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VI

THE GECKOS OF THE GALAPAGOS ARCHIPELAGO

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INTRODUCTION

In a previous paper[1] I have given an account of the snakes of the Galapagos Archipelago, and have attempted to trace the history of these islands from the evidence afforded by this group of their inhabitants. The present article is based upon a similar investigation of the geckos of this region, undertaken with a view to confirming or disproving the conclusions reached in the earlier paper.

The tortoises and the lizards of the family *Iguanidae* are yet to be studied along the same lines.

ORIGIN AND RELATIONSHIP OF THE GALAPAGOS GECKOS

Two genera of *Gekkonidae,* or the family of geckos, have been recorded as inhabitants of the Galapagos Archipelago. One of these, *Gonatodes,* has been found only by Dr. Baur, whose collection included four or more specimens labeled Wreck Bay, Chatham Island. No other collector has secured this lizard in the Galapagos, although most careful search has been made for it. It seems probable, therefore, that Dr. Baur's specimens either had been recently introduced with the effects of the colonists from the mainland, or were collected by Dr. Baur at Guayaquil and erroneously labeled. From the standpoint of zoögeography, however, the question is of little importance, for if this lizard be native to the archipelago it would merely afford one more bit of evidence of the close relationship of the Galapagoan to the South American fauna. Various species of *Gonatodes* have been reported from the West Indies, South America, Australia, the East Indies, and southern India.

The second genus, *Phyllodactylus,* has even a wider range in the tropical world. It has representatives in the Mediterranean region, South Africa, Madagascar and other islands in the Indian Ocean, southern Asia, Australia, Norfolk Island, the New Hebrides, western South America, Central America, Mexico, and the Antilles. In the Galapagos Archipelago it has been found on Wenman, Chatham, Hood, Gardner-near-

[1] Proc. Calif. Acad. Sci., 4th Ser. v. 1, (4) 1912.

Hood, Charles, Gardner-near-Charles, Enderby, Champion, Barrington, Duncan, Indefatigable, Daphne, James, Cowley, Albemarle, and Brattle islands.

Chatham is the only island upon which there occurs more than one species of *Phyllodactylus*. Here, two very distinct species have been found. One of these has been regarded as identical with *Phyllodactylus tuberculosus* of the North and South American continents. It has no close relatives on any of the other islands of the archipelago, and may have been introduced on Chatham since the plantation was established there.

The other Galapagoan geckos are all closely related. There can be little doubt that all are directly descended from a single species which formerly occupied this entire area. We must believe that the isolation resulting from the separation of an original large island into the various small islands which now exist, has made possible the differentiation which we now find in these geckos.

If this be true, we should expect to find that the greatest differentiation exists where isolation has been longest maintained, and, conversely, that separation has existed longest where the greatest differentiation is found. Thus we may proceed to sketch the history of the Galapagos Islands as indicated by the geckos of the genus *Phyllodactylus*.

Origin and History of the Galapagos Islands

Phyllodactylus gilberti has been found only on Wenman Island. It is the most distinct of all the Galapagoan geckos.[1] Hence, we may infer that Wenman Island has had an individual existence longer than any of the other gecko-bearing islands of the archipelago.

No geckos have ever been found on Culpepper, Abington, Bindloe or Tower Islands.

The next gecko in point of distinctness is *Phyllodactylus leei* of Chatham Island. This leads us to believe that Chatham became a separate island at a time when the other central and southern islands still were connected.

[1] Except *P. tuberculosus*, which we shall not consider farther.

There may be some difference of opinion as to whether *Phyllodactylus bauri* or *Phyllodactylus barringtonensis* is the more differentiated form. *P. barringtonensis* is intermediate between *P. leei* and *P. galapagoensis.* It agrees with *P. galapagoensis* in the number and arrangement of the postmental plates, but has tubercles only on that portion of the back which lies between the insertions of the hind limbs. *Phyllodactylus bauri,* on the other hand, has quite a different arrangement of the postmentals, which are reduced in number to two, and its dorsal tubercles have a distinctive distribution. On cursory examination, *P. bauri* resembles *P. galapagoensis* much more than *P. barringtonensis* does. Nevertheless, I believe that the differences found in *P. bauri,* involving as they do changes in arrangement as well as in number, are of greater import than the mere reduction in dorsal tubercles which characterizes *P. barringtonensis.* This view of the case leads to the conclusion that the islands occupied by *P. bauri*—namely, Hood and Charles—probably were the next to become separated in the breaking up of the original large island, and that the isolation of Barrington occured soon after.

Phyllodactylus bauri inhabits both Charles and Hood islands, with their outlying islets. Since we cannot believe that this species has been independently evolved in two separate islands, and do not think that it has been carried across the water from one island to the other, we are forced to conclude that Charles and Hood islands were connected, and formed parts of a single large southern island, for a considerable time after their separation from the rest of the land area which later became the present archipelago.

The relationship which exists between *Phyllodactylus barringtonensis* and *P. leei* perhaps may indicate that the last connection of Chatham with the central island was by way of Barrington Island.

The geckos of the remaining islands have undergone much less differentiation than those which we have thus far considered. For the present, we must refer them all to one species, *Phyllodactylus galapagoensis,* although it is quite possible that more abundant material might enable us to recognize differences which now are hidden. We have only the following specimens:

4 from Indefatigable
8 " Daphne
2 " James
7 " Cowley
2 " Duncan
4 " Brattle
5 " Tagus Cove, Albemarle
2 " Cowley Mt., Albemarle
10 " Iguana Cove, Albemarle
43 " southeastern Albemarle

Obviously, this series of specimens is insufficient to enable us to point out all the minor differences between the geckos of these islands; but it does suffice to permit us to say that all are closely related. From this we may conclude that these islands all remained connected, and formed a single island, for a long time after their separation from those islands already considered, where distinct species have been evolved.

While it is true that all these geckos from the central islands are so closely related, they are not all identical. Those of Duncan and Daphne islands differ sufficiently to enable us to recognize them as distinct subspecies; from which we may conclude that these two islands have had an independent insular existence longer than the others of the central group, which doubtless remained connected until a still later period.

Farther than this we cannot go, and it is evident that differentiation in the geckos of the Galapagos Islands has progressed neither so rapidly nor so far as it has in the case of the snakes of the archipelago. The older and more stable organization of these lizards has not changed so quickly. For this reason, the geckos throw but little light upon the more recent history of the islands. They, as it were, have not kept up to date. Their story stops before the separation of Charles Island from Hood, at a time when the central islands, excepting Duncan and Daphne, yet were one. But so far as it goes, the story of the geckos agrees completely with that of the snakes, except on one minor point. Our study of the snakes indicated that Barrington only recently became separated from Indefatigable Island. The evidence afforded by the geckos would lead us to place the separation of Barrington at a more remote period. In other respects there is complete agreement.

