin anterior to the forelimb, and by a larger size. The examination of many specimens shows hopeless confusion in these characters and leads us to conclude that *vorax* probably should be placed in the

¹Femoral pores were not mentioned in the original description of *vorax*.

synonymy of *oceanica*. Thus, specimens with the low number of femoral pores of *oceanica*, such as No. 7912 from Vavitao Island of the Austral Group (with 41 pores, counting both sides), frequently show the strong fold of skin in front of the forearm that has been attributed to *vorax*. In fact, there seems to be no correlation between the appearance of the skin-fold and the number of femoral pores. The skin-fold itself is usually

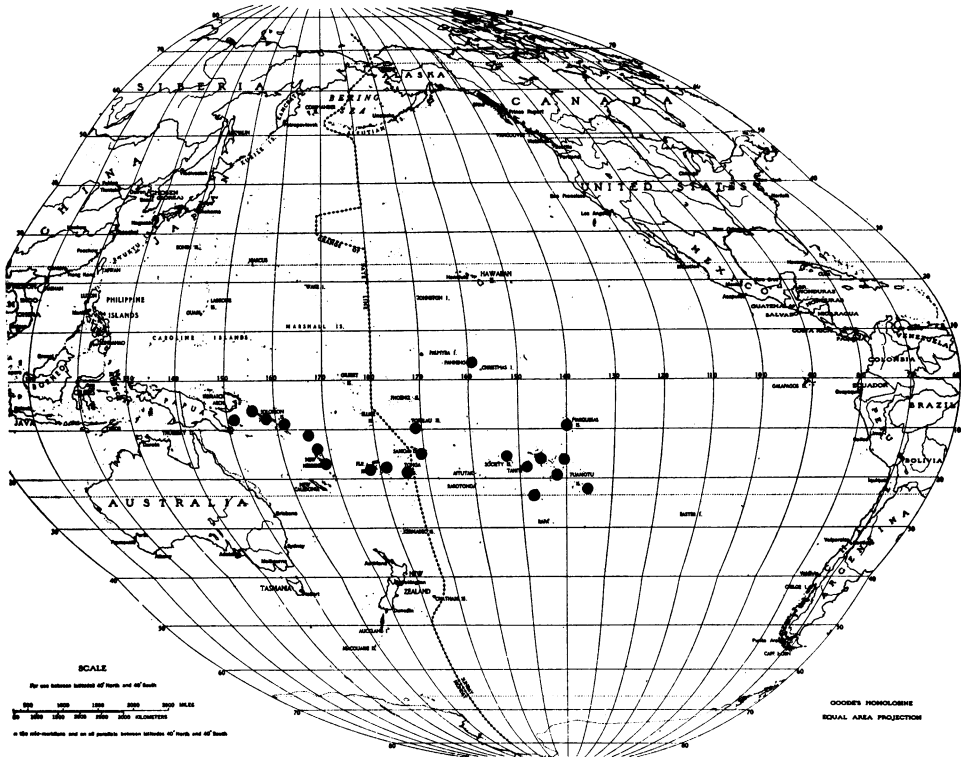


Fig. 11. Map showing the distribution of the locality records for *Gehyra oceanica* (Lesson) presented in this work.

absent or indistinct in the smaller specimens and appears in much less than half of the larger examples. It is certainly not wholly correlated with the attainment of a large size, since the largest of these geckos in the collection, No. 40475 from Koro Island of the Fiji Group, with a total length of 202 mm. (tail, 72 mm.), does not exhibit a skin-fold. The number of femoral pores is highly variable, usually being less than 50, counting both sides. The back of this form is usually pink, brownish, reddish, purplish,

slaty, or gray, without distinctive markings, but occasionally there are dark brown spots, specks, cross-bars, reticulations, or marblings present; whereas the under parts are uniformly light in color.

This wide-spread species has apparently been transported both easily and effectively throughout the region covered by this report. The resulting locality records are very numerous, as a glance at the following list will show.

AUSTRAL GROUP

Rimitara, four specimens, Nos. 7913-7916; Vavita, one specimen, No. 7912.

BANKS GROUP

Gaua, two specimens, Nos. 42118-42119.

FANNING ISLAND

One specimen, No. 36528.

FIJI GROUP

Aiva, six specimens, Nos. 29023-29026 and 29028-29029; Komo, three specimens, Nos. 41844-41845, 41849; Koro, one specimen, No. 40475; Matuku, one specimen, No. 41694; Mothe, four specimens, Nos. 41947-50; Namuka i lau, five specimens, Nos. 41920-41924; Ongea ndriti, two specimens, Nos. 41852-41853; Thikombia, one specimen, No. 29008.

KIRIWINA GROUP

Kitava, one specimen, No. 40269.

MARQUESAS GROUP

One specimen, No. 43964; Hivaoa, one specimen, No. 24457; Huahuna, one specimen, No. 24466; Nukuhiva, five specimens, Nos. 21550, 21552, and 24454-24456.

NEW HEBRIDES GROUP

Arag, one specimen, No. 42157; Malo, one specimen, No. 40540; Suwarro, eleven specimens, Nos. 29231, 29233-29240, and 29242-29243.

PAUMOTU GROUP

Ahii, two specimens, Nos. 24458 and 27025; Akiaki, one specimen, No. 40189. Apataki, three specimens, Nos. 27114-27116; Aratika, seven specimens, Nos. 27069-27075; Faaite, twenty-three specimens, Nos. 27036-27050 and 27106-27113; Fakarawa, six specimens, Nos. 43965-43968 and 27097-27098; Hau, four specimens, Nos. 21625-21628; Hiti, three specimens, Nos. 21615-21617; Katiu, ten specimens, Nos. 27085-27094; Kaukura, seven specimens, Nos. 27060-27066; Kawehe, two specimens, Nos. 27076-27077; Makemo, one specimen, No. 21610; Manihi, seven specimens, Nos. 27078-27084; Matahiva, five specimens, Nos. 27030-27034; Nihiru, one specimen, No. 21561; Rangiroa, six specimens, Nos. 24452-24453 and 27026-27029; Raraka, two specimens, Nos. 27099-27100; Raroia, eleven specimens, Nos. 27014-27024; Tahanea, two specimens, Nos. 27104-27105; Taiaro, three specimens, Nos. 27117-27119; Takapoto, eight specimens, Nos. 24467-24472 and 27095-27096; Takaroa, six specimens, Nos. 21669-21672, 24465, and 27035; Takurea, four speci-

mens, Nos. 27120-27123; Tenararo, seven specimens, Nos. 23793-23799; Tikahau, nine specimens, Nos. 27051-27059; Tiku, five specimens, Nos. 24459-24463; Toau, three specimens, Nos. 27101-27103; Tureia, two specimens, Nos. 23723-23724.

SAMOAN GROUP

Savaii, three specimens, Nos. 41681, 41739, and 41868; Tutuila, two specimens, Nos. 42412-42413.

SANTA CRUZ GROUP

Santa Cruz, one specimen, No. 42084.

SOCIETY GROUP

Fenua ura, four specimens, Nos. 22308-22311; Mopéha, three specimens, Nos. 22293-22295; Moorea, eight specimens, Nos. 21708-21715; Tahiti, seven specimens, Nos. 21511, 22288, and 7904-7908.

SOLOMON GROUP

Bougainville, four specimens, Nos. 41888, 40377-40378, and 40375; Mono, one specimen, No. 41865; San Cristóbal, one specimen, No. 42187; Whitney, five specimens, Nos. 41869-41873.

TOKELAU GROUP

Fakaafo, two specimens, Nos. 41679-41680.

TONGA GROUP

Ava, one specimen, No. 40570; Eua, one specimen, No. 40194; Holeva, one specimen, No. 40569; Nomuka Iki, one specimen, No. 40564; Nuku, two specimens, Nos. 20534-20535; Vavau, two specimens, Nos. 40565-40566.

GEKKO Laurenti

Gekko vittatus Houttuyn

Gekko vittatus HOUTTUYN, 1782, 'Verh. Genootsch. Vliissingen,' IX, p. 325 (type locality, India).

Platydictylus bivittatus DUMÉRIL AND BIBRON, 1836, 'Erp. Gén.,' III, p. 334 (type locality, New Guinea and the island of Waigiu).

Gekko vittatus bivittatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 186.

There is apparently nothing distinctive in the variant described as *Platydictylus bivittatus* by Duméril and Bibron (1836) and considered as a variety of the present species by Boulenger (1885), as pointed out by De Rooij (1915, p. 53) and Barbour (1921, p. 101). In view of the data presented by the specimens listed below it seems that the latter authority was entirely justified in writing that the "details of scalation are very variable and the distribution is entirely haphazard."

The general ground color of the back of this gecko varies considerably in the series at hand. It may be cream, pinkish, brown, sandy, purple, purplish black, or blackish. The under parts are uniformly light in color, without distinctive spots or other markings.

In eleven specimens, we find three individuals with distinct, well-defined vertebral stripes, four with faint vertebral stripes of a transitional nature and four that are uniform above without longitudinal markings. The two individuals from the Banks Group fall within the latter class. The vertebral stripe, when distinct, is forked for a short distance anterior to the shoulders. It is usually white or brown in color, and, typically, bordering dark brown or blackish streaks occur on each side.

BANKS GROUP

Gaua, two specimens, Nos. 40541 and 40197.

KIRIWINA GROUP

Kitava, two specimens, Nos. 40270-40271.

NEW GUINEA

One specimen, No. 40233; Djamia Island, one specimen, No. 12854.

SOLOMON GROUP

Bougainville, two specimens, Nos. 40374 and 40376; Mono, one specimen, No. 40333; San Cristóbal, three specimens, Nos. 40417, 40350, and 42188.

The above report from Gaua in the Banks Group apparently marks the southeastern limit of the distribution of *Gekko vittatus*. Roux (1913) recorded the species from Santa Cruz of the Santa Cruz Group, but did not find it in his extensive collection from the New Hebrides and Loyalty Groups and New Caledonia. Since this gecko is easily transported, like most other reptiles which are extensively distributed on the small Pacific Islands, eventually it may be found to occur still farther south than at present.

GYMNODACTYLUS Spix

***Gymnodactylus pelagicus* (Girard)**

Heteronota pelagica GIRARD, 1857, Proc. Acad. Nat. Sci. Phila., p. 197 (type locality, Fiji and Navigator Islands).

Gymnodactylus pelagicus BOULENGER, 1885, 'Cat. Liz. British Mus.' I, p. 40.

One of the type localities of this form, the Navigator Islands, is now designated more commonly as the Samoan Group.

The specimens listed below have from 16 to 20 longitudinal series of tubercles on the back and sides, and all of them have a total length of less than 130 mm., the maximum set by Roux (1913) for the species.

The general color of the body in *pelagicus* is some shade of brown or gray. The back is crossed by a series of paired or continuous dark brown or black markings which are often wavy in outline. These are much larger and better defined in some individuals than in others.

BANKS GROUP

Gaua, three specimens, Nos. 42115-42117.

DANGER GROUP

Nassau, one specimen, No. 41735.

FLJI GROUP

Aiva, one specimen, No. 29097; Moala, four specimens, Nos. 40207-40210; Suva, one specimen, No. 41651; Viti leon, one specimen, No. 24716.

LOYALTY GROUP

Maré, two specimens, Nos. 24684-24685, secured by Dr. Jean Roux.

NEW CALEDONIA

New Caledonia, one specimen, No. 24686, collected at Hienghiène by Dr. Jean Roux.

NEW HEBRIDES GROUP

Maiwo, one specimen, No. 40171; Santo, two specimens, Nos. 20877 and 41908; Suwarro, two specimens, Nos. 29232 and 29241.

PAUMOTU GROUP

Akiaki, one specimen, No. 40190.

SOLOMON GROUP

Bougainville, one specimen, No. 44000; Choiseul, one specimen, No. 40478; Guadalcanar, one specimen, No. 40327; Ramos, one specimen, No. 40179.

TONGA GROUP

Eua, one specimen, No. 40193.

HEMIDACTYLUS Oken**Hemidactylus garnotii Duméril and Bibron**

Hemidactylus garnotii DUMÉRIL AND BIBRON, 1836, 'Erp. Gén.,' III, p. 368 (type locality, Tahiti).

Hemidactylus garnotti ORTENBURGER, 1923, Copeia, CXVII, p. 59.

This gecko has been reported previously from wide-spread localities in the Orient and the Pacific area, so its general absence from the various sections of the present collection is surprising. The scarcity of specimens, which may be due to any number of causes, suggests that *Hemidactylus garnotii* is possibly less subjected to successful transportation from island to island through the methods now in vogue than are such forms as *Gehyra oceanica* and *Lepidodactylus lugubris*. Their scarcity may be nothing but the direct result of these lizards escaping collectors through some peculiar specialization in habitat or habit. In the latter connection, it is interesting to note that Bavay (1869) found them in the neighborhood of vegetation, on the trunks of trees and in grass, whereas De Rooij (1915) calls attention to the fact that it is "a common house-gecko in Sumatra."

AUSTRAL GROUP

Rapa, four specimens, Nos. 23749-23751 and 23765.

HAWAIIAN GROUP

Two specimens, Nos. 22341-22342, secured through an exchange with the Bishop Museum.

HEMIPHYLLODACTYLUS Bleeker**Hemiphyllodactylus typus** Bleeker¹

Hemiphyllodactylus typus BLEEKER, 1860, Nat. Tijdschr. Ned. Ind., XX, p. 326 (type locality, Java).

Hemiphyllodactylus leucostictus STEJNEGER, 1899, Proc. U. S. Nat. Mus., XXI, p. 800 (type locality, Kauai, Hawaiian Islands).

A Hawaiian specimen of this gecko, No. 22340, was secured through an exchange with the Bishop Museum. It is light brown in color and has a few barely perceptible dark spots and reticulations on the back.

HOPLODACTYLUS Fitzinger**Hoplodactylus granulatus** (Gray)

Nautilinus granulatus GRAY, 1845, 'Cat. Liz. British Mus.,' p. 273 (type locality, New Zealand).

Hoplodactylus granulatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 174.

The specimen listed below differs from *maculatus* and *pacificus* in having many conspicuous dark brown markings on the lower surface. The back and the upper surface of the tail are crossed by a series of irregular dark bands.

NEW ZEALAND

Middle Island, one specimen, No. 22407, taken at Canterbury and secured through an exchange with the Canterbury Museum.

Hoplodactylus maculatus Gray

Nautilinus maculatus GRAY, 1845, 'Cat. Liz. British Mus.,' p. 273 (type locality, New Zealand).

Hoplodactylus maculatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 171.

This species apparently is very closely allied to *pacificus*, from which it differs chiefly in the possession of shorter distal phalanges. This distinction is apparent at once in typical examples, but a morphological approach is seen in this regard in a few individuals of each species.

The color variation described below for *pacificus* appears also in *maculatus*, but in some examples of the latter form the dark brown cross-bands on the back are regular, rather than irregular, in outline.

NEW ZEALAND

Middle Island, ten specimens, No. 23058, collected at Christchurch by E. Speight, No. 22408, secured at Mount Karetu, Canterbury, by C. Lindsay, and Nos. 22409-22416, taken by J. Archey in the valley of the McLean River, a tributary of the Clarence River.

¹Synonymy after Brongersma, 1932, Zool. Med. Rijks Mus. Nat. Hist. Leiden, XIV, p. 6.

Hoplodactylus pacificus (Gray)

Nautilinus pacificus GRAY, 1842, Zool. Misc., p. 58 (type locality, Pacific Islands).

Hoplodactylus pacificus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 173.

The ground color of the back of this gecko is light brown. While in certain individuals, such as No. 31550, there are no distinctive dorsal markings, other examples, such as No. 31539, exhibit well-defined, irregular, dark-brown cross-bands. Perfect transition between these colorational extremes is shown by the series listed below.

The rostral plate may border the nostril in this form, but it is most often excluded from it for a short distance.

NEW ZEALAND

Rurima Rocks, fifteen specimens, Nos. 31536-50, collected by B. Sladden at this locality, which is six miles from the mainland and approximately 60 miles southeast of Tauranga.

LEPIDODACTYLUS Fitzinger**Lepidodactylus guppyi** Boulenger

Lepidodactylus guppyi BOULENGER, 1884, Proc. Zool. Soc. London, p. 210 (type locality, Fauro Island).

Lepidodactylus pulcher BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 166, Pl. XIII, fig. 5 (type locality, Wild Island of the Admiralty Group).

After the consideration of data obtained from the series of these lizards from Whitney Island of the Solomon Group listed below, we are unable to maintain *L. pulcher* Boulenger as a distinct entity.

In the original description *pulcher* was separated from *lugubris* (rather than from *guppyi*), yet Boulenger's key shows *guppyi* as its twin associate. De Rooij (1915) listed *pulcher* as having from 18 to 20 lamellæ under the median toes and the number of femoral and preanal pores in the male was given as 17. In contrast, *guppyi* was said to have only 11 lamellæ under the median toes, while the number of femoral and preanal pores in the male was stated to be 44.

The thirteen specimens from Whitney Island mentioned above, which resemble each other closely in bodily form, have from 12 to 18 lamellæ under the middle toe of the hind foot and about the same numbers under the middle toe of the front foot, as well. Thus they bridge the gap

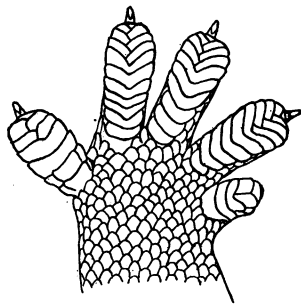


Fig. 12. *Lepidodactylus guppyi* Boulenger. Forelimb. Note the partially divided digital pads (after Kinghorn, after DeRooij).

between *guppyi* and *pulcher*. Likewise, the number of femoral and pre-anal pores is highly variable. In many specimens these are small and inconspicuous or absent, but in one male there are 14 pores, in another 30 are found, and in still another 42 are present.

Guppyi resembles *lugubris* both in coloration and general appearance, so the colorational variation described for *lugubris* applies, for the most part, to *guppyi* as well. The general ground color of all of our specimens of *guppyi* is light brown to pinkish. *Guppyi* differs from *lugubris* in having a rounded or only slightly flattened tail, instead of a more flattened one. With "typical" specimens the two species may be readily distinguished.

SOLOMON GROUP

Isabel, one specimen, No. 41897. Whitney, thirteen specimens, Nos. 41874-86.

SANTA CRUZ GROUP

Tinehula, one specimen, No. 41867.

Lepidodactylus lugubris (Duméril and Bibron)

Platydictylus lugubris DUMÉRIL AND BIBRON, 1836, 'Erp. Gén.', III, p. 304 (type locality, Tahiti).

Lepidodactylus lugubris BOULENGER, 1885, 'Cat. Liz. British Mus.', I, p. 165. STEJNEGER, 1899, Proc. U. S. Nat. Mus., XXI, p. 778. SCHMIDT, 1921, Copeia, CI, p. 91; 1922; idem., CIV, p. 23. ORTENBURGER, 1923, idem, CXVII, p. 59.

Within certain limits, the coloration of this species is highly variable. The ground color, although usually light brown, tan, or pinkish, may be also dark brown, gray, purple, or blackish. There is usually a narrow dark streak passing through the eye and continuing backward for a short distance along the side of the head and neck, but this marking entirely disappears in certain light-colored examples. The back may be unicolor or with dark markings. In the latter case it may be slightly spotted, marked by irregular brown bars or patches, and transversed by either regular or irregular cross-bands.

The internasal region of *lugubris* may show two or three enlarged scales (such as No. 25823), one enlarged scale (such as No. 25847), or none at all (such as No. 43972). Apparently there is no correlation between the variation of the scutellation in the internasal region and the type of tail possessed by each individual, contrary to the suggestion of certain earlier writers. The tail itself, although usually flattened to a more or less noticeable extent, is occasionally quite rounded. It may be remarked here that such random development or inconstancy in a characteristic may render it unreliable as a diagnostic feature. When opportunity affords, the available types of the described species of *Lepidodactylus* should be carefully compared for variational data. At such a

time it should be possible to determine whether or not round and flat-tailed variants of this particular stock are really the result of two separate and fundamental lines of evolutionary divergence. If they prove to be,

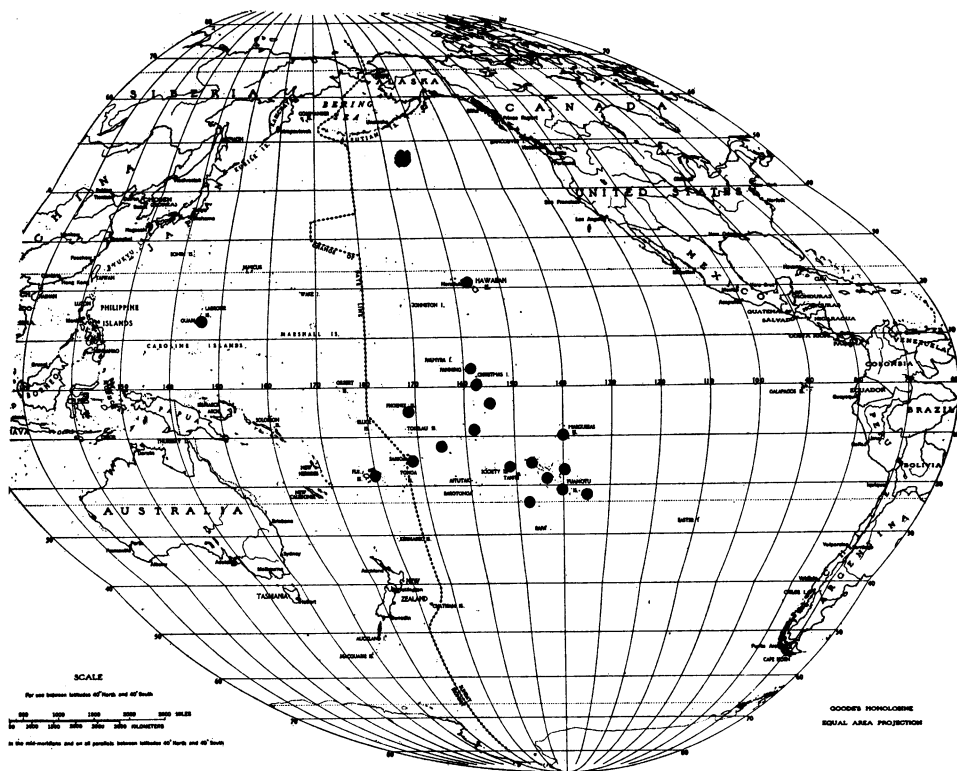


Fig. 13. Map showing the distribution of the locality records for *Lepidodactylus lugubris* (Duméril and Bibron) presented in this work.

each genetic section apparently has been distributed, promiscuously and widely often becoming fixed in the same general localities.

AUSTRAL GROUP

Rapa, two specimens, Nos. 23752-23753; Tubuai, one specimen, No. 7909.

CHRISTMAS ISLAND

Thirty-seven specimens, Nos. 7951-7978, 21530-21531, and 41792-41798.

DANGER GROUP

Pukapuka, one specimen, No. 41684.

FANNING ISLAND

Three specimens, Nos. 41799-41802.

FIJI GROUP

Aiva, one specimen, No. 41646; Colo-i-suva, two specimens, Nos. 41803-41804; Komo, six specimens, Nos. 41650, 41745, 41846-41848, and 41850; Mango, one specimen, No. 41747; Matuku, one specimen, No. 41693; Moala, one specimen, No. 40211; Namuka i lau, six specimens, Nos. 41925-41930; Niabo, one specimen, No. 41649; Oneata, one specimen, No. 41647; Ongea ndriti, three specimens, Nos. 41643-41645; Suva, five specimens, Nos. 41691-41692 and 41688-41690; Thithia, one specimen, No. 41805; Wailangilala, one specimen, No. 41648.

HAWAIIAN ISLANDS

Eight specimens, Nos. 29977-29978 and 22048-22353; Oahu, four specimens, Nos. 20530-20533, collected at Honolulu and secured through an exchange with the Bishop Museum.

LADRONE GROUP

Guam, two specimens, Nos. 1740 and 19678.

MALDEN ISLAND

One specimen, No. 41806.

