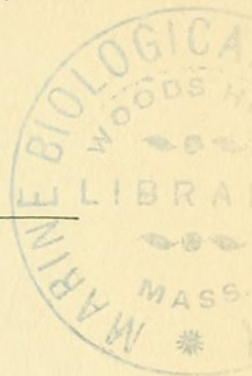


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON



NOTES ON THE HERPETOLOGY OF THE VIRGIN ISLANDS.

BY THOMAS BARBOUR.

In continuance of a policy, long since announced, of making a complete survey of the vertebrate fauna of the West Indies, the Museum of Comparative Zoölogy sent expeditions this winter again to Cuba and the Island of Pines, also to Porto Rico and the Virgin Islands. Mr. James Lee Peters spent several months exploring the latter group and visited several islands which have not been visited by a zoologist for many years. He returned to recite the old familiar story of a fauna already sadly depleted and fast disappearing. He found the mongoose excessively abundant upon St. Thomas, St. John and Tortola; he learned that once long ago it had been introduced upon Virgin Gorda, but there it has been completely eradicated *mirabile dictu*, and important if true. This extermination is a unique feat and one for which Virgin Gorda deserves real fame. Anegada is and has ever been quite free, so also Jost van Dyke and Water Island, Mosquito Island, Ginger Island, and others of the smaller outlying Keys.

Most of the islands which Peters visited are similar in general topography. Hilly, and once densely wooded, Tortola, and Virgin Gorda are not strikingly different from St. Thomas. Anegada, on the other hand, belongs to another system—the outer Antillean arc of Suess—and is low, flat, arid, and wholly similar in general characteristics to almost any one of the Bahamas.

These northern Virgin Islands are washed by a northward-drift current. W. C. Fishlock, Esq., curator of the British Experiment Station upon Tortola, told Peters that after the terrific eruption of Mt. Pelée upon Martinique that dugout

canoes and pumice floated ashore upon several islands of the group. This current was also noted by Schomburgk, who visited Anegada about 1836 and who attributed some of the geologic shore formations upon that island to the fact that they were deposits of current-borne silt from the Orinoco River laid down upon her shores. The important and interesting point is that in spite of this evidently strong and efficient current there is no evidence that it has had any influence in supplying the islands with a resident fauna.

I have pointed out in the past that the presence of *Amphisbaena* upon St. Thomas was extremely significant and I have always had a feeling that other typically Greater Antillean genera would be found to occur among these islands if artificial changes had not already too greatly depleted the fauna. This belief was responsible for Peters' visit, this and the desire to secure Anoles from Tortola to try if possible to settle the status of the much bandied-about *Anolis richardii* of Duméril and Bibron. I can not begin to express the great pleasure I experienced when I found that Peters had a *Bufo* from Virgin Gorda and a *Cyclura* from Anegada. It is no exaggeration to say that these are as significant as any herpetological finds made in the Antilles in recent years. The fauna of the Virgin group, of which only a part still persists, shows that it was truly Greater Antillean and that the islands were beyond doubt connected with a portion of the Greater Antillean land mass—that is with the Cuba, Haiti, Porto Rico area—probably after the separation of Jamaica, to the westward, and the Lesser Antillean land mass, to the southeastward. Dr. G. M. Allen and Mr. Peters while exploring a cave near Ciales in Porto Rico found several jaws which I believe are beyond doubt those of a *Cyclura*, and Mr. G. S. Miller, Jr., informs me that the U. S. National Museum has received what he believes to be the bones of a *Cyclura* from another nearby island. Peters heard of the scinc upon one or two islands, but was unable to secure any; he found snakes very rare—fast disappearing.

SAURIA.

***Sphaerodactylus macrolepis* Günther.**

In the collection there are specimens from St. Thomas, Tortola, Virgin Gorda, and Anegada. These have been compared with a large series in

the M. C. Z. from St. Croix. All belong to the same species; the Anegada specimens are much paler, more ashy, than any of the others, and the variation observable in this large number of individuals shows that *S. grandisquamis* Stejneger, from Porto Rico, distinguished by the larger size of the dorsal scales is really far from conspicuously distinct. The species may perhaps stand, however, since there is no doubt but that the average numbers of scales upon the dorsal area is slightly fewer.