SYSTEMATIC ACCOUNT

KEY TO GALAPAGOAN SPECIES OF GECKOS

a.—Digits without dilated pads.
Gonatodes collaris.—p. 410.
a².—Digits dilated distally and furnished inferiorly with two large plates.
b.—Limbs with scattered enlarged tubercles.
Phyllodactylus tuberculosus.—p. 412.
b².—Limbs covered above with nearly uniform granules.
c.—No rows of enlarged dorsal tubercles on back between levels of fore and hind limbs.
d.—No enlarged dorsal tubercles between hind limbs.
Phyllodactylus leei.—p. 416.
d².—Enlarged dorsal tubercles present between hind limbs.
Phyllodactylus barringtonensis.—p. 418.
c².—Back with rows of enlarged tubercles between levels of fore and hind limbs.
dd.—Median series of subcaudals enlarged transversely; a median dorsal band of granules distinctly smaller than laterals and usually lighter in color; enlarged dorsal tubercles much smaller; rows less distinct and fewer than five on each side except on sacrum.
Phyllodactylus gilberti.—p. 413.
dd².—No median series of large subcaudals; no distinct mid-dorsal light band of smaller granules; dorsal rows of enlarged tubercles five or six on each side; very distinct.
e.—Tubercles in dorsal rows usually separated by at least their own length; postmentals two.
Phyllodactylus bauri.—p. 426.
e².—Tubercles in dorsal rows usually separated by less than their own length, or by not more than one small granule; postmentals usually more than two.
f.—Tubercles in upper dorsal rows set as closely as in other rows.
g.—Tubercles of some dorsal rows continued on neck anterior to insertion of fore limbs; snout shorter; dorsal rows of tubercles usually six on each side (rarely five).
Phyllodactylus galapagoensis.—p. 420.
g².—Tubercles of dorsal rows absent on neck anterior to insertion of fore limbs; snout longer; dorsal rows of tubercles five on each side.
Phyllodactylus g. daphnensis.—p. 425.
f².—Tubercles in upper dorsal rows set less closely, usually separated by two or more granules.
Phyllodactylus g. duncanensis.—p. 426.

Gonatodes collaris Garman.

Gonatodes collaris, GARMAN, Bull. Essex Inst., XXIV, 1892, p. 83 (type locality **Wreck Bay, Chatham Island**); HELLER, Proc. Washington Acad. Sci., V, 1903, p. 60.

This gecko is know only from Garman's description based upon four specimens collected by Dr. George Baur, and labeled

Wreck Bay, Chatham Island. It has not been found by any other collector, although the members of our expedition searched carefully for it, and collected a hundred and sixty-nine geckos on Chatham Island. The fact that Dr. Baur secured four specimens indicates that the species was not very rare where he got it, and the failure of all other collectors to secure it in the Galapagos makes one wonder whether Dr. Baur's specimens might not have originated at Guayaquil, where he also collected, and have been in some way mislabeled.

I quote Dr. Garman's original description:

"Head moderate; snout obtusely pointed, longer than the distance between the eye and the ear opening, one and one-half times the diameter of the orbit, equal the width of the crown at the hinder edge of the orbit; forehead flat; ear-opening small. Digits slender; basal joint slender, subcylindrical, with larger plates beneath; other joints more slender, compressed. Head, throat, upper portions of body, limbs and tail covered with subequal granular scales, smallest on the occiput, larger on chin and tail. Rostral broader than high, pentagonal, incised on the top. A small internasal toward each side. Two small shields behind the nostril. Six labials; sixth small, slightly behind the middle of the eye. Five infralabials; posterior nearly reaching a vertical from the hinder border of the eye; first large, in contact with two submentals; mental large, with a median and two lateral angles posteriorly, in contact with a pair of moderate submentals, at each side of which there is one scarcely half as large, from which again a diminishing series of three or four passes back along the infralabials. Abdominal scales moderate, imbricate, heptagonal, flat, similar to scales in front of thighs and arms. Tail tapering, subround, covered with small imbricate scales above and larger ones beneath. The median row under the tail is subject to great variation: on two of the specimens the scales are about twice as broad as long; on two others they are so broad as to reach from side to side of the tail. The granules of the throat are fine, quite as small as those of the occiput; near the labials and submentals they rapidly increase in size.

"Body and limbs dark brownish; back darker, with numerous small spots of light blue. A dark-edged spot of the blue above the shoulder. In front of each shoulder there is a vertical band of bluish that does not reach the median line on the top of the neck. Along the vertebral line the back is lighter, and along this light band there are five pairs of dark spots, and at the hinder edge of each of these spots there is a smaller one of the light color. The first pair of the spots lies transversely in front of the vertical band, the second behind the shoulders, the third near the middle of the body, the fourth in front of the leg, and the fifth across the base of the tail.

"Chin and throat yellow to orange. Top and sides of head brown; with a yellow band from the angle of the mouth to the nape, another from the eye to the parietal region, and a third from the nostrils backward over the supraorbitals. On the crown the disposition of the yellow is irregular, but on each specimen there is a short median streak of the light color.

"This form is very closely allied to Gray's species *G. ocellatus* from Tobago. The principal differences seem to be in the coloration. The vertical streak is in front of the shoulder, and to reach the latter would have to turn back at its lower end. The head is not so high, and the outline from rostral to occiput is very slightly but quite regularly curved.

In the figure given, by Dr. Boulenger, of *G. ocellatus,* the scales under the fourth toe are smaller toward the base; in our species they are about equal in size."

Phyllodactylus tuberculosus Wiegmann. TUBERCULATED GECKO.

Phyllodactylus tuberculosus, COPE, Proc. U. S. Nat. Mus., XII, 1889, p. 145; GARMAN, Bull. Essex Inst., XXIV, 1892, p. 81; HELLER, Proc. Washington Acad. Sci., V, 1903, p. 60.

Diagnosis.—Limbs with enlarged tubercles; back with very distinct rows of enlarged tubercles; a median series of enlarged subcaudals.

Distribution.—In the Galapagos Archipelago, this gecko has been found only on Chatham Island.

Material.—Two specimens collected by the naturalists of the Albatross, in 1887-88, are Nos. 14949 and 14956 in the U. S. National Museum collection. Dr. Baur secured one specimen. The Academy has twenty-one specimens collected by Mr. Slevin.