MARQUESAS GROUP

Hivaoa, one specimen, No. 24473; Nukuhiva, two specimens, Nos. 21553-21554

PAUMOTU GROUP

Ahii, nine specimens, Nos. 25851-25859; Anaa, thirteen specimens, Nos. 21583-21595; Apataki, seven specimens, Nos. 25929-25935; Aratika, one specimen, No. 25928; Arutua, seventeen specimens, Nos. 43969-43985; Faaite, five specimens, Nos. 25807-25810 and 25818; Fakarawa, five specimens, Nos. 25811-25815; Hau, two specimens, Nos. 21622 and 21624; Kawehe, two specimens, Nos. 25816-25817; Makemo, two specimens, Nos. 25819-25820; Manihi, twenty-eight specimens, Nos. 25821-25848; Marutea, one specimen, No. 23803; Matahiva, twenty-three specimens, Nos. 25894-25916; Moerenhout, one specimen, No. 23725; Niau, twenty-seven specimens, Nos. 21629-21655; Oeno, one specimen, No. 23718; Pitcairn, four specimens, Nos. 23767, 23769-23770, and 23773; Rangiroa, two specimens, Nos. 24401-24402; Raraka, twenty specimens, Nos. 25860-25879; Takapoto, one specimen, No. 25917; Takaroa, eighteen specimens, Nos. 21675-21678 and 25880-25893; Takurea, one specimen, No. 25936; Tiku, eleven specimens, Nos. 24464 and 24482-24491; Toau, two specimens, Nos. 25849-25850.

PHŒNIX GROUP

Hull, three specimens, Nos. 41685-41687.

SAMOAN GROUP

Savaii, one specimen, No. 41682, collected at the seaport of Apia; Tutuila, one specimen, No. 29169.

SOCIETY GROUP

Fenua ura, one specimen, No. 22307; Moorea, two specimens, Nos. 21703-21704; Raiatea, one specimen, No. 22286; Tahiti, nine specimens, Nos. 21510 and 7895-7902.

TONGAREVA ISLAND

One specimen, No. 41749.

NAULTINUS Gray**Naultinus elegans** Gray

Naultinus elegans GRAY, 1842, Zool. Misc., p. 72 (type locality, Auckland, New Zealand). BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 168, Pl. xiv, fig. 3.

The specimens of this species listed below belong to the color variety designated as "A" by Boulenger (1885, 'Cat. Liz. British Mus.,' I, p. 169), with minor differences in evidence. The upper parts of the youngest example (No. 23060), which has a total length of 68 mm. (body 32 mm.), are deep purple in color, and a series of diamond-shaped light spots extends along the dorso-lateral region on each side. A light crescent is found on each side of the crown, the two facing each other, but not touching along the median line.

The adults are lighter in color, but nevertheless show much purple. In these the light spots are less in contrast with the ground color. Whereas in No. 22406 the light spots are not bordered by a narrow black margin, and the crescents on the head are in about the same position as in the young example just described; in No. 23059 the light spots are bordered by black and the crescents have united anteriorly with the diamond-shaped spots to form a longitudinal band which extends backward past the shoulders. The under parts may be white or covered by small black spots.

NEW ZEALAND

Middle Island, three specimens, No. 22406, collected on the Banks Peninsula, Canterbury, by C. Lindsay, and Nos. 23059-23060, secured at Christchurch by R. Speight. All of these individuals were obtained through an exchange with the Canterbury Museum.

PEROCHIRUS Boulenger**Perochirus articulatus** (Fischer)

Hemidactylus ateles articulatus FISCHER, 1882, Arch. f. Nat., p. 297, Pl. xvii, figs. 20-25 (type locality, Ponape, Caroline Islands).

Perochirus articulatus BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 156.

The two examples of this little-known species listed below have no femoral or preanal pores. The tail is flat, with lateral ridges, and the back is yellowish, but conspicuously spotted and reticulated with dark reddish-brown. The under surfaces are yellowish, with a few small, scattered, brown spots.

The record presented here apparently constitutes an important extension of the range of this lizard.

MARCUS ISLAND

Two specimens, Nos. 22343-22344, secured through an exchange with the Bishop Museum.

The largest of these examples, Nos. 22344, has a total length of 153 mm. (body, 81 mm.), a figure greatly in excess of that presented by Boulenger for the species. The head width of the same specimen is 15 mm.

PEROPUS Wiegmann

Peropus mutilatus (Wiegmann)

Hemidactylus mutilatus WIEGMANN, 1834, 'Herpetologia Mexicana,' I, p. 54 (type locality, Manila, Philippine Islands).

Peropus mutilatus STEJNEGER, 1899, Proc. U. S. Nat. Mus., XXI, p. 796. SCHMIDT, 1921, Copeia, CI, p. 91; 1922, idem, CIV, p. 23. ORTENBURGER, 1923, idem, CXVI, p. 59.

Gehyra mutilata DE ROOIJ, 1915, 'Reptiles Indo-Austr. Arch.,' I, p. 41.

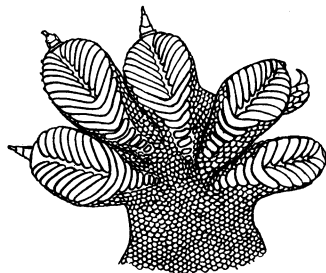


Fig. 14. *Peropus mutilatus* (Wiegmann). Note the divided digital pads (after Kinghorn, after De Rooij).

This form differs from *Gehyra oceanica* most conspicuously in the division of the subdigital lamellæ along the median line. Both of these species often display torn patches of skin and are apparently easily "mutilated."

The back is brown, grayish, or purplish, dull, and seldom with other markings, such as dark spots, bars, or reticulations.

Judging from the collection at hand, *mutilatus* is much more common in the eastern than in the western Pacific.

AUSTRAL GROUP

Rimitara, two specimens, Nos. 7917 and 21507; Vavitaio, one specimen, No. 7911.

CHRISTMAS ISLAND

One specimen, No. 7950.

DANGER GROUP

One specimen, No. 41683.

LADRONE GROUP

Guam, one specimen, No. 19655.

MARQUESAS GROUP

Eiao, nine specimens, Nos. 24473-24481; Fatuhiva, three specimens, Nos. 24492-24494; Nukuhiva, five specimens, Nos. 21559-21560 and 24495-24497; Tahuata, two specimens, Nos. 24498-24499.

PAUMOTU GROUP

Ahii, three specimens, Nos. 24403-24405; Hau, one specimen, No. 21619; Hiti, one specimen, No. 25804; Katiu, one specimen, No. 25800; Makemo, one

specimen, No. 25801; Manihi, two specimens, Nos. 25805-25806; Pitcairn, three specimens, Nos. 23766, 23768, and 23772; Takapoto, two specimens, Nos. 25802-25803; Takaroa, two specimens, Nos. 21673-21674.

SOCIETY GROUP

Mopéha, three specimens, Nos. 22290-22292; Moorea, three specimens, Nos. 21705-21707; Tahiti, two specimens, Nos. 7903 and 22287.

Iguanidæ

BRACHYLOPHUS Wagler

Brachylophus fasciatus (Brongniart)

Iguana fasciata BRONGNIART, 1780, Bull. Soc. Philom., II, p. 90, Pl. VI, fig. 1 (type locality, Pacific Islands).

Brachylophus fasciatus WAGLER, 1830, 'Nat. Syst. Amph.,' p. 151. STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, 4, p. 394.

The dorsal crest of this iguana is readily discernible, but composed of a low series of denticulations which grow smaller and smaller posteriorly. Upon examining the series listed below we find that the scales on the under surface of the body are much more sharply keeled on some individuals than on others. The claws on the digits are unusually sharp and probably serve as an effective weapon in both acts of defense and aggression. The femoral pores vary from 10 to 14 in number, counting both sides. The measurements of the largest specimen, No. 29033, are as follows: total length, 715 mm.; tail, 540 mm.; body, 175 mm.; head width, 23 mm.; front leg, 75 mm.; hind leg, 121 mm.; and base of inner digit to tip of longest toe on the hind foot, 52 mm.

FIJI ISLAND

One specimen, No. 17701; Aiva, four specimens, Nos. 29016 and 29033-29035; Kandavu, one specimen, No. 40474; Mothe, one specimen, No. 41946; Oneata, two specimens, Nos. 29013-29014; Vatu vara, one specimen, No. 29009.

Pygopodidæ

LIALIS Gray

Lialis burtonis Gray

Lialis burtonis GRAY, 1834, Proc. Zool. Soc. London, p. 134 (type locality, Australia). KINGHORN, 1924, Rec. Australian Mus., XIV, p. 184; idem, 1926, XV, p. 60.

Lialis burtoni GRAY, 1845, 'Cat. Liz. British Mus.,' p. 69. DE ROOIJ, 1915, 'Reptiles Indo-Austr. Arch.,' I, p. 63.

Lialis burtonii BOULENGER, 1885, 'Cat. Liz. British Mus.,' I, p. 247.

The representatives of this species listed below exhibit the following scutellational characters: upper labials, 12-16; lower labials, 14-16; upper labials separated from orbit by two series of scales; body scales in

20–21 longitudinal rows; 93–95 pairs of enlarged median ventral scutes from the small chin-shields to the preanal region. There are four preanal pores.

NEW GUINEA

New Guinea, two specimens, Nos. 43924 and 44003, collected at Hall Sound (8° 43' S., 146° 32' 25" E.).

Scincidae

CORUCIA Gray

Corucia zebrata Gray

Corucia zebrata GRAY, 1855, Proc. Zool. Soc. London, p. 218, Pl. VIII (type locality, San Cristóbal Island, Solomon Group). KINGHORN, 1928, Rec. Australian Mus., XVI, p. 162.

This large skink of the Solomon area attains a body length of at least 300 millimeters and is characterized by having a slender tail which is rounded, prehensile, and with an obtuse end. The body is greenish white or brownish above with irregular dark brown cross-bands, or olive above with lighter variegations, and there may be blackish spots irregularly placed. The head may be uniform in color or decorated with small dark spots. The under surfaces of the body are greenish white or brown, agreeing in general with the upper parts, but being lighter in shade.

The two examples before us differ considerably in scalation. These may be listed and discussed as follows:

Choiseul, one stuffed specimen, No. 43962. Head plates irregular, prefrontals widely separated¹; azygous occipital not placed squarely behind the interparietal; five supraoculars; 40 scales around the middle of the body; 55 scales from the occiput to the base of the tail; 19 large lamellæ under the fourth toe of the hind foot.

San Cristóbal, one topotype, No. 42217. Anterior head scales irregular,¹ rostral, frontoparietal, and other scales fused into a single large plate; azygous occipital placed exactly behind the interparietal, smaller in size; six supraoculars, the anterior element small and inferior in position as compared with the rest; 35 scales around the middle of the body; 48 scales from the occiput to the base of the tail; 22 large lamellæ under the fourth toe of the hind foot.

CRYPTOBLEPHARUS² Wiegmann

Cryptoblepharus boutonii pœcilopleurus (Wiegmann)

Ablepharus pœcilopleurus WIEGMANN, 1835, Nova Acta Acad. Cæs. Leop.-Carol., XVII, i, p. 202, Pl. XVIII, figs. 1–1a (type locality, islands at Pisacoma, Peru).

Ablepharus boutonii pœcilopleurus BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 347. STEJNEGER, 1899, Proc. U. S. Nat. Mus., XXI, p. 811.

¹Boulenger (1885) and Kinghorn (1928) have both found the prefrontals well developed and in contact with each other medially, and neither has noted abnormalities in the general arrangement or composition of the cephalic scutes.

²Stejneger (1907, p. 225) is followed in considering this genus as distinct from *Ablepharus*.

Cryptoblepharus pæcilopleurus SCHMIDT, 1921, Copeia, CI, p. 92; 1922, Copeia, CIV, pp. 23-24; 1923, Copeia, CXVI, p. 52. ORTENBURGER, 1923, Copeia, CXVII, p. 60.

Cryptoblepharus boutonii novo-caledonicus MERTENS, 1928, Zool. Anz., LXXVIII, p. 88 (type locality, Hienghiène, New Caledonia).

Cryptoblepharus boutonii novo-hebridicus MERTENS, 1928, Zool. Anz., LXXVIII, p. 89 (type locality, Malo Island, New Hebrides).

The numerous examples of this skink in the present collection have been carefully studied in order to ascertain the true value of their variations. It is found that distinctions based upon the coloration are worthless, from a practical point of view, although a predominance of either a perfectly lined or darkened color phase is often found on the individual islands. The subspecies as a whole may be entirely without lines or with two to four fairly distinct longitudinal stripes. Complete transition between the two extremes occurs. The ground color of the back may be olivaceous, brownish, slaty, or bluish-green, with or without darker markings of varying prominence.

Comparative data concerning the number of scales around the middle of the body, the number of scales from the occiput to the base of the tail, and the number of lamellæ under the fourth toe of the hind foot are summarized in the following table.

LOCALITY	NUMBER OF SPECIMENS	LONGITUDI- NAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLÆ UNDER FOURTH TOE
AUSTRAL GROUP	9	26-29	51-56	20-25
CHRISTMAS ISLAND	20	24-26	49-53	21-23
DANGER GROUP	5	24-26	52-57	20-23
FIJI GROUP	22	24-26	50-56	18-22
HAWAIIAN GROUP	2	28-30	50-56	20-24
MALDEN ISLAND	3	26-28	50-55	22-24
MARCUS ISLAND	1	24	49	17
MARQUESAS GROUP	3	26-28	48-57	22-26
NEW HEBRIDES GROUP	80	26-32	54-60	20-25
PAUMOTU ARCHIPELAGO	155	22-28	50-56	20-24
PHENIX GROUP	3	26-30	49-57	22-24
SAMOAN GROUP	13	27-30	58-61	22-25
SOCIETY GROUP	15	26-28	54-56	22-24
TOKELAU GROUP	3	26-27	47-52	23-26
SUMMARY	334	22-32	47-61	17-26

From the data presented above it is seen that the scalation of *pæcilopleurus* is highly variable from island to island, or from island

group to island group, within certain well-defined limits. These variations do not appear to be consistent geographically. A low number of scales around the middle of the body (22) occurs in the widely separated Paumotu Archipelago and the New Hebrides Group (type of *novo-hebridicus*), as well as in described subspecies of *boutonii* from New Guinea (type of *pallidus*, type of *novæ-guinææ*, etc.) and elsewhere. Likewise, the highest number of scales around the middle of the body (30-32) is found in widely separated places—namely, in the New Hebrides Group, the Hawaiian Islands, and the Samoan Group. The highest number of scales from the occiput to the base of the tail occurs in the Samoan Group (61) and the New Hebrides Group (60), but a much lower maximum is found in the lizards from the intervening Fiji Group (56). The variation in the number of lamellæ under the fourth toe of the hind foot seems equally haphazard and equally worthless in an attempt to recognize geographical races of this skink in the Pacific area now under consideration. Both high and low counts appear in four or five scattered localities.

From these data it becomes apparent that at least two of the eleven subspecies of *boutonii* recently described by Mertens (1928, pp. 83-89), *novo-caledonicus* and *novo-hebridicus*, must be united with the present form. The nine remaining designations of Mertens, as well as the numerous other races of *boutonii* recently diagnosed or recognized by Sternfeld (1920) and others, in many cases are but poorly differentiated from each other, and at least some of them may be expected to prove very close to *pæcilopleurus*, if not identical with it. Since all of these are based on geographical variants outside of the scope of the present study they will not be considered here.

AUSTRAL GROUP

Motu Karaporo, two specimens, Nos. 23739-23740; Rapa, three specimens, Nos. 7874-7876; Rimitara, one specimen, No. 7918; Tubuai, three specimens, Nos. 7928-7930.

CHRISTMAS ISLAND

Twenty specimens, Nos. 7873, 21532-21549, and 41791.

DANGER GROUP

Nassau, three specimens, Nos. 29210, 29220, and 29225; Pukapuka, two specimens, Nos. 29183 and 29204.

FII GROUP

Aiva, one specimen, No. 41673; Kanathia, two specimens, Nos. 41653-54; Karoni, one specimen, No. 41674; Late i levu, three specimens, Nos. 41670-41672; Late i Tonga, three specimens, Nos. 41972-41974; Matuku, one specimen, No. 41706; Moala, one specimen, No. 41744; Namuka i lau, two specimens, Nos. 41939 and 41941;

Niabo, six specimens, Nos. 41668-41669 and 41675-41678; Totoya, one specimen, No. 41736; Wailangilala, one specimen, No. 41659.

HAWAIIAN GROUP

Two specimens, Nos. 22346-22347.

MALDEN ISLAND

Three specimens, Nos. 41807-41809.

MARCUS ISLAND

One specimen, No. 22345.

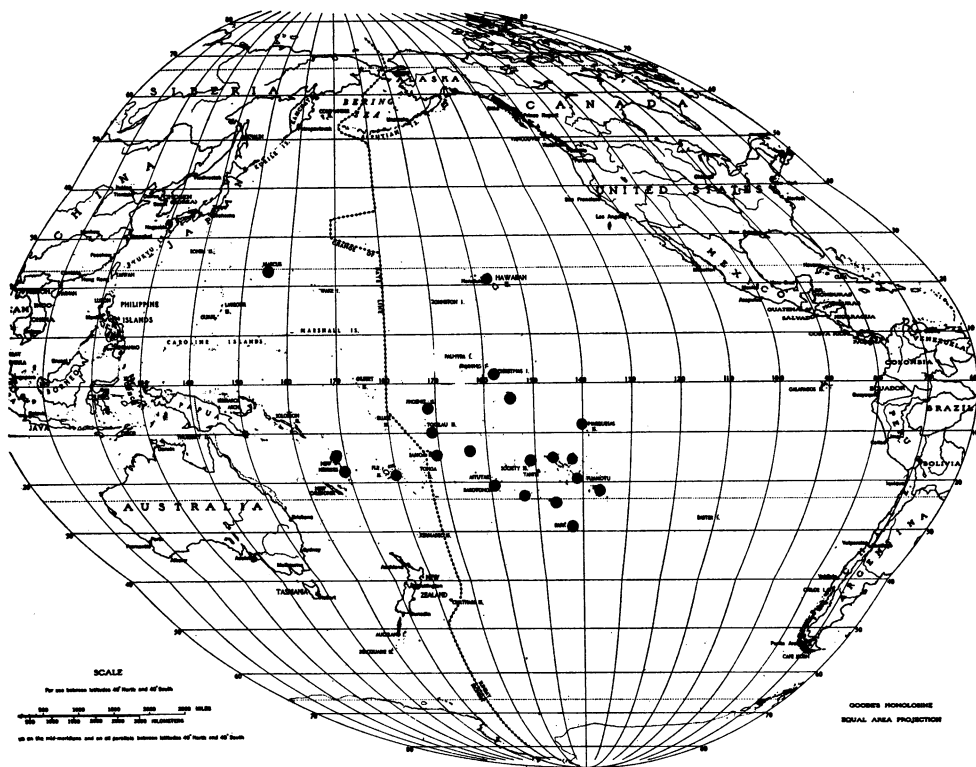


Fig. 15. Map showing the distribution of the locality records for *Cryptoblepharus boutonii pæcilopleurus* (Wiegmann) presented in this work.

MARQUESAS GROUP

Eiao, one specimen, No. 24407; Fatuhuku, one specimen, No. 24419; Huahuna, one specimen, No. 24406.

NEW HEBRIDES GROUP

Suwarro, one hundred specimens, Nos. 29041-29069, 29071-29072, 29074-29083, 29085-29096, 29098-29099, 29101-29103, 29105, 29107-29108, 29111-29116,

29119-29123, 29125-29127, 29129-29130, 29132-29137, 29140-29144, 29146-29149, 29151-29152, and 29154-29159.

PAUMOTU GROUP

Ahii, nine specimens, Nos. 24417-24418 and 25744-25750; Amanu, one specimen, No. 39848; Anaa, seven specimens, Nos. 21603-21609; Apataki, two specimens, Nos. 25795-25796; Aratika, four specimens, Nos. 25772-25775; Arutua, nineteen specimens, Nos. 43774-43792; Fakarawa, four specimens, Nos. 25788-25791; Hiti, three specimens, Nos. 25785-25787; Katiu, six specimens, Nos. 25759-25764; Kaukura, two specimens, Nos. 25778-25779; Kawehe, two specimens, Nos. 25776-25777; Makemo, three specimens, Nos. 25792-25794; Manihi, thirty-three specimens, Nos. 25695-25727; Marutea, four specimens, Nos. 23820-23822 and 23826; Matahiva, eight specimens, Nos. 25728-25735; Napuka, one specimen, No. 24408; Niau, eleven specimens, Nos. 21657-21667; Rangiroa, two specimens, Nos. 24409-24410; Tahanea, five specimens, Nos. 25780-25784; Taiaro, one specimen, No. 25799; Takapoto, seven specimens, Nos. 25765-25771; Takaroa, eleven specimens, Nos. 25751-25758 and 21679-21681; Takurea, eight specimens, Nos. 25736-25743; Tiku, one specimen, No. 24411; Toau, two specimens, Nos. 25797-25798; Tureia, one specimen, No. 23722.

PHENIX GROUP

Canton, one specimen, No. 41729; Hull, one specimen, No. 41695; Sydney, one specimen, No. 41730.

SAMOAN GROUP

Olosenga, six specimens, Nos. 27687-27692; Tutuila, seven specimens, Nos. 27696-27700 and 27704-27705.

SOCIETY GROUP

Fenua ura, eight specimens, Nos. 22317-22324; Mopéha, one specimen, No. 22296; Moorea, two specimens, Nos. 21716-21717; Tahiti, four specimens, Nos. 7891-7894.

TOKELAU GROUP

Fakaafo, three specimens, Nos. 41705 and 41731-41732.

DASIA Gray

Dasia smaragdina perviridis Barbour

Dasia smaragdinum perviridis BARBOUR, 1921, Proc. New Eng. Zool. Club, VII, p. 106 (type locality, Fulakora, Isabel Island, Solomon Group). KINGHORN, 1928, Rec. Australian Mus., XVI, p. 168.

In preserved specimens of this skink the general ground color of the back may be more or less uniform olivaceous, bright green, blue-green, purple, or gray, but the posterior part of the back is not marked with reticulations of light and dark brown or patches of uniform brownish like that of *D. smaragdina smaragdina* from adjacent areas in the New Guinea region. In fact when this distinctive brownish coloration is found in *perviridis*, it is restricted entirely to the upper surface of the

hind legs, in so far as is known. All of the under parts are light in shade although they may be suffused with the same general color that appears above.

The geographical variation in the most important scutellational features of *perviridis* may be summarized as follows:

LOCALITY	NUMBER OF SPECIMENS	LONGITUDINAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLE UNDER FOURTH TOE
D'ENTRECASTEAUX GROUP	1	24	47	28
SOLOMON GROUP	13	22-24	45-50	26-32
SANTA CRUZ GROUP	3	22-24	46-48	28-31
SUMMARY	17	22-24	45-50	26-32

Kinghorn (1928) evidently overlooked Barbour's previous record from "Graciosa Bay, Santa Cruz Archipelago" when he wrote that "this subspecies is restricted to the Solomon Islands." The present collection contains not only confirmatory material from the Santa Cruz Group, but a report from the D'Entrecasteaux Group as well.

D'ENTRECASTEAUX GROUP

Dauila, one specimen, No. 42368.

SANTA CRUZ GROUP

Duff, two specimens, Nos. 42153-42154; Santa Cruz, one specimen, No. 42105.

SOLOMON GROUP

Bougainville, two specimens, Nos. 42011 and 43999; Choiseul, one specimen, No. 40335; Fauro, one specimen, No. 40532; Gizo, one specimen, No. 41890; Isabel, one specimen, No. 41862, secured at 1000 Ships Bay; Mono, three specimens, Nos. 40332 and 40345-40346; Narovo, one specimen, No. 42230; Russell, one specimen, No. 42258; Shortland, two specimens, Nos. 40533-40534.

Dasia smaragdina smaragdina (Lesson)

Scincus smaragdinus LESSON, 1830, 'Zoologie,' in Duperrey, 'Voyage Autour du Monde . . . sur . . . "La Coquille,"' II, part 1, p. 43 (type locality, Ualan, or Kusaie, Island of the Caroline Archipelago).

Lygosoma smaragdinum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 250.

Dasia smaragdinum smaragdinum BARBOUR, 1921, Proc. New Eng. Zool. Club, VII, p. 106.

The representative of this subspecies, listed below, has the characteristic brownish markings on the posterior part of the back and the upper surface of the hind limbs. Otherwise it closely resembles *perviridis*. There are 22 scales around the middle of the body, 46 scales from the

occiput to the base of the tail, and 28 or 29 lamellæ under the fourth toe of the hind foot.

NEW GUINEA

New Guinea, one specimen, No. 4834, collected at Sorong and secured through an exchange with the Museum of Comparative Zoölogy.

EMOIA Gray

Emoia GRAY, 1845, 'Cat. Liz. British Mus.,' p. 95.

