NUMBER 132 FEBRUARY 10, 1923

OCCASIONAL PAPERS OF THE MUSEUM OF ZOOLOGY

UNIVERSITY OF MICHIGAN

ANN ARBOR, MICHIGAN PUBLISHED BY THE UNIVERSITY

WEST INDIAN INVESTIGATIONS OF 1922

BY THOMAS BARBOUR

Mr. J. L. Peters again visited the Antilles in 1922 (February-April) in the interest of the Museum of Comparative Zoology. He visited St. Kitts, Nevis, Anguilla and St. Eustatius. The results of his reptile-collecting are here summarized. His journey was specially undertaken to secure topotypes of Sparrman's early described species from St. Eustatius. In this he was successful. Another object of the journey was to determine whether it might still be possible to secure remains of the fossil rodent Amblyrhiza, long since described from Anguilla. Peters found, however, that the phosphate bed in which the type was found was completely exhausted, and it is improbable that further remains are recoverable. Unfortunately, he was not able to visit St. Martin, owing to quarantine regulations, and lack of time to secure the necessary permit prevented his reaching Barbuda. Mr. Forrest, to whom I have often been beholden in the past, has, how-

ever, sent me a small representation from that little visited locality. To him my very hearty thanks are due.

Sphaerodactylus sputator Sparrman

To secure this species, so long in doubt, was the principal object of Peters' quest. He gathered an enormous series. This shows that the types of Sparrman now in Stockholm did, beyond doubt, come from this island and that the species is essentially as I placed it in my recent revision (Mem. M. C. Z., 47, 1921, p. 266). It is one of the dichromatic forms, as are so many of the large-scaled species—and perhaps others as yet little known. The types are females evidently. The males are much smaller than the females, uniform greyish brown through life, or at the most with a few fine scattered dots usually on the head. The females are large, bulky and with a great variety of broken bands, blotches and spots of varying size.

By the kindness of my old friend and companion, Dr. Carlos de la Torre, rector of the University of Havana, I am permitted to record a very surprising observation, based upon field and laboratory studies carried on by Professor de la Torre and his correspondent, Señor Cabrera. Lizard eggs of known ancestry having been secured and hatched show that *Sphaerodactylus elegans* is nothing more nor less than the very young of *Sphaerodactylus cinereus,* while extensive field collecting at various seasons of the year has also shown that during growth the individuals pass through a stage which has given rise to the name *Sphaerodactylus intermedius.* There is a considerable change of habitus as well as coloration during this course of development. The new synonymy should, therefore, stand thus:

Sphaerodactylus cinereus Wagler

Sphaerodactylus cinereus Wagler, Syst. Amph., 1830, p. 143.
Sphaerodactylus elegans Macleay, P. Z. S. London, 1834, p. 12.
Sphaerodactylus intermedius Barbour and Ramsden, Mem. M. C. Z., 1919, 47, p. 211.

Fullest credit is due these two investigators for this most enlightening observation, and we can only hope for a full report upon the details of their work in the future.

I can only offer as a partial excuse for my lack of perception in this matter the fact that year after year I visited Cuba during the same months. My all-year-around visits were during the war, when I was otherwise occupied than with collecting animals. I found none of the intermediate stages during the ten or twelve spring visits I have made to the island. They were to be found at other seasons.

Anolis bimaculatus Sparrman

This lizard from St. Eustatius was the first of this group of large species with smooth ventral scales to receive a name. Peters found it common on St. Eustatius and secured a good series. The dewlap in these fresh specimens is dull greyish white, and as in the related forms it is very feebly developed.

I at first thought that the series from St. Kitts and Nevis represented distinct species. I am, however, now convinced that both these islands, along with St. Eustatius, are populated by true *Anolis bimaculatus,* as indicated in my West Indian Herpetology (Mem. M. C. Z., 44, 1914, p. 279), where I gave reasons for following Garman. At the present time, however, judging from Peters' large series, individuals from Nevis average very much smaller than those from the other islands. The following species, each represented by several specimens, well merit specific recognition.

Anolis barbudensis, sp. nov.

Type: M. C. Z., No. 16,167, adult male from Barbuda, B. W. I. W. R. Forrest, collector and donor.

Closely related to *bimaculatus,* but rich brown in color, with many fine anastomosing white lines giving a curious vermiculate appearance, dewlap brownish; upper temporal scales generally decidedly larger than in the St. Eustatius form and the median scales of the snout very much larger.