Description of No. 10848.—Head elongate; snout depressed, rounded, and rather narrow, a little more than one and a half times as long as diameter of eye; ear-opening small with slight anterior denticulation of small scales, slightly nearer than nostril to eye. Body and limbs moderate, somewhat depressed, tail cylindro-conic. Snout covered with subequal, smooth, convex granules. Hinder part of head, temples, back of neck, and back and sides of body covered with smaller, smooth granules interspersed with enlarged tubercles. These large tubercles are smooth and rounded on the head, but trihedral and keeled on the neck and body. On each side of the middorsal line, there are three or four rows of these large tubercles on the neck and between the hind limbs, and from six to eight more or less irregular rows near the middle of the body. The tubercles are not close together in the rows. The small granules are flattened. Rostral much broader than high. Nostril between rostral, first labial, and three nasals, of which the upper is largest and meets its fellow of the opposite side. Nine or ten upper, and eight or nine lower labials. Mental large, a little longer than broad, bordered behind by two postmentals, which are followed by polygonal shields which gradually pass into the small gulars. Lower surface of body covered with smooth, imbricate scales, which change gradually into the granular laterals and small gulars; about forty longitudinal and seventy transverse series. Tail covered with small scales with irregular, interrupted whorls of large, keeled tubercles; an inferior median series of broad plates. Limbs with enlarged tubercles; digits slender, distal pads large, truncate; about fourteen lamellae under fourth toe.

The color everywhere above is light yellowish gray with irregular spots and bars of dark brown. The dark brown markings tend to form irregular longitudinal bands on the head, and cross-bars on the body and tail. A brown band runs from the nostril to the eye, and from the eye to the side of the body, passing just above the ear-opening. Other bands run back from the mouth and upper part of the eye. The transverse lines on the body tend to form reticulations. There are thirteen dark bars on the tail. The lower surfaces are yellowish white with minute slate dots.

Length to anus	61.
Snout to orbit	7.5
Snout to ear	15.
Orbit to ear	5.
Fore limb	21.
Hind limb	27.
Base of fifth to end of fourth toe	8.

Variation.—All the specimens agree in the distribution of the enlarged tubercles. These usually are in about seven rows on each side near the middle of the body; but the rows are somewhat irregular, and one sometimes counts six or eight. The postmentals in contact with the mental are two in all of our twenty-one specimens. All have the broad subcaudal series well-developed.

Young average darker than the adults, and have darker markings. The general pattern is similar in all, but, of course, is subject to more or less variation. Some specimens are more evidently cross-barred, while some are clearly reticulated.

The largest specimen measures 71 mm. from snout to anus.

Coloration in life.—"*P. tuberculosus* is more brightly colored than *P. leei,* having black blotches down the back. These blotches are seven or eight in number, and almost form bands. The large tubercles are very prominent, like little white spots; while the rest of the body is liver-colored, white underneath" (Slevin).

General remarks.—This gecko has been taken only on Chatham Island and has no very close relatives elsewhere in the Galapagos. It is widely distributed in continental America, and it seems probable that it has but recently been introduced into the Galapagos. Unfortunately I have no specimens from the mainland with which to compare those from Chatham. It is possible that minor differences may exist, although the series from this island agrees very well with descriptions of continental specimens.

Phyllodactylus gilberti Heller. Wenman Island Gecko.

Phyllodactylus gilberti, Heller, Proc. Washington Acad. Sci., V, 1903, p. 61 (type locality **Wenman Island, Galapagos Archipelago**).

Diagnosis.—Limbs without enlarged tubercles; back with rows of enlarged tubercles, not very distinct except posteriorly;

lateral dorsal granules much larger than median ones; enlarged tubercles on neck but not on occiput; two postmentals; subcaudals considerably enlarged transversely.

Type.—Adult male. Leland Stanford Junior University Museum No. 4549. **Wenman Island, Galapagos Archipelago,** Hopkins-Stanford Expedition. December, 1898.

Distribution.—Wenman Island, Galapagos Archipelago.

Material.—The Hopkins-Stanford Expedition secured at least nine specimens. The California Academy has thirty-two of these geckos from Wenman Island, collected by Mr. Joseph R. Slevin, Sept. 24, 1906.

Description of the type.[1]—Dorsal tubercles small, two or three times the size of the dorsal granules, rounded, juxtaposed, and feebly keeled, in five longitudinal series on each side of sacral region; back and nape crossed by four rows, the three outer rows on each side disappearing before reaching middle of back. Rows of tubercles separated by two or three rows of granules; tubercles in the rows juxtaposed with few exceptions. Digital pallets wide, four times width of rest of digit, nearly two thirds the diameter of eye, trapezoid. Fourth toe with fourteen transverse lamellae inferiorly, the distal one divided. Head large, one half as long and two thirds as wide as the body. Ear-opening elliptical, oblique, two thirds the diameter of eye. Snout rounded at tip, the dorsal profile oblique, length slightly less than twice the diameter of eye. Interorbital region more or less concave; occipital region flat. Limbs moderate, the appressed fore limb reaching anterior border of eye; hind limb reaching appressed elbow. Head covered above with equal granules, smallest on occiput, becoming gradually larger anteriorly. Nostril situated between rostral, first superior labial, internasal and two posterior nasals. Internasals contiguous. Rostral twice as broad as high, slightly pentagonal with a median cleft above, bordered dorsally by two internasals. Mental subtriangular, longer than wide with obtuse angle posteriorly, followed by two hexagonal submentals. Superior labials six before middle of pupil, twice as long as high; five inferior labials anterior to middle of pupil, as high as long, first largest and more than two thirds size of mental. Belly and lower surfaces covered with smooth, rounded, imbricate scales; forty-five transverse series between axilla and groins. Tail of type imperfect. In younger specimens the tail is cylindrical, tapering gradually, covered above and on sides with imbricate, keeled scales about size of dorsal tubercles; covered inferiorly with a median series of enlarged scales.

Above (in life) pinkish gray with dusky blotches and spots; a median light pinkish stripe from nape to tail forking into several faint narrow cross-bars on back. Head lighter grayish with irregular dusky blotches above, snout faintly dusky-spotted, labials more heavily spotted, a dusky stripe beginning at tip of snout, passing through eye above ear-opening and becoming obsolete on shoulder, widest and most distinct just posterior to eye; sides lighter, dusky, spotted. In perfect specimens the tail is light like the head, the dark cross-bands narrower than the light areas and anteriorly broken up into spots. Limbs above barred and blotched with dusky. Underparts cream or whitish, the scales with minute dark dots.

[1] Heller.