Emoa BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, pp. 211, 219.

Emoia adspersa (Steindachner)

Eumeces (Mabouya) adspersus STEINDACHNER, 1870, Sitz. math.-naturw. Cl. Akad. Wiss. Wien, LXII, part 1, p. 340 (type locality, Samoan Islands).

Lygosoma adspersum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 298.

Lygosoma (Emoa) adspersum STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 416.

This species is apparently very closely related to the *Mabouia lawesii* of Günther (1874), from which it may prove to be either readily separable or undifferentiated when series of both have accumulated, as recognized by Boulenger in 1887 (p. 299).

The geographical variation in the number of scales around the middle of the body,—the scales from the occiput to the base of the tail, and the lamellæ under the fourth toe of the hind foot—is summarized in the table below. All of our specimens have four supraoculars, and the white spots mentioned by Boulenger (1887, p. 299) may or may not be present on the sides.

LOCALITY	NUMBER OF SPECIMENS	LONGITUDI- NAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLÆ UNDER FOURTH TOE
DANGER GROUP	1	52	96	24
SAMOAN GROUP	3	54-60	102-105	27-30
SUMMARY	4	52-60	96-105	24-30

In the specimen from the Danger Group there is a slightly smaller number of scales around the middle of the body, from the occiput to the base of the tail, and under the fourth toe of the hind foot, than there is in the variational range set by the three examples from Samoa. Since additional material may be expected to render these differences valueless in separating the two populations, judging from the data we are able to present for species of skinks well represented in the collection, we refrain from giving it a systematic designation.

DANGER GROUP

Pukapuka, one specimen, No. 29208.

SAMOAN GROUP

Olosenga, two specimens, Nos. 29227-29228; Savaii, one specimen, No. 29012.

***Emoia cyanogaster* (Lesson)**

Scincus cyanogaster LESSON, 1830, 'Zoologie,' in Duperrey, 'Voyage Autour du . . . Monde . . . sur . . . "La Coquille,"' II, part 1, p. 47 (type locality, Ualan, or Kusaie, Island of the Caroline Archipelago).

Lygosoma cyanogaster BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 292.

Lygosoma cyanogaster cyanogaster STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 404.

This lizard exhibits a variable coloration when series are examined. The dorsal ground color is characteristically some shade of brown or olivaceous, and the ventral surfaces are white, yellow, orange, pink, blue, slate, or blackish. A broad dark brown or blackish longitudinal band is usually present on the sides, but at times it is broken into spots or entirely absent. In transitional phases the band is usually more distinct anteriorly than posteriorly, tending, much more often than not, to remain unbroken in front of the forearms. Although small white spots may appear on the sides in the region of the dark band just mentioned, they are absent in many cases.

The geographical variation in the number of scales around the middle of the body, the scales from the occiput to the base of the tail, and the lamellæ under the fourth toe of the hind foot may be summarized as follows:

LOCALITY	NUMBER OF SPECIMENS	LONGITUDI- NAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLÆ UNDER FOURTH TOE
HERVEY GROUP	2	26-27	53	70-72
NEW GUINEA	1	26	54	67
NEW HEBRIDES GROUP	6	24	55-57	78-87
SANTA CRUZ GROUP	2	23-24	53-57	78-94
SOLOMON GROUP	9	23-26	50-58	76-94
SUMMARY	20	23-27	50-58	67-94

The above data show that the general range of variation is rather consistent through the area concerned, with the exception that a slightly lower count is given for these lizards in the Hervey Group and in New Guinea—at opposite ends of this series of island habitats in which they

live. At first sight this might indicate that a colony of migrants from New Guinea had settled in the Hervey Group, which by no means seems an impossibility, but more specimens than three must be examined before any general conclusions are reached. The lizards from the Key and Aru Islands, which lie near New Guinea, have from 78 to 84 lamellæ, according to data presented by Sternfeld (1920).

Two subspecies of *cyanogaster* have been described, but not diagnosed. These are *keiensis* and *aruensis*, each named by Sternfeld (1920). Since the scutellation and coloration of these entities apparently are entirely those of *cyanogaster*, as we have found them in the preparation of this report, it seems very probable that eventually they will be included in the synonymy of *cyanogaster*, the typical form.

HERVEY GROUP

Rarotonga, two specimens, Nos. 29246-29247.

NEW GUINEA

New Guinea, one specimen, No. 20928, collected on the southeastern cape of the island.

NEW HEBRIDES GROUP

Aoba, two specimens, Nos. 42089-42090; Aurora, one specimen, No. 42195; Makura, two specimens, Nos. 40546-40547; Malekula, one specimen, No. 40168.

SANTA CRUZ GROUP

Santa Cruz, two specimens, Nos. 42084-42085.

SOLOMON GROUP

Bougainville, two specimens, Nos. 42014-42015; Choiseul, one specimen, No. 40370; Fauro, one specimen, No. 40321; Mono, two specimens, Nos. 40344 and 41887; San Cristóbal, two specimens, Nos. 40416 and 42189; Shortland, one specimen, No. 41839.

Emoia cyanura (Lesson)

Scincus cyanurus LESSON, 1830, 'Zoologie,' in Duperrey, 'Voyage Autour du Monde . . . sur . . . "La Coquille,"' II, part 1, p. 49 (type locality, Tahiti).

Eumeces lessonii DUMÉRIEUX AND BIBRON, 1839, 'Erp. Gén.,' V, p. 654 (substitute name for *cyanurus*).

Emoa cyanura GIRARD, 1858, 'U. S. Explor. Exp., Herpet.,' p. 270.

Lygosoma cyanurum BOULENGER (part), 1887, 'Cat. Liz. British Mus.,' III, p. 290.

Euprepes (Mabuya) kordoanus MEYER, 1874, Monatsb. Berlin Akad. Wiss., p. 133 (type locality, Kordo, near Mysore Island, coast of New Guinea).

Lygosoma impar WERNER, 1898, Zool. Anz., p. 553 (type locality, Ralum and Mioko Islands, Bismarck Archipelago).

Emoia cyanura STEJNEGER, 1899, Proc. U. S. Nat. Mus., XXI, p. 807. SCHMIDT, 1921, Copeia, CI, p. 91; 1923, Copeia, CXVI, p. 51.

Lygosoma cyanurum schauinslandi WERNER, 1901, Zool. Jahrb., Syst., XIV, p. 384 (type locality, Molokai Island, Hawaiian Group).

Emoia cyanurum SCHMIDT, 1922, Copeia, CIV, p. 23-24. ORTENBURGER, 1923, idem, CXVII, p. 60.

Lygosoma (Emoa) cyanurum PARKER, 1925, Ann. and Mag. Nat. Hist., (9) XV, p. 299.

The coloration of this species is rather constant from island to island, although a moderate amount of variational and ontogenetic pattern evolution occurs. The young and most of the adults have a very prominent mid-dorsal light stripe which extends from the snout along the body to the tail where it gradually fades and disappears. A prominent dorso-lateral stripe, which is usually a little narrower than the mid-dorsal line just mentioned, is present on each side in these individuals, and sometimes a very faint pair of lower lateral stripes is also present. With advancing age, as evidenced in our material by the assumption of a larger size, these lateral lines tend to vanish, followed at last by the loss of even the once prominent mid-dorsal one. Through the course of this development an individual may change from a conspicuously striped form to one in which the back is either dull, uniform black or brown, or variegated as described below. The ground color of the back is usually some shade of black or brown, and often the dorsal scales are white in their centers, giving a regular variegation or mottling. With advancing age such examples often develop a variegated light and dark pattern above instead of being unicolor. This, with the change of the white to yellowish, sometimes produces a reticulated golden-brown effect.

The geographical variation in the scales around the middle of the body, the scales from the occiput to the base of the tail, and the lamellæ under the fourth toe of the hind foot, is summarized by the table on the following page.

Before discussing the significance of these data it seems necessary to call attention to the excellent variational study presented by Parker (1925, pp. 298-300), who wrote as follows:

During the examination of a large number of lizards, apparently of the species *Lygosoma cyanurum* (Lesson), which were collected in the New Hebrides by Mr. J. R. Baker, it was noticed that the number of subdigital lamellæ under the fourth toe was frequently greater or less than the number assigned to that species. An examination of all of the specimens in the British Museum seems to show that two distinct species with overlapping areas of distribution have hitherto been confused under this one name. These two species are:—

(1) *Lygosoma (Emoa) cyanurum* . . . [in which the scales are] in 24-30 rows round the middle of the body; subdigital lamellæ 56-76 under the fourth toe. In a small percentage of specimens the light vertebral stripe lies on a single row of scales as described by Werner for *Lygosoma impar*. Other characters as in Boulenger's descrip-

tion. One hundred and eighty specimens have been examined, with a range from the Trobriand and Admiralty Islands eastwards to Pitcairn and northwards to Hawaii.

(2) *Lygosoma (Emoa) lessoni* . . . [in which the scales are] in 26-34 rows round the middle of the body; subdigital lamellæ 33-45 under the fourth toe; other characters as in Boulenger's description. Eighty-two specimens have been examined, with a range from Celebes through the Moluccas, New Guinea, Admiralty and Solomon Islands to the New Hebrides.

In specimens from the same locality the number of longitudinal tubules running towards the posterior margin of the osteoderms is higher, on an average, in *L. cyanurum* than in *L. lessoni*. This character, correlated with the lesser number of scale-rows and correspondingly larger scales of *L. cyanurum*, is of no diagnostic value, but serves to emphasize the distinctness of the two species. The subdigital lamellæ are structurally alike in the two species, and, under the distal phalanges, similar in size; proximally, however, those of *L. cyanurum* become very narrow and almost blade-like. . . .

Names have been placed in the synonymy of one species or the other according to the locality from which the original specimens were obtained. Lesson's specimens from Tahiti are outside of the range of the western form. Duméril and Bibron's specimens, from the "Oceanic Islands," probably belonged to both species, but their name is here restricted to the western one.

LOCALITY	NUMBER OF SPECIMENS	LONGITUDINAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLÆ UNDER FOURTH TOE
AUSTRAL GROUP	18	27-33	53-56	57-67
DANGER GROUP	55	28-30	54-57	64-78
FIJI GROUP	5 9	28-33	55-58	53-78
MARQUESAS GROUP	1 9	28-32	53-60	61-73
NEW HEBRIDES GROUP	24	27-33	52-60	54-74
PAUMOTU GROUP	476	26-32	50-58	56-76
SAMOAN GROUP	6	28-35	52-60	60-71
SANTA CRUZ GROUP	2	32-35	60-61	81-87
SOCIETY GROUP	62	28-32	52-59	57-72
SOLOMON GROUP	31	28-34	52-59	60-86
TOKELAU GROUP	5	27-30	51-57	68-84
TONGAREVA ISLAND	1	28	57	58
TONGA GROUP	10	27-30	50-56	60-72
TORRES GROUP	7	28-31	52-57	64-78
SUMMARY	775	26-35	50-61	53-87

From a study of the data presented in the table above it is seen that the variations in the series of the present collection identified as *cyanura* show no geographical consistency. In fact, with the exception of the data pertaining to a few groups from which only a small number of speci-

mens are available, the general range of variation is much the same throughout the vast distributional area covered.

While Parker found a break between 45 and 56 in the lamellæ under the fourth toe between his *cyanurum* and *lessoni*, and the present collection shows a break between 42 and 53, Sternfeld (1920, p. 411) pre-

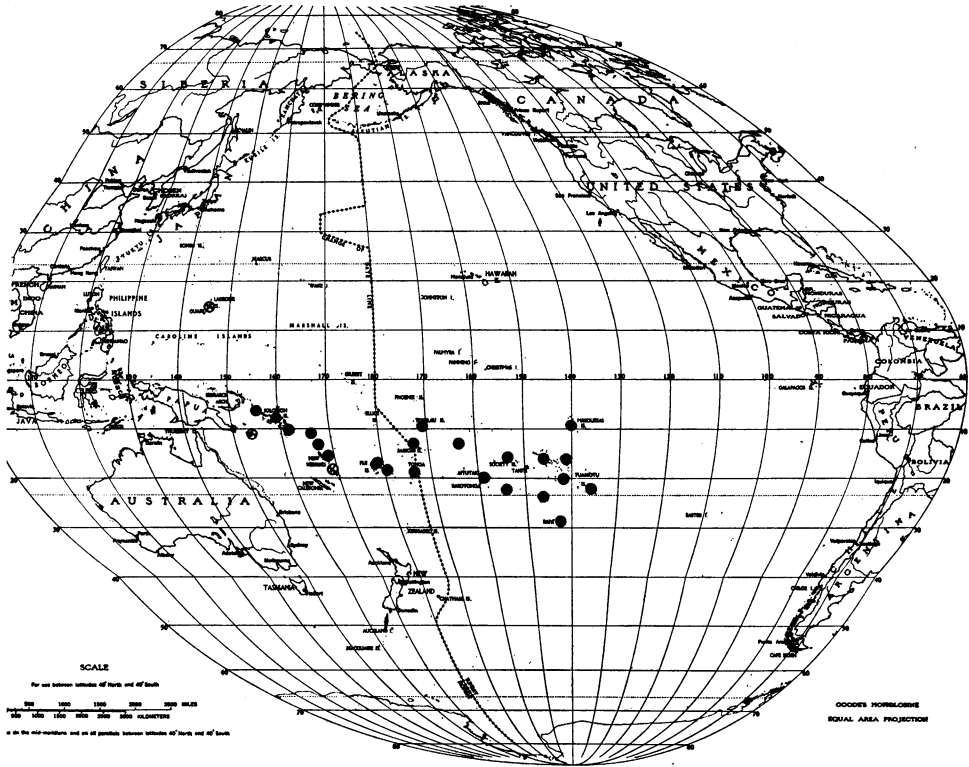


Fig. 16. Map showing the distribution of the locality records for the closely allied species, *Emoia weneri* (Vogt) and *Emoia cyanura* (Lesson), as presented in this work. The light circles with the crosses in the centers represent *E. weneri* and the solid black circles represent *E. cyanura*.

sented data which apparently make it necessary to advance the maximum number of lamellæ for *lessoni* to 51. All of these counts indicate, then, that the number of lamellæ under the fourth toe of the hind foot of the lizard Parker calls "*lessoni*" varies from 32 to 51, whereas in *cyanura* it varies from 53 to 87. This suggests that the two populations might be

subspecies of each other, but no positive evidence of this has been found. In fact typical representatives of both forms are here reported from the same islands, in several cases, just as they were by Sternfeld (1920). Thus, we are inclined to recognize each as a distinct species for the present, attributing their geographical confusion to their evident ease in finding transportation from one island to another.

The validity of Parker's application of the name "*lessoni*" to the lizards of the present stock with a low number of lamellæ seems debatable. As pointed out by Stejneger (1899, p. 807), *lessonii* is a substitute name for *cyanura*, the citation of Lesson's description of the latter form having been included in the synonymy of *lessonii* by Duméril and Bibron in the original description (1839, p. 654). Since, in addition, the subdigital lamellæ of *lessonii* were specifically described by Duméril and Bibron (p. 655) as very small, very thin, and very numerous ("plus petites, plus minces et plus nombreuses"), Parker (1925) is not followed here. Schüz (1929) has indicated that *kordoana* is a synonym of *cyanura* too, so the next available name for these variants apparently is *werneri*, as used most recently by Schüz (1929). This latter form was first described by Vogt in 1912 from the Mariana or Ladrone Islands. This is in the typical range of the species with fewer lamellæ, as perceived during the present study.

AUSTRAL GROUP

Rapa: one specimen, No. 23745; Rimitara, one specimen, No. 7919; Rurutu, six specimens, Nos. 7931-7936; Tubuai, three specimens, Nos. 7923-7924 and 7927; Vavitao, seven specimens, Nos. 7944-7949 and 25237.

DANGER GROUP

Four specimens, Nos. 41713-41716; Nassau, twenty-two specimens, Nos. 29209, 29211-29219, 29221-29226, 41722-41726, and 41728; Pukapuka, twenty-nine specimens, Nos. 29171-29180, 29184-29192, 29194, 29197-29198, 29200-29203, and 29205-29207.

FIJI GROUP

Fulanga, one specimen, No. 41655; Kandavu, nine specimens, Nos. 40493-40501; Katafanga, fourteen specimens, Nos. 41661-41663 and 41951-41961; Komo levu, one specimen, No. 41746; Mango, one specimen, No. 41666; Matuku, four specimens, Nos. 41709-41712; Moala, seven specimens, Nos. 40214, 40216-40220, and 40222; Namuka i lau, ten specimens, Nos. 41667, 41931-41938, and 41940; Ngau, one specimen, No. 40502; Oneata, two specimens, Nos. 41664-41665; Ongea levu, two specimens, Nos. 41656-41657; Ovalau, two specimens, Nos. 40490 and 40492; Totoya, one specimen, No. 41737; Tuvutha, one specimen, No. 40538; Vanua mbalavu, one specimen, No. 41658; Wailangilala, one specimen, No. 41660; Yanganga, one specimen, No. 29036.

MARQUESAS GROUP

Fatuhiva, three specimens, Nos. 24439-24441; Fatuhuku, one specimen, No. 24420; Hivaoa, five specimens, Nos. 7877 and 24448-24451; Huahuna, one specimen, No. 24422; Huapu, two specimens, Nos. 24435-24436; Motane, one specimen, No. 24421; Huapu, one specimen, No. 21568; Nukuhiva, six specimens, Nos. 21555, 24437, 24447, and 25501-25503.

NEW HEBRIDES GROUP

Espiritu Santo, six specimens, Nos. 40173-40178; Malekula, one specimen, No. 41065; Santo, two specimens, Nos. 41906-41907; Suwarro, fifteen specimens, Nos. 29084, 29100, 29104, 29106, 29109-29110, 29117, 29124, 29128, 29131, 29138-29139, 29145, 29150, and 29153.

PAUMOTU GROUP

Ahii, thirty-two specimens, Nos. 25384-25410, 25504-25505, and 25519-25521; Akamaru, one specimen, No. 23754; Anaa, nine specimens, Nos. 21574-21782; Apataki, twenty-six specimens, Nos. 25315-25340; Aratika, sixteen specimens, Nos. 25256-25271; Arutua, sixteen specimens, Nos. 25207-25222; Ducie, one specimen, No. 23719; Fahahiva, five specimens, Nos. 21569-21573; Fakarawa, nineteen specimens, Nos. 25238-25248 and 25293-25300; Hau, two specimens, Nos. 21620-21621; Henderson, six specimens, Nos. 23732-23735 and 24424-24425; Hiti, one specimen, Nos. 25301; Katiu, twenty-eight specimens, Nos. 25341-25368; Kaukura, six specimens, Nos. 25201-25206; Kawehe, twenty-nine specimens, Nos. 25487-25500 and 27376-27390; Makemo, eleven specimens, Nos. 25411-25421; Mangareva, nineteen specimens, Nos. 23758-23760 and 23870-23885; Manihi, twenty-two specimens, Nos. 43598-43719; Marutea, fifteen specimens, Nos. 23804-23818; Matahiva, twenty-one specimens, Nos. 25272-25292; Maturei Vavao, one specimen, No. 23720; Moerenhout, six specimens, Nos. 23726-23731; Nihiru, six specimens, Nos. 21562-21567; Oeno, four specimens, Nos. 23714-23717; Pitcairn, fourteen specimens, Nos. 23774-23782 and 23787-23791; Rangiroa, one specimen, No. 24423; Raraka, thirty-one specimens, Nos. 25422-25452; Raroia, seven specimens, Nos. 25249-25255; Tahanea, three specimens, Nos. 25302-25304; Taiaro, seven specimens, Nos. 43767-43773; Takapoto, fifty specimens, Nos. 24438, 25369-25383, and 25453-25486; Takaroa, sixty-four specimens, Nos. 21682-21688 and 27391-27447; Takoumé, ten specimens, Nos. 25305-25314; Tiku, five specimens, Nos. 24442-24446; Toau, six specimens, Nos. 25223-25228; Turéi, one specimen, No. 23721.

SAMOAN GROUP

Olosenga, one specimen, No. 29170; Tutuila, two specimens, Nos. 42407 and 42409, general record for the island, and three specimens, Nos. 22543-22545, secured at Pago Pago Harbor.

SANTA CRUZ GROUP

Santa Cruz, two specimens, Nos. 42106 and 42113.

SOCIETY GROUP

Fenua ura, fifteen specimens, Nos. 22325-22339; Maitea, eight specimens, Nos. 25229-25236; Mopéha, five specimens, Nos. 22300-22304; Moorea, ten specimens, Nos. 21723-21732; Tahiti, twenty-four specimens, Nos. 7873-7883 and 21512-21529.

SOLOMON GROUP

Arnavon, two specimens, Nos. 40311 and 41823; Bagga, two specimens, Nos. 41819 and 41822; Choiseul, two specimens, Nos. 40334 and 40368; Fatura, one specimen, No. 41829; Fauro, one specimen, No. 41893; Guadalcanar, two specimens, Nos. 41901-41902, secured at Moreau Sound; Isabel, four specimens, Nos. 40202-40203 and 41899-41900; Kulambangara, three specimens, Nos. 40312, 40336, and 40338; Mono, three specimens, Nos. 41832-41834; Oema, one specimen, No. 41863; San Cristóbal, three specimens, Nos. 42190-42192; Savo, three specimens, Nos. 41811-41813; Tetipari, one specimen, No. 36389; Ugi, three specimens, Nos. 41894-41896.

TOKELAU GROUP

Fakaafo, five specimens, Nos. 41717-41721.

TONGA GROUP

Eau, two specimens, Nos. 40191-40192; Niafoou, one specimen, No. 40555; Niuatobutabu, three specimens, Nos. 40572-40574; Niutoua, four specimens, Nos. 20526-20529.

TONGAREVA ISLAND

One specimen, No. 41748.

TORRES GROUP

Lo, seven specimens, Nos. 42077-42083.

***Emoia murphyi* Burt**

Emoia murphyi BURT, 1930, Amer. Mus. Novitates, No. 427, p. 1 (type locality, Salailua, Savaii Island, Samoan Group).

DIAGNOSIS.—A species closely allied to *E. samoensis*, differing chiefly in having 84 lamellæ under the fourth toe of the hind foot instead of 77 or less; 54 scales from the occiput to the base of the tail; 30 scales around the middle of the body; four supraoculars; dull grayish-olive above, darker posteriorly, with a few ill-defined dark and light spots present, particularly on the dorso-lateral region; uniform light blue below.

DESCRIPTION OF THE TYPE SPECIMEN.—Body slender; head somewhat wedge-shaped, widest between orbit and tympanum; nostril large, opening between three plates, a nasal, a postnasal, and a supranasal; anterior and posterior loreals present; frontonasal large, about as long as broad, forming a rounded suture with the rostral in front and another with the prefrontals behind; prefrontals well developed, in contact medially; frontal much longer than prefrontals, scarcely longer than the large frontoparietal plate; interparietal reduced, minute, bounded by indistinct sutures; large external parietals forming a substantial suture behind the interparietal; a pair of nuchals developed, outside of these a pair of large temporals; four supraoculars on one side and five on the other; eight superciliaries; 10 ciliaries above the eye, 13 or 14 below; eyelids well developed, lower with a transparent central disk; a large upper labial below the orbit, four smaller labials anterior to this; five large lower labials and several small ones; a small terminal mental, a large postmental, and three pairs of large sublabials; throat and ventral surface of body covered with scales which are arranged in longitudinal series; tympanum small, not larger than the transparent disk in the lower eyelid; three auricular lobules present along the anterior border of

the ear-opening; dorsal scales smooth or feebly multicarinate, larger than ventral plates; lateral scales noticeably smaller than dorsal ones; scales of body arranged in 30 longitudinal rows; 54 scales from the occiput to the base of the tail; 83 or 84 lamellæ under the fourth toe of the hind foot; median subcaudal scutes elongated transversely, much wider than long.