Anolis forresti, sp. nov.

Type: M. C. Z., No. 16,170, an adult male from Barbuda, B. W. I. W. R. Forrest, Health Officer of Antigua, collector and donor.

This form is very closely related to *A. wattsi* Boulenger of Antigua. It may be distinguished by its larger loreals, its occipital separated from the semicircles, usually, by only two rows of scales, and by its entirely uniform grey-brown coloration. The dewlap appears to be pure white.

Anolis gingivinus Cope

Peters secured a large series of this species which I have discussed somewhat elsewhere (Mem. M. C. Z., 1914, 44, 275). The species is poorly differentiated at best from true *bimaculatus,* but the facies of these fresh series show that there are many small but constant diagnostic characters in the two suites of lizards collected at about the same time and similarly preserved under the same conditions. The differences are slight, usually only visible in the average, but they, nevertheless, appear and seem to presage more complete speciation. The individuals from Nevis, St. Kitts and from St. Eustatius as yet are not well enough differentiated to name. It may be suggested that a subspecific name would be more appropriate

in such a case as this. If a slight degree of differentiation be the basis of subspecies, then one might apply trinomials which do have the advantage of pointing to one of the supposedly related types. If intergradation be the touchstone whereby subspecies may be determined, then insular forms automatically demand binomial address. This seems the most generally convenient method to pursue with the denizens of such island groups as these Antilles, and, moreover, no brief is held for consistency now or hereafter. Absolute overlapping—*i. e.*, the finding of occasional identical individuals in the ranges of each of any two distinct forms—does not seem often to occur. The gradual transitions of intergradation can only occur where large land masses support geographic races which are unseparated by naturally impassible barriers of any sort.

Iguana delicatissima Laurenti

Peters found this iguana rare, but, nevertheless, he secured two specimens each on St. Eustatius and Anguilla. The haphazard distribution strongly suggests its having been carried about by primitive man. Indians in various localities twist loose the finger and toe-nails of iguanas and then stretch out the tendons so that their feet may be tied over their back by these cords. The luckless creatures are often carried about thus, bound and helpless, and as they live for some time without food or drink they are the most convenient meat for canoe journeys. Thus they may have been carried through the Antilles, and perhaps occasionally escaped the unhappy fate for which they were destined. They are excellent food.

Ameiva erythrops Cope

Ameiva nevisana Schmidt, Proc. Linn. Soc. N. Y., 38, 1920, p. 1.

Schmidt described his new species from Nevis from a

single faded specimen. Peters' four fresh examples show that the species is not extinct on that island, as Schmidt supposed, but, nevertheless, is very rare. Peters got a fine series of topotypes of Cope's *erythrops* from St. Eustatius. Unexpectedly, they prove to be exactly the same as the Nevis individuals. *Erythrocephala* from St. Kitts, according to Peters now almost extinct, is represented in the M. C. Z. by the fine series collected by Garman. This form is really doubtfully distinct from *A. erythrops,* and I am almost inclined to consider *erythrops* and *nevisana* both synonyms of *erythrocephala,* except for the fact that the latter reaches or reached an enormously greater size. The rows of ventral plates are the same in number. The type of coloration is similar. The supratemporal scales in *erythrocephala,* however, are more enlarged over a larger area. Thus, perhaps, it is more conservative to consider them distinct.

Ameiva garmani Barbour

Peters got a fine series of this form which was previously known from the unique type. It is still abundant upon Anguilla and conspicuously distinct.

Ameiva griswoldi Barbour

Specimens from Barbuda collected by my kind friend, Mr. Forrest, Health Officer at Antigua, are indistinguishable from the three individuals from the latter island upon which I originally based this well-defined form.

Alsophis cinereus Garman

Peters caught two snakes on the isle of Anguilla which agree well with Garman's types of this species, which came from both Anguilla and St. Barts, the rows of scales about the middle of the body being 21 in each case.

Alsophis rufiventris (Duméril and Bibron)

Curiously enough, contrary to the conditions existing on most of the Antilles, snakes were not especially rare on St. Eustatius, and Peters secured a beautiful series of six adult examples which seem referable to this form. *Alsophis rijersmaei* Cope from St. Martin's I have not yet seen, and I cannot speculate as to its validity.