The largest and smallest specimens measure		
Length to anus	55.5	23.
Snout to orbit	7.	3.
Snout to ear	13.7	7.
Orbit to ear	5.	2.2
Fore limb	19.	9.
Hind limb	24.	9.8
Base of fifth to end of fourth toe	6.	3.

Coloration in life.—"The back is slate-blue with black markings, and a light stripe runs from the neck to the middle of the back. The lower surfaces of the body are pale lemon, and the throat is light flesh color" (Slevin).

Variation.—All the specimens before me have two postmentals in contact with the mental. The median band of small granules is constantly present, as is the series of enlarged subcaudals. There is much variation in the number and extent of the rows of enlarged, keeled, dorsal tubercles. These tubercles always are smaller than in any other Galapagoan geckos, and set close together in the rows. A row is almost always present from the neck to the base of the tail immediately outside the middorsal band of small granules. Other rows of enlarged tubercles are most in evidence on the sacral region and base of tail and between the forelimbs. There may be traces of only one or of two or three rows on each side of the back anteriorly; on the base of the tail there usually are three or four; while just in front of the hind legs there are four or five rows. The internasal plates are separated in several specimens. The lamellae under the fourth toe vary in number from twelve to sixteen.

The ground color is light yellowish gray in young, darker grayish brown or brown in adults. All specimens show at least a trace of the light gray middorsal band. This band may extend the whole length of the back or may be limited to the neck, where it is always most evident. Some specimens have no dark markings. The majority show, along the back of the neck and body, six or eight pairs of more or less definite dark brown blotches, which often are edged posteriorly by lateral branches of the light middorsal stripe. A brown band is usually present on the side of the face, but sometimes is nearly obsolete.

Habits.—"Sept. 24, 1906. Landed on the N. E. end of Wenman Island, and climbed up on a small plateau covered

with cactus and small trees. We stayed only a few hours, and this appeared to be the best collecting ground. Hunted under the loose lava, and found geckos fairly common. They were most abundant along the edge of the cliffs, where the sea-birds nested. They were nearly all good-sized specimens that seem full-grown, and are the first ones on which I noticed claws. Lack of time prevented me from collecting more specimens. The elevation of this plateau is about two hundred feet" (Slevin).

General remarks.—This is a very distinct species. In it, as in the geckos of Chatham and Barrington islands, the enlarged dorsal tubercles are much reduced in number. It agrees with *P. tuberculosus* in the possession of enlarged subcaudals, but is, I believe, closely related to the other geckos native to the archipelago.

Phyllodactylus leei Cope. CHATHAM ISLAND GECKO.

Phyllodactylus leei COPE, Proc. U. S. Nat. Mus., XII, 1889, p. 145, (type locality **Chatham Island**); GARMAN, Bull. Essex Inst., XXIV, 1892, p. 83; HELLER, Proc. Washington Acad. Sci., V, 1903, p. 67.

Diagnosis.—Limbs and entire back without enlarged tubercles; digital expansions well developed; dorsal granules smooth, smaller than those on snout; mental about as long as broad, usually in contact with three (often two) postmentals; about ten to fourteen lamellae under fourth toe.

Type.—U. S. National Museum No. 14957. **Chatham Island, Galapagos Archipelago.** Prof. Leslie A. Lee of the Albatross. 1887-88.

Distribution.—Chatham Island, Galapagos Archipelago.

Material.—This species has been known from the type specimen, one collected by Dr. Baur, and three secured by the Hopkins-Stanford Expedition. The Academy collection includes one hundred and forty-eight specimens of various ages.

Description of No. 11994.—Head elongate; snout long, depressed, and rather narrow, a little more than one and a half times as long as the diameter of eye; ear-opening small with anterior denticulation of three or four scales, about as far as nostril from eye. Body and limbs moderate, somewhat depressed, tail cylindro-conic. Snout covered with subequal, smooth granules. Hinder part of head, temples, neck, and back and sides of body covered with smaller, smooth, convex granules. No enlarged

tubercles anywhere. Rostral much broader than high. Nostril between rostral, first labial, and three nasals of which the upper is largest and meets its fellow of the opposite side. Eight or nine upper and seven or eight lower labials. Mental large, a little longer than broad, bordered behind by four postmentals which are followed by polygonal shields which gradually pass into the small granular gulars. Lower surface of body covered with smooth, imbricate scales which change gradually into the granular laterals and gulars; about twenty-five to forty longitudinal, and sixty to seventy transverse series. Tail covered with whorls of small smooth scales, no inferior median series of broad plates. Limbs without enlarged tubercles; digits slender, distal pads large, truncate; about twelve lamellae under fourth toe.

Yellowish or brownish gray above, palest on limbs and tail, irregularly dotted with dark brown on head, neck, body, limbs, and tail. A trace of a brown band may be made out from the nostril, through the eye and above the ear, to the side of the neck. The lower surfaces are yellowish white, faintly dotted and clouded with dark brown.

Length to anus	43.
Snout to orbit	4.5
Snout to ear	10.
Orbit to ear	3.3
Fore limb	12.6
Hind limb	17.5
Base of fifth to end of fourth toe	4.4

Variation.—All the specimens agree in the absence of scattered enlarged tubercles between the hind limbs or elsewhere. The number of the labials and the shape and size of the mental plate are not constant. The postmentals in contact with the mental are two in sixty-one specimens, three in eighty-four, and four in three (Nos. 10818, 10826, 11994). The ground color varies from a light brownish or yellowish gray to a dark brown. Specimens of either light or dark ground color, may show darker brown markings merely as scattered dots, as indefinite cloudings, spots, or blotches, or as definite cross-bars. The dark streak on the side of the face may be obsolete or very clearly shown. The smallest specimen measures seventeen millimeters from snout to anus.

Coloration in life.—*P. leei* are flesh-colored with indistinct black markings on the back; white underneath (Slevin).

Habits.—The following notes by Mr. Slevin are based upon both *P. leei* and *P. tuberculosus:*

"Oct. 16, 1905. Geckos are rare at Wreck Bay. I found ten during the day. They were under lava blocks. I saw very few broken egg shells. Oct. 17. Worked up the road to the settlement. Geckos were rare. I secured only seven or eight.

Found them under stones near the road. When taken they make a slight squeaking noise like a large beetle. Oct. 18. Got quite a number of geckos on an old road that branches off from the main one at about six hundred feet elevation. Jan. 25, 1906. Geckos have eggs in them now. Have not had the good fortune to run across the *Gonatodes* as yet. I find the other two kinds rare. Found no geckos shedding skins, as at the time of our former visit. Jan. 27. Found a few geckos at about 600 feet, all under the bark of trees. Feb. 23. Collected three geckos. July 5. Today I hunted principally for geckos, which I found scarce. July 7. Collected geckos and again found them rare. Most were taken under bark of dead trees, very few under rocks now. Went ashore in the evening with Williams to collect insects with a light, and secured several geckos on the edge of the beach. They probably were hunting for the little flies and insects which were abundant. They have the color of the sand, seem to be very much lighter than in the daytime, and are, as usual, very active."