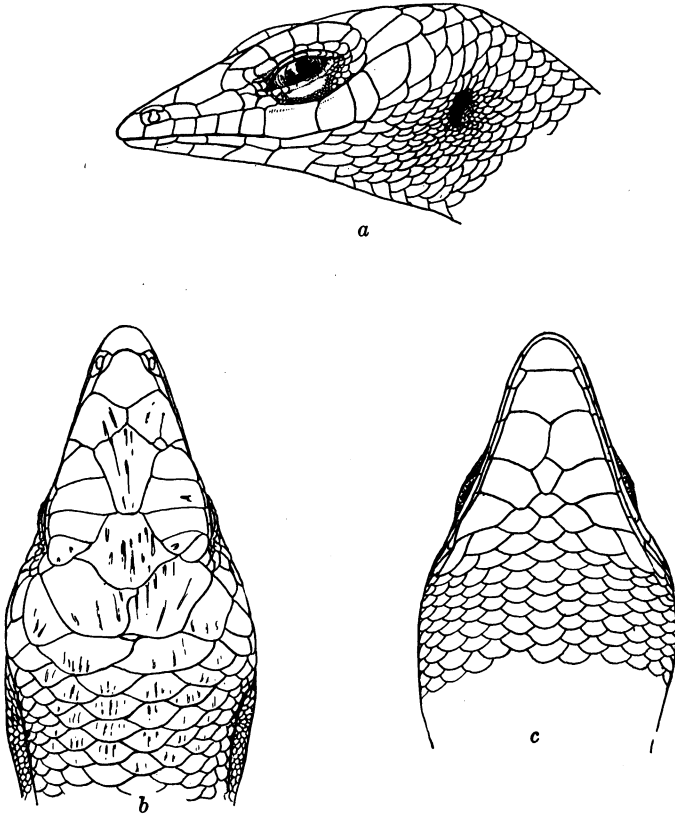


Fig. 17. *Emoia murphyi* Burt. Lateral (a), dorsal (b), and ventral (c) views of the head (from the type, A. M. N. H. No. 41740).

Dull grayish-olive above, darker posteriorly, with a few ill-defined dark and light spots of varying sizes present, particularly on the dorso-lateral region; light blue below, ventral scales with light edges.

SAMOAN GROUP

Savaii, one specimen, No: 41740, collected at Salailua. This example is the **TYPE** of the species.

***Emoia nigra* (Hombron and Guichenot)**

Eumeces niger HOMBRON AND GUICHENOT, 1853, 'Reptiles,' in Hombron and Jacquinot's 'Voyage au Pole Sud . . . "l'Astrolabe et la Zélée,"' III, p. 11, Pl. iv, fig. 2 (type locality, unknown).

Emoa nigrila GIRARD, 1857, Proc. Acad. Nat. Sci. Phila., p. 197 (type locality, Navigator Islands).

Lygosoma nigrum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 297 (emendation for *niger*).

?*Lygosoma (Emoa) speiseri* ROUX, 1913, 'Reptiles,' in Sarasin and Roux, 'Nova Caledonia, A. Zoologie,' II, 2, p. 155 (type locality, Ambryn Island, New Hebrides).

Lygosoma (Emoa) nigrum STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 415. KINGHORN, 1928, Rec. Australian Mus., XVI, p. 172.

The back of this skink is usually some shade of brown, although at times it is black or olivaceous, and the ground color may be either uniform or varied. The varied dorsal pattern occurs in only a minority of individuals, and in these the ground color of the sides is frequently darker than that of the middle of the back. Both of these regions may be variegated by dark and light spots, which may tend to form transverse series, or by black or dark brown spots alone. The under parts, which are constantly lighter than those above, are usually uniform reddish, pink, or yellowish in color, although at times dark spots appear.

The variation found in the number of scales around the middle of the body, in the number of scales from the occiput to the base of the tail, and in the number of lamellæ under the fourth toe of the hind foot of the specimens examined may be summarized as follows:

LOCALITY	NUMBER OF SPECIMENS	LONGITUDINAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLÆ UNDER FOURTH TOE
BANKS GROUP	5	32-38	60-66	36-38
FLJI GROUP	1	36	68	36
NEW HEBRIDES GROUP	6	30-38	59-64	36-46
SAMOAN GROUP	67	34-40	60-70	33-41
SANTA CRUZ GROUP	15	36-41	64-69	33-38
SOLOMON GROUP	73	33-44	54-73	31-45
TONGAN GROUP	14	36-40	62-71	32-37
UVEA ISLAND	2	36-39	64-66	32-34
SUMMARY	183	30-44	54-73	31-46

From these data it is at once evident that the normal variation of the species is about the same throughout the extensive range that we are able to record for it. In fact, the variation in the Solomon Islands is

nearly that of the species in all other localities. Like the scutellation, the size of the ear-opening is somewhat variable, usually being larger than the transparent disk found in the lower eyelid. Moreover, the presence or absence of lobules along the anterior border of the ear-opening, the character relied upon by some authors to separate *Emoia nigra* from the East Indian *atrocostata*, is largely a matter of conjecture. In certain individuals the anterior border of the ear-opening is perfectly smooth, but usually the relatively large scales which are present there project a little, giving a more or less definite impression of auricular lobules. It appears that *atrocostata* may be distinguished on characters other than the auricular ones, however, as recently pointed out to us by Mr. Karl P. Schmidt.

The lizard described by Roux (1913) as *Lygosoma (Emoa) speiseri* seems to fit the present species in most details of scutellation and coloration, although there are two more lamellæ under the fourth toe than the maximum we are able to record, and the indication of a dorso-lateral stripe appears anteriorly on each side. The number of scale rows around the middle of the body (32-34) does not offer separation, as originally thought. Thus, without examining the type of *speiseri* we are unable to reach a satisfactory conclusion as to its status.

BANKS GROUP

Gaua, five specimens, Nos. 40200-40201, 42122-42123, and 42156.

FIJI GROUP

Nuku mbasanga, one specimen, No. 40509.

NEW HEBRIDES

Aoba, one specimen, No. 42091; Dolphin, three specimens, Nos. 40355-40357; Faté, one specimen, No. 42001; Espiritu Santo, one specimen, No. 42151.

SAMOAN GROUP

Manua, thirty specimens, Nos. 27661-27667, 27674, 27677, 27707, and 40454-40473; Olosenga, nineteen specimens, Nos. 27678-27686, 27693, 28988-28994, and 29229-29230; Tutuila, eighteen specimens, Nos. 27694, 27701, 27703, 29160-29168, 42404-42406, 42408, and 42410-42411.

SANTA CRUZ GROUP

Lomlom, two specimens, Nos. 40548 and 42159; Naunha, two specimens, Nos. 40437-40438; Santa Cruz, nine specimens, Nos. 42086-42087, 42107-42112, and 42114; Vanikoro, two specimens, Nos. 40391-40392.

SOLOMON GROUP

Arnavon, two specimens, Nos. 41824-41825; Bougainville, two specimens, Nos. 42013 and 42017; Bouka, two specimens, Nos. 42260-42261; Choiseul, one specimen, No. 40371; Fauro, five specimens, Nos. 40339, 40342-40343, and 40517-

40518; Florida, one specimen, No. 40316; Gizo, seven specimens, Nos. 41891, 42097-42100, and 42102-42103; Guadalcanar, fourteen specimens, Nos. 40358-40361, 41889, and 42264-42272; Isabel, six specimens, Nos. 40204-40206 and 40347-40349; Malapa, one specimen, No. 40363; Mono, ten specimens, Nos. 40519-40527 and 41830; Murray, two specimens, Nos. 42262-42263; Ramos, two specimens, Nos. 40186 and 40535; Rennell, two specimens, Nos. 42392 and 41814; Russell, six speci-

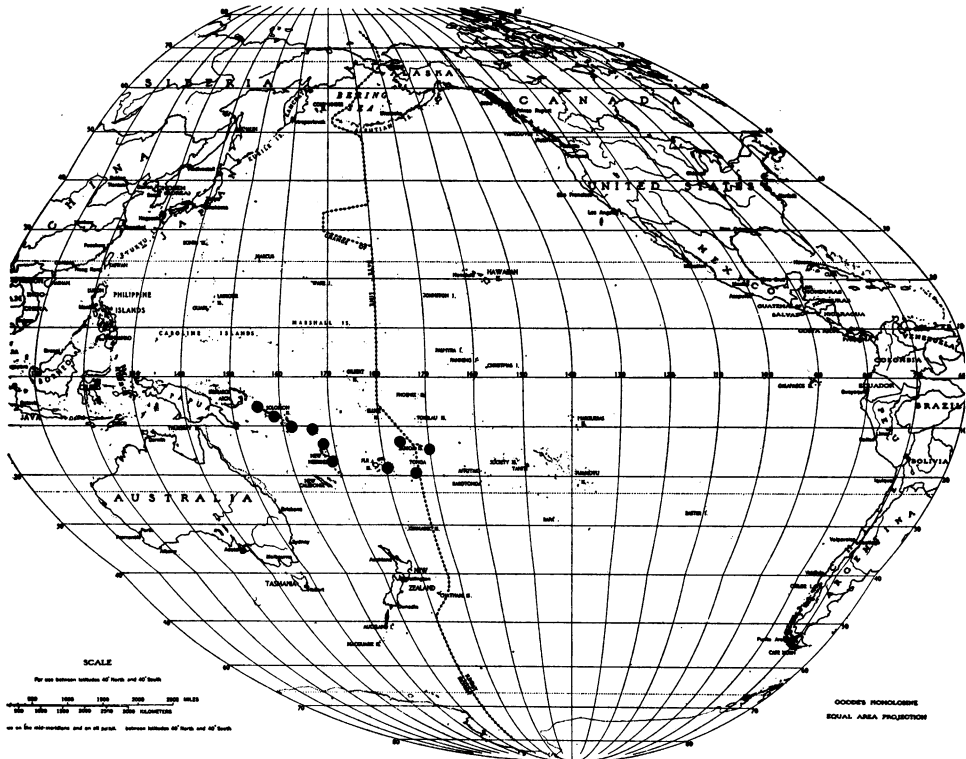


Fig. 18. Map showing the distribution of the locality records for *Emoia nigra* (Hombron and Guichenot) presented in this work.

mens, Nos. 41840-41843, 42257, and 42259; San Cristóbal, one specimen, No. 40362; Savo, one specimen, No. 41810; Shortland, eight specimens, Nos. 27715-27716, 40528-40531, and 41837-41838.

TONGA GROUP

Niuafoou, six specimens, Nos. 40549-40554; Tafahi, eight specimens, Nos. 40556-40563.

UVEA ISLAND

Two specimens, Nos. 40575-40576.

***Emoia samoensis* (Duméril)**

Eumeces samoensis DUMÉRIL, 1851, 'Cat. Coll. Reptiles,' Paris, p. 157 (type locality, Samoa). JACQUINOT AND GUICHENOT, 1853, 'Reptiles,' in Hombron and Jacquinot's 'Voy. au Pole Sud. . . . "l'Astrolabe et la Zélée,"' Zoologie, III, p. 10.

Lygosoma BOUTILLIER, 1887, 'Cat. Liz. British Mus.,' III, p. 293.

Lygosoma (Emoia) samoensis STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 407.

Emoia samoensis SCHMIDT, 1923, Copeia, CXVI, p. 52.

Typically, the dorsal ground color of this lizard is some shade of olivaceous or brown, being lighter on the sides. This color fades into white, yellowish, pinkish, or dull orange below. The sides may be

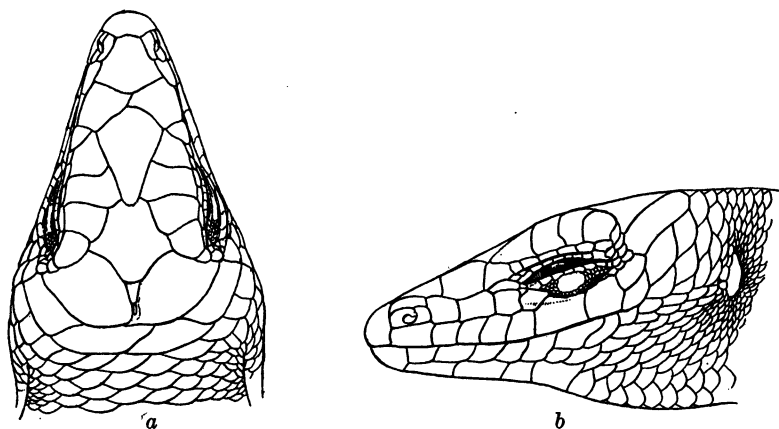


Fig. 19. *Emoia samoensis* Duméril. Dorsal (a) and lateral (b) views of the head. (A. M. N. H. No. 29010, Vatu Vara, Fiji Group).

tinted with blue or gray, and the under surfaces, which are usually of one color, may be covered by a greater or smaller number of small black or dark brown spots. The back may be unicolor or ornamented with numerous brown or black patches. In some examples these patches form series of from six to twelve prominent cross-bars on the body, but in others they are small or indistinct. In fact regular transition from one colorational extreme to the other may be seen in the series at hand. In addition to the black patches, series of white spots, which show a decided tendency to be longitudinally elongate, are present in a minority of the distinctively colored individuals. These general observations agree well with those recorded by Roux (1913, p. 110) after the examination of a series of *samoensis* from the Loyalty Group.

The geographical variation in the number of scales around the middle of the body, the scales from the occiput to the base of the tail, and the lamellæ under the fourth toe of the hind foot may be summarized as follows:

LOCALITY	NUMBER OF SPECIMENS	LONGITUDINAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLÆ UNDER FOURTH TOE
FJI GROUP	35	27-38	52-74	43-66
SAMOAN GROUP	15	30-37	60-67	47-53
TONGA GROUP	2	31-34	65-66	48-49
SUMMARY	52	27-38	52-74`	43-66

It seems significant that the variation in the characters listed in the above table is the same in the Fiji Group as it is in the summary of all groups, since the most specimens are from the Fiji Islands. High and low counts are often found in specimens from the same island, so we are inclined to give these differences no systematic importance outside of the weight that they bear in extending the variational limits in the diagnosis.

Roux's subspecies, *loyaltiensis*, as described, can scarcely be retained as a distinct entity, but, perhaps, diagnostic features can still be found. The number of scale rows around the middle of the body (32-32) and the number of lamellæ under the fourth toe of the hind foot (51-60) are entirely typical of *samoensis* as we find it on the Fiji Islands, and the small "adult" size, as judged by the presence of eggs in the body cavity, is found to be untenable as a diagnostic characteristic. A female from Kioa of the Fiji Group (No. 40508), having a total length of 194 mm. (eight millimeters less than Roux's type), has three eggs in the body cavity. The body of this individual is 66 mm. in length. Moreover, other small females, such as No. 41970 (body length, 60 mm.) and No. 40504 (body length, 62 mm.), from the Fiji Islands also possess eggs. Large examples of *samoensis* have a body length of over 100 mm.

FJI GROUP

One specimen, No. 20927; Aiva, eight specimens, Nos. 29017-29022 and 29031-29032; Kanathia, two specimens, Nos. 29030 and 41750; Katafanga, two specimens, Nos. 41964 and 41970; Kioa, one specimen, No. 40508; Komo, one specimen, No. 41851; Koro, one specimen, No. 40506; Matuku, one specimen, No. 41706; Moala, two specimens, Nos. 40223 and 41708; Mothe, two specimens, Nos. 41944 and 41945; Namena, one specimen, No. 40440; Ngau, one specimen, No. 40503;

Ovalau, three specimens, Nos. 40488-40489 and 40491; Thikombia, one specimen, No. 29007; Thithia, two specimens, Nos. 40195-40196; Tuvutha, one specimen, No. 40539; Vatu vara, two specimens, Nos. 29010-29011; Yandua, one specimen, No. 40504; Yanutha loa, one specimen, No. 40505; Yasawa, one specimen, No. 40507.

SAMOAN GROUP

Savaii, two specimens, Nos. 41738 and 41741; Manua, eight specimens, Nos. 27668-27673 and 27675-27676; Tutuila, three specimens, Nos. 27695, 27702, and 27706; Upolu, two specimens, Nos. 29244-29245.

TONGA GROUP

Tonomaia, two specimens, Nos. 40467-40468.

***Emoia sanfordi* Schmidt and Burt**

Emoia sanfordi SCHMIDT AND BURT, 1930, Amer. Mus. Novitates, No. 436, p. 1 (type locality, Elephant Island, Hog Harbor, Espiritu Santo Island, New Hebrides Group).

The variation and distribution of this species has been given detailed treatment in the original description. The specimens in the collection of The American Museum of Natural History are listed below.

BANKS GROUP

Gaua, six specimens, Nos. 40198-40199, 42120-42121, and 42124-42125.

NEW HEBRIDES GROUP

Aoba, two specimens, Nos. 42088 and 42158; Api, two specimens, Nos. 40543 and 42152; Aurora, one specimen, No. 40172; Elephant, near Espiritu Santo, one specimen, No. 42957; Faté, one specimen, No. 42005; Malekula, five specimens, Nos. 40169-40170, and 40514-40516; Tongoa, two specimens, Nos. 40544-40545.

SOLOMON GROUP

Fauro, two specimens, Nos. 40340-40341.

All of the specimens listed above are paratypes of this species, excepting the type, No. 42957.

***Emoia weneri* (Vogt)**

Lygosoma cyanurum BOULENGER (part), 1887, 'Cat. Liz. British Mus.,' III, p. 290.

Lygosoma cyanurum weneri VOGT, 1912, Sitzungsber. Ges. Naturf. Freunde Berlin (type locality, Mariana or Ladrone Islands).

Lygosoma (Emoa) kordoanum STERNFELD (not of Meyer), 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 411.

Lygosoma (Emoa) lessoni PARKER (not of Duméril and Bibron), 1925, Ann. and Mag. Nat. Hist., (9) XV, p. 299.

Lygosoma weneri triviale SCHÜZ, 1929, Abh. u. Ber. Mus. Dresden, (2) XVII, p. 8 (type locality, Doré Island, near Guinea).

A discussion of the status of Duméril and Bibron's *Eumeces lessoni* and the reasons for the application of the name, *Emoia weneri*, to the present species are given above under *Emoia cyanura* (pp. 521-524).

Parker (1925, p. 299) was unable to examine specimens of this stock from the Mariana or Ladrone Group. Therefore, he left the status of Vogt's *Lygosoma cyanurum werneri* open to debate. The present collection reveals the fact that *werneri* is the same as Parker's *lessoni*.

The general remarks pertaining to the coloration of *cyanura* apply, in so far as we are able to observe, with equal precision to the present species. The coloration of both seems to be identical.

The geographical variation in the scales around the middle of the body, the scales from the occiput to the base of the tail, and the lamellæ under the fourth toe of the hind foot, are summarized in the following table.

LOCALITY	NUMBER OF SPECIMENS	LONGITUDINAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLÆ UNDER FOURTH TOE
LADRONE GROUP	10	27-30	52-57	38-42
LOUISIADE ARCHIPELAGO	2	32-34	46-47	35-37
NEW HEBRIDES GROUP	2	30-34	54-58	32-37
SOLOMON GROUP	11	30-36	51-58	35-39
SUMMARY	25	27-36	46-58	32-42

The variations shown by the above table can hardly be considered significant because there are only a few specimens available from each geographical locality.

LADRONE GROUP

One specimen, No. 19668; Guam, nine specimens. Nos. 1226 and 19656-19663.

LOUISIADE ARCHIPELAGO

Panicti, two specimens, Nos. 19894 and 20925.

NEW HEBRIDES GROUP

Malekula, two specimens, Nos. 40166-40167.

SOLOMON GROUP

Bagga, two specimens, Nos. 41820-41821; Bougainville, one specimen, No. 42012; Choiseul, two specimens, Nos. 40367 and 40369; Fatura, two specimens, Nos. 41827-41828; Kulambangara, one specimen, No. 40337; Shortland, one specimen, No. 41836; Vella Lavella, two specimens, Nos. 40329-40330.

Emoia whitneyi Burt

Emoia whitneyi BURT, 1930, Amer. Mus. Novitates, No. 427, p. 1 (type locality, Shortland, Solomon Islands).

DIAGNOSIS.—A species closely allied to *E. tropidolepis* (Boulenger) of New Guinea, differing chiefly in the possession of more keels on the dorsal scales (5 to 7

instead of 2 to 5, usually 3), many of which are incomplete, vestigial, or broken, instead of prominent, continuous, and unbroken as in Boulenger's type illustration (1914, Pl. XXIX, fig. 4a); 32 scales around the middle of the body (not 34-36); 33 lamellæ under the fourth toe of the hind foot; and, if Boulenger's illustration (1914, Pl. XXIX, fig. 4) is correct, 63 scales from the occiput to the base of the tail

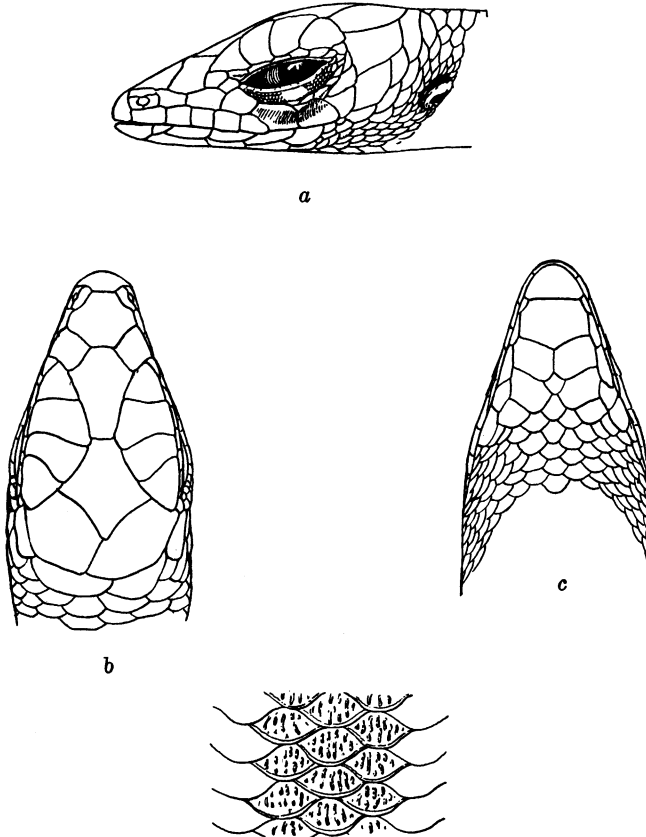


Fig. 20. *Emoia whitneyi* Burt. Lateral (a), dorsal, (b), and ventral (c) views of the head. Also, a detailed view of a patch of vertebral scales. (From the type, A. M. N. H. No. 44005.)

(not 46). There are four supraoculars, and the ground color is brownish above, darker laterally, but light below.

DESCRIPTION OF THE TYPE SPECIMEN.—Body slender; head normal, not wedge-shaped, not perceptibly wider in the region between the orbit and the tympanum; nostril large, opening between three plates, a nasal, a postnasal, and a supranasal; anterior and posterior loreals present; frontonasal large, about as broad as long,

forming a straight suture with the loreal and a somewhat rounded one with the frontal and prefrontals; prefrontals moderately developed, separated; frontal much longer than prefrontals, about the same length as the large frontoparietal plate; interparietal small, bounded by indistinct sutures; large parietal plates forming an indistinct suture behind the interparietal; a large, elongate pair of nuchals and small temporals developed; four large supraoculars; eight superciliaries; ten ciliaries above the eye, 14 below; eyelids well developed, lower one with a transparent central disk; a very large labial below the orbit, five smaller ones anterior to this; a terminal mental, a postmental and three pairs of large sublabials, the anterior pair in broad contact medially; tympanum large, a little larger than the transparent disk in the lower eyelid; no projecting auricular lobules; dorsal scales multicarinate, each with from five to seven low, more or less irregular or broken keels; dorsal plates about the same size as the ventral scutes, but somewhat larger than the lateral ones; 32 scales around the middle of the body; 63 scales from the occiput to the base of the tail; 33 lamellæ under the fourth toe of the hind foot; median subcaudal scutes large, elongated transversely, wider than long.

Brownish olivaceous above, darker on the sides; blue-gray below, lighter under the head, no spots. Since this is a young specimen, the pattern is not fully developed. Apparently there are no spots on the back, in contrast to the profuse spotting described for *tropidolepis*.

SOLOMON GROUP

Shortland, the type, No. 44005.

HOMOLEPIDA Gray

Homolepida ornata (Gray)

Hinulia ornata GRAY, (part), 1845, 'Cat. Liz. British Mus.,' p. 77 (type locality, New Zealand).

Lygosoma ornatum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 317, Pl. XXVI, fig. 1.

The single representative of this species listed below is bleached and shows no markings, with the exception of a few faint brownish spots on the sides of the body and on the under surface of the head. The scutellation is typical. There are four supraoculars, and the frontonasal is in substantial contact with the frontal. Also, there are 28 scales around the middle of the body, 60 scales from the occiput to the base of the tail, and 20 lamellæ under the fourth toe of the hind foot.

NEW ZEALAND

One specimen, No. 1139, collected by Maximilian.

