

and of the various plates is quite accurate, and the relative proportions of the head, limbs, and tail are correct. However, the shape of the animal's head is not accurate and, particularly, the sculpturing of the ventral scutes is too stylized. A comparison of the published version with the original watercolors drawn by BARTRAM, however, shows that, although BARTRAM's originals were sometimes rather simply drawn, most of the inaccuracies were introduced by the artist who copied BARTRAM's figures in order to engrave them for publication in *Gentleman's Magazine* (see Figs. 8–10).

George EDWARDS, the contemporary English artist-naturalist, promptly criticized BARTRAM's published mud turtle drawings as "... a very incorrect figure" (EDWARDS 1760, p. 165) and then proceeded to illustrate the same kind of turtle even more incorrectly. EDWARDS's specimen came from BARTRAM, via COLLINSON, but was dead and, apparently, badly dried when EDWARDS first laid eyes on it, perhaps accounting for the improper inclusion of two additional rows of tiny marginal scutes. In my opinion, BARTRAM's original drawings are closer to the mark than are EDWARDS's, the originals of which are also present in Lord DERBY's collection. EDWARDS was a correspondent of William who sent him birds, snakes, and other natural history objects. In addition to the mud turtle, EDWARDS illustrated a snake ("Little Black and Red Snake", which I identify as *Storeria occipitomaculata*) sent to him alive by William about 1759.

The other turtle drawing published by COLLINSON is that of the spotted turtle (*Clemmys guttata*), which COLLINSON called the "golden studded tortoise of Pennsylvania, or *Testudo Pensylvanica* [sic], *clavis aureis ornata*". The drawing (Fig. 5) is also excellent, although the number of marginal scutes is a little too low and the nuchal scute is depicted incorrectly as being fused with the first vertebral scute, although abnormalities of this sort are not unknown in turtles. Unfortunately, BARTRAM's original drawing of this turtle has not been located and a comparison to the published version cannot be made, although BARTRAM correctly illustrated these features of this species in the figure prepared for Dr. FOTHERGILL (EWAN 1968, plate 58). Otherwise, this first published drawing of the spotted turtle is quite accurate, being superior to many of those of the same species published by others years later.

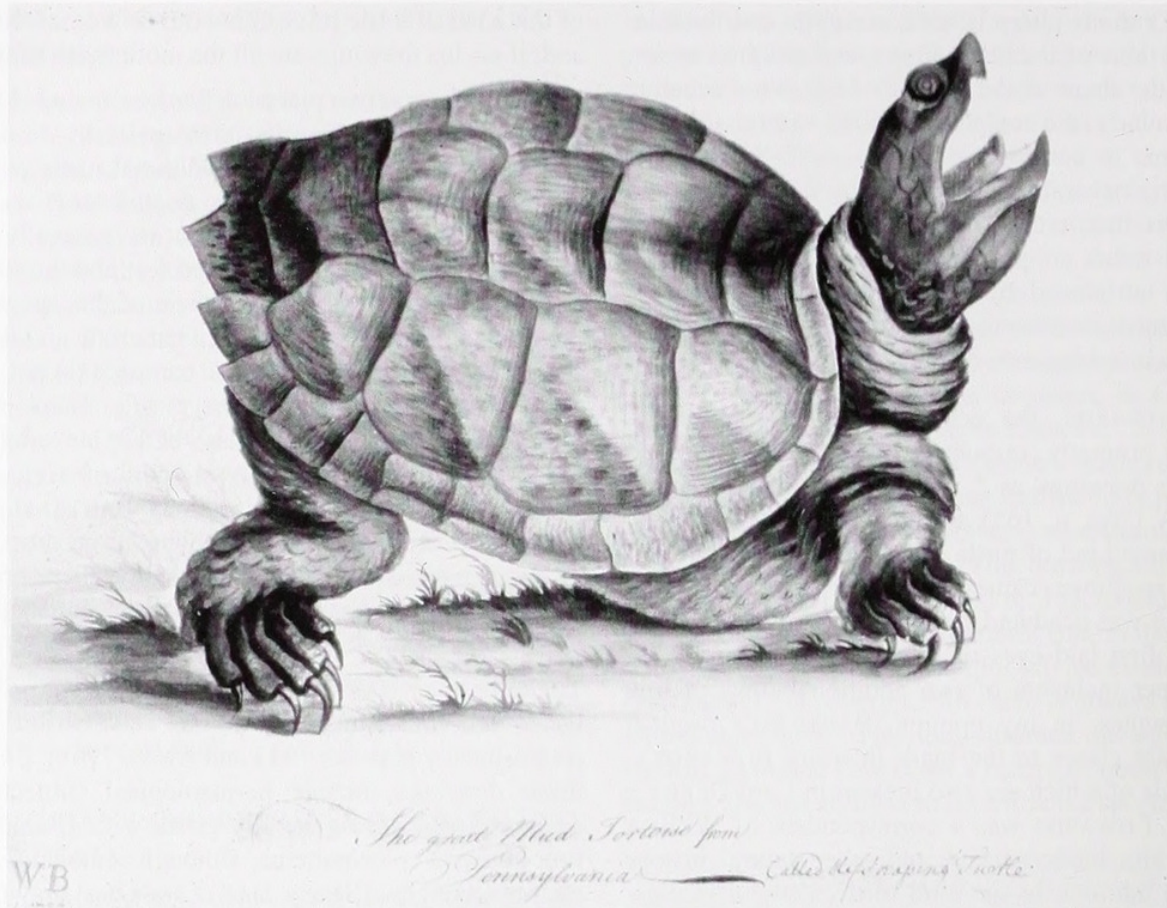
The only other BARTRAM reptile drawings published during his lifetime are those of turtles included in his *Travels* (1791). Two of them are of softshells (*Apalone ferox*) and, as mentioned earlier in the systematic section, include some inaccuracies. These bizarre turtles were unknown to CATESBY and the first illustrations of an American species were apparently those given by PENNANT (1771). Thus, BARTRAM may not have known

of this kind of turtle prior to his travels in the Southeast, and, if so, his drawings are all the more remarkable.

In addition to the two plates of *Apalone* included in copies of BARTRAM's *Travels*, there exist in the Cornell University Library copy two additional turtle plates, of the gopher tortoise (*Gopherus polyphemus*), as noted earlier. These renderings (Fig. 6) are generally excellent, showing the elephantine hind feet and the flattened claws on the forelegs, characteristic of this species, but the drawing of the head is somewhat crude and the nose is too pointed. The scutes on the carapace do not exhibit the conspicuous growth rings typically found in these tortoises, although the shell is that of an adult male (note the elongate gular buttress) and these rings are often worn down in old adults. Why BARTRAM (or his publishers) chose to omit these plates from most copies of his *Travels* is not known. Ironically, these are more accurately drawn than are those of the softshell turtle which have resulted in so much criticism.