Bufo marinis (Linné)

The giant toad has been introduced into Nevis, where it was found to have become abundant.

APPENDIX

(Translation)

"'Since I was first charged by Dr. C. T. Ramsden to collect examples of all ages of the various species of "salamanquitas" to complete biological collections of each form, I have captured individuals of all the types known in this province [Habana], but was never able to find young examples of *S. cinereus.* Desirous of solving this enigma, I put into a cage about twelve examples of *S. elegans* taken from the same places where *S. cinereus* was common and in fact living with that species. The first difficulty was to provide food for my captives, but this was done by placing ripe fruit in the cage and breeding fruit flies thereon (Drosophila), upon which the little lizards fed freely. Thus I kept my "Salamanquitas de los santos ó de la Virgen." So called, beyond doubt, because they frequent sacred pictures which, being generally lit with little candles or lamps, attract insects and hence the lizards. The lizards are often to be found abundantly behind these pictures, which are also often the only ones in the poorer houses. The lizards thus confined soon began to lose the transverse bars of "elegans" and to assume the ashy color of "cinereus," but naturally they never reached the size which is attained to by *cinereus* in a wild state. I then put up hiding places and provided food in appropriate places inside my house, and released specimens of *elegans* there, which grew with rapidity.'

"Thus, having observed all the transitions, the full credit for this discovery is due to the entirely modest Señor José Cabrera, as the letter which I have quoted above goes to show, and as the following taken from a subsequent communication dated Dec. 14, 1921, substantiates:

"'Esteemed Master: I add further notes which you may revise so that my views may be clearly placed before the Poey Natural History Society. First you ask me whence the eggs which I used and whether I was sure that they were really those of *cinereus.* Now I may only say, when you have the opportunity catch some specimens of *Sph. cinereus* in the summer, and it is almost sure that from some one of them you will get an egg of from 7 to 9 mm. in length and from it there will appear a young which has transverse bands and is not ashy grey. Now also when one of these Saints pictures is removed from the walls of an old house one often finds groups or colonies of large and small individuals having the two types of coloration and living together. One never finds a banded individual large enough to contain eggs of 8 to 9 mm.'"

"Thus, of the more than 200 individuals propagated by Cabrera

every single young was banded when first hatched, and thus also I conclude that the small differences, other than color, mentioned by you can be explained by the changes in proportion and other characters which take place during growth. Cabrera also reports that this species has the peculiar habit of a number of individuals placing their eggs together in the same spot. This is usually in a cavity or tunnel in a board which has been made by termites (comejénes). In one such 'nest' Cabrera has found no less than 25 eggs, on one occasion, and often 8 or 10. As I have said, these eggs are from 7 to 9 mm. in long diameter and the young when first hatched are about 14 mm. in length of body and 15 or 16 in length of tail. The egg of *S. notatus* measures about 6 mm. and the young 12 mm. body and 14 mm. tail.

"The young in '*elegans*' coloration lose their cross bands in about two months in captivity and do not reach fully adult size until about five months have passed.

"CARLOS DE LA TORRE, Sc.D.,
"Rector, Havana University."

I saw Cabrera's material in Havana at de la Torre's house, and there can be no doubt as to the correctness of his conclusion. It is a great pity that I only received these notes today (Dec. 21, 1922), or I would have incorporated them in the paper which was finished and put in type several months ago. From my own examination of the material in de la Torre's hands, I am convinced that *intermedius* is in truth nothing but an intermediate transition stage between *elegans* and *cinereus*.

I admit frankly that my own stupidity at not having suspected this state of affairs is almost beyond belief. I was, however, in good company. Again the fortuitous nature of reptile collecting is shown and the disadvantages under which the visitor, albeit a frequent one, labors. I had not found the "*elegans*" and "*cinereus*" often together and was completely fooled by thinking that I was collecting before the breeding season, hence getting adults. I was not, however. I never saw one of these common laying holes or "nests" which have never before been observed and which form one of Cabrera's most interesting observations, and one not readily made unless one live in the same old house, well riddled with termites, for years on end—and keeps saints' pictures, with their little lighted lamps, upon one's walls. I envy Cabrera his opportunity, and I can picture his simple home, and pleased would I be to change my abode for his for the next few months! We owe congratulations to Cabrera for his success in settling this question, and to de la Torre gratitude for encouraging and transmitting them.—T. B.