LEIOLOPISMA Duméril and Bibron

Leiolopisma anolis (Boulenger)

Lipinia anolis BOULENGER, 1883, Ann. and Mag. Nat. Hist., (5) XII, p. 161 (type locality, Treasury and Santa Anna Islands, Solomon Group).

Lygosoma anolis BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 253.

Leiolopisma anolis BARBOUR, 1921, Proc. New Eng. Zool. Club, VII, p. 104.

Leiolopisma anolis KINGHORN, 1928, Rec. Australian Mus., XVI, p. 174 (emendation of generic name in synonymy).

Lygosoma (Leiolopisma) anolis KINGHORN, 1928, Rec. Australian Mus., XVI, p. 174.

Specimens of this species are almost albinistic in appearance, being very light brown in color, darker above and lighter below. A purplish tinge is often noticeable on the dorsal scales, especially posteriorly.

In the specimens listed below the number of scales around the middle of the body varies from 32 to 38; the scales from the occiput to the base of the tail, from 65 to 77; and the lamellæ under the fourth toe of the hind foot (counting the large ones which continue along the outer edge of the sole of the foot), from 24 to 27.

SOLOMON GROUP

Bougainville, two specimens, Nos. 40379-40380; Guadalcanar, one specimen, No. 40326; Mono, one topotype, No. 41831; Shortland, one specimen, No. 41835.

Leiolopisma austro-caledonica austro-caledonica (Bavay)

Lygosoma austro-caledonica BAVAY, 1869, Mem. Soc. Linn. Normandie, XV, p. 21 (type locality, New Caledonia).

Lygosoma austro-caledonicum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 278. ROUX, 1913, 'Reptiles,' in Sarasin and Roux, 'Nova Caledonia, A. Zoologie,' II, p. 116.

Our specimen of this species shows the low number of lamellæ hitherto attributed to *metallica* (17) and the high number of scales around the middle of the body described for *austro-caledonica* and its presumed subspecies. It shows auricular lobules rather definitely on one side of the head and less definitely on the other. These variations have led us to examine both of the above-mentioned forms with a view toward determining their status.

It is found that the described subspecies of *austro-caledonica* agree in having from 28 to 34 scales around the middle of the body and that *metallica* has from 24 to 28 scales; also, that while auricular lobules are described as absent in *metallica*, they are found to be present in *austro-caledonica*, although "very small, and scarcely projecting" (Boulenger, 1887, p. 279). On the basis of these apparent differences it seems logical to reorganize the two forms as subspecies.

The four subspecies of *austro-caledonica* described by Roux (1913, pp. 116-121) all have about the same range of variation in the number of scales around the middle of the body and in the number of lamellæ under the fourth toe of the hind foot. It may be pointed out that a key to these forms has never been prepared and that they have not been

sharply diagnosed from one another. In other words, their status remains indefinite. After all, even Roux himself (p. 118) admitted that *austro-caledonica* was a highly variable species.

The specimen listed below is brownish above and reddish brown below. It has 84 scales from the occiput to the base of the tail and four large supraoculars, the fifth, if it be counted, having a latero-inferior position posteriorly. It is presumed that the fifth supraocular has fused with the posterior superciliaries in this instance.

NEW HEBRIDES GROUP

Faté, one specimen, No. 42002.

Leiolopisma bicarinata (Macleay)

Heteropus bicarinatus MACLEAY, 1877, Proc. Linn. Soc. N. S. Wales, II, p. 68 (type locality, Hall Sound, New Guinea).

Heteropus albertisii PETERS AND DORIA, 1878, Ann. Mus. Civ. Genova, XIII, p. 362 (type locality, Yule Island and Monte Epa, New Guinea).

Lygosoma albertisii BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 240.

Lygosoma bicarinatum OUDEMANS, 1894, in Semon, Zool. Forsch. Austr., V, p. 143. DE ROOIJ, 1915, 'The Reptiles Indo-Australian Archipelago,' I, p. 240.

The characters of the single specimen of this species in the collection being reported may be listed as follows: supraoculars five; about ten prominent auricular lobules, these arranged all around the ear-opening; dorsal and lateral scales strongly bicarinate, ventral ones smooth; 30 scales around the middle of the body; 47 scales from the occiput to the base of the tail; 30 lamellæ under the fourth toe of the hind foot; brown above, lighter below; two ill-defined white stripes present on each side.

TORRES STRAIT ISLANDS

Murray, one specimen, No. 20919, secured through an exchange with the Australian Museum.

Leiolopisma fusca (Duméril and Bibron)

Heteropus fuscus DUMÉRIL AND BIBRON, 1839, 'Erp. Gén.,' V, p. 759 (type locality, "les îles de Waigiou et de Rawack").

Lygosoma fuscum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 283.

Lygosoma (Leiolopisma) atrogulare OGILBY, 1890, Rec. Australian Mus., I, p. 94 (type locality, St. Joseph's River District, New Guinea).

Leiolopisma fuscum BARBOUR, 1912, Mem. Mus. Comp. Zool., XLIV, p. 92.

The specimen listed below shows the following characteristics: supraoculars four; about a dozen prominent auricular lobules, these arranged all around the ear-opening; dorsal and lateral scales feebly multicarinate, usually showing traces of three longitudinal keels; ventral plates smooth; 34 scales around the middle of the body; 50 scales from

the occiput to the base of the tail; 32 lamellæ under the fourth toe of the hind foot; uniform light brown above, a tinge of greenish blue on the sides, yellowish below; no dark markings or stripes.

KIRIWINA GROUP

Kiriwina, one specimen, No. 20920, secured through an exchange with the Australian Museum.

Leiolopisma noctua (Lesson)

Scincus noctua LESSON, 1830, 'Zoologie,' in Duperrey, 'Voyage Autour du Monde . . . sur . . . "La Coquille,"' II, part 1, p. 48 (type locality, sugar cane fields of Ualan, or Kusaie, Island of the Caroline Archipelago).

Lygosoma noctua BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 256. DE ROOIJ, 1915, 'The Reptiles of the Indo-Australian Archipelago,' I, p. 232.

Leiolopisma noctua BARBOUR, 1912, Mem. Mus. Comp. Zool., XLIV, p. 93. SCHMIDT, 1921, Copeia, CI, p. 91; 1922, Copeia, CIV, pp. 23-24; 1923, Copeia, CXVI, p. 51. ORTENBURGER, 1923, Copeia, CXVII, p. 60.

Lygosoma (Leiolopisma) noctua STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 416. KINGHORN, 1928, Rec. Australian Mus., XVI, p. 175.

The coloration of this skink is variable within certain limits. The dark brown dorsal ground color, when present, may be uniform, broken by numerous light cross-bars which extend between the light stripes, or speckled with small light spots. The light stripes, if distinct, may consist of only a single, more or less conspicuous, vertebral streak which begins at a round white area in the occipital region and becomes diffuse posteriorly, but sometimes a pair of conspicuous dorso-lateral stripes are present in addition. Moreover, specimens have been found in which the vertebral streak and white occipital spot are absent, but in which the dorso-lateral stripes are more or less distinct. The under surfaces of *noctua* may be white, yellowish, pinkish, reddish brown, blue, or grayish.

The geographical variation in the number of scales around the middle of the body, the scales from the occiput to the base of the tail, and the lamellæ under the fourth toe of the hind foot are summarized in table on page 540:

AUSTRAL GROUP

Rapa, seven specimens, Nos. 23741-23744 and 23746-23748; Rurutu, four specimens, Nos. 7937-7940; Vavita, three specimens, Nos. 7941-7943.

DANGER GROUP

One specimen, No. 41733; Nassau, one specimen, No. 41727; Pukapuka, six specimens, Nos. 29181-29182, 29193, 29195-29196, and 29199.

FIJI GROUP

Katafanga, six specimens, Nos. 41965-41969 and 41971; Lakemba, one specimen, No. 41652; Moala, two specimens, Nos. 40215 and 40221.

LOCALITY	NUMBER OF SPECIMENS	LONGITUDI- NAL SCALE ROWS	SCALES FROM OCCIPUT TO BASE OF TAIL	LAMELLÆ UNDER FOURTH TOE
AUSTRAL GROUP	14	24-27	49-59	19-25
DANGER GROUP	8	23-27	49-53	19-22
FIJI GROUP	9	23-26	47-54	17-22
MARQUESAS GROUP	34	24-26	50-56	18-22
NEW HEBRIDES GROUP	2	25	51-52	19-21
PAUMOTU GROUP	437	23-27	48-60	21-25
SOCIETY GROUP	23	23-26	49-58	18-23
TOKELAU GROUP	1	25	54	24
SUMMARY	528	23-27	47-60	17-25

The above data indicate that *noctua* has a rather constant range of variation throughout the distributional area concerned.

MARQUESAS GROUP

Eiao, five specimens, Nos. 24430-24434; Fatuhiva, nine specimens, Nos. 24381-24389; Hivaoa, five specimens, Nos. 24357-24361; Huapu, three specimens, Nos. 24352 and 24355-24356; Motane, two specimens, Nos. 24353-24354; Nukuhiva, ten specimens, Nos. 21556-21557, 24390-24396, and 24351.

NEW HEBRIDES GROUP

Suwarro, two specimens, Nos. 29070 and 29073.

PAUMOTU GROUP

Ahii, thirty-one specimens, Nos. 24399-24400 and 44412-44440; Akamaru, one specimen, No. 23755; Anaa, two specimens, Nos. 21596 and 21602; Apataki, twenty-two specimens, Nos. 26763-26784; Aratika, nine specimens, Nos. 26788-26796; Arutua, fourteen specimens, Nos. 25937-25950; Fakarawa, twenty-four specimens, Nos. 26978-27001; Hau, one specimen, No. 21618; Katu, nine specimens, Nos. 26967-26975; Kaukura, four specimens, Nos. 26797-267800; Kawehe, sixteen specimens, Nos. 26951-26966; Makemo, nine specimens, Nos. 21611-21614 and 27002-27006; Mangareva, twenty-eight specimens, Nos. 20756-20757 and 23844-23869; Manihi, thirty-eight specimens, Nos. 25958-25995; Marutea, sixteen specimens, Nos. 23823-23825 and 23827-23839; Matahiva, seven specimens, Nos. 25951-25957; Niau, two specimens, Nos. 21656 and 21688; Pitcairn, five specimens, Nos. 23783-23786 and 23792; Rangiroa, one specimen, No. 26813; Raraka, forty specimens, Nos. 43501-43540; Raroia, seven specimens, Nos. 27007-27013; Tahanea, one specimen, No. 26873; Taiaro, twelve specimens, Nos. 26801-26812; Takapoto, fifty-one specimens, Nos. 24397-24398, 25996-25997, 26751-26762, and 26876-26910; Takaroa, sixty-one specimens, Nos. 21689-21702 and 43720-43766; Takurea, twelve specimens, Nos. 26814-26825; Tikahau, two specimens, Nos. 26976-26977; Tiku, nineteen specimens, Nos. 42414-42432; Toau, three specimens, Nos. 26785-26787.

SOCIETY GROUP

Fenua ura, five specimens, Nos. 22312-22316; Maitea, two specimens, Nos. 26874-26875; Mopéha, three specimens, Nos. 22297-22299; Moorea, five specimens, Nos. 21718-21722; Tahiti, eight specimens, Nos. 7884-7890 and 22289.

TOKELAU GROUP

Fakaafo, one specimen, No. 41734.

Riopa Gray**Riopa albofasciolata** (Günther)

Eumeces albofasciolatus GÜNTHER, 1872, Ann. and Mag. Nat. Hist., (4) X, p. 370 (type locality, northern Australia).

Lygosoma albofasciolatum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 302, Pl. XXIV.

Lygosoma striato-fasciatum OGILBY, 1890, Rec. Australian Mus., I, p. 5 (type locality, Howla Island, Solomon Group).

Riopa albofasciolata BARBOUR, 1921, Proc. New Eng. Zool. Club, VII, p. 107.

Lygosoma (Riopa) albofasciolata KINGHORN, 1928, Rec. Australian Mus., XVI, p. 168.

The dorsal ground color of this large skink is mottled with light and dark brown above, and there is a tendency, in some specimens at least, toward broad cross-barring. Two of the examples listed below are uniform reddish-brown inferiorly, while the third is yellowish, with a faint tinge of pinkish. The number of scales around the middle of the body in these individuals varies from 34 to 36; the number from the occiput to the base of the tail, from 76 to 82; and the lamellæ under the fourth toe of the hind foot, from 20 to 24.

SOLOMON GROUP

Guadalcanar, one specimen, No. 42273; Ronongo, one specimen, No. 42218.

SANTA CRUZ GROUP

Tucopia, one specimen, No. 42175.

Riopa rufescens (Shaw)

Lacerta rufescens SHAW, 1802, 'Gen. Zool.,' III, 1, p. 285 (type locality, Arabia, Egypt, and the European Islands!).

Lygosoma rufescens BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 303.

Riopa rufescens BARBOUR, 1912, Mem. Mus. Comp. Zool., XLIV, p. 95.

The specimens listed below have 28 scales around the middle of the body, 74 to 81 scales from the occiput to the base of the tail, and 16 to 18 lamellæ under the fourth toe of the hind foot.

D'ENTRECASTEAUX GROUP

Dauila, one specimen, No. 42369.

NEW GUINEA

New Guinea, one specimen, No. 20929, from the southeastern cape of the island, secured through an exchange with the Australian Museum.

SPHENOMORPHUS Fitzinger

Sphenomorphus FITZINGER, 1843, 'Syst. Reptilium,' p. 23.

Hinulia GRAY, 1845, 'Cat. Liz. British Mus.,' p. 74.

Otosaurus GRAY, 1845, 'Cat. Liz. British Mus.,' p. 93.

Sphenomorphus concinnatus (Boulenger)

Lygosoma concinnatum BOULENGER, 1887, Proc. Zool. Soc. London, p. 335 (type locality, Fauro Island, Solomon Group); 1887, 'Cat. Liz. British Mus.,' III, p. 511.

Lygosoma (Otosaurus) wolfi STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 397 (type locality, islets near Buka, Solomon Islands).

Lygosoma (Hinulia) concinnatum KINGHORN, 1928, Rec. Australian Mus., XVI, p. 166.

The general color of this lizard is brownish, darker above and lighter or whitish below. The upper surfaces are usually mottled with dark and light hues, often having both black (or dark brown) and white spots or bars in contrast to the brownish ground color. The sides often exhibit a more or less distinct and irregular black or dark brown band, which may continue anteriorly as a dark bar along the side of the neck. In most specimens, but not in all, a more or less rounded or oval black patch appears on each side just anterior to the shoulder. In some cases this is edged with white.

The specimens listed below show the following scale counts: scales around the middle of the body, 36 to 47; scales from the occiput to the base of the tail, 70 to 78; lamellæ under the fourth toe of the hind foot, 21 to 27.

Lygosoma (Otosaurus) wolfi, described from the range of the present species by Sternfeld in 1920, has the coloration and scale counts of the latter form. Comparison of descriptions of the two are quite convincing, leading one to the conclusion that they are identical, but for one difference—the presence of a supranasal in *wolfi*. Since otherwise typical specimens of *concinnatus* in the present collection show this feature, in a greater or lesser degree of development, we have no hesitation in uniting the two described entities.

The presence of a supranasal in such specimens as the types of Sternfeld's *Lygosoma (Otosaurus) wolfi* and A. M. N. H. Nos. 40184–40185 (and others) of the present species, indicates that the chief distinction thus far advanced to separate the genera (or subgenera) *Sphenomorphus* (or *Hinulia*) and *Otosaurus* is of little value.

SOLOMON GROUP

Bagga, four specimens, Nos. 41815–41818; Bougainville, two specimens, Nos. 42010 and 43998; Choiseul, thirteen specimens, Nos. 40372–40373, 40479–40481, 40483, 40485–40486, 43875–43878, and 43921; Fatura, one specimen, No. 41826;

Fauro, one topotype, No. 40323; Gizo, one specimen, No. 41892; Guadalcanar, six specimens, Nos. 40903-40905, from Moreau Sound, and Nos. 40317, 42236, and 42342, general record; Isabel, one specimen, No. 42053; Kulambangara, two specimens, Nos. 40308 and 42229; Narovo, one specimen, No. 42231; Ramos, seven specimens, Nos. 40181-40185, and 40536-40537; Ronongo, four specimens, Nos. 40313-40315 and 40331.

***Sphenomorphus jobiensis* (Meyer)**

Lygosoma (Hinulia) jobiensis MEYER, 1874, Monatsb. Berlin Akad. Wiss., p. 131 (type locality, Jobi).

Lygosoma jobiense BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 247.

The specimen listed below is brown above, darker on the sides, and light brown below. The back is mottled with dark and light, the ground color being light in hue. There are several longitudinal dark brown streaks on the throat. The scale counts are: supraoculars, five; scales around the middle of the body, 42; scales from the occiput to the base of the tail, 86; and lamellæ under the fourth toe of the hind foot, 26.

BISMARCK ARCHIPELAGO

Duke of York Island, one specimen, No. 20916, secured through an exchange with the Australian Museum.

***Sphenomorphus minutus* (Meyer)**

Lygosoma (Hinulia) minuta MEYER, 1874, Monatsb. Berlin Akas. Wiss., p. 132 (type locality, New Guinea).

Lygosoma minutum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 233.

The specimen of this diminutive skink listed below is typical, being brown above with a few small lighter and darker spots. There is no dark brown dorso-lateral streak, but the lips are with dark bars. The scales appear smooth to the naked eye, but under the microscope they are found to be profusely pitted. It would be interesting to learn whether this condition appears in New Guinea specimens or not. There are four supraoculars, 22 scales around the middle of the body, 41 scales from the occiput to the base of the tail, and about 15 lamellæ under the fourth toe of the hind foot.

SOLOMON GROUP

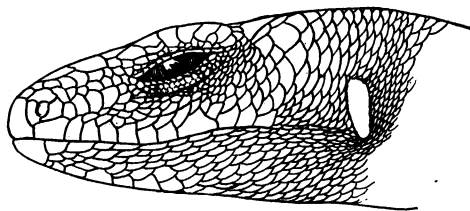
Russell, one specimen, No. 40324. This is apparently the first time *minutus* has been reported from the Solomons.

***Sphenomorphus solomonis* (Boulenger)**

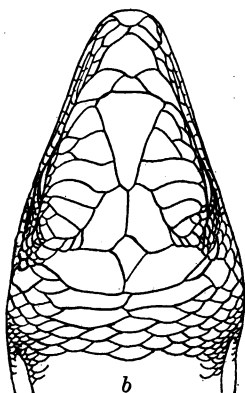
Lygosoma solomonis BOULENGER, 1887, Proc. Zool. Soc. London, p. 334 (type locality, Fauro Island, Solomon Group); 1887, 'Cat. Liz. British Mus.,' III, p. 510.

Lygosoma (Hinulia) solomonis KINGHORN, 1928, Rec. Australian Mus., XVI, p. 164.

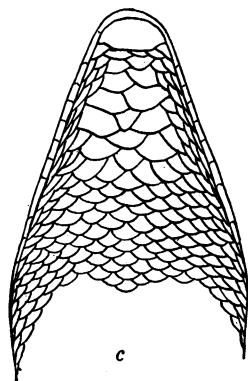
This form has rather a constant type of coloration, the general color being brownish. The back is finely mottled with dark and light, the ground color being broken by numerous small white bars and spots. The lower surfaces are white or grayish, with or without dark spots. The long, thick tail, which is very conspicuous on account of its relatively large size, is colored like the body.



a



b



c

Fig. 21. *Sphenomorphus taylori* Burt. Lateral (a), dorsal (b), and ventral (c) views of the head. (From the type, A. M. N. H. No. 42018.)

The specimens listed below show the following scale counts: scales around the middle of the body, 24 to 28; scales from the occiput to the base of the tail, 56 to 66; lamellæ under the fourth toe of the hind foot, 11 to 16.

SOLOMON GROUP

Choiseul, one specimen, No. 44004; Florida, three specimens, Nos. 41857-41859; Isabel, four specimens, No. 41864, from Marinje Lagoon, and Nos. 40309-40310 and

41898; Moe, two specimens, Nos. 40318-40319; Ramos, one specimen, No. 40180; Shortland, one specimen, No. 44006.

***Sphenomorphus taylori* Burt**

Sphenomorphus taylori BURT, 1930, Amer. Mus. Novitates, No. 427, p. 2 (type locality, Bougainville, Solomon Group).

DIAGNOSIS.—Apparently a very distinct species of *Sphenomorphus*, differing from the described forms of *Sphenomorphus* and *Parotosaurus*, in the possession of the following combination of characters: five to seven supraoculars; two or more superimposed anterior loreals; supranasal plate present or absent; two frontoparietals; an interparietal; ear-opening large, no lubules; scales smooth; two enlarged pre-anals; 53 to 55 scales around the middle of the body; 114 to 118 scales from the occiput to the base of the tail; 31 to 35 lamellæ under the fourth toe of the hind foot. The coloration is described below.

DESCRIPTION OF THE TYPE SPECIMEN.—Body slender; head somewhat wedge-shaped, widest in the region between the orbit and the ear-opening; nostril large, opening in the indistinctly divided nasal, or between the nasal and a supranasal element (each side different); three anterior loreals, forming a chain from the rostral to the upper labials; numerous shields between the eye and these anterior loreals; frontonasal rather small, separated from both the rostral and the frontal, a little wider than long; prefrontals small, separated by a scute (probably abnormally); frontal much longer than the prefrontals, as long as the combined length of the frontoparietals and interparietal; two frontoparietals; interparietal a little smaller than a frontoparietal; large external parietals forming a suture behind the interparietal; nuchals and temporals slightly developed, small, scarcely differentiated; six supraoculars on one side and seven on the other; eleven or twelve superciliaries; about a dozen ciliaries above the eye and twenty below; eyelids well developed, scaly, without a transparent central disk; seven or eight upper labials to below center of eye; four rows of scales between the eye and the upper labials; eight or nine lower labials, seven to below center of eye; a large terminal mental, followed by about a half-dozen pairs of enlarged median chin-shields, exterior to these many small sublabials; scales on under part of body arranged in longitudinal series; tympanum large, a little larger than the orbit; no auricular lobules along the anterior border of the ear-opening; scales smooth, median dorsal plates larger than the ventral ones; lateral scales a little smaller than dorsals; scales of body arranged in 55 longitudinal rows; 118 scales from the occiput to the base of the tail; 31 lamellæ under the fourth toe of the hind foot; median subcaudal scutes paired, not enlarged anteriorly, posteriorly enlarged and elongated transversely.

Uniform dark brown above, obscurely mottled with transverse light markings on the sides; throat, upper chest and under surface of tail uniform dark brown, lighter than above, however; other ventral parts yellowish brown, with dark brown patches or spots.

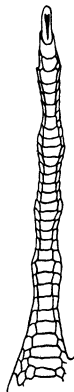


Fig. 22. *Sphenomorphus taylori* Burt. Ventral surface of the fourth toe of the hind foot showing subdigital lamellæ. (From the type, A. M. N. H. No. 42018.)

VARIATION.—The paratype, which has furnished variational data used in the above diagnosis, has two pairs of prefrontals, the posterior pair in broad contact medially and the anterior pair widely separated. It has five supraoculars on one side and six on the other. The nasal plate is definitely divided into anterior and posterior elements.

SOLOMON GROUP

Bougainville, two specimens, No. 42018, the type, and No. 42016, a paratype.

Sphenomorphus variegatus (Peters)

Lygosoma (Hinulia) variegatum PETERS, 1867, Monatsb. Berlin Akad. Wiss., p. 20 (type locality, not given).

Lygosoma variegatum BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 246.

The specimen listed below is marked with dark and light brown marblings on the body, the most of which give the impression of a transverse arrangement. A broken series of black spots extends along the dorso-lateral line. The throat has three grayish longitudinal streaks and the other under surfaces, with the exception of the darkened palmar surfaces of the feet, are light brown. There are six supraoculars; 41 scales around the middle of the body; 83 scales from the occiput to the base of the tail; and 19 lamellæ under the fourth toe of the hind foot.

D'ENTRECASTEAUX GROUP

Dobu, one specimen, No. 41625.

Sphenomorphus woodfordi (Boulenger)

Lygosoma woodfordi BOULENGER, 1887, Proc. Zool. Soc. London, p. 335 (type locality, Fauro Island, Solomon Group); 1887, 'Cat. Liz. British Mus.,' III, p. 511, Pl. xxv, fig. 4.

Lygosoma (Hinulia) woodfordi KINGHORN, 1928, Rec. Australian Mus., XVI, p. 165.