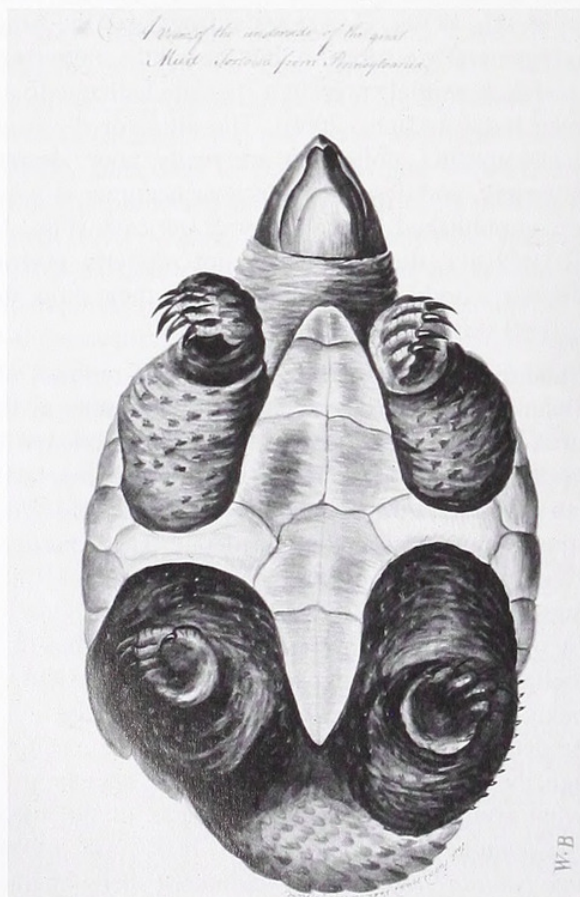
The only other BARTRAM drawings that have been published are those included in the FOTHERGILL album (published by HARPER 1943 and EWAN 1968). Eleven of these drawings include herpetological subjects. The snake drawings are generally good, with special attention given to color patterns, although scutellation is sometimes sketchy. Clearly, BARTRAM's best drawing of a serpent is that of a young coachwhip (EWAN 1968, plate 29), the artistry and accuracy of which being quite the equal of the fine illustrations commissioned by HOLBROOK in the 1830s. BARTRAM's frogs, on the other hand, are generally a sorry lot, but the subtle contours of these scaleless animals present a special challenge to artists even today (ADLER 2000). The alligator drawings in the FOTHERGILL collection are really poor, despite their notoriety, and none of them is as accurate as a heretofore unpublished drawing by BARTRAM (Fig. 3). The FOTHERGILL illustrations do not properly portray the alligator's body proportions, nor do they show the teeth, plated skin, or feet as they truly are.

The remainder of BARTRAM's drawings of reptiles and amphibians is unpublished. Several are present in the collection of the Earl of DERBY and are included with this report (Figs. 13–15). Those of the snapping turtle are both excellent, but the two figures of the pond slider are rather simple and lacking in detail. The American Philosophical Society possesses three other unpublished drawings containing herpetological subjects. One of these is of an alligator (Fig. 3) and is an excellent likeness, better in fact than any of the others by BARTRAM previously published. The body proportions are good and the details of the head, feet, and skin are excellent, although the scutes on the animal's back appear to be somewhat stylized. A second drawing is of the wood turtle (*Clemmys insculpta*) which BARTRAM named "*Testudo caelata*". The highly sculptured shell, charac-



13

Figs. 13–14: Snapping Turtle, *Chelydra serpentina*. (Lord DERBY's collection, BARTRAM nos. 117 and 119, respectively.)



14

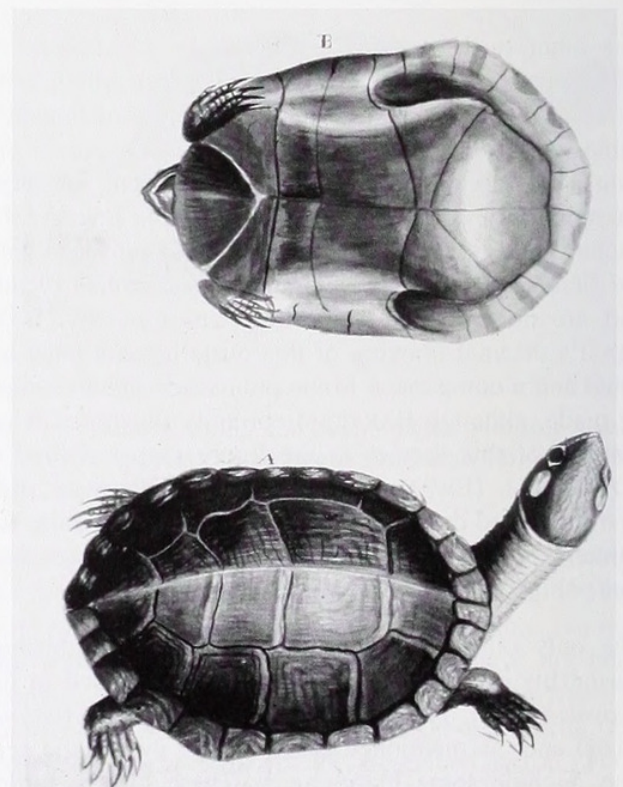


Fig. 15: Pond Slider, *Trachemys scripta*? As the drawings are rather plain and lacking in detail, the identification is provisional. (Lord DERBY's collection, BARTRAM no. 124.)