General remarks.—Although this lizard has no enlarged tubercles, it evidently is closely related to the geckos of the other islands of the archipelago. The complete absence of enlarged dorsal tubercles makes *P. leei* appear very different from such forms as *P. bauri* and *P. galapagoensis,* but *P. barringtonensis* shows an intermediate stage. The snout is longer in *P. leei* than in *P. barringtonensis.*

The eggs are elliptical in outline, white, with very thin, limy shells. Their surface is covered with minute granules of lime in straight rows which, when magnified, make the shell appear covered with parallel scratches. One, taken in July, measures 9.4×6.5 mm. Others, found under lava blocks October 16-18, 1905, are 9.×6.8, 9×6.6, 9.2×6.1 and 9.×6.6. An embryo taken from one of the October eggs measures 15.2 from snout to anus.

Phyllodactylus barringtonensis new species. Barrington Island Gecko.

Diagnosis.—Limbs without enlarged tubercles; back with nearly uniform lepidosis except between insertions of hind

limbs, where enlarged tubercles are present; digital expansions well developed; dorsal granules smooth, smaller than those on snout; mental a little longer than broad, usually in contact with three postmentals; ten or twelve lamellae under fourth toe.

Type.—Cal. Acad. Sci. No. 12057. **Barrington Island, Galapagos Archipelago.** J. R. Slevin. July 10, 1906.

Distribution.—Barrington Island, Galapagos Archipelago.

Material.—This species is known from nine specimens, the type and eight young, Nos. 10169-10172, 10212, and 10218-10220 of the Academy collection.

Description of the type.—Head elongate; snout long, depressed, and rather narrow, a little more than one and a half times as long as the diameter of eye; ear-opening small, with anterior denticulation of two or three scales, slightly nearer than nostril to eye. Body and limbs moderate, somewhat depressed, tail cylindro-conic. Snout covered with subequal, smooth, flattened granules. Hinder part of head, temples, neck, and back and sides of body covered with smaller, smooth, convex granules. No enlarged tubercles except between insertions of hind limbs, where remains of two or three rows may be made out on each side. Rostral much broader than high. Nostril between rostral, first labial, and three nasals of which the upper is largest and meets its fellow of the opposite side. Nine or ten upper and eight lower labials. Mental large, a little longer than broad, bordered behind by three postmentals, which are followed by polygonal shields which gradually pass into the small granular gulars. Lower surface of body covered with smooth, imbricate scales which change gradually into the granular laterals and gulars; about twenty to thirty longitudinal, and sixty to seventy transverse series. Tail covered with whorls of small, smooth scales, no inferior median series of broad plates. Limbs without enlarged tubercles; digits slender, distal pads large, truncate; about ten or twelve lamellae under fourth toe.

Yellowish or brownish gray above, palest on head, irregularly spotted and blotched with dark brown on head, neck, body, limbs, and tail. A brown band runs from the nostril through the eye, and above the ear, to the axilla. The lower surfaces are yellowish white faintly dotted with dark brown.

Length to anus	41.
Snout to orbit	4.6
Snout to ear	10.5
Orbit to ear	3.8
Fore limb	13.
Hind limb	17.5
Base of fifth to end of fourth toe	4.1

Variation.—All the specimens agree in the possession of the few scattered enlarged tubercles between the hind limbs. These are not prominent and in small specimens may easily be overlooked. No. 10171 has but two postmentals touching the

mental; No. 10219 has four; the others all have three. The mental may be as wide as, or a little wider than, long.

Habits.—Mr. Slevin's field notes state: "Oct. 20, 1905. Four geckos were taken near the iguana colony. Three were under lava blocks, and one in an old cactus stump. Oct. 24. Went ashore for the morning, hunting geckos. Got three in the interior, beyond the iguana colony. Found them all under lava blocks."

General remarks.—The Barrington Island gecko is intermediate between *Phyllodactylus leei* of Chatham Island and *Phyllodactylus galapagoensis.* It agrees with the latter species in the number of its postmental plates, but approaches the former in the reduction of the enlarged dorsal tubercles.

Phyllodactylus galapagoensis Peters. GALAPAGOS GECKO.

Phyllodactylus galapagoensis, PETERS, Monatb. Berl. Ac. 1869, p. 720, (type locality **Galapagos Islands**);[1] STEINDACHNER, Festschr. Zool-bot. Ges. Wien, 1876, p. 329; GARMAN, Bull. Essex Inst., XXIV, 1892, p. 81; HELLER, Proc. Washington Acad. Sci., V, 1903, p. 63.

Diagnosis.—Limbs without enlarged tubercles; back with distinct rows of enlarged tubercles; no median series of broad subcaudals; large dorsal tubercles set close together in the rows, in six or rarely five rows on each side; snout shorter; two or usually more postmentals touching mental; occiput with enlarged tubercles; tubercles of some dorsal rows continued on neck anterior to insertion of fore limbs.

Type.—Collected by Dr. Kinberg on **Indefatigable, James,** or **Albemarle.**

Distribution.—Indefatigable, James, Cowley, Brattle, and Albemarle islands, Galapagos Archipelago. The subspecies *P. g. duncanensis* and *P. g. daphnensis* occur on Duncan and Daphne islands.

Material.—This gecko was first secured by Dr. Kinberg, who collected on Charles, Chatham, Indefatigable, James, and

[1] This specimen was secured by Dr. Kinberg, who collected reptiles on Charles, Chatham, James, Indefatigable, and Albemarle Islands. Dr. Peters description enables us to say that it did not come either from Charles or Chatham.

Albemarle islands. Dr. Baur collected ten specimens on Albemarle. Heller records twenty-two from Iguana and Tagus Coves, Albemarle, secured by the Hopkins-Stanford Expedition. The Academy collection includes seventy-nine specimens, as follows: four from Indefatigable, two from James, seven from Cowley Island, four from Brattle, five from Tagus Cove, Albemarle, two from Cowley Mt., Albemarle, ten from Iguana Cove, Albemarle, and forty-three from Vilamil and Cobos Settlement in southeastern Albemarle.