This species is uniform brown above and yellow below. The sides may be marked by black spots or bars and there may also be small light flecks or spots present. In large examples the flanks are tinted with green or blue.

The specimens listed below show the following scale counts: scales around the middle of the body, 33 to 36; scales from the occiput to the base of the tail, 56–58; and lamellæ under the fourth toe of the hind foot, 40 to 45.

SOLOMON GROUP

Choiseul, two specimens, Nos. 40482 and 40484; Fauro, two topotypes, Nos. 40320 and 40322.

TILIQUA Gray***Tiliqua gigas* (Schneider)**

Scincus gigas SCHNEIDER, 1801, 'Hist. Amph.,' II, p. 202 (type locality, Egypt or the Ural region!).

Tiliqua gigas BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 144. DE ROOIJ 1915, 'The Reptiles Indo-Australian Archipelago,' I, p. 157.

A subspecies of this skink, *T. gigas keiensis*, was described from the Key Islands by Oudemans in 1894. According to De Rooij (1915), the form differs from *gigas* in having the forelimb as long as the head or shorter rather than a little longer than the head, in the normal possession of four large anterior temporals instead of three, and in the number of scales around the middle of the body (31-34 instead of 28-32).

The two specimens in the present collection are from the D'Entrecasteaux Group near the extreme eastern range of the species, and one is from Moratau (or Ferguson) Island, a locality from which *gigas* was listed by De Rooij. Some of the most outstanding characteristics of these examples may be summarized as follows: a longitudinal blackish streak on the nuchal region; seven black cross-bands between the shoulders and the pelvic region; 13-15 black cross-bands on the tail; no supranasals; four large anterior temporals; 28-30 scales around the middle of the body; 56-58 scales from the occiput to the base of the tail; 10-11 lamellæ under the fourth toe of the hind foot; front leg very short, extending forward to the anterior border of the orbit.

From the data just presented it is seen that in the number of scales around the middle of the body our specimens resemble *gigas*, but in the possession of four anterior temporals and in the reduced size of the forelimb they resemble *keiensis*. This suggests that some of the characters used may be of little diagnostic value. Since the range of *gigas* is extensive it is possible that two geographical races may present enough differentiation—perhaps in the length of the forelimb—to be allotted the rank of subspecies. In such a case the present specimens, as well as those from the mainland of New Guinea, might theoretically be expected to prove close to *keiensis*, which name would be available for the eastern (short-legged) race. In the absence of specimens from New Guinea we can do no more than follow De Rooij and list our examples as *gigas*.

D'ENTRECASTEAUX GROUP

Dauila, one specimen, No. 42372; Moratau, one specimen, No. 41617.

TRIBOLONOTUS¹ Duméril and Bibron**KEY TO THE SPECIES**

- 1.—Less than 18 large scales from the occiput to the base of the tail.....3.
 More than 18 large scales from the occiput to the base of the tail.....2.
- 2.—A single longitudinal row of large plates along the vertebral line (Solomon Islands).....*T. blanchardi* Burt.
 A double longitudinal row of large plates along the vertebral line (Solomon Islands).....*T. schmidtii* Burt.
- 3.—(After De Rooij, 1915, p. 280) spines of the tail pointing upward; first pair of chin-shields as long as postmental, followed on each side by four smaller shields, gradually decreasing in size (New Guinea).

T. novæ-guineæ (Schlegel).

Spines of the tail pointing backward; first pair of chin-shields much longer than postmentals, followed by four shields, much smaller than the first; a red half-ring under the orbit (New Guinea).....*T. gracilis* De Rooij.

***Tribolonotus blanchardi* Burt**

Tribolonotus blanchardi BURT, 1930, Amer. Mus. Novitates, No. 427, p. 2 (type locality: Choiseul Island, Solomon Group).

DIAGNOSIS.—A species easily distinguished from the forms of *Tribolonotus* inhabiting New Guinea (*novæ-guineæ* and *gracilis*) in that it has—not to mention other variations—over twenty scales from the occiput to the base of the tail instead of about a dozen, and it is distinguished from *schmidtii*, also of the Solomons, in the possession of but a single longitudinal row of large mid-dorsal plates instead of a double one.

DESCRIPTION OF THE TYPE SPECIMEN.—Body slender; head slightly wedge-shaped, just a little wider in the region between the orbit and the ear-opening; nostril in a nasal plate; a large loreal; frontonasal large, decidedly longer than wide; no prefrontals; frontal smaller than frontonasal, longer and narrower than the frontoparietal plate; posterior head shields with indistinct sutures, but interparietal large, and parietals, nuchals, and temporals much smaller and lateral in position; four supraoculars; seven or eight superciliaries; eyelids scaly; four or five upper, and as many lower, labials to below center of eye; a small, narrowed, rounded, anterior mental; a large postmental; two pairs of large median chin-shields, the first pair twice as large as the second and in contact medially; several pairs of small sublabials external to these chin-shields; gular and ventral scales large, unicarinate, arranged in perfect longitudinal series, but in only imperfect transverse or oblique rows; two large preanals; 43 scales from the preanal region to the large chin-shields; eight longitudinal series of large ventral scutes at the middle of the body; tympanum large, as large as the orbit, superficial. exposed; no auricular lobules; all body scales, including the head plates, the ventrals, and the dorsals, keeled or ridged; head plates, above and below, multicarinate, dorsal and ventral scales often unicarinate; a zigzag fringe along the dorso-lateral region on each side, composed of strongly enlarged, tubercular scales, which, however, are much smaller than the large vertebral series; lateral scales, above and below this fringe, which is found also in some specimens of *schmidtii*, small,

¹Since the preparation of this manuscript Roux (1930) has designated *T. schmidtii* as the type species of a new genus, which he has named *Pediporus* because of the occurrence of apparently glandular foot pores in the form. Under this heading two species are recognizable as *Pediporus blanchardi* (Burt) and *P. schmidtii* (Burt).

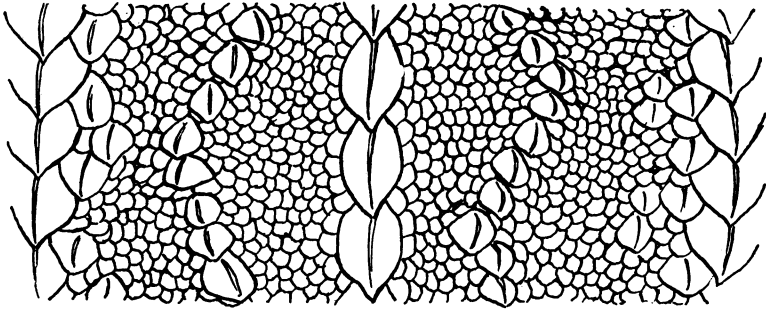


Fig. 23. *Tribolonotus blanchardi* Burt. View of a strip across the median part of the back. Note the single row of large vertebral scales. (From the type, A. M. N. H. No. 43922.)

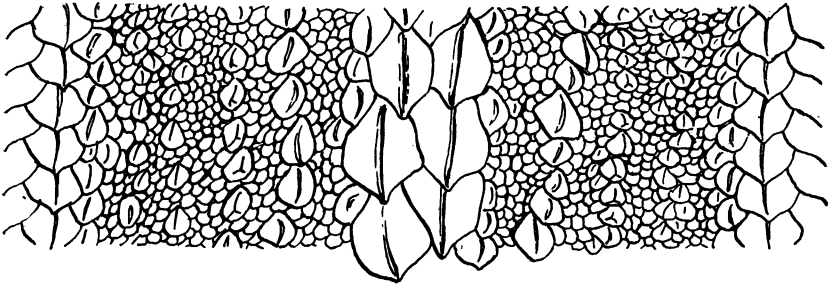


Fig. 24. *Tribolonotus schmidtii* Burt. View of strip across the median part of the back. Note the double row of large vertebral scales. (From the type, A. M. N. H. No. 41860.)

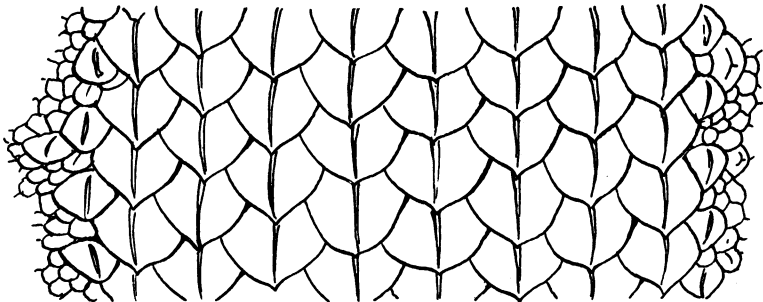


Fig. 25. *Tribolonotus blanchardi* Burt. View of ventral strip across the middle of the body. Note the large keeled ventral plates. (*Tribolonotus schmidtii* Burt shows the same variation.) (From the type, A. M. N. H. No. 43922.)

granular, of uneven sizes, often tubercular or spinose; large dorsal plates in only one continuous longitudinal series, this forking anteriorly just behind the occiput; 32 scales from the occiput to the base of the tail; 22 lamellæ under the fourth toe of the hind foot; median subcaudals paired, unicarinate almost as long as wide.

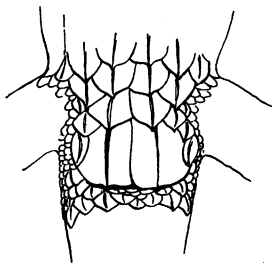


Fig. 26. *Tribolonotus blanchardi* Burt. Preanal region. (From the type, A. M. N. H. No. 43922.)

Uniform brownish, above and below, somewhat darker on the sides; no red half-ring under the orbit.

VARIATION.—The two paratypes of *blanchardi* show the following characters: four supraoculars; two large preanal plates; large ventral plates in eight longitudinal series at the middle of the body; 40 scales from the preanal region to the large chin-shields; 32 to 34 large scales from the occiput to the base of the tail, all in the single vertebral ridge, which forks only a short distance behind the occiput; 23 to 25 lamellæ under the fourth toe of the hind foot.

The paratypes are identical with the type in coloration, except that the ground color above the dorso-lateral fringes mentioned above is light brownish, without distinctive markings, in contrast to the dark brown ground color of the rest of the body.

SOLOMON GROUP

Choiseul, the type, No. 43922; Florida, one paratype, No. 41856; Guadalcanar, one paratype, No. 41855.

Tribolonotus novæ-guinæe (Schlegel)

Zonurus novæ-guinæe SCHLEGEL, 1834, Tijdsch. Nat. Ges., Phys., I, p. 218 (type locality, New Guinea).

Tribolonotus novæ-guinæe DUMÉRIL AND BIBRON, 1839, 'Erp. Gén.,' V, p. 366. BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 365. DE ROOIJ, 1915, 'Reptiles Indo-Australian Arch.,' I, p. 281.

Tribolonotus novæ-guinæe BOULENGER, 1887, 'Cat. Liz. British Mus.,' III, p. 365 (graphical error in synonymy).

The color of the specimen listed here is uniform brownish, darker above, lighter below. Some of its characteristics are as follows: supraoculars four; two large preanals; eight to ten longitudinal series of ventral plates at center of body; 46 scales from the chin-shields to the preanal plates; 11 or 12 large, keeled scutes from the occiput to the base of the tail, depending on the method of counting; these large dorsal plates in two longitudinal series; 22 lamellæ under the fourth toe of the hind foot; 29 lamellæ from the base of the fifth toe to the tip of the fourth; a small terminal mental, a large postmental, a pair of large median chin-shields and four or five pairs of small, exterior sublabials; first pair of chin-shields a little longer than postmental; spines of tail elevated posteriorly, but pointing upward at a slant; no red half-ring under orbit.

The status of *T. gracilis* De Rooij is not clear to us. The caudal spines in the single specimen at hand are pointing neither directly upward nor directly backward, but at an angle between the two. This same sort of variation exists in the slant of the occipital horns of certain presumed subspecies of *Phrynosoma douglassii* (*ornatissimum* and *hernandesi*), as recorded by Burt (1928, pp. 33-34), in which transition from a vertical to a horizontal plane is evident. Because of the lack of specimens we are unable to present variational data in the present case. Our specimen shows the two slightly elongated median chin-shields of *gracilis*, but fails to exhibit the red half-ring under the orbit attributed to that species.

NEW GUINEA

New Guinea, one specimen, No. 43986.

Tribolonotus schmidti Burt

Tribolonotus schmidti BURT, 1930, Amer. Mus. Novitates, No. 427, p. 3 (type locality, Beagle, Solomon Islands).

DIAGNOSIS.—A species easily distinguished from the forms of *Tribolonotus* inhabiting New Guinea (*novæ-guinæ* and *gracilis*) in having more than eighteen large scales from the occiput to the base of the tail, instead of about a dozen; differing from *blanchardi*, also of the Solomons, in the possession of a double row of large median dorsal plates instead of but a single row.

DESCRIPTION OF THE TYPE SPECIMEN.—Body slender; head wedge-shaped, widest in the region between the orbit and tympanum; nostril in a nasal plate; a large loreal; frontonasal large, decidedly longer than wide; no prefrontals; frontal smaller than the frontonasal, longer and narrower than the frontoparietal plate; interparietal scute large, covering most of the occipital region, external parietals reduced in size; nuchals medio-lateral in position; temporals present, two large pairs bordering the parietals; four supraoculars; seven or eight superciliaries; eyelids scaly; five or six upper labials to below center of eye, and as many lower ones; a small, narrowed, terminal mental; a large postmental; two pairs of large median chin-shields, the first pair twice as large as the second and in contact medially; four small pairs of sublabials external to these chin-shields; gular and ventral scutes large, arranged in longitudinal and oblique series; two large preanal plates; 35 scales from the preanal region to the chin-shields; eight longitudinal series of large ventral scutes at the middle of the body; tympanum large, as large as the orbit, and superficial or exposed; no auricular lobules; all body scales, including the head plates, the ventrals, and the dorsals, keeled or ridged; head plates multicarinate, dorsal and ventral scales often unicarinate; lateral scales small, granular, of uneven sizes, often tubercular or spinose; large dorsal plates in two continuous longitudinal series; 29 scales from the occiput to the base of the tail; 20 lamellæ under the fourth toe of the hind foot; 27 lamellæ from the base of the fifth toe to the tip of the fourth; median subcaudal scutes paired, unicarinate, almost as long as wide.

Uniform brownish above and below, without distinctive markings; some lateral cephalic scales tinged with black; no red half-ring under the orbit.

VARIATION.—The two paratypes of *schmidtii* show the following characters: four supraoculars; two large preanals; eight longitudinal series of ventral plates at the center of the body; 37 to 51 scales from the preanal region to the large chin-shields; 28 to 32 scales from the occiput to the base of the tail; two longitudinal series of large median dorsal plates; and 18 to 25 lamellæ under the fourth toe of the hind foot. The digits are slender and weak in appearance. The largest specimen (No. 42007)

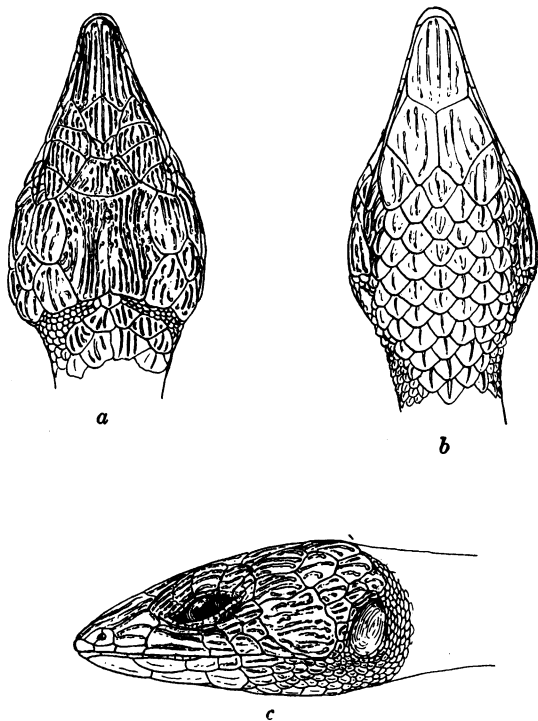


Fig. 27. *Tribolonotus schmidtii* Burt. Dorsal (a), ventral (b), and lateral (c) views of the head. (From the type, A. M. N. H. No. 41860.)

is poorly preserved and has been broken through the body just anterior to the pelvic region, and again through the neck.

The large paratype has a uniform brownish coloration like the type, being lighter below, but the small paratype is blackish brown below and on the sides, but light brown above. The dorsal ground color of the latter specimen is broken by a series of about ten chevron-shaped backward-pointing bars on the body, and by about as many on the tail, the posterior of these being faint.

SOLOMON GROUP

Beagle, the type, No. 41860; Bougainville, one paratype, No. 42007; Guadalcanar, one paratype, No. 40328.

Varanidæ**VARANUS** Merrem**Varanus indicus** (Daudin)

Tupinambis indicus DAUDIN, 1802, 'Hist. Nat. Reptiles,' III, p. 46, Pl. xxx (type locality, "Amboine," East Indies).

Varanus indicus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 316.

The coloration of this large lizard varies greatly within the specific limits. The dark ground color of the back may be olivaceous, brownish green or black, but it is usually black. The numerous light spots which cover the upper surface of the body may be white, yellowish, orange, or light blue. These spots may be small and numerous (as in No. 27713 from Guam of the Ladrone Islands or in No. 27714 from Shortland Island of the Solomon Group) or decidedly larger and much more widely spaced (as in No. 42390 from Kitava Island of the Kiriwana Group or No. 42176 of Beagle Island of the Solomon Group). While in most examples the light spots are of approximately the same size, in a few (such as in No. 42186 from San Cristóbal of the Solomon Group and in No. 27713 from Guam of the Ladrone Islands) there are two distinct sizes of spots, a small size and a large one, these being distributed in a roughly alternate manner. Although many single spots are found in all specimens, linear series or compact groups of spots are frequently in evidence. The under surfaces of the body may be white, yellowish, pinkish, orange, gray, or slate-colored, and in a few individuals dark transverse markings appear on a light background. These color variations, although conspicuous enough, apparently have no geographical significance.

D'ENTRECASTEAUX GROUP

Moratau, one specimen, No. 41641.

KIRIWANA GROUP

Kaileuna, one specimen, No. 42386; Kitava, one specimen, No. 42390.

LADRONE GROUP

Guam, two specimens, Nos. 27712-27713.

SOLOMON GROUP

Beagle, one specimen, No. 42176; Guadalcanar, three specimens, Nos. 42183 and 42343-42344; Murray, one specimen, No. 42251; Rendova, two specimens, Nos. 40381-40382; Rennell, two specimens, Nos. 42393-42394; Russell, four specimens, Nos. 42252-42255; San Cristóbal, three specimens, Nos. 42184-42186; Santa Ana, three specimens, Nos. 42177-42179; Shortland, one specimen, No. 27714; Tetipari, two specimens, Nos. 36390-36391.

Varanus kordensis (Meyer)

Monitor kordensis MEYER, 1874, Monatsb. Berlin Akad. Wiss., p. 131 (type locality, Kordo Island, off north coast of New Guinea).

Varanus kordensis BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 322.

The specimens listed below are all black above and slate-colored beneath, without distinctive markings. The dorsal and nuchal scales are all strongly keeled or tuberculate and hence they are rough to the touch. The ventral scales are only weakly keeled.

D'ENTRECASTEAUX GROUP

Moratau, three specimens, Nos. 41638-41640.

Varanus prasinus (Schlegel)

Monitor prasinus SCHLEGEL, 1844, 'Abbild. Amphibien,' p. 78 (type locality, west coast of New Guinea).

Varanus prasinus BOULENGER, 1885, 'Cat. Liz. British Mus.,' II, p. 321.

The collection contains a single specimen of this species. The ventral plates of this specimen are arranged in about 85 transverse series. There are 102 scales around the middle of the body. Three large supraoculars on each side are strongly dilated transversely. The body is bluish green, lighter below, and the back is transversely by 13 black bars, prominent though narrow. Between these bars extends a network of thin black lines which subdivide much of the ground color into cells or patches of varying sizes.

D'ENTRECASTEAUX GROUP

Dauila, one specimen, No. 42373.

SERPENTES

The following key is prepared for the identification of the snakes in the area extending from a line starting at Marcus Island and the Ladrones in the north, going southward through the Solomons to the Loyalty Group, and running eastward across the open seas so as to include Rapa and Easter Islands on the south and the Hawaiian Group on the north (see map on which this range is indicated, p. 555, Fig. 28). This eliminates the inclusion of forms confined to New Guinea and the East Indies, as well as those endemic to New Zealand and New Caledonia.

KEY TO THE SNAKES OF THE SOUTH SEA ISLANDS

- 1.—Ventrals large, always many times larger than the dorsal scales and decidedly elongated transversely. (See Figs. 30-31, pp. 561, 564).....10.
- Ventrals small, distinct or indistinct, about the same size as the dorsal scales or slightly enlarged, usually not elongated or but slightly elongated transversely (See Fig. 35, p. 572).....2.

- 2.—Tail rounded; mouth inferior; eyes degenerate; small, wormlike snakes....5.
 Tail flattened, conspicuously narrowed along its length, modified for swimming;
 mouth ordinary; eyes well developed; sea-snakes.....3.
- 3.—Ventrals small, but distinct throughout and normally entire.....4.
 Ventrals, except the anterior ones, either divided by a median longitudinal
 fissure, or vestigial (smaller than the adjacent dorsal scales) or absent
 (Pacific Ocean).....*Pelamis platurus* (Linné).

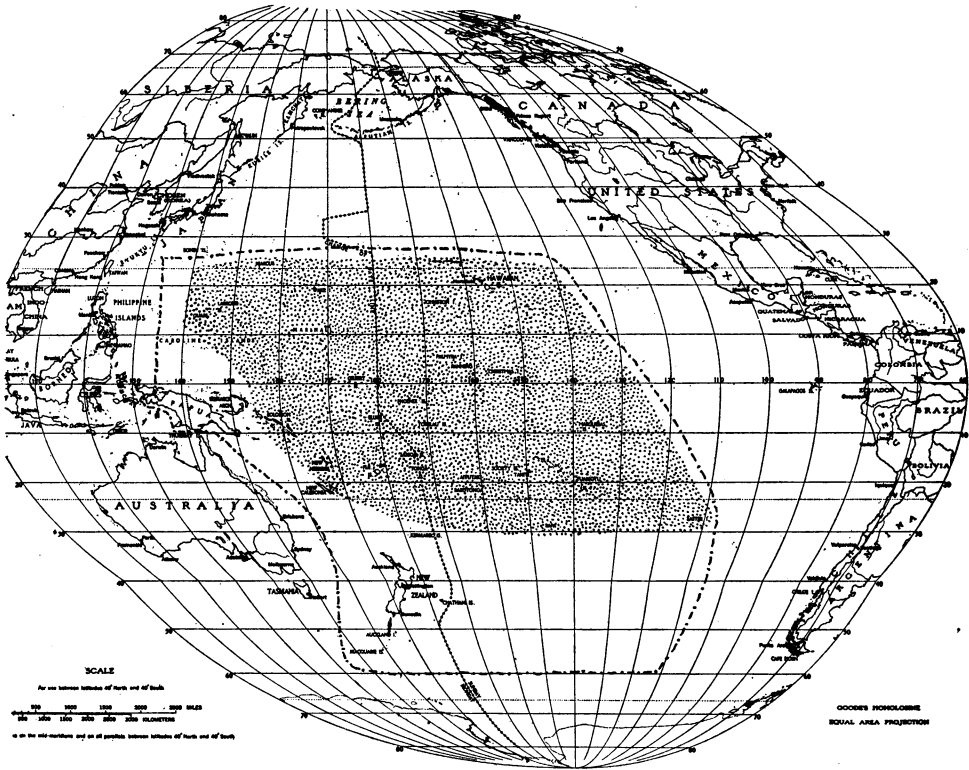


Fig. 28. Map showing the area considered in this work. Only snakes from the shaded portion are included in the accompanying key.

- 4.—Scales on thickest part of body with rounded or bluntly pointed tips, distinctly or feebly imbricate; 257–336 ventrals (Gilbert and Fiji Groups westward into the East Indies).....*Hydrophis belcheri* (Gray).
 Scales on thickest part of body more or less hexagonal or quadrangular in shape, feebly imbricate or juxtaposed; 209–312 ventrals (Gilbert Group westward into the East Indies).....*Hydrophis ornatus* (Gray).
- 5.—Twenty-two scales or less around the middle of the body.....7.