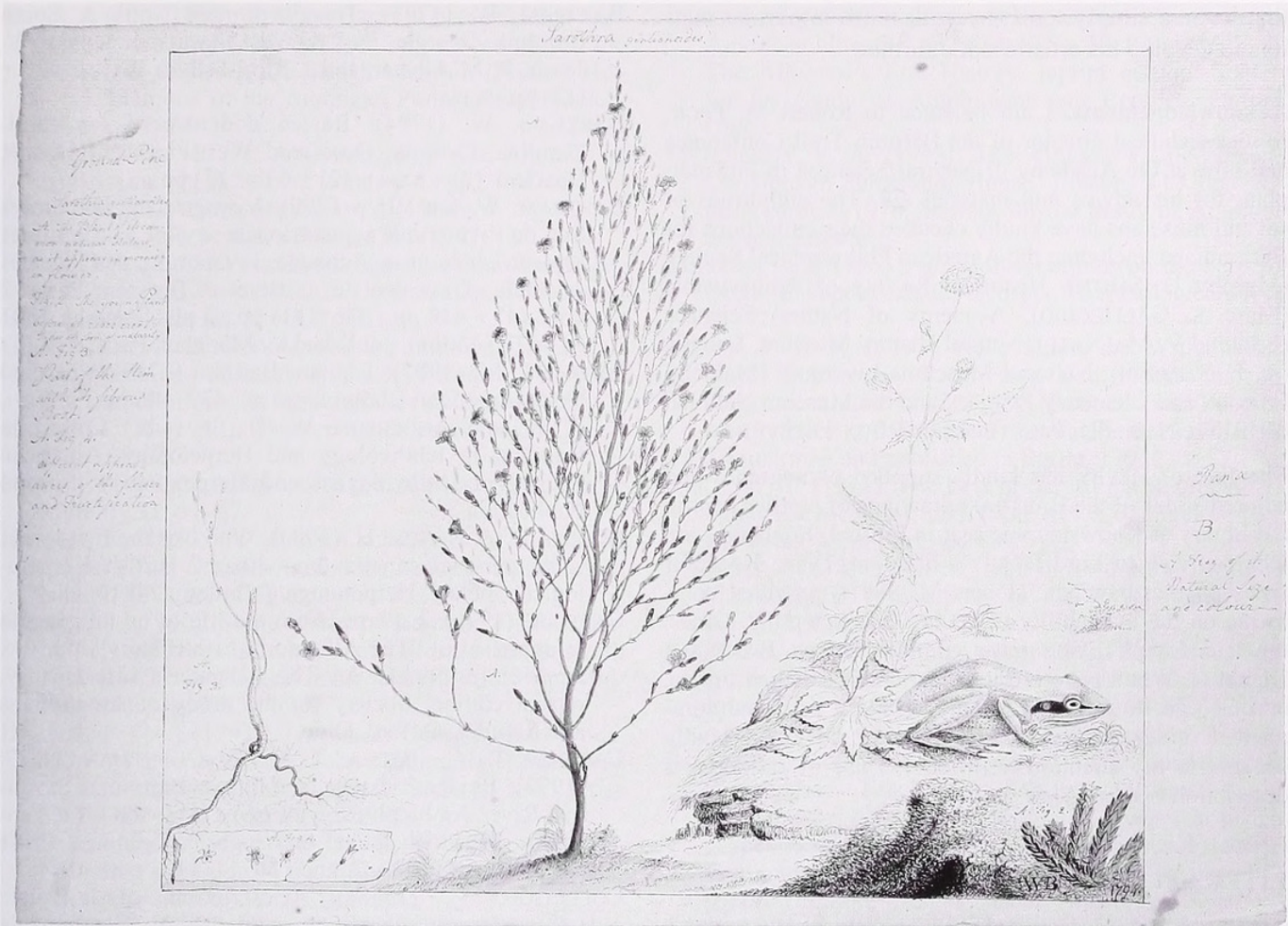


Fig. 16: Wood Frog, *Rana sylvatica*. The drawing is dated 1794, thus representing BARTRAM's artistry in its maturity. He would then have been about 55 years old. (American Philosophical Society, B. S. BARTON collection [B:B284d]).

teristic of this species, is well illustrated (Fig. 11), and, in the notes accompanying the drawing, BARTRAM correctly describes the "... red or vermillion [sic] colour ... " of the skin. The drawing of the head, however, is poor; the contours are wrong and the external ear is incorrectly drawn. The third drawing depicts a wood frog (*Rana sylvatica*) (Fig. 16). This illustration, which BARTRAM drafted in 1794 at the age of about 55, is the best of BARTRAM's frogs, showing the proper shape of the head and body, although the hind legs are disproportionately small and the toes seem somewhat shrivelled.

It is possible that other BARTRAM drawings of reptiles and amphibians exist. EWAN (1968, p. 31 et seq.) discusses the fate of BARTRAM's drawings generally. Several drawings were apparently sent to Miss Jane COLDEN, an accomplished American artist and friend of John BARTRAM (DARLINGTON 1849, p. 401); there is no indication in the letter to COLDEN from John BARTRAM as to the nature of the drawings but this letter was written during the time (1757) when William was busily drawing turtles for COLLINSON. Perhaps some of the drawings sent to George EDWARDS were of reptiles,

since that naturalist was then in the process of publishing his illustrated compendium of animals.

In summary, William BARTRAM's drawings of snakes and turtles were generally good when compared to those of his contemporaries; at his best, he was almost unmatched for accuracy and artistry, but he had occasional lapses. His frogs, on the other hand, are generally poor and are not comparable to the best drawings of the day (for example, those of European frogs by Roesel VON ROSENHOF published in the 1750s). BARTRAM's reptilian and amphibian drawings, however, represent a distinct improvement over the crude, rather two-dimensional artistry of CATESBY, yet they still do not match the lifelike qualities of those done by John WHITE two centuries before. His drawings of fish were sufficiently accurate to allow CASHNER et al. (1992) to identify species and use this information as early evidence for a Tennessee River–Savannah River faunal exchange. BERRA (1997) regarded all of BARTRAM's fish illustrations as identifiable to species. One gets the impression that BARTRAM's artistic talents were limited, that he was capable of faithful, even accomplished likenesses, but

that he was simply too busy with more important matters to develop his artistic skills further.

Acknowledgements. I am indebted to Robert M. PECK, former technical director of the Bartram Trail Conference and now at the Academy of Natural Sciences in Philadelphia, for his advice and material aid. The authorities of several museums have kindly checked their collections for Bartramiana, including the American Philosophical Society (Murphy D. SMITH), Historical Society of Pennsylvania (Marc S. GALLICCHIO), Academy of Natural Sciences (Edmund V. MALNATE), Natural History Museum, London (A. F. STIMSON), National Museums Liverpool (Malcolm LARGEN and Clemency FISHER), and the Muséum National d'Histoire Naturelle, Paris (Rolande ROUX-ESTÈVE).

The Earl of DERBY has kindly supplied photographs and colored slides of the BARTRAM drawings of reptiles kept in the library at Knowsley, his seat in Prescott, England. I am indebted also to Lord DERBY's librarian, Diana KAY, for notes on the drawings. Hobart M. SMITH provided comments on the availability of BARTRAM's scientific names, the late Joseph EWEN gave commentary on BARTRAM, Robert G. WEBB provided information on softshell turtles, and George R. ZUG and Robert M. PECK read and commented on the manuscript. Esteban O. LAVILLA kindly brought to my attention SCHNEIDER's use of BARTRAM's description to name *Bufo rufus*.

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Thomas BARBOUR and the *UTOWANA* Voyages (1929–1934) in the West Indies

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Abstract. Between 1929 and 1934, Thomas BARBOUR made four voyages on the research yacht *Utowana*, owned by Allison V. ARMOUR. Three of the four voyages were centered in the West Indies, with the Bahamas, Hispaniola, and the Lesser Antilles as primary geographic foci. Because of the ephemeral amount of time spent on any one island, many of the amphibian and reptilian specimens were accumulated by establishing “markets,” whereby the locals at a particular port were encouraged to collect and were subsequently paid for the specimens they brought to BARBOUR. Although this technique resulted in a rapid accumulation of specimens, it often precluded firsthand encounters with the herpetofauna. This subsequently led BARBOUR to make many misleading statements regarding the rarity of certain frogs and reptiles. Despite accumulating many valuable collections, the *Utowana* expeditions resulted in the discovery of only six currently recognized full species of West Indian frogs and squamate reptiles. This is a surprisingly low figure considering the number of species described subsequent to the *Utowana* voyages, but it undoubtedly reflects the method used for accumulating specimens.

Key words. Allison ARMOUR, amphibians, reptiles, history of herpetology.

I am quite overwhelmed with emotion and I have to master an overwhelming feeling of nostalgia which is engendered when I attempt to write about our voyages on the Utowana.