***Ameiva exul* (Cope).**

Peters got ground lizards as follows: 1 from Ginger Island near Tortola, 3 from Tortola, 2 from Mosquito Island near Virgin Gorda, 9 from Virgin Gorda, 13 from Anegada, and 8 from Water Island near St. Thomas. Although this series varies somewhat in coloration from island to island, I believe that beyond doubt all these lots represent the same species. To my disappointment no *Ameiva* of the *polops-wetmorei* series turned up. *Ameivæ* of this group are excessively rare everywhere, perhaps just disappearing; they may have completely gone in these islands.

***Anolis cristatellus* Duméril and Bibron.**

Peters found this lizard common everywhere, and he secured specimens upon St. Thomas, Anegada, Tortola, Virgin Gorda, Water Island, and Mosquito Island near Virgin Gorda. These have been compared with each other and with specimens in the M. C. Z. from Porto Rico and St. Croix. The species is variable, but I believe the same form inhabits all these different islands. Reinhardt and Lütken (Vid. Meddel. Naturh. Foren., 1862 (1863), p. 249), in their most excellent paper record *cristatellus* from St. Thomas, St. John, St. Croix, Jost van Dyke, Water Island, Tortola, Vieques, and Porto Rico.

***Anolis stratulus* Cope.**

Reinhardt and Lütken (l. c., p. 255) record this species from St. Thomas, Porto Rico, Vieques, Tortola, and Jost van Dyke. Peters found a single example upon Tortola, while Garman got two, years ago, upon St. Thomas, during the *Blake* cruise. These three seem the same as other examples before me from Porto Rico and Vieques.

***Anolis pulchellus* Duméril and Bibron.**

Specimens which have been compared with examples of *pulchellus* from St. Thomas and Porto Rico were taken by Peters upon Virgin Gorda, Tortola, and Anegada. Of these three islands Reinhardt and Lütken had the species from Tortola alone. Peters believes that beyond doubt this and the preceding two species are the only Anoles found upon any of these islands. No sign of *A. krugi* was found, though Stejneger thought (Herp. of Porto Rico, 1902 (1904), p. 659) that possibly *krugi* might occur in the highlands of some of the islands of the Virgin group.

Duméril and Bibron (Erp. Gen., 4, 1841, p. 141) described *A. richardii*, expressly stating that the type was a single example taken on Tortola by

the elder Richard, the botanist. The description in general is vague and verbose but they expressly state that: *a*: the specimen had keeled ventral scales; *b*: the supraorbital semicircles were separated throughout by a single series of scales; *c*: that the large occipital shield was *in contact* with the posterior scales of the semicircles. *Pulchellus* fulfills the first two conditions but not the last. Bocourt figured what he said was the type of *A. richardii* (Miss. Sci. Mex., pl. 15, fig. 6) and the top of the head which he shows fulfills conditions *b* and *c*; but he assures us that the specimen came from Martinique! I can match Bocourt's figure (which shows the upper surface of the head only) with our series of several different Lesser Antillean species but *not* with *A. roquet* (Lacépède) of Martinique; no one, however, of these species has keeled ventrals. Indeed, species with such keeled scales are excessively rare, if not unknown, outside of the Greater Antillean district and the mainland. A few forms like *A. ferreus*, from Guadeloupe, sometimes have the centres of the ventrals swollen but scarcely carinate, in the true sense of the term. Thus the matter stands, and I believe that until the type in Paris can be examined—if it still exists—that it is best to consider *A. richardii* a synonym of *A. pulchellus* and that the type was perhaps anomalous or possibly the describers had another specimen in hand or in mind at the moment the description was penned.

