

ARCHAEOLOGICAL RECONNAISSANCE OF ANEGADA, BRITISH VIRGIN ISLANDS

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An initial archaeological reconnaissance of Anegada, the only low-lying coral and limestone island in the Virgin group, yielded information about two pre-Columbian midden sites and other anthropogenic features of probable pre-Columbian age. Of additional note is an absence of sites along Anegada's coastline. This apparent anomaly seems to be a product of the island's highly dynamic geomorphology. Possible reasons for pre-Columbian activity on Anegada are discussed, and directions for future research are suggested.

Anegada (Figure 1), the northeasternmost of the Virgin Islands, is a largely flat limestone and coral atoll that lies 25 km north-northeast of Virgin Gorda and 33 km northeast of Tortola, the administrative center of the British Virgin Islands. An archaeological reconnaissance of Anegada, conducted in July and December, 2002, resulted in the discovery of two pre-Columbian midden sites; location of a series of distinctive if not unique pre-Columbian conch shell platforms; identification of natural resources that may have attracted Native American immigrants to Anegada in prehistory; and recognition of geomorphic processes that may have been responsible for the limited surface visibility of pre-Columbian sites on the island

Anegada has been visited briefly by archaeologists on two previous occasions. In 1937, Herbert Krieger, with an accompanying entourage, visited the island for "a few days" to investigate reports of "a large shell mound" (Krieger 1938). Krieger reported that the mound of conch shells, located "near the eastern

end of Anegada," was measured (although measurements are not presented in his report), and he published a photograph of it (Krieger 1938:97). Krieger stated, however, that the mound was not excavated because it was "devoid of any cultural material other than the discarded conch shells" (1938:98). Krieger (1938:98) also reported that he recovered "pottery, shell, and polished stone implements gathered at random from the surface" in a brief survey of other areas of the island, but he gave no indication of the locations of those finds, nor did he indicate whether they came from an identifiable site, or were isolated surface finds.

In 1974, Jeffrey Gross and Alfredo Figueredo spent three days on Anegada. They located and published brief descriptions of two "shell heaps" near the eastern end of the island, including the mound described by Krieger (Gross 1975). Shallow test pitting of an area near one of the shell piles yielded "several sherds" which were generally non-diagnostic although, in the judgment of Gross and Figueredo, the pastes were reminiscent of

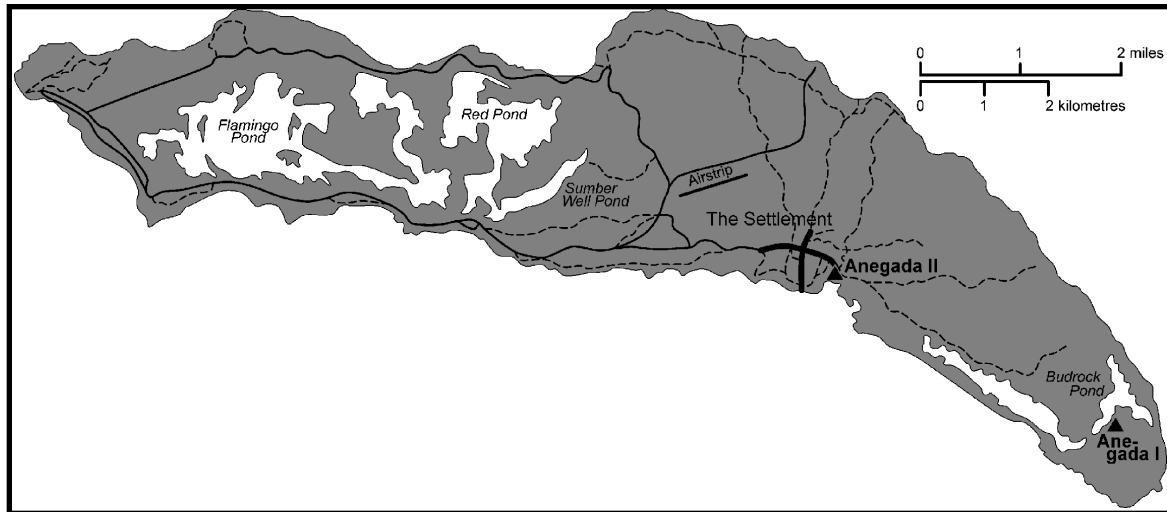


Figure 1. Map of Anegada.

"Elenoid series" pottery from Puerto Rico and the Virgin Islands. Two conch shells from the associated midden deposit were taken as radiocarbon samples; these yielded a date reported as AD 1245+/-80 (Gross 1975:15). Gross and Figueredo did not find pottery in the shell heaps themselves, and their reconnaissance did not extend to other areas of the island.

The only other record of previous archaeological work on Anegada takes the form of