Thomas BARBOUR, 1945

I. INTRODUCTION

Nowhere in the Western Hemisphere has herpetological exploration had a longer history than in the West Indies. It began, albeit with a focus on other goals, with COLUMBUS's first landfall in 1492, ostensibly on San Salvador (Watling's) Island in the Bahamas, where he undoubtedly observed reptiles that are no longer extant on that island (e.g., *Cyclura rileyi* Stejneger, 1903; OLSON et al. 1990). COLUMBUS's writings (in MAJOR 1870; MORISON 1963) contained frequent references to turtles and iguanas (presumably marine turtles and *Cyclura* spp.), as do those of Gonzalo DE OVIEDO (in STOUT-DEMIRE 1959), who lived in the Caribbean during 1512–1557. Those early acknowledgments of the rich herpetological bounty of the West Indies set the stage for the subsequent systematic collecting that has been ongoing for about 300 years (WILLIAMS 1999), and which continues to the present day. New species are being discovered and described every year, especially on the Greater Antillean islands of Cuba and Hispaniola (HEDGES 1996; POWELL & HENDERSON 1999, 2003a).

Today, biologists intent on herpetological exploration can fly to virtually all of the major islands in the West Indies, and many of the lesser ones as well. Many Antil-

lean landfalls, however, still can be reached only by boat. Fifty and more years ago, however, herpetological exploration in the West Indies was dependent solely on boat transportation to reach all but a few large islands. Herein we appraise voyages made in 1929–1934 on, arguably, the most famous research vessel used in herpetological explorations of the West Indies, the means used to assemble the collections, and the man who assembled them.

EYERDAM (1954) provided the following account of field work in the West Indies in 1927: “He seldom carried more than . . . a machete, pocket knife, aneroid [barometer], and pack-sack; with blanket, a small pot to boil tea, and enough sugar and biscuits to last two or three days. For water, he depended mostly on what he could find in the forest or get from natives. He always spent the nights in native huts when in the mountains, and enjoyed the cheerful hospitality of the people. Sometimes he made the grievous mistake of not carrying enough water, when climbing a high mountain or traversing an arid district; and several times he suffered great hardship from this lack of precaution”. Although an accurate description of the travails that faced biologists working in the region during the early part of this century, EYERDAM was not describing the efforts of a herpetologist, but instead those of Eric EKMAN, the noted Swedish botanist. EKMAN was “fearless and daring,” “used to hard marches,” and came to know intimately “nearly every valley and . . . most of the mountains and islands of Haiti and Cuba. He knew the conditions and surroundings in detail”. EKMAN died in 1931 of malaria, contracted during his expeditions.

In stark contrast to EKMAN's Spartan approach to field work, picture, if you can, the opportunity provided by access to a 70-meter-long (230-foot) yacht with a crew of 30 and a sailing radius of 12,000 miles (22,000 km). Picture further this vessel on the amazingly blue waters of the Caribbean, going from the palm-lined shores of one sun-drenched island to those of another in search of amphibians and reptiles. Living conditions aboard the yacht are very comfortable, food is of gourmet quality, yet laboratory space for specimen preparation is available and an automobile is carried below deck for excursions on land. This was life on the *Utowana*, the ship on which Thomas BARBOUR (1884–1946) (Fig. 1), certainly the most influential herpetologist working in the West Indies during the first half of the 20th century, visited many islands between 1929 and 1934.



Fig. 1: Thomas BARBOUR (photograph courtesy of Kraig ADLER).

2. THOMAS BARBOUR AND WEST INDIAN HERPETOLOGY

Beginning with Samuel GARMAN (1843–1927), herpetology at Harvard College's Museum of Comparative Zoology (MCZ) has had a long history of field work in the West Indies. GARMAN accompanied Alexander

AGASSIZ to the West Indies on *The Blake* in 1879. Subsequently, during 1887 and 1888, he published a series of significant contributions to the herpetological literature of the area, describing 18 species of lizards (16) and snakes (2) that are recognized today (POWELL & HENDERSON 1996a). GARMAN, known primarily for his work in ichthyology (JORDAN & BARBOUR 1928), based his West Indian herpetological publications not only on material he collected himself while on *The Blake*, but also on specimens purchased from other collectors (GARMAN 1887). Thomas BARBOUR worked with GARMAN for many years, and considered him an extraordinary character, but did not realize "... what an oddity he really was until after his death when I found in a cupboard in his room a jar full of little stickers bearing his name and address which he had cut from each copy of the *Nation* ... more unsavory was another jar, at least three feet high, which contained bits of bread, the uneaten corners of the sandwiches which [he] had brought for his lunches for years and years" (BARBOUR 1943).

The herpetological baton at Harvard passed from GARMAN to BARBOUR around 1910, and the latter figured prominently in the history of West Indian herpetology between 1910 and 1942 (POWELL & HENDERSON 1996; WILLIAMS 1999). He described 40 species of Antillean frogs (9), turtles (1), and squamates (30) recognized today.

Although BARBOUR's research was not limited to a West Indian focus (he published in excess of 350 papers on various aspects of biology; BIGELOW 1952), his Antillean publications are those most frequently cited today. His life has been given cursory examination in several obituaries (BIGELOW 1952; DUNN 1946; LOVERIDGE 1946) and historical overviews of West Indian herpetology (HENDERSON & POWELL 2003; POWELL & HENDERSON 1996a, 2003b; WILLIAMS 1999). Despite his significant contributions to herpetology, BARBOUR has sustained criticism, especially in the methods he employed in securing specimens during field work. He was born into wealth, maintained a comfortable lifestyle throughout his career, and perhaps it is only fitting that someone with BARBOUR's social status should have the opportunity to conduct some of his field work from the comfort of a yacht.

3. ALLISON ARMOUR AND THE RESEARCH YACHT *UTOWANA*

Born in Chicago on 18 March 1863, Allison ARMOUR (Fig. 2) received a B. A. degree from Yale in 1884. He was married in 1885, but his wife died in France in 1890. According to David FAIRCHILD (BARBOUR 1945), "Allison was the soul of courtesy towards ladies but I have always felt that the tragedy of his early marriage

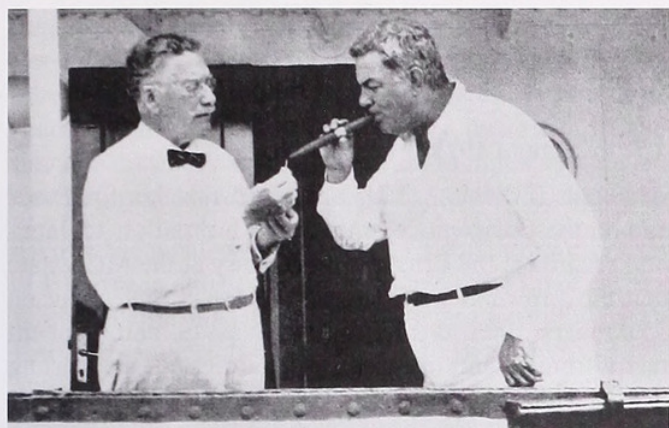


Fig. 2: Allison ARMOUR (left) and Thomas BARBOUR on the deck of the *Utowana* (photograph used with the permission of Louisa B. PARKER).

prevented him from ever marrying again". Once, as FAIRCHILD and ARMOUR drove through Nice, ARMOUR pointed to a fashionable hotel on a cliff and remarked, "There is where the light of my life went out".