***Cyclura pinguis*, sp. nov.**

Not closely related to any known species. Remarkable in having a heavy, fat, pendulous nuchal fold with but a few flat inconspicuous tubercles representing the nuchal crest; in having the nostrils rather narrowly oval, comparatively small, slanting, and widely separated from the rostral by two rows of large scales. Color in life, where the skin is freshly shed, dark slaty-gray with rather brilliant blue spots—on the tail each spot confined to a single scale.

Type, an aged female, M. C. Z. No. 12,082, from Anegada, British Virgin Islands, March, 1917, J. L. Peters, collector.

Rostral as wide as the mental, not in contact with the nasals; nasals rather small, perforated in an oblique direction, mesially, with a rather narrow elongate opening; each nasal surrounded by many small scales and separated from the rostral by two conspicuous rows of rather large flat scales; no modified supranasals; nasals separated from each other by about four or five polygonal, flat scales, which are similar to those of the whole upper surface of the head; all upper head scales small, flat, or striate, pavement-like, in this aged specimen, their sutures almost indistinguishable; contour scales recalling *C. collei* but arrangement more similar to that of *C. carinata*; no indication of a supraocular disc or nasal horn; occipital very small; eleven supralabials to below the centre of the eye; about four feebly enlarged and keeled scales forming a weak subocular series; no tubercular or swollen scales in the temporal region, no conspicuously enlarged scales below the angle of the mouth; infra-labials too indistinct to count; dorsal scales minutely granular; ventrals

much larger, smooth and imbricating; on the nuchal region, a peculiar fleshy fold hanging far over on the right side of the neck, no nuchal spines; series of dorsal spines beginning well posterior to the scapular region, spines 33 in number, highest spines about 10 from posterior end of series, about 1.5 cm. high; series widely interrupted upon the sacral region; caudal crest consisting of about 12 spines which grow progressively smaller from the first to the last spine; upper surfaces of limbs with many series of large diamond-shaped, feebly keeled scales; about 15 femoral pores on each side; toe combs as in *stejnegeri* and *nigerrima*; tail slightly compressed, with segments very poorly defined; each consisting of a short incomplete row and three complete rows each progressively slightly larger in size; distal portion of the tail with a feebly serrate crest of low tubercular scales.

Color in life, brownish gray, on the limbs and tail in patches where the skin has recently shed there are bright blue spots each limited to a single scale.

Mr. Peters heard of the Rock Iguana soon after his arrival upon Anegada but had no success in securing specimens. He reports them excessively rare, an occasional track in the sand being the only evidence of their presence. This island with others near by has suffered terribly from recent hurricanes and the forest or scrub laid low makes getting about the uncleared and uncultivated parts of the islands very difficult, as this wind-blown vegetation has had no time as yet to decay. It was only when Peters found an old iguana hunter who had a dog that finally he was able with extreme difficulty to secure the single living example, now before me. He heard nothing of its existence or persistence in the other islands which he visited, but there can be no doubt that it was previously generally distributed.

Iguana rhinolopha Wiegmann.

A single immature specimen apparently referable to this species was given Mr. Peters by S. Malling-Holm, Esq., who captured it several years ago upon Water Island. Iguanas have been recorded from St. Thomas, Saba, Nevis, and various other islands nearby, sometimes as this species and sometimes as *delicatissima*. Both species occurred, perhaps even on the same islands. They were most probably introduced as food by prehistoric man; there can be little doubt from the nature of their distribution that their dispersal was either deliberately artificial or fortuitous.

SERPENTES.

Alsophis antillensis (Schlegel).

Three specimens from Virgin Gorda vary *inter se* in the intensity of the variegated dark brown dorsum, but in all of them the fifth vertebral row of scales has many of its components parti-colored—half whitish and white black, as is characteristic of the species. Peters did not secure *Lemiadophis* except upon Porto Rico, where he caught two examples of *L. stahli* Stej.

Alsophis anegadae, sp. nov.

Type, an adult, M. C. Z. No. 12,083, from Anegada, British Virgin Islands, March, 1917, J. L. Peters, collector.