Description of No. 11262 from Iguana Cove, Albemarle. Head elongate; snout shorter and less depressed than in other species of Galapagoan geckos, a little more than one and a half times as long as the diameter of eye; ear-opening small, with very slight anterior denticulation of three or four scales, about as far as nostril from eye. Body and limbs moderate, somewhat depressed, tail cylindro-conic. Snout covered with subequal, smooth rounded granules. Hinder part of head, temples, neck, and back and sides of body covered with smaller, smooth granules. No enlarged tubercles on limbs. Occiput and anterior part of neck with scattered enlarged tubercles. Back, from root of tail to posterior part of neck, with very distinct regular rows of enlarged, keeled, trihedral tubercles. These large tubercles are in six rows on each side of midline at middle of body. The tubercles in each row are set close together, or are separated by not more than the diameter of one small dorsal granule. Rostral much broader than high. Nostril between rostral, first labial, and three nasals of which the upper is largest and is separated from its fellow of the opposite side by a small plate. Eight or nine upper and seven or eight lower labials. Mental large, a little longer than broad, bordered behind by three postmentals, which are followed by polygonal shields which gradually pass into the smaller gulars. Lower surface of body covered with smooth, imbricate scales which change gradually into the granular laterals and gulars; about thirty to forty longitudinal and seventy to seventy-five transverse series. Tail covered with whorls of small imbricate scales, feebly keeled on the dorsal surface of the base of the tail, elsewhere smooth; no inferior median series of broad plates. Limbs without enlarged tubercles; digits rather slender, distal pads large, truncate; about twelve lamellae under fourth toe.

The general color above is brownish gray, spotted and dotted on the limbs, head, neck and body with blackish brown. These dark markings tend to form seven or eight irregular cross-bars on the body. There is a faint dark streak from nostril to eye, and a very distinct one from the eye to the side of the neck. The tail bears seventeen dark brown cross-bars. The lower surfaces are light brown, minutely dotted with dark brown and with a few yellow spots and blotches on throat and tail.

Length to anus	45.
Snout to orbit	5.3
Snout to ear	11.2
Orbit to ear	4.
Fore limb	16.5
Hind limb	21.
Base of fifth to end of fourth toe	5.5

Variation.—The number of postmentals in contact with the mental plate varies considerably, but usually is more than two. The variation in this respect is shown in the following table:

POSTMENTALS IN CONTACT WITH MENTAL PLATE.

Locality	2	3	4	5	6
Daphne		7	1		
Indefatigable	1	3			
James		1	1		
Cowley Island		1	5		1
Duncan		2			
Brattle		4			
Tagus Cove	1	3		1	
Cowley Mt.		1	1		
Iguana Cove	2	7	1		
Vilamil	10	27	3	1	
Cobos Settlement	1		1		
Total	15	56	13	2	1

The enlarged tubercles vary considerably. The lower row on the body may be well developed, or may be represented by only a few tubercles. Counting these, there nearly always are six rows on each side of the back. Exceptions are found in specimens from Daphne, Cowley Island, Cowley Mt., and Tagus Cove. The upper dorsal rows of tubercles are continued, more or less irregularly, forward to the back of the neck anterior to the insertions of the fore limbs in all the specimens except one from Tagus Cove and eight from Daphne. The tubercles in the dorsal rows are set much closer together than in *P. bauri,* being usually either in contact or separated by not more than the diameter of one small granule. However, the two specimens from Duncan Island have many tubercles of the upper rows separated by greater spaces often occupied by several small granules. A somewhat similar spacing is found in one of the Indefatigable specimens (No. 10393), but none of the other examples of *P. galapagoensis* show any approach to this condition.

The Daphne specimens have few or no enlarged tubercles on the head, and a similar lack of them is found in the geckos from Tagus Cove, Cowley Mt., Cowley Island, and Brattle. In specimens from Indefatigable, James, and Duncan there are many enlarged tubercles on the head. Examples from southern Albemarle (Iguana Cove, Vilamil and Cobos Settlement) show more variation in this respect, and may have on the head many, a moderate number, or few enlarged tubercles.

The following table is intended to show the variation in the number and distribution of the enlarged tubercles:

NUMBER AND DISTRIBUTION OF ENLARGED TUBERCLES.

Locality	Dorsal Rows				On Head		
	5	6	On Neck	Not on Neck	Few	Moderate	Many
Daphne	8	0	0	8	8	0	0
Indefatigable	0	4	4	0	0	0	4
James	0	2	2	0	0	0	2
Cowley Island	2	5	7	0	6	1	0
Duncan	0	2	2	0	0	0	2
Brattle	0	4	4	0	4	0	0
Tagus Cove	2	3	4	1	5	0	0
Cowley Mt.	1	1	2	0	2	0	0
Iguana Cove	0	10	10	0	3	4	3
Vilamil	0	41	41	0	5	22	14
Cobos	0	2	2	0	1	1	0

While there is much variation in color, I have not been able to reach any conclusions of value concerning it.

The data derived from the study of the postmentals and enlarged tubercles may be arranged in the following tentative key:

a.—Tubercles of some dorsal rows continued on neck anterior to insertion of fore limbs; snout shorter; dorsal tubercles in six (or rarely five) rows on each side.

b.—Tubercles in upper dorsal rows set less closely, usually separated by two or more granules.

Duncan.

b².—Tubercles in upper dorsal rows set closely, as in other rows, rarely separated by more than one granule.

c.—Many enlarged tubercles on top of head.

Indefatigable, James.
Some from Iguana Cove and Vilamil.

c².—Few enlarged tubercles on head.

d.—Usually not more than three postmentals touching mental.

Some from Iguana Cove and Vilamil.
Brattle, Cowley Mt., Tagus Cove.

d².—Usually more than three postmentals touching mental.

Cowley Island.

a².—Tubercles of dorsal rows absent on neck anterior to insertion of fore limbs; snout longer; dorsal tubercles in five rows on each side.

Daphne.

The Duncan and the Daphne geckos seem to be well worthy of recognition as subspecies, and will be named and characterized as such on a subsequent page. Those from some of the

other localities may perhaps require similar treatment when larger series have been gathered, but it now seems best to use but one name for the Indefatigable, James, Cowley, Brattle, and Albemarle specimens.

Habits.—Mr. Slevin's field notes on this species are as follows:

"James Island. Dec. 29, 1905.—I saw three geckos, and got two from under the bark of a large thorn tree. These were the only ones seen by any of the party.

"Cowley Island. August 13, 1906.—I collected several geckos under the loose lava blocks.

"Brattle Island. Oct. 20, 1905.—Collected two snakes and four geckos.

"Tagus Cove, Albemarle. March 23 to 31, 1906.—Geckos are rare, according to Williams. He has collected three, so far, while hunting for beetles under stones. April 4, 1906.—I have found no geckos here, nor have I seen any snakes.