BARBOUR (1945) described ARMOUR as "formal, almost stiff, . . . and he moved and met people with a stately, rather old-fashioned dignity . . . He was never a man who told a smutty story or indulged in any evidence of vulgarity. He was nevertheless one of the wittiest men that I ever knew, a born *raconteur*, with a background of travel all over the world and a marvelously retentive memory . . . With all his apparent stiffness and formality, Allison had so warm a heart and such a deeply generous nature that he made friends everywhere. His apparent stiffness was really a defense reaction for Allison was essentially a shy man". BARBOUR's daughter Louisa, a member of the 1934 *Utowana* voyage, described ARMOUR as "terribly generous, anything you'd want, he'd get" (pers. comm. to RWH; 10 Aug 1999). Thomas BARBOUR considered him "a distinguished epicure, seriously interested in serving good food and good wine . . .", and Louisa BARBOUR (pers. comm. to RWH; 10 Aug 1999) observed that her father and ARMOUR "would eat anything". Despite an apparently fastidious nature, BARBOUR concluded that ARMOUR, "took a sincere interest in the somewhat messy pastimes which were an inevitable concomitant of the immediate presence of naturalists, and he was as keen to provide adequate facilities for the botanists as well as for the zoologists . . .". ARMOUR was an honorary member of the New York Academy of Sciences and in 1931 was awarded the Frank M. MEYER Medal by the American Genetic Association. He died on 7 March 1941.

During his lifetime, ARMOUR spent considerable time cruising on a series of boats, especially in European waters. Prior to World War I, he used a schooner-rigged vessel for archaeological research in North Africa. The yacht (Fig. 3) that carried BARBOUR on the West Indian



Fig. 3: The *Utowana* anchored off Castries, St. Lucia (Ernst MAYR Library of the Museum of Comparative Zoology, Harvard University. © President and Fellows of Harvard College).

expeditions was originally a tramp steamer that ARMOUR had converted into a luxurious floating laboratory at Göteborg, Sweden. She was 70.1 m (230 feet) long by 10.3 m (33 feet 10 inches) at the beam, and her weight was 1,192,948 kg (1315 tons). She drew 3.35–3.66 m (11–12 feet) draft and was provided with two Atlas Diesel 500 H.P. engines capable of speeds of up to 10.5 knots/hour (FAIRCHILD 1930; BARBOUR 1943). According to BARBOUR (1945), the main deck was big and comfortable, with a "roomy lounge forward and an airy, cool, dining salon aft. Below there were nine very spacious cabins with baths, and aft . . . was the laboratory, thoroughly equipped for all sorts of scientific work. She was the last word in luxury in the sense that she was roomy and well furnished but there was nothing elaborate or gaudy about her equipment. She was built for work and not play. She carried a motorcar below the decks which could be hoisted out through the old cargo hatch . . . and let down upon a dock with only a few moments delay. As a means of collecting she was just about perfect although, of course, there were many localities where her depth kept her from getting near shore". FAIRCHILD (1930) recalled ARMOUR saying that, "he could victual her for a six months' cruise, that she had tanks carrying 200 tons of water and enough oil for a cruising radius of 12,000 sea miles, and that there was a crew on her of 30 men". FAIRCHILD considered her " . . . nothing short of a floating palace". This *Utowana* made its maiden voyage in 1925 when it was used in U. S. Department of Agriculture-sponsored research under the direction of David FAIRCHILD (a friend of ARMOUR'S), cruising as far east as Ceylon (now Sri Lanka). Subsequent cruises took the *Utowana* and Armour to the Canary Islands and West Africa, again under the charge of FAIRCHILD and the U. S. Department of Agriculture for the purpose of botanical exploration. Some 1,400 varieties of plants were collected and brought back to the United States for study (ANONYMOUS 1941). Several expeditions via the *Utowana* were made specifically to search for plants that had the poten-

tial for use in the southeastern United States, and the *Utowana* made at least eight voyages in the service of the U. S. Department of Agriculture. As of 16 April 1933, the *Utowana* had traveled 201,341 km (108,657 miles) and had made a total of 369 stops at 199 ports in 56 countries (ANONYMOUS 1933).

BARBOUR's first experience on the *Utowana* apparently occurred in 1928, and it was brief. Nevertheless, he (BARBOUR 1945) "instantly saw the possibilities of the yacht for zoological, as well as botanical collecting". BARBOUR's first research voyage on the *Utowana* occurred in 1929 and, according to BARBOUR & SHREVE (1935), the boat went out of commission sometime after the 1934 West Indian cruise.

4. THE VOYAGES

Between 1929 and 1934, Barbour participated in four voyages on the *Utowana* in order that he and other biologists could collect, but only three had a primarily

West Indian focus. Because so many people participated in each of the voyages, it seems unlikely that any was arranged specifically for BARBOUR.

4.1. Voyage of 1929 (Fig. 4).

Although BARBOUR (1945) reported that his first voyage on the *Utowana* commenced at Nassau on 15 January, records at the Ernst MAYR Library at the MCZ state that the *Utowana* was in New London, Connecticut on 15 January 1929, did not stop at Nassau, and went directly from Miami to Havana. Regardless of the starting date and port, according to BARBOUR, "This enterprise was not to be strictly either botanical or zoological. Our mutual friend, Charles Francis ADAMS, then Secretary of the Navy, was anxious to obtain certain confidential information concerning some of the Lesser Antilles". Therefore, aside from ARMOUR, the crew, Armour's nephew, and some additional friends, BARBOUR's shipmates included Navy Lt. E. E. DUVAL.