Two snakes from Anegada are both alike in having a squamation similar to *A. antillensis* but in being pale ashy gray in color, the fifth scale row not parti-colored, but with a median streak of black. The upper lips are immaculate white, unspotted.

This coloration is probably correlated with the fact that environmental conditions are very different upon Anegada from those characteristics of Porto Rico and the other islands of the Virgin group.

AMPHIBIA.

Bufo turpis, sp. nov.

Type, an adult, M. C. Z. No. 4099, from Virgin Gorda, British Virgin Islands, February, 1917, J. L. Peters, collector.

Very similar to *Bufo lemur* (Cope) of Porto Rico, only differing in a few relatively inconspicuous characters. The flange-like labial margin is sharper and thinner in *turpis*; the snout is slightly more projecting and depressed and the median cephalic ridges are more widely separated, the forehead being rather more deeply concave. The color is ashy gray, the asperities are tipped with black; there are two dark ocelli upon each thigh.

By the merest chance a negro lad, near Spanish Town, Virgin Gorda, found this toad either under or in a water barrel—Peters was not sure which. No one to whom he showed it had ever seen a similar creature nor did the offer of a large reward bring forth a second specimen. Indeed, the fact that there was a resident toad about was a possibility entirely unsuspected by every one. Whether a toad, equally rare, or of similarly retiring habits occurs upon Tortola and St. Thomas may never be known, but we can hardly doubt that once there was one. Stejneger's account of finding *Bufo lemur* is almost as astonishing as Peters' good fortune (see *Herp. of Porto Rico*, 1902 (1904), p. 573). Reinhardt and Lütken knew of no indigenous toad in this region though (l. c., p. 202) they say that toads occasionally appear in St. Thomas carried in lumber from Haiti and Vieques. This statement is wholly incredible and refers, at that, they say only to *Bufo marinus* (L.) which has been artificially introduced to most of the West Indies. Reinhardt and Lütken evidently had their facts wrong, for *Bufo marinus*, a species impossible to mistake for any other, has never been introduced into Haiti or Vieques. Probably these authors had been informed that Hylas or other arboreal "toads" were occasionally carried about, for this occurs commonly.

Eleutherodactylus antillensis (Reinhardt and Lütken).

Series from both St. Thomas and Tortola are the same as examples from Vieques. It was previously unknown from Tortola. Dry weather conditions made the collecting of *Eleutherodactyli* very difficult, and on St.

Thomas not a single example of *E. lentus* was taken where it abounds and is usually found to be much more common than this species.

***Leptodactylus albilabris* (Günther).**

Previously known from Porto Rico, Vieques, St. Thomas (type locality), St. Croix, and Jost van Dyke, it is before me now in large series from both Tortola and Anegada. With every added locality recorded the probability that its presence in the islands is fortuitous, becomes less and less. The identity of *albilabris* with *labialis* is probably a pure case of chance resemblance. The Virgin Islands individuals in the M. C. Z., now many, all differ from the large Porto Rican series in that they do not have the conspicuous white middorsal band so frequent in examples from that island. They have instead irregular arabesque or geometric markings of dark slate, edged with a narrow whitish line. Some specimens taken at St. Croix by Messrs. Ruthven and Noble, who chanced to be there together during the summer of 1914, show a very peculiar condition. The edge of the snout is projected and thickened as if to serve as a burrowing adaptation. None of these specimens taken during the winter show this modification; there can be no doubt as to all the individuals being conspecific and this may be a peculiarity assumed only during the mating season.

A recent dissection of the unique type of *Leptodactylus inoptatus* Barbour from Hayti, made by Mr. G. K. Noble, reveals the very unexpected fact that *inoptatus* is in reality a giant *Eleutherodactylus*. It does not seem to be closely related to any hitherto described Antillean species of the genus but it does have certain rather striking features in common with *Eleutherodactylus insignatus* Ruthven recently described from the Santa Marta Mts. in Colombia.



Barbour, Thomas. 1917. "Notes on the herpetology of the Virgin Islands."
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