"Cowley Mt., Albemarle. Aug. 10 and 11, 1906.—Williams collected two geckos under an old piece of tortoise shell at about 400 feet elevation. He also reports seeing one at about 1800 feet.

"Iguana Cove, Albemarle. March 19, 1906.—No one of the party saw any geckos. March 20.—Williams got a gecko today under a rock near the cove. March 21.—Eggs of geckos are common under the stones, and Williams collected a few. He also secured some geckos, but they are not very abundant so far as observed. They were all taken under stones.

"Vilamil, Albemarle. Nov. 3, 1905.—Williams brought in quite a number of geckos. They were found under the bark of trees on the trail to the settlement. March 5, 1906.—Two geckos were found under the bark of old dead stumps. March 7, 1906.—Geckos are rare here, and seem to live under the bark of trees and in old wood rather than under stones. August 22 to 30, 1906.—Williams found a few geckos under the bark of trees at an altitude of about 1500 feet."

General remarks.—No geckos have been taken on Narborough Island. However, there is no reason for thinking that they do not occur there, and I believe that a *Phyllodactylus* either identical with, or closely related to *P. galapagoensis* will

some day be found there. While none of these lizards were secured at Banks Bay, Albemarle Island, two eggs collected there attest their presence. These eggs were taken, April 14, 1906, from holes in mangrove trees growing on the beach. They were about ten feet above the ground, and measure 10.3×8.5 and 10.5×8.6 mm. Other eggs, secured under stones at Iguana Cove, March 21, 1906, measure 9.9×8.4, 10×8, 10.4×7.7, and 10.7×8.2 mm. It will be seen that these eggs are larger than those of *P. leei.* They are elliptical, with thin, white, limy shells, which appear as though covered with a multitude of minute, crossed, more or less parallel scratches or rows of minute granules.

Phyllodactylus galapagoensis daphnensis, new subspecies.
DAPHNE ISLAND GECKO.

Diagnosis.—Limbs without enlarged tubercles; back with distinct rows of enlarged tubercles, five rows on each side; no median series of broad subcaudals; large dorsal tubercles set close together in the rows, or separated by not more than diameter of one granule; tubercles of dorsal rows not continued on neck anterior to insertion of forelimbs; snout longer; few enlarged tubercles on top of head.

Type.—California Academy of Sciences No. 10539. **Daphne Island, Galapagos Archipelago.** J. R. Slevin. Nov. 23, 1905.

Material.—Eight specimens are in the collection of the Academy.

Description and Variation.—The description of *P. galapagoensis* applies in general, and a statement of variation is included under that head.

General remarks.—It was a surprise to find that the gecko of Daphne differed so markedly from that of Indefatigable and James. I had been inclined to regard Daphne as an outlying rock recently separated from Indefatigable, as the Seymours doubtless have been. The differentiation of this gecko, however, indicates a separate insular existence through a considerable period of time.

Mr. Slevin states: "Nov. 23, 1905.—I caught several geckos under old dead cactus on the inner slope of the crater, near the top."

Phyllodactylus galapagoensis duncanensis, new subspecies.
DUNCAN ISLAND GECKO.

Diagnosis.—Limbs without enlarged tubercles; back with distinct rows of enlarged tubercles, six on each side; no median series of broad subcaudals; large dorsal tubercles set close together except in the upper dorsal rows, where they are usually separated by two or more granules; tubercles of some dorsal rows continued on neck anterior to insertion of forelimbs; snout shorter than in *P. g. daphnensis;* many enlarged tubercles on top of head.

Type.—California Academy of Sciences No. 10600. **Duncan Island, Galapagos Archipelago.** J. R. Slevin. Dec. 9, 1905.

Material.—Only two specimens are in the Academy's collection.

Description and Variation.—See *P. galapagoensis.*

Habits.—Nothing is known of the habits of the geckos of Duncan Island. Mr. Slevin's field notes contain only the following item: "Dec. 11 to 16, 1905, I got three geckos near the camp, but they were rare and I did not have much time to look for them."

Phyllodactylus bauri Garman. BAUR'S GECKO.

Phyllodactylus galapagoensis, GUNTHER, Proc. Zool. Soc., 1877, p. 67; BOULENGER, Cat. Lizards Brit. Mus., I, 1885, p. 82; COPE, Proc. U. S. Nat. Mus., XII, 1899, p. 145.

Phyllodactylus bauri, GARMAN, Bull. Essex Inst., XXIV, 1892, p. 81 (type locality **Las Cuevas, Charles Island, Galapagos**); HELLER, Proc. Washington Acad. Sci., V, 1903, p. 63.

Diagnosis.—Limbs without enlarged tubercles; back with distinct rows of enlarged tubercles; no median series of broad subcaudals; large dorsal tubercles not set close together in the rows, in five or six rows on each side of back; snout longer than in *P. galapagoensis;* two, or very rarely three, postmentals touching mental; occiput with few or no enlarged tubercles; tubercles of dorsal rows rarely continued on neck anterior to insertion of fore limbs.

Type.—Collected by Dr. George Baur, at **Las Cuevas, Charles Island, Galapagos Archipelago,** in 1891. I have been unable to learn the present location of this specimen.

Distribution.— Charles, Gardner-near-Charles, Champion, Enderby, Hood, and Gardner-near-Hood islands, Galapagos Archipelago.

Material.—Two specimens collected by Commander Cookson of the "Peterel" are in the British Museum. A single specimen collected by the naturalists of the "Albatross," and now in the U. S. National Museum, probably belongs to this species. The type was secured by Dr. Baur in 1891. The Hopkins-Stanford Expedition secured this gecko on Charles, Hood, and Gardner Islands. This material, recorded by Heller, is in the collection of Leland Stanford Junior University. The Academy's expedition secured over five hundred of these geckos on Charles, forty-seven on Hood, forty-two on Gardner-near-Hood, three on Gardner-near-Charles, and one each on Champion and Enderby islands.