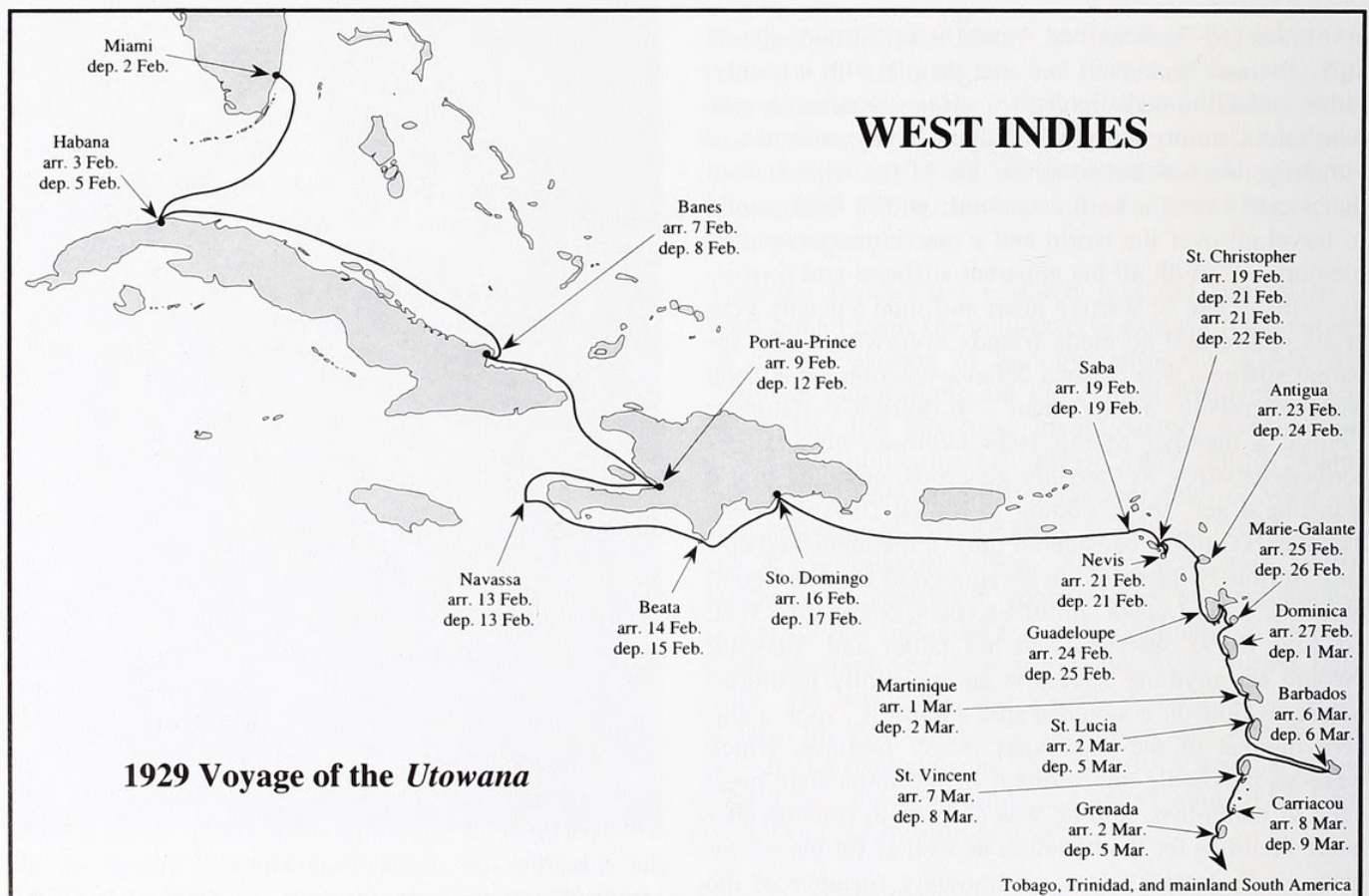


Fig. 4: Map of the route and itinerary of the 1929 *Utowana* West Indian voyage.

Five days were spent in Cuba before the *Utowana* proceeded to Hispaniola. Again a discrepancy exists between BARBOUR's (1945) account and that of the ARMOUR archives at the MCZ. According to BARBOUR, a landing at Navassa was attempted (and thwarted by

heavy seas) before going to Hispaniola, but the MCZ material states that the *Utowana* arrived in Port-au-Prince on 9 February, and Navassa on 13 February. In Port-au-Prince, BARBOUR, already enamored with the West Indies, was taken with the women going to mar-

ket, "... the impression that will stand out as long as I live will be the long lines of women, bearing incredible burdens on their heads, pad-padding along the dusty roads on their way to market. They came from unbelievable distances and look forward to much visiting and chaffering after reaching their destination".

Two subsequent days, 14 and 15 February, were spent at Isla Beata, situated off the southwestern tip of the Barahona Peninsula in the Dominican Republic. Here BARBOUR collected *Cyclura cornuta* (Bonnaterre, 1789) and "... preserved several. I am glad we did, for observations made during the visit, and subsequent ones as well, forced the conclusion that they belong to a doomed race [see below: page 306]. No young individuals were to be found and tracks in the sand showed that feral cats, escaped from the camps of fishermen, who go to Beata to dry fish or catch turtles, were responsible" (BARBOUR 1945).

Following their sojourn on Hispaniola, the *Utowana* visited many ports in the Lesser Antilles (19 February–10 March). Despite not having previously collected on those islands, BARBOUR apparently did little collecting. His rationale was that the "... collections from the West Indies in the Museum of Comparative Zoology are extraordinarily rich and varied, so that in many localities there was nothing especially for me to do but see the sights. This always gave me the greatest possible enjoyment. Next to vigorous collecting in a new locality, nothing is so interesting to the naturalist as the opportunity to see those places from which he has studied material gathered by other collectors" (BARBOUR 1945). He was pleased, however, "to see the peculiar *Anolis* lizard [*Anolis sabaenus* Garman, 1887] of Saba in life [February 19] ... I had sturdily held out for its distinctness on the basis of coloration, which I will confess fades considerably after preservation. The critter in life, however, fully justifies the assertion which I had made" (and which subsequent workers in the West Indies have supported).

On Marie Galante (25–26 February), an island in the Guadeloupean Archipelago, BARBOUR found *Anolis ferreus* (Cope, 1864) "surprisingly abundant... The types were in the Agassiz Museum and had been collected by Samuel GARMAN while he was in the West Indies on the Blake in 1879, with Alexander AGASSIZ. Our series of the specimens originally taken was somewhat depleted. A number of museums had sought examples of this most peculiar creature, which is naturally hard to get because Marie Galante is seldom visited. I took the opportunity to lay in a fresh supply" (BARBOUR 1945). BARBOUR found it "strange that so many of these little islands which at first sight appeared to be but recently separated from their larger neighbors should support so many extraordinarily distinct lizards. "The *Anolis* of Marie Galante is a truly beautiful lizard, and if there

were not other species which more or less intergrade with the general run of the species in this enormous genus, it might be set forth itself as being generically distinct" (BARBOUR 1943).

After departing the West Indies, the *Utowana* and BARBOUR headed for South and Central America. At Roatán in the Islas de la Bahía (Honduras), BARBOUR collected a series of an undescribed anole that he subsequently named *Anolis allisoni* Barbour, 1928 (now known also from Cuba), in honor of his host aboard the *Utowana*.

4.2. Voyage of 1931.

This voyage was largely devoted to working on the Central American mainland, but brief sojourns in the Bahamas, Cuba, and the Swan Islands provided some West Indian flavor. BARBOUR's (1945) account of this voyage made no mention of herpetological collecting.