- More than 22 scales around the middle of the body.....6.
 6.—Snout hooked in lateral view; 24 scales around the middle of the body (Solomon Group).....*Typhlops cumingii mansuetus* Barbour.
 Snout sharp pointed in lateral and dorsal views, not hooked; 26 scales around the middle of the body (Solomon Group)..*Typhlops infralabialis* Waite.

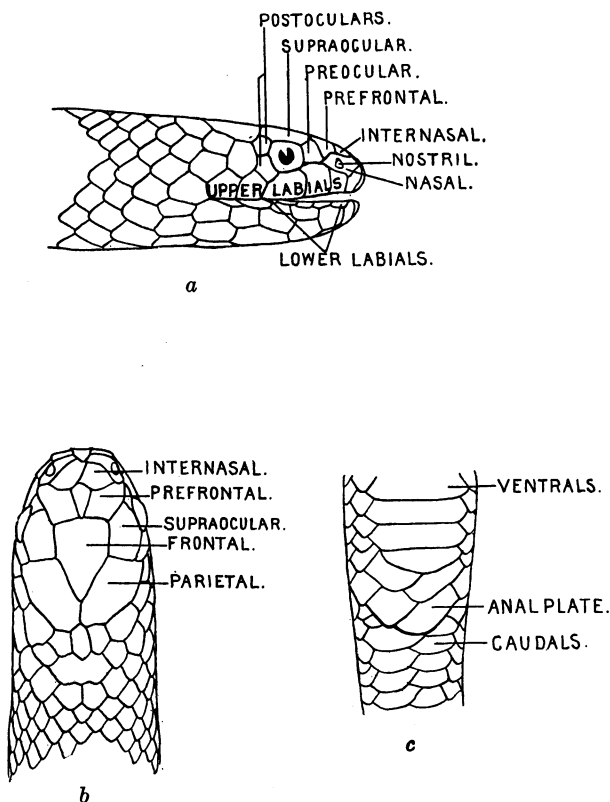


Fig. 29. *Laticauda colubrina* (Schneider). Lateral (a), dorsal (b) views of the head, and (c) a view of the anal region. (Nomenclature after Blanchard). (A. M. N. H. No. 43873, Choiseul, Solomon Group.)

- 7.—Snout rounded in lateral view; nostrils lateral. (See Figs. 36, 37, pp. 573, 574)..8.
 Snout hooked in lateral view; nostrils inferior. (See Fig. 38, p. 575). (Solomon Group).....*Typhlops olivaceus reduncus* Barbour.
 8.—Twenty-two scales around the middle of the body.....9.
 Twenty scales around the middle of the body (Hawaiian Islands, Ladrone Group and the East Indies).....*Typhlops braminus* (Daudin).

- 9.—Diameter of body contained into total length about 60 times (Solomon Group, Nissan Atoll and the Bismarck Archipelago) . . . *Typhlops aluensis* Boulenger.
Total length of body about 32 to 38 times the diameter (Loyalty Group).
Typhlops willeyi Boulenger.
- 10.—Less than 62 subcaudals. 15.
More than 62 subcaudals. 11.
- 11.—Less than 30 scale rows (at the middle of the body). 13.
More than 30 scale rows. 12.
- 12.—More than 50 scale rows (Solomon Group, northwestward into the East Indies)
Chondropython viridis (Schlegel).
Less than 50 scale rows (western South Pacific Ocean, east to Samoa).
Enygrus australis (Montrouzier).
- 13.—More than 13 scale rows; anal plate entire. 14.
Thirteen scale rows; anal plate divided (Santa Cruz Group, through the Solomons, northwestward into the East Indies) . . . *Ahætulla calligaster* (Günther).
- 14.—Two upper labials bordering eye; 170–230 ventrals (through the Solomon Group, northwestward into the East Indies) . . . *Stegonotus modestus* (Schlegel).
Three upper labials bordering eye. (See Fig. 31, p. 564.) 195–272 ventrals (through the Solomon Group, northwestward into the East Indies).
Boiga irregularis (Merrem).
- 15.—Less than 28 scale rows. 20.
Twenty-eight scale rows or more. 16.
- 16.—More than 152 ventrals. 17.
Less than 152 ventrals (through the Solomon Group, northwestward into the East Indies). *Enygrus asper* (Günther).
- 17.—Posterior lower labials smooth, unpitted. 18.
Posterior lower labials with conspicuously depressed centers, pitted (Nissan Atoll, northwestward into the East Indies) *Nardoana boa* (Schlegel).
- 18.—Upper labials separated from orbit by a row of subocular scales. (See Fig. 35, p. 572). 19.
Upper labials bordering orbit, no subocular scales. (See Fig. 30, p. 561.) (Santa Cruz Group, through the Solomon Islands, northwestward into the East Indies.) *Enygrus carinatus* (Schneider).
- 19.—Two hundred and thirty ventrals or less (western South Pacific Ocean, east to the Tonga Group) *Enygrus bibroni* Hombroen and Jacquinot.
More than 230 ventrals (western South Pacific Ocean, east to the Samoan Group)
Enygrus australis (Montrouzier).
- 20.—More than 190 ventrals. 28.
Less than 190 ventrals. 21.
- 21.—Subcaudals paired. 22.
Subcaudals single (Solomon Group) *Denisonia par* (Boulenger).
- 22.—Less than 160 ventrals. 25.
More than 160 ventrals. 23.
- 23.—Less than 20 scale rows. 24.
More than 20 scale rows; 32–40 subcaudals (Savage Island, and the Fiji, Samoan, and Loyalty Groups; western South Pacific Ocean).
Laticauda schistorhyncha (Günther).

- 24.—About 41–45 subcaudals (Solomon Group). *Denisonia woodfordii* (Boulenger).
 About 27–30 subcaudals (Loyalty Group and New Caledonia).
Aipysurus duboisii Bavay.
- 25.—Less than 20 scale rows. 26.
 More than 20 scale rows (Loyalty Group and New Caledonia).
Aipysurus lævis Lacépède.
- 26.—More than 5 upper labials. (See Figs. 29 and 31, pp. 556, 564). 27.
 Five upper labials or less (Loyalty Group and New Caledonia).
Emydocephalus annulatus Krefft.
- 27.—More than seven upper labials; 154–163 ventrals (Loyalty Group and New Caledonia). *Aipysurus duboisii* Bavay.
 Seven upper labials or less; 139–152 ventrals (Fiji Group).
Ogmodon vitianus Peters.
- 28.—Less than twenty-one scale rows. 29.
 Twenty-one scale rows or more. 30.
- 29.—Seventeen scale rows; usually less than 30 black bands on the body and tail (Solomon Group). *Micropechis elapoides* (Boulenger).
 Nineteen scale rows; 26–48 black bands on the body and tail (Fiji, New Hebrides, and Santa Cruz Groups; western South Pacific Ocean).
Laticauda laticaudata (Linné).
- 30.—Rostral entire, not divided by a horizontal suture (western South Pacific Ocean, east to the Tongan and Fiji Groups). *Laticauda colubrina* (Schneider).
 Rostral not entire, divided by a horizontal suture (Savage Island, and the Fiji, Samoan, and Loyalty Groups; western South Pacific Ocean).
Laticauda schistorhynchus (Günther).

Boidæ

Boinæ

ENYGRUS Wagler

Enygrus australis (Montrouzier)

Boa australis MONTROUZIER, 1860, Rev. et Mag. Zool., Paris, (2) XII, p. 95 (type locality, New Caledonia).

Enygrus australis BOULENGER, 1893, 'Cat. Snakes British Mus.,' I, p. 105.

The coloration of this form is highly variable. It may be black, brown, olive, or reddish above, with or without a series of large, dark brown or black spots, which may form a zigzag band or a dark vertebral stripe, edged with white, yellow, pinkish, or reddish brown. There are sometimes white spots or patches on the sides. The lower surfaces are light, sometimes spotted.

The geographical variation in the scutellation may be summarized as follows:

LOCALITY	NUMBER OF SPECIMENS	LABIALS	SCALE ROWS	VENTRALS	SUB-CAUDALS
NEW HEBRIDES GROUP	3	$\frac{11-14}{13-15}$	37-39	240-258	56-58
SAMOAN GROUP	2	$\frac{10-11}{11}$	36-37	258-268	66
SANTA CRUZ GROUP	6	$\frac{12-15}{12-13}$	33-41	251-267	42-61
SOLOMON GROUP	19	$\frac{12-15}{12-20}$	32-40	240-261	40-66
SUMMARY	30	$\frac{10-15}{11-20}$	32-41	240-268	40-66

The most noteworthy variation shown in the above table is the low number of labials for these snakes in the Samoan Group. If more specimens were available, it is thought that no differential isolation of the Samoan population would be shown. Therefore we refrain from giving it a systematic designation.

A large specimen of *Emoia cyanogaster* was removed from the stomach of one of these boas from Tapua of the Santa Cruz Group. It is probable that *Enygrus* feeds upon many other species of skinks as well.

NEW HEBRIDES GROUP

Malekula, one specimen, No. 42004; Mau, one specimen, No. 42003; Santo, one specimen, No. 42075.

SAMOAN GROUP

Savaii, two specimens, Nos. 41742-41743, collected at Salailua.

SANTA CRUZ GROUP

Santa Cruz, five specimens, Nos. 40430, 42160, 42163, and 42215-42216; Tapua, one specimen, No. 42196.

SOLOMON GROUP

San Cristóbal, eighteen specimens, Nos. 40407, 40410, 40412-40413, 42092-42093, 42161, 42164-42166, 42168, 42198-42202, 42209, and 42213; Santa Ana, one specimen, No. 42214.

Enygrus bibroni Hombron and Jacquinot

Enygrus bibroni HOMBRON AND JACQUINOT, 1853, 'Reptiles,' in 'Voyage au Pole Sud. . . "l'Astrolabe et la Zélée,"' Zoologie, III, p. 18 (type locality, Viti, Fiji Group).

Enygrus bibronii BOULENGER, 1893, 'Cat. Snakes British Mus.,' I, p. 106.

Roux (1913) has given a detailed account of variations in *bibroni* and *australis* in which he comes to the conclusion that the two forms are subspecies. Because of the great overlap in ranges that we are able to report we are inclined to regard them tentatively as full species which have become distributed more or less promiscuously in the western South Pacific Ocean, much after the manner of the lizards *Emoia cyanura* and *Emoia werneri* (reported above, pp. 533-534), which show similar

scutellational conditions. We agree with Roux that the number of scales around the body and the number of subcaudals are poor diagnostic characters in this case, but the ventrals usually are much lower in *bibroni* than in *australis*, although a morphological approach, much as one might expect in allied subspecies, is seen even here. The problem, as we leave it, is indeed a difficult and complicated one.

The coloration of *bibroni* seems to be precisely that reported above for *australis*.

The geographical variations in the scale counts of our specimens of *bibroni*, all from the Fiji Group, may be summarized as follows: ten to fifteen upper labials and from eleven to fifteen lower ones; 29 to 34 scale rows at the middle of the body; 203 to 225 ventral scutes; 40 to 60 subcaudals.

FJI GROUP

Fulanga, three specimens, Nos. 29248-29250; Kandavu, one specimen, No. 40325; Kia, one specimen, No. 40446; Koro, one specimen, No. 40476; Navandra, one specimen, No. 40477; Navutuiloma, two specimens, Nos. 29037 and 29040; Ongea, one specimen, No. 28995; Ovalau, three specimens, Nos. 40447, 40487, and 42076; Vanua mbalavu, one specimen, No. 29038; Viwa, three specimens, Nos. 40439 and 40448-40449; Vomo, two specimens, Nos. 40451-40452; Yanganga, one specimen, No. 29039.

Enygrus carinatus (Schneider)

Boa carinata SCHNEIDER, 1801, 'Hist. Amph.,' II, p. 261 (type locality, unknown).

Enygrus carinatus DUMÉRIL AND BIBRON, 1844, 'Erp. Gén.,' VI, p. 479. DE ROOIJ, 1917, 'Reptiles Indo-Australian Arch.,' II, p. 31.

The variation in the coloration of this species has been excellently presented by De Rooij (1917, p. 32). The geographical ranges in scale counts are listed in the following table.

LOCALITY	SPECIMENS	LABIALS	SCALE ROWS	VENTRALS	SUB- CAUDALS
D'ENTRECASTEAUX GROUP	16	$\frac{10-14}{11-14}$	32-37	177-196	33-41
KIRIWINA GROUP	1	$\frac{11}{11}$	36	179	40
NEW GUINEA	3	$\frac{10-11}{11-12}$	32-38	194-198	38-42
SANTA CRUZ GROUP	1	$\frac{12}{12}$	35	193	42
SOLOMON GROUP	68	$\frac{10-14}{11-14}$	31-43	179-216	35-48
SUMMARY	89	$\frac{10-14}{11-14}$	31-43	177-216	33-48

It seems significant that the geographical colonies considered above all show scale counts which are essentially identical with those exhibited by *carinatus* in the Solomon Group alone. Most of our specimens are

from the Solomon Group, and this accounts for the greater (recorded) range of variation from that place. All examples examined have no subocular scales, the upper labials being in direct contact with the eye.

D'ENTRECASTEAUX GROUP

Dauila, six specimens, Nos. 42362-42367; Dobu, one specimen, No. 41626; Duau, three specimens, Nos. 41616 and 41621-41622; Moratau, six specimens, Nos. 41615 and 41632-41636.

KIRIWINA GROUP

Kitava, one specimen, No. 42391.

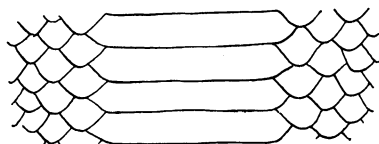
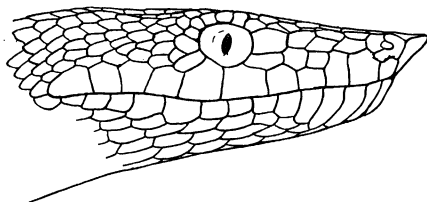


Fig. 30. *Enygrus carinatus* (Schneider). Lateral view of head. Note the absence of suboculars. Also, view of series of ventral scutes. (A. M. N. H. No. 41622, Duau, D'Entrecasteaux Group.)

NEW GUINEA

New Guinea, two specimens, Nos. 42395-42396; Annie Inlet, southeast coast, one specimen, No. 41624.

SANTA CRUZ GROUP

Santa Cruz, one specimen, No. 40431.

SOLOMON GROUP

Bagga, one specimen, No. 42068; Bougainville, thirteen specimens, Nos. 42036-42045, 42303, and 43396-43397; Fatura, one specimen, No. 42067; Gatukai, two specimens, Nos. 36403-36404; Guadalcanar, eleven specimens, Nos. 40433, 42169, and 42353-42361; Isabel, one specimen, No. 42046; Mono, one specimen, No. 42069; Narovo, four specimens, Nos. 42247-42250; Ramos, five specimens, Nos. 42061-

42064 and 42341; Ronongo, seven specimens, Nos. 42240-42246; San Cristóbal, nineteen specimens, Nos. 40414-40415, 40406, 40408-40409, 40411, 42094-42096, 42167, 42203-42208, and 42210-42212; Shortland, one specimen, No. 42065; Vella Lavella, two specimens, Nos. 42055-42056.

Pythoninæ

CHONDROPYTHON Meyer

Chondropython viridis (Schlegel)

Python viridis SCHLEGEL, 1872, 'Dierentuin, Rept.,' p. 54 (type locality, Aru Islands).

Chondropython viridis BOULENGER, 1893, 'Cat. Snakes British Mus.,' I, p. 90.

The data pertaining to each of the specimens listed below will be presented separately because of the differential distribution involved.

NEW GUINEA

New Guinea, one specimen, No. 41620, secured at Mount Lamington. This individual may be described as follows: six lower labials pitted; three prominent pits on each side of the rostral; 12 upper labials and 14 lower ones; 17 scales from eye to eye; about 64 rows of scales around the middle of the body; 238 ventral plates; anal shield entire; 108 subcaudals.

SOLOMON GROUP

Choiseul, one specimen, No. 43874. This example shows the following characters: six lower labials pitted; three prominent pits on each side of rostral; 13 upper and 14 lower labials; 16 scales from eye to eye; 58 or 60 scales around the middle of the body; 241 ventral plates; anal shield entire; 89 subcaudals.

Both of the snakes listed here are very light brown, seemingly almost albinistic in color, but show traces of the darker markings described for the species. They are young, as one might expect.

NARDOANA Berg

Nardoana boa (Schlegel)

Tortrix boa SCHLEGEL, 1837, 'Phys. Serp.,' II, p. 22 (type locality, New Ireland).

Nardoa boa MÜLLER, 1882, Verhandl. Nat. Ges. Basel, VII, p. 168. BOULENGER, 1893, 'Cat. Snakes British Mus.,' I, p. 76.

Nardoana boa STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 424.

The specimen of this snake listed below may be described as follows: body brown, with broad, blackish rings; head blackish, with a patch of brown ground color on each side just behind the eye; nine upper and ten lower labials; 35 scales around the middle of the body; 254 ventral plates; 51 subcaudals.

Nissan Atoll (just north of the Solomons), one specimen, No. 44002.

PYTHON Daudin**Python amethystinus** (Schneider)

Boa amethystina SCHNEIDER, 1801, 'Hist. Amph.,' II, p. 254 (type locality, not given).

Python amethystinus DAUDIN, 1803, 'Hist. Nat. des Reptiles,' V, p. 230. DE ROOIJ, 1917, 'The Reptiles Indo-Australian Archipelago,' II, p. 24.

The single specimen of this species in the present collection (No. 40234), unfortunately, is without other locality data than New Guinea. Its scale counts are as follows: 11 upper and 15 to 17 lower labials; 44 scales around the middle of the body; 314 ventral plates; anal shield entire; 117 pairs of subcaudals; uniform light brown above, yellowish white below.

Colubridæ**Boiginae****BOIGA** Fitzinger

Boiga FITZINGER, 1826, 'Neue Classif. Rept.,' pp. 29, 31.

Dipsadomorphus FITZINGER, 1843, 'Syst. Reptilium,' p. 27.

As shown by Stejneger (1902, p. 15) and maintained by the same author at a later date (1907, p. 381), "Fitzinger's *Boiga*, of 1826, clearly takes precedence over his *Dipsadomorphus* of 1843." It seems unfortunate that after such clear evidence has been presented, certain of the more recent works should continue to give full recognition to the latter genus.

Boiga irregularis (Merrem)

Coluber irregularis MERREM, 1802, 'Bechst. Uebers, Lacép.,' IV, p. 239, Pl. XXXVII, fig. 1 (type locality, unknown).

Dipsadomorphus irregularis BOULENGER, 1896, 'Cat. Snakes British Mus.,' III, p. 75. DE ROOIJ, 1917, 'The Reptiles Indo-Australian Archipelago,' II, p. 201.

Boiga irregularis BARBOUR, 1912, Mem. Mus. Comp. Zoöl., XLIV, p. 126. KINGHORN, 1928, Rec. Australian Mus., XVI, p. 145.

This snake is yellowish, gray, olivaceous, bluish, greenish, or brown above, and may be uniform in color or with regular or irregular transverse markings or spots. On the whole, the coloration is highly variable.

Recently Kinghorn (1928, p. 145) has written as follows: "Two specimens from Solomons which have about 234 ventrals, 110 subcaudals and each with 21 rows of scales around the body, also have a divided anal, a character which is typical of *B. philippina*, but I have no hesitation in regarding them as *B. irregularis*, all other characters being typical of the species. It would appear that *B. philippina* is founded on very slender grounds." We are able to add little to this comment. Only one speci-

men in the present collection has a divided anal plate (No. 40512, from the Bismarck Archipelago), and like Kinghorn's variants, it seems typical of *irregularis* in all other respects, having 227 ventrals, 112 subcaudals, and 21 scales around the middle of the body.

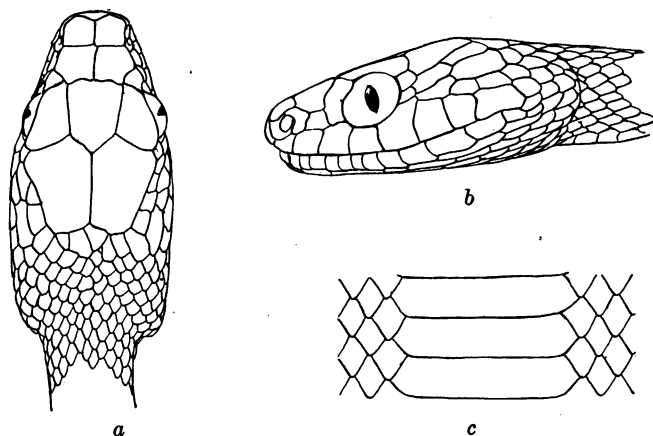


Fig. 31. *Boiga irregularis* (Merrem.). Dorsal (a), and lateral (b) views of the head. Also (c) a view of the ventral scutes (A. M. N. H. No. 42070, Mono, Solomon Group).

The geographical variation in the scutellation may be summarized as follows:

LOCALITY	SPECIMENS	LABIALS	SCALE ROWS	VENTRALS	SUB- CAUDALS
BISMARCK ARCHIPELAGO	2	$\frac{8}{8-9}$	17-21	195-227	101-112
D'ENTRECASTEAUX GROUP	5	$\frac{8}{10-12}$	17-21	220-257	94-109
KIRIWINA GROUP	1	$\frac{8}{12}$	23	249	106
NEW GUINEA	2	$\frac{8-9}{11-12}$	21	252-257	108
SOLOMON GROUP	23	$\frac{8-10}{10-12}$	21	225-249	106-125
SUMMARY	33	$\frac{8-10}{8-12}$	17-23	195-257	94-125

BISMARCK ARCHIPELAGO

Sable, two specimens, Nos. 40512-40513.

D'ENTRECASTEAUX GROUP

Dauila, two specimens, Nos. 42370-42371; Duau, one specimen, No. 41617; Moratau, two specimens, Nos. 41614 and 41642.

KIRIWINA GROUP

Kaileuna, one specimen, No. 42387.

NEW GUINEA

New Guinea, two specimens, Nos. 41618-41619, from Mount Lamington.

SOLOMON GROUP

Bougainville, nine specimens, Nos. 42031-42035 and 43988-43991; Florida, one specimen, No. 42352; Guadalcanar, two specimens, Nos. 42338-42339; Isabel, one specimen, No. 42054; Mono, one specimen, No. 42070; Narovo, one specimen, No. 42234; Rendova, five specimens, Nos. 36392, 36395, 36397, and 36408-36409; Ronongo, three specimens, Nos. 42225-42226 and 42235.

Colubrinæ

AHÆTULLA Link

This generic name must be substituted for that of *Dendrophis* Boie, now commonly in use, as found by Stejneger (unpublished) and followed by Schmidt (1927) and Cochran (1930).

Ahæetulla calligaster (Günther)

Dendrophis calligaster GÜNTHER, 1867, Ann. and Mag. Nat. Hist., (3) XX, p. 53 (type locality, Cape York, northeastern Australia). BOULENGER, 1894, 'Cat. Snakes British Mus.,' II, p. 81.

Dendrophis salomonis GÜNTHER, 1892, Ann. and Mag. Nat. Hist., (4) IX, p. 25 (type locality, Solomon Islands).

Dendrelaphis schlenckeri OGILBY, 1898, Proc. Linn. Soc. N.S. Wales, XXIII, p. 361 (type locality, Fife Bay, New Guinea).

Dendrophis calligaster calligaster WERNER, 1929, Zool. Jahrb., Syst., LVII, p. 93.

Dendrophis calligaster salomonis WERNER, 1929, Zool. Jahrb. Syst., LVII, p. 94.

De Rooij, (1917, p. 60) is followed in listing *Dendrelaphis schlenckeri* as a synonym of the present species.

As found by Kinghorn (1928, p. 146), the coloration of *calligaster* is very variable, "and may be from bronzy olive to bright green above, and from grayish green to light yellow below. Some of the dorsal scales may have lighter and rather yellowish borders, while the ventrals may be spotted. A constant character is a blackish streak on each side of the head, passing through and sometimes well beyond the eye, and connecting with its fellow on the snout."

The geographical variation in the specimens under consideration is indicated by the following table.