Description of No. 9766 from Charles Island. Head elongate; snout longer and more depressed than in *Phyllodactylus galapagoensis,* a little more than one and three-fourths times as long as diameter of the eye; ear-opening small, with anterior denticulation of three or four scales, about as far as nostril from eye. Body and limbs moderate, somewhat depressed, tail cylindro-conic. Snout covered with subequal, smooth, rounded granules. Hinder part of head, temples, neck, and back and sides of body covered with smaller, smooth granules. No enlarged tubercles on limbs. Occiput and anterior part of neck with no enlarged tubercles. Back, from root of tail to posterior part of neck, with very distinct regular rows of enlarged, keeled, trihedral or rounded tubercles. These large tubercles are in five rows on each side of midline at middle of body. The tubercles in each row are set somewhat irregularly, but usually are separated by from two to four small dorsal granules, although sometimes only one granule intervenes. Rostral much broader than high. Nostril between rostral, first labial, and three nasals of which the upper is largest and is in contact with its fellow of the opposite side. Eight or nine upper, and seven or eight lower labials. Mental large, a little broader than long, bordered behind by two postmentals, which are followed by polygonal shields which gradually pass into the smaller gulars. Lower surface of body covered with smooth, imbricate scales, which change gradually into the granular laterals and gulars; about thirty to thirty-five longitudinal, and seventy to seventy-five transverse series. Tail covered with whorls of small imbricate scales, feebly keeled on the dorsal surface of the base of the tail, elsewhere smooth, no inferior median series of broad plates. Limbs without enlarged tubercles; digits rather slender, distal pads large, truncate; about eleven lamellae under fourth toe.

The general color above is brownish gray, spotted, dotted, and blotched with dark brown on the limbs, head, neck, body, and tail. These dark markings form seven cross-blotches on each side of the midline, where they are interrupted. A dark streak runs from the nostril to the eye, and from the eye to the side of the neck, passing just above the ear-opening. The labials are spotted with dark brown. The lower surfaces are yellowish white, with a brownish suffusion formed by minute dark dots.

Length to anus	48.
Snout to orbit	5.5
Snout to ear	12.4
Orbit to ear	4.2
Fore limb	16.3
Hind limb	21.5
Base of fifth to end of fourth toe	5.4

Variation.—The number of postmentals in contact with the mental is very constant. It is two in every specimen except numbers 9800 and 11720 from Charles and 9412 from Hood Islands. In these three specimens three postmentals touch the mental, while in the other six hundred and sixty-eight examples the number is constantly two.

There is considerable variation in the enlarged dorsal tubercles. In fifty specimens from Charles, I count five rows in thirty-one and six in nineteen. In forty-seven from Hood, the counts are five rows in thirty, six in sixteen, and seven in one. Of ten from Gardner-near-Hood, six have five rows and four have six. In these one hundred and seven specimens, the only ones examined in these respects, the dorsal tubercles are continued on the neck anterior to the fore limbs very slightly in one from Charles, and nearly to the middle of the neck in five from Hood, but not at all in any of the others. In a few specimens from Charles and Hood the tubercles fail to reach as far forward as the fore limbs, and in a few of the Charles examples they are as little developed as in the one from Champion and two from Gardner-near-Charles, in which only the upper row is continued forward much beyond midway between the limbs. Occasionally tubercles are found in contact, or separated by only one small granule; but in all specimens the greater number of tubercles always are separated by from two to four granules.

I have been unable to find any sufficient basis for the separation of the geckos of Charles and of Hood islands. Perhaps, on the whole, the enlarged dorsal tubercles are less strongly keeled in Charles specimens than in those from Hood, but one finds many Charles specimens with tubercles keeled as strongly as in Hood Island examples. If there is an average difference in this respect it is too intangible to use as a means of classification. The only real difference which I have been able to detect is in the presence of enlarged granules or tubercles on the top of the head. In fifty-eight specimens from Hood and

Gardner-near-Hood the granules on the posterior part of the upper surface of the head are quite uniform in all but four. In these four exceptions a very few granules are somewhat enlarged. In fifty geckos from Charles Island, on the other hand, only ten have no enlarged granules in this region, while thirty-one have a few, and nine a moderate number of enlarged granules. Here, again, the difference is not great enough to justify the separation of the geckos of these two islands.

There is so much variation in color that nothing of value can be said concerning it. Specimens may be either dark or light, heavily blotched or nearly unicolor.

Habits.—Mr. Slevin's field notes are as follows:

"Charles. Oct. 4, 1905.—Collected the geckos on a small mountain about two miles inland. Found them all under lava blocks. Oct. 6.—Caught several geckos under lava blocks. We found them quite plentiful, but the elevated land is the best place to get them. They have eggs in them at this date, and a great many broken shells can be found under the lava blocks. Oct. 7.—Went ashore at Black Beach. Saw no reptiles except geckos. These were common, especially near the beach, but grew scarce at 1000 feet elevation. They were found under loose lava blocks and dried wood. Also got several eggs, in some of which I found geckos. Oct. 9.—I found no geckos over 1000 feet elevation. They were all taken on the slope facing Black Beach. When captured they make a slight squeaking sound, somewhat like a mouse. Oct. 11.—Collected one hundred and twenty-five geckos along the slope under old wood and lava blocks. March 2, 1906.—I found the geckos very common under stones or rather large pieces of lava. They seem at this time to be lower down in the dry belt. I found them rare at 200 feet. Higher up the ground now is moist under the rocks; so, as they seem to prefer a dry country, they apparently have moved down toward the beach. I found some of the females with eggs well enlarged. May 23, 1906.—Found geckos abundant under the loose lava blocks near Black Beach. Collected sixty-nine during the afternoon.

"Champion, near Charles. Oct. 3, 1905.—Covered the island in an hour and a half. I saw two geckos under lava blocks and caught one.

"Hood. Sept. 26, 1905.—They were found in the holes in the wood made by insects; generally in the smaller branches of the brush. They are very quick and can easily escape in the brush or under the rocks which cover the ground everywhere. Two eggs were found under a stone. Oct. 1.—The geckos were found in old wood and cactus stumps. None were found under rocks. Feb. 1, 1906.—Williams collected several geckos under lava blocks near the shore.

"Gardner-near-Hood. Sept. 27, 1905.— Found several geckos—some under stones and some in old wood. Feb. 3, 1906.—Found the geckos fairly common under loose lava near the beach."

General remarks.—Enderby, Champion, and Gardner are three islets near Charles, while a second Gardner bears the same relation to Hood Island. The fact that different, though closely related, species of snakes occur on Charles and Hood islands has led me to expect to find similar differentiation in the geckos. That such differences do not exist, is not less interesting, for it emphasizes the close relationship between the reptilian fauna of these two islands—a relationship which I believe indicates a former connection between Charles and Hood, after their separation from the rest of the archipelago.

Eggs found under loose stones on Charles islands, October 4 to 11, 1905, measure 9.5×7, 10×7.1, 10×7.8, 10×8, 10.4 ×7.2, 10.4×8.6, 10.5×7.4, 10.7×7.9, 10.9×7.6, 10.9×8, 11×7.3, 11×8, and 11.3×7.8. One from Hood measures 10×7.4 mm. The shells are of the same character as those of *P. leei* from Chatham and *P. galapagoensis* from Albemarle.