4.3. Voyage of 1933.

BARBOUR's second voyage on the *Utowana* with a strong West Indian focus began from Nassau on 16 February. Besides BARBOUR, Armour, and crew, biologists David FAIRCHILD and James C. GREENWAY were aboard. This voyage visited six sites in the Bahamas (16–27 February), Haiti (28 February–4 March), Jamaica (5–11 March), Providencia (13–15 March), and San Andrés (15–16 March). After a stop in the Canal Zone (17–26 March), an ephemeral visit to Grand Cayman (29 March) preceded a sojourn on Cuba. According to BARBOUR (1945), "This was a wholly charming voyage. Most of the time the weather was ideal and as most of the localities we visited were remote and little known to naturalists, our booty was a rich one". BARBOUR departed the *Utowana* at Cienfuegos, Cuba on 3 April, and remarked upon the conspicuous "... daily thanksgiving by my shamelessly worldly self for the delicious cuisine for which the yacht was famed. I am ashamed to say I began to gain weight badly during this voyage ...". BARBOUR's (1945) account of this voyage makes almost no mention of collecting herpetological material, but instead referred to Nye's Woodpecker on San Salvador, land shells on Fortune, Crooked, and Mariguana (= Mayaguana) islands, rodents on East Plana Cay, birds on San Andres, "bullhorn acacias swarming with stinging ants" on Providencia, and "... a day collecting land shells to good advantage" on Grand Cayman. Only on Mayaguana did he allude to collecting "... more new lizards ...".

4.4. Voyage of 1934 (Fig. 5)

BARBOUR's last voyage on the *Utowana* commenced in Nassau from 1–7 February. James C. GREENWAY was again on board, as was his wife Helen. The first landfall of herpetological significance was Great Inagua on 25–27 February. GREENWAY swam from the yacht's launch

to Sheep Cay, just off Great Inagua, where he collected a new boa (*Epicrates relicquus* Barbour & Shreve, 1935, now *E. chrysogaster relicquus*) and a new racer (*Alsophis vudii utowanae* Barbour & Shreve, 1935), "... which no doubt once occurred on Inagua itself. Now that island is so completely overrun with feral dogs and cats that the extermination of the two new species he [GREENWAY] found still to exist on the Cay is not really surprising" (BARBOUR 1945). In 1943, he had

written, "I suspect that these [*Epicrates* and *Alsophis*] once were abundant all over Inagua and that they have been extirpated by the introduced vermin. At any rate as far as I know no one ever found them on the large island and it has been visited by a number of naturalists" (BARBOUR 1943). Despite BARBOUR's gloomy view of Inagua, both the boa and the racer subsequently were collected there (SCHWARTZ & THOMAS 1975).

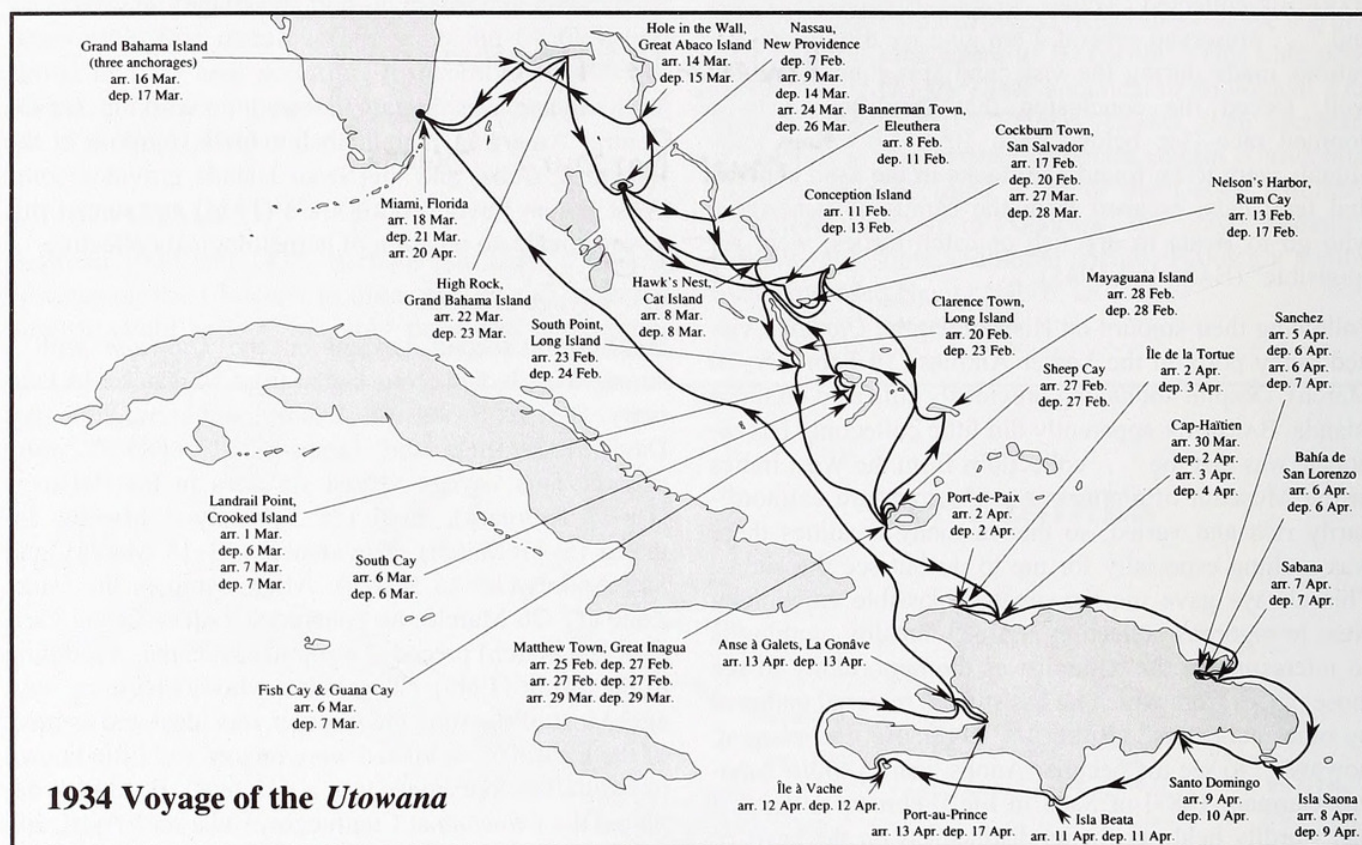


Fig. 5: Map of the route and itinerary of the 1934 *Utowana* West Indian voyage.

Apparently the locals on Mayaguana, Crooked Island, nearby South Cay, and Fish Cay (off Acklin's Island) "turned out to be keen collectors, and we got enormous amounts of material. Birds, iguanas, and other lizards, butterflies, and land snails, fell to our 'bow and spear' in quantities" (BARBOUR 1945). Returning to Nassau on 9 March, the GREENWAYS, who, in BARBOUR's (1945) words, were "... extremely efficient collectors", departed the *Utowana*. ARMOUR and BARBOUR were then joined by Froelich RAINEY, an archaeologist from Yale's Peabody Museum, BARBOUR's wife Rosamond, and his daughters Julia and Louisa. "My daughters are not interested in collecting in any form and neither they nor their mother are really comfortable in hot weather, but in spite of all this, I know that the ensuing voyage remains for them a pleasant memory" (BARBOUR 1945). With the exception of a stop in Miami on 18–21 March, the *Utowana* remained in the Bahamas until 30 March,

revisiting several islands for the benefit of BARBOUR's family.