LOCALITY	SPECIMENS	LABIALS	SCALE ROWS	VENTRALS	SUB- CAUDALS
D'ENTRECASTEAUX GROUP	9	$\frac{8-9}{8-9}$	13	192-209	142-145
KIRIWINA GROUP	1	$\frac{8}{8}$	13	194	152
SANTA CRUZ GROUP	2	$\frac{8}{7-8}$	13	190-194	135
SOLOMON GROUP	42	$\frac{7-9}{7-9}$	13	171-198	124-166
SUMMARY	54	$\frac{7-9}{7-9}$	13	171-209	124-166

In view of these data the inadequately diagnosed subspecies of *calligaster* tentatively recognized by Werner (1929) can scarcely be given recognition. We suggest that *keiensis* should be recompared carefully with typical *calligaster*.

D'ENTRECASTEAUX GROUP

Dauila, three specimens, Nos. 42382-42384; Moratau, six specimens, Nos. 41628-41631 and 42397-42398.

KIRIWINA GROUP

Kitava, one specimen, No. 42388.

SANTA CRUZ GROUP

Santa Cruz, one specimen, No. 42104; Tapua, one specimen, No. 42197.

SOLOMON GROUP

Bougainville, sixteen specimens, Nos. 42019-42027, 42399-42401, and 43992-43995; Choiseul, two specimens, Nos. 42073-42074; Fauro, one specimen, No. 42071; Florida, three specimens, Nos. 40436 and 42350-42351; Gizo, one specimen, No. 42239; Guadalcanar, four specimens, Nos. 42346-42349; Isabel, two specimens, 42051-42052; Rendova, three specimens, Nos. 36393, 36396, and 36398; Ronongo, three specimens, Nos. 42236-42238; Rubiana, one specimen, No. 26400; Russell, one specimen, No. 42337; San Cristóbal, two specimens, Nos. 42193-42194; Tetipari, one specimen, No. 36407; Ugi, one specimen, No. 40432; Vangunu, one specimen, No. 36402.

NATRIX Laurenti

Natrix LAURENTI, 1768, 'Synopsis Reptilium,' p. 73 (type species, *N. vulgaris* = *Coluber natrix*). STEJNEGER, 1907, Bull. U. S. Nat. Mus., LVIII, p. 263. BLANCHARD, 1924, Pap. Mich. Acad. Sci. Arts and Lett., IV, 2, p. 9.

Tropidonotus KÜHL, 1824, Férussac, Bull. Sci. Nat., II, p. 81 (type species, *T. natrix*). BOULENGER, 1893, 'Cat. Snakes British Mus.,' I, p. 192 (part). DE ROOIJ, 1917, 'The Reptiles Indo-Australian Archipelago,' II, p. 73. WERNER, 1929, Zool. Jahrb., Syst., LVII, p. 11 (part).

As maintained by Stejneger (1907, pp. 263-264), the form described as *Coluber natrix* by Linnæus clearly seems the type species of both *Natrix* and *Tropidonotus*. Since the latter genus was described by Kuhl as late as 1826, long after the former had been made known by Laurenti, there is no apparent argument in favor of the continued retention and recognition of *Tropidonotus*.

Natrix mairii (Gray)

Tropidonotus mairii GRAY, in Gray, 'Trav. Australia,' II, 1841, p. 442 (type locality, New Holland). BOULENGER, 1897, Ann. Mus. Civ. Genova, (2) XVIII, p. 703.

Natrix mairii BARBOUR, 1912, Mem. Mus. Comp. Zool., XLIV, p. 107.

Tropidonotus mairi DE ROOIJ, 1917, 'The Reptiles Indo-Australian Archipelago,' II, p. 79.

The specimen of this species listed below has the following characteristics: eight upper and 10 lower labials; 15 scales around the middle of the body; 144 ventral plates; anal scute divided; over 50 pairs of subcaudals (tail broken at tip); many dorsal scales with brown centers and black margins; mottled blackish and dark brown or olivaceous above, light pink below.

D'ENTRECASTEAUX GROUP

Dauila, one specimen, No. 42385.

STEGONOTUS Duméril and Bibron

Stegonotus guentheri Boulenger

Stegonotus guentheri BOULENGER, 1895, Ann. and Mag. Nat. Hist., (6) XVI, p. 31 (type locality, Moratau, or Ferguson Island, D'Entrecasteaux Group, British New Guinea). WERNER, 1929, Zool. Jahrb., Syst., LVII, p. 60.

The dorsal coloration of this snake is light brown to blackish, while the under parts are white or yellowish. The upper lip is also light in color, as noted by Boulenger (1895).

The geographical variation in our specimens may be listed as follows:

LOCALITY	SPECIMENS	LABIALS	SCALE ROWS	VENTRALS	SUB- CAUDALS
D'ENTRECASTEAUX GROUP	8	$\frac{7-8}{7-8}$	15	151-194	53-76
KIRIWINA GROUP	1	$\frac{7}{8}$	15	195	73
SUMMARY	9	$\frac{7-8}{7-8}$	15	151-195	73-76

D'ENTRECASTEAUX GROUP

Dauila, eight specimens, Nos. 42374-42381.

KIRIWINA GROUP

Kitava, one specimen, No. 42389.

Stegonotus modestus (Schlegel)

Lycodon modestus SCHLEGEL, 1837, 'Phys. Serp.', II, p. 119 (type locality, Ambon).

Stegonotus modestus BOULENGER, 1893, 'Cat. Snakes British Mus.', I, p. 366.

The representative of this species listed below shows the following characters: eight upper and seven or eight lower labials; 17 scales around the middle of the body; 195 ventrals; 78 subcaudals; anal plate undivided, subcaudals divided; about 25 palatine teeth; blackish brown above, lighter laterally, yellowish white below.

SOLOMON GROUP

Bougainville, one specimen, No. 42402.

Elapinae

DENISONIA Krefft

Denisonia par (Boulenger)

Hoplocephalus par BOULENGER, 1884, Proc. Zool. Soc. London, p. 210 (type locality, Fauro Island, Solomon Group).

Hoplocephalus melanurus BOULENGER, 1888, Proc. Zool. Soc. London, p. 88 (type locality, Guadalcanar Island, Solomon Group).

Denisonia par BOULENGER, 1896, 'Cat. Snakes British Mus.,' III, p. 345. KINGHORN, 1928, Rec. Australian Mus., XVI, p. 148.

Denisonia melanura BOULENGER, 1896, 'Cat. Snakes British Mus.,' III, p. 345.

After an examination of our series of these snakes, we agree with Kinghorn (1928, p. 149) that Boulenger's *D. melanura* is not separable from the present form. The series of specimens listed below from Guadalcanar, the type locality of *melanura*, have 15, 16, and 17 scale rows around the middle of the body. This is repeated in the rest of the series, so in this case there seems to be nothing distinctive in the possession of an odd (15 or 17) or even (16) number of scale rows. As Kinghorn found, the number depends a great deal on the exact place chosen to make the count, since certain scale rows drop out near the center of the body.

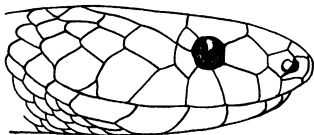


Fig. 32. *Denisonia par* (Boulenger). Side view of head (after Boulenger.)

The specimens listed below show the following variation: seven upper labials and from five to seven lower labials; 15, 16, or 17 scale rows around the middle of the body; 162–176 ventral plates; anal shield entire; 38–56 subcaudals, these in a single series¹; color rather variable; ground color yellowish white, pink, reddish, brown, gray, or black above, with or without alternate cross-bands of darker and lighter hues; in the less darkened individuals the centers of the scales are light in color while the margins are dark, this producing a reticulated pattern which is sometimes similar to that found in *woodfordii*; in darker examples the pattern may be either of an inconspicuous, uniform blackish type or of a partly reticulated one.

In one individual (No. 42228) five of the subcaudals are double like these scales in *woodfordii*, while the other 47 subcaudals are single.

¹Kinghorn (1928, p. 148), in key, incorrectly indicated that the subcaudals of *D. par* are paired, and that those of *D. woodfordii* are single. Obviously this is an error in transcription only.

SOLOMON GROUP

Fauro, one specimen, No. 42072; Gizo, one specimen, No. 42233; Guadalcanar, twelve specimens, Nos. 40434-40435 and 42326-42335; Isabel, two specimens, Nos. 42047 and 42050; Kulambangara, one specimen, No. 42232; Narovo, one specimen, No. 42219; Ramos, one specimen, No. 42340; Ronongo, seven specimens, Nos. 42220-42224 and 42227-42228; Tauna (in the list, and also in Brigham, Tauna is given as an islet off Rapa, of the Austral Group) one specimen, No. 42066; Vella Lavella, four specimens, Nos. 42057-42060.

***Denisonia woodfordii* (Boulenger)**

Hoplocephalus woodfordii BOULENGER, 1888, Proc. Zool. Soc. London, p. 89 (type locality, Rubiana, New Georgia, Solomon Islands).

Denisonia woodfordii BOULENGER, 1896, 'Cat. Snakes British Mus.,' III, p. 346.

The examples of this species listed below show the following characters: seven upper and from five to seven lower labials; 15 to 17 scales around the middle of the body; 173-181 ventral plates; anal scute divided; 42-43 subcaudals, these in two series; light brown above, each scale margined with dark brown, pattern reticulated; head uniform dark brown; under surfaces white, subcaudals edged with dark brown.

SOLOMON GROUP

Rendova, one specimen, No. 36394; Tetipari, two specimens, Nos. 36405-36406; Vangunu, one specimen, No. 36401.

MICROPECHIS Boulenger***Micropechis elapoides* (Boulenger)**

Hoplocephalus elapoides BOULENGER, 1890, Proc. Zool. Soc. London, p. 30, Pl. II, fig. 3 (type locality, Florida Island, Solomon Group).

Micropechis elapoides BOULENGER, 1896, 'Cat. Snakes British Mus.,' III, p. 347.

This is apparently a very rare snake. The single specimen in the present collection, although differing from the type in minor points, is readily identifiable as *elapoides*. It may be described as follows: head flattened, broadly oval, decidedly broader than the neck at its widest part (opposite the parietals); eye unusually small, a little less than half as long as its distance from the oral border, rounded in outline; rostral just visible from above, horseshoe-shaped, a little broader than deep; internasals smaller than prefrontals; frontal small, about the size of a prefrontal, but larger than the supraocular; anterior and posterior nasals present, the latter in contact with the single preocular; nostril just a little smaller than the orbit; two postoculars; one anterior and two posterior temporals; seven upper and as many lower labials; scales in 17 longitudinal rows at the middle of the body; anal shield large, entire; ventral plates, 206; tail broken, series of subcaudals (reported as 35 to 38) incomplete.

Cream-colored above and below; body with 28 black bands which are continued ventrally only on the tail, these broader than the interspaces between them. The anterior part of the head is black, above and below, whereas the posterior part is mostly light.

SOLOMON GROUP

Guadalcanar, one specimen, No. 42345.

It may be remarked here that *Micropechis crucifer* De Vis (1905), which was "believed" to have come from the Solomon Islands, appears to be very close to *M. ikaheka* (Lesson) of New Guinea. On the evidence at hand we hesitate to include it in the faunal list of the Solomon Group.

PSEUDELAAPS Duméril and Bibron

Pseudelaps mülleri (Schlegel)

Elaps mülleri SCHLEGEL, 1837, 'Phys. Serp.,' II, p. 452 (type locality, western New Guinea).

Pseudelaps muelleri DUMÉRIL AND BIBRON, 1854, 'Erp. Gén.,' VII, p. 1233. BOULENGER, 1896, 'Cat. Liz. British Mus.,' III, p. 316.

Pseudelaps mülleri DE ROOIJ, 1917, 'The Reptiles Indo-Australian Archipelago,' II, p. 264.

There are two specimens of this species in the present collection. The first of these, No. 41623, a small example from the Northern Division of Papua (New Guinea), shows the following characters: seven upper labials and six lower ones; 14 scales around the middle of the body; 165 ventral plates; anal shield divided; 34 subcaudals, these in a double series; pupil higher than broad; 14-15 maxillary teeth.

The second specimen, No. 41627, from Moratau Island of the D'Entrecasteaux Group, may be described as follows: seven upper and as many lower labials; 15 scales around the middle of the body; 158 ventral plates; anal shield divided; 35 subcaudals, these in a double series; pupil higher than broad, somewhat rounded.

Both of these individuals show only one clear cephalic stripe on each side (not two as shown by De Rooij, 1917, p. 265, Fig. 106). This stripe extends along the upper labials and below the eye to the neck, where it disappears. A slight indication of an upper stripe is seen in No. 41627, however, so the difference seems to be only variational.

Hydrophiinae

LATICAUDA Laurenti

Laticauda colubrina (Schneider)

Hydrus colubrinus SCHNEIDER, 1799, 'Hist. Amph.,' I, p. 238 (type locality, not given).

Platurus colubrinus GIRARD, 1858, 'U. S. Explor. Exp. Herpet.,' p. 178. BOULENGER, 1896, 'Cat. Snakes British Mus.,' III, p. 303.

Laticauda colubrina STEJNEGER, 1907, Bull. U. S. Nat. Mus., LVIII, p. 406. SMITH, 1926, 'Monogr. Sea-Snakes,' p. 6.

All of the specimens of this species listed below have an extra unpaired median plate between the prefrontals. Their geographical variations may be summarized as follows:

LOCALITY	SPECIMENS	SCALE ROWS	VENTRALS	SUB- CAUDALS	BLACK BANDS
FLJI GROUP	8	23	220-234	31-45	28-33
NEW HEBRIDES GROUP	1	23	227	38	37
SOLOMON GROUP	9	23-25	222-234	27-36	30-68
TONGA GROUP	2	23-25	227-230	36-38	29-31
SUMMARY	20	23-25	220-234	27-45	28-68

The general ground color of this species is usually pinkish, but often the backs are tinted with blue. Apparently there are no significant geographical variations in the series at hand.

FLJI GROUP

Aiva, three specimens, Nos. 28998 and 29003-29004; Komo, one specimen, No. 29005; Moala, two specimens, Nos. 40212-40213; Vanua masi, one specimen, No. 29001; Vomo, one specimen, No. 40450.

NEW HEBRIDES GROUP

Faté, one specimen, No. 42006.

SOLOMON GROUP

Bouka, two specimens, Nos. 40510-40511; Bougainville, three specimens, Nos. 42008-42009 and 43987; Choiseul, one specimen, No. 43873; Isabel, two specimens, Nos. 40248-40249; San Cristóbal, one specimen, No. 42155.

TONGA GROUP

Fonuaika, one specimen, No. 40577; Kelifijia, one specimen, No. 40307.

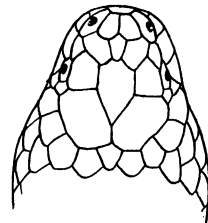


Fig. 33. *Laticauda colubrina* (Schneider). Dorsal view of head. Note the presence of a median prefrontal (after Wall).

Laticauda laticaudata (Linné)

Coluber laticaudatus LINNÉ, 1758, 'Syst. Nat.,' X, I, p. 222 (part: type locality, the Indies).

Platurus laticaudatus GIRARD, 1858, 'U. S. Explor. Exp. Herpet.,' p. 180. BOULENGER, 'Cat. Snakes British Mus.,' III, p. 307.

Platurus muelleri BOULENGER, 1896, 'Cat. Snakes British Mus.,' III, p. 309 (type locality, South Pacific).

Laticauda laticaudata STEJNEGER, 1907, Bull. U. S. Nat. Mus., LVIII, p. 406. SMITH, 1926, 'Monogr. Sea-Snakes,' p. 4.

The two specimens of this species listed here have only two prefrontals; these are in contact medially. This, correlated with the reduc-

tion in scale rows noted by various writers, makes it appear that *laticaudata* and *colubrina* are distinct, non-intergrading species through the extensive range which they occupy in common. Of these species, *colubrina* seems to be the most successful by far in the open Pacific, as a comparison of the number of specimens in the present collection recorded for each will show.

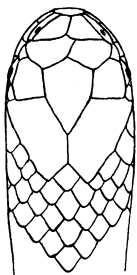


Fig. 34. *Laticauda laticaudata* (Linné). Dorsal view of head. Note the absence of a median prefrontal (after Stejneger).

Our examples of *laticaudata* show the following scale counts: scale rows at the middle of the body, 19; ventral plates, 231-252; subcaudals, 30-38; black bands on the body and tail, 31-36.

Fiji Group

Thikombia, one specimen, No. 29006; Vanua Kula, one specimen, No. 40453.

PELAMIS Daudin

Pelamis platurus (Linné)

Anguis platyra LINNÉ, 1766, 'Syst. Nat.', 12th Ed., I, p. 391 (type locality, unknown).

Pelamydrus platurus STEJNEGER, 1910, Proc. U. S. Nat. Mus., XXXVIII, p. 111. STEJNEGER AND BARBOUR, 1923, 'Check List N. Amer. Rept.', 2d Ed., p. 120.

Pelamis platurus SMITH, 1926, 'Monogr. Sea-snakes' (Hydrophiidæ), p. 116.

This species has been recorded previously from many localities on the oriental side of the Pacific and also from scattered points on the American side. Therefore, it is surprising that no specimens of *Pelamis platurus* are at hand from the South Seas proper.

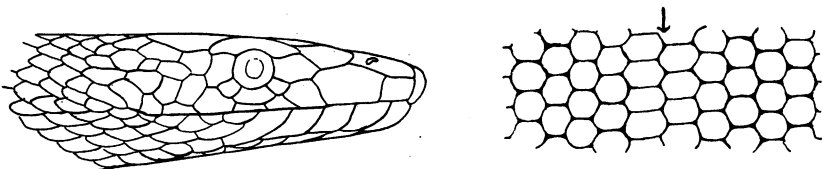


Fig. 35. *Pelamis platurus* (Linné). Side view of head and a view of the ventral scales. In the latter, note the small arrow which points to the median ventral line (A. M. N. H. No. 19337, secured fifteen miles off the western coast of Mexico, between Mazatlan and San Blas).

In the eastern Pacific, along the American coast, Smith (1926) listed the species from the coast of Ecuador and the Gulf of Panama. Stejneger and Barbour (1923) and others, have given an additional report from the Gulf of California, near Espiritu Santo Island. New American

records from the collection of The American Museum of Natural History are as follows:

COSTA RICA

Coast near Punta Arenas, two specimens, Nos. 17260 and 17315.

MEXICO

Fifteen miles off shore between Mazatlan and San Blas, fourteen specimens, Nos. 19327-19340; South of Vallarta, off coast of Jalisco and Colima, eighteen specimens, Nos. 19309-19326, taken from "waves in the calm sea."

PANAMA

Rio San Lorenzo, Province of Verugnos, nine specimens, Nos. 28395-28403.

Typhlopidae

TYPHLOPS Schneider

***Typhlops aluensis* Boulenger**

Typhlops aluensis BOULENGER, 1887, Proc. Zool. Soc. London, p. 336 (type locality, Alu, Shortland Islands, Solomon Group). KINGHORN, 1928, Rec. Australian Mus., XVI, p. 137.

Typhlops philococos WERNER, 1898, Zool. Anz., XXI, p. 553 (type locality, Ralum, Bismarck Archipelago). STERNFELD, 1920, Abhandl. Senckenb. Naturf. Ges., XXXVI, p. 424 (Nissan Atoll, just northwest of the Solomon Group).

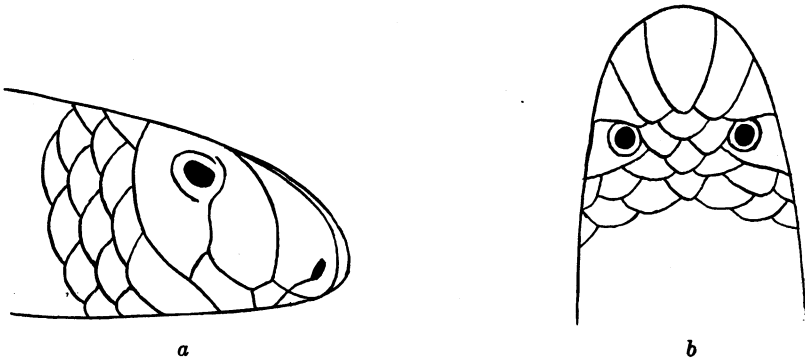


Fig. 36. *Typhlops aluensis* Boulenger. Lateral (a) and dorsal (b) views of head (after Boulenger).

Typhlops aluensis KINGHORN, 1928, Rec. Australian Mus., XVI, p. 137 (in key).

Typhlops philococos Werner (1898), described wholly without reference to *T. aluensis* Boulenger from a locality not far distant from the known range of that form, is here reduced to the synonymy. The described scutellation and coloration of *philococos* and *aluensis* is identical, including the number of scales around the body (22), the division

of the nasal plate, and the contact of the ocular with the third and fourth upper labials.

The two specimens of *aluensis* listed below are typical. There are 22 scales around the middle of the body. The ground color is blackish brown above and light brown below.

SOLOMON GROUP

Narovo, one specimen, No. 41854; Ronongo, one specimen, No. 41861.

***Typhlops braminus* (Daudin)**

Eryx braminus DAUDIN, 1803, 'Hist. Nat. des Reptiles,' VII, p. 279 (type locality, Bengal, India).

Typhlops braminus DUMÉRIL AND BIBRON, 1844, 'Erp. Gén.,' VI, p. 309. BOULENGER, 1893, 'Cat. Snakes British Mus.,' I, p. 16. VAN DENBURGH, 1917, Proc. Calif. Acad. Sci., (4) VII, p. 35.

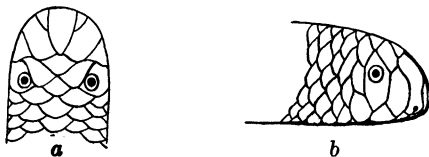


Fig. 37. *Typhlops braminus* (Daudin).
Dorsal (a) and lateral (b) views of head
(A. M. N. H. No. 19681, Guam, Ladrone
Group).

The examples at hand all show the characters outlined by Boulenger (1893, p. 16) for this species. Therefore, Van Denburgh (1917), is followed in identifying the *Typhlops* of the Ladrone or Mariana Islands as *T. braminus*. There are 20 scales around the middle of the body. Recently Slevin (1930) has reported a worm-snake from Honolulu, Oahu, Hawaiian Islands, as this species.

LADRONE GROUP

Guam, six specimens, Nos. 42959–42960, taken at Agaña by G. Seale, and Nos. 2220 and 19679–19681; Saipan, one specimen, No. 19682. These snakes, excepting Nos. 42959–42960, were collected by H. E. Crampton in 1920.

***Typhlops olivaceus reduncus* Barbour**

Typhlops olivaceus reduncus BARBOUR, 1921, Proc. New Eng. Zool. Club, VII, p. 107 (type locality, Keri Keri, on San Cristóbal Island, Solomon Group).

As noted by Barbour at the time of his original description of this subspecies (1921, p. 107), *reduncus* is "very similar to true *olivaceus*"

which has been reported from the Philippines, the Moluccas, and Australia. Like Kinghorn (1928, p. 139) we are unable to give an opinion on the status of *reduncus*, which we prefer to recognize until specimens of the two described entities have been carefully compared; at that time a

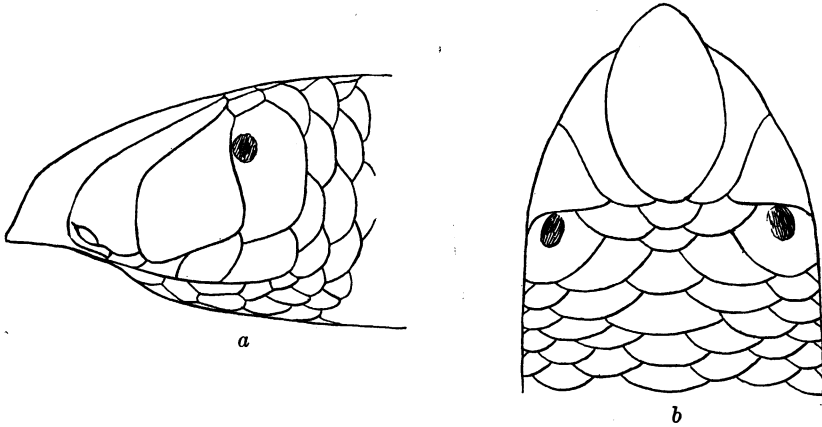


Fig. 38. *Typhlops olivaceus reduncus* Barbour. Lateral (a) and dorsal (b) views of head (after Barbour).

reliable decision should be reached. Barbour also described *Typhlops cumingii mansuetus* from the Solomons, at the same time as *reduncus*, noting slight differences. We reserve our opinion of these two presumed subspecies until a direct comparison of typical representatives can be made.

SOLOMON GROUP

San Cristóbal, one topotype, No. 41866. This individual has 20 scales around the middle of the body.

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