After leaving the Bahamas, the yacht sailed south toward Hispaniola, stopping initially at Cap Haïtien (30 March). Subsequently, at Île de la Tortue (2 April), "... the people were most industrious collectors and we got an unbelievable number of snakes, several of which were new" (BARBOUR 1945). From there the expedition proceeded to Samana Bay (5 April) on the eastern coast of the Dominican Republic. BARBOUR waxed poetic about this site ("... an enchanting body of water, quite indescribable"), but made no mention of collecting. After Samana, the *Utowana* anchored at Isla Saona (8 April), off the southeastern coast of the Dominican Republic [although BARBOUR (1943) erroneously stated that it was "off the coast of Haiti"]. "It is a rather flat, uninteresting little island and I was not prepared for

what I found. I knew that there was a high degree of endemicity on all these islands around the [Hispaniolan] coast. I knew, also, that Saona had never been visited by anyone in search of reptiles, so I walked around the confines of a small garden patch, knowing that this was the sort of terrain where one might expect to find *Ameiva* lizards. Lizards of this genus have a way of splitting up, so novelties may be expected.

"I hunted a long time before I heard a noise in the dead leaves. *Ameiva* lizards are anteaters and scratch with their paws among the leaves, throwing them about in their search for the insects which may be below them. I approached the sound as stealthily as possible and could scarcely believe my eyes when I saw a perfectly typical *Ameiva*, and by the same token one utterly unlike any of which I had ever seen . . . It was lilac gray on the back, washed with fawn color on the head and turning to pale blue on the tail. A black band, beginning with the eyes, ran along the side of the body and the tail, which was azure blue beneath, while the undersurfaces of the body were glaucous blue, suffused anteriorly with cream color. The sides of the head were buff yellow. All in all, it was one of the most beautiful and strikingly colored reptiles which I have ever seen.

"I sent the specimen to Miss COCHRAN at the National Museum in Washington, . . . although I fairly itched to describe it myself. I realized it was new the second I saw it . . . and asked her if she would name it for my wife" (BARBOUR 1943). COCHRAN described *Ameiva rosamondae* Cochran, 1934 (now *A. taeniura rosamondae*; Fig. 6) in 1934, and noted that "Dr. BARBOUR saw but two individuals of this beautiful species. They were excessively shy and he secured the unique type with great difficulty on account of its being almost impossible to use a collecting gun in the very dense, thorny scrub".

After a brief stop in Santo Domingo, the *Utowana* proceeded to Isla Beata on 11 April. There BARBOUR (1945) "wanted to make another search to see if any but adult iguanas [*Cyclura cornuta*] could be found. We hunted for young individuals once more in vain and found the population of adults grown smaller". On 12 April the *Utowana* arrived at Île-à-Vache off Haiti's southern coast. "Here the natives again outdid themselves and the number of reptiles secured during the couple of days we spent in a pretty anchorage between Isle Vache and the mainland was most satisfying" (Barbour 1945). The departure from Île-à-Vache and arrival at Anse à Galets, Île de la Gonâve occurred on the next day. BARBOUR apparently left two buckets of alcohol with a local parish priest and then departed Gonâve the same day (13 April). After a sojourn in Port-au-Prince until 17 April, he returned to Gonâve and, upon arrival, ". . . found our two covered buckets of alcohol

full of lizards. We sat for awhile on the porch of the pitiful little rectory, conversing in our pretty poor French, and with difficulty reimbursed the priest for the money that he had dispensed among his flock for catching the lizards. We walked back down the hill, after a long and wonderful day which neither Rosamond nor I will ever forget. I then climbed the long gangway on board the *Utowana* for the last time. I left her in Miami on the 20th of April, 1934" (BARBOUR 1945).

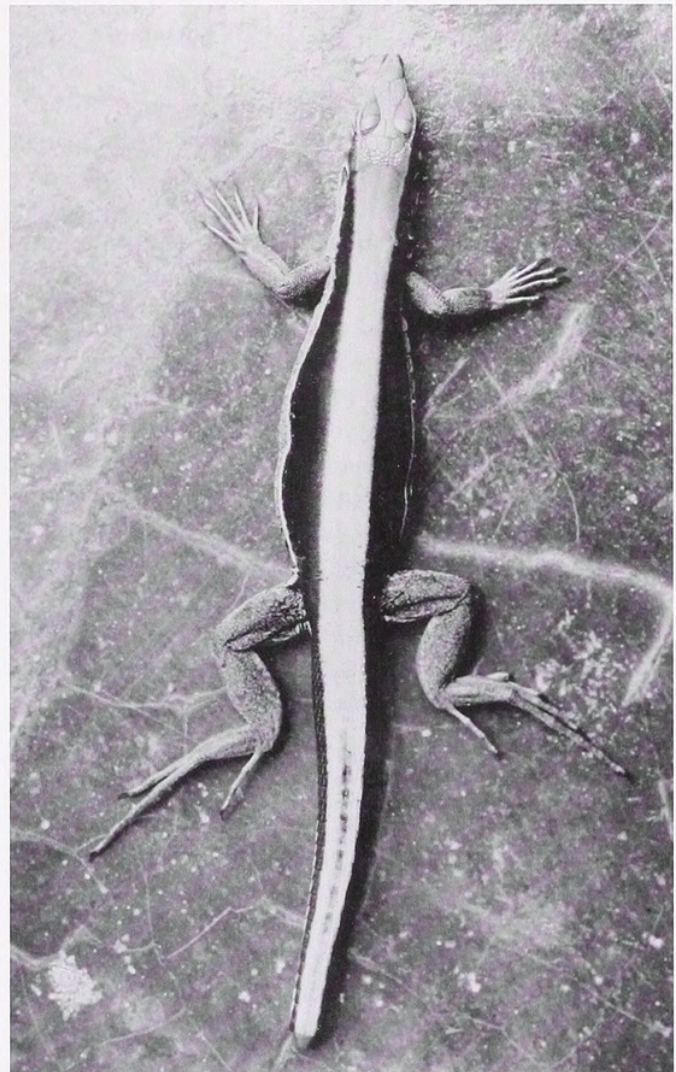


Fig. 6: *Ameiva taeniura rosamondae* [Milwaukee Public Museum 18886] collected at Mano Juan, Isla Saona, Dominican Republic (photograph by Richard A. SAJDAK).

5. COLLECTING STRATEGY

The collecting strategy usually employed by BARBOUR during the *Utowana* expeditions has been criticized (e.g., CURTIS 1947), yet it was an extremely efficient means of accumulating long series of specimens of some species in short periods of time, and one that has been used to great advantage in the West Indies by many contemporary herpetologists. The technique was to establish "markets" at different ports. BARBOUR



Henderson, Robert W and Powell, Robert. 2001. "Thomas Barbour and the Utowana voyages (1929-1934) in the West Indies." *Bonner zoologische Beiträge* : Herausgeber: Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn 52, 297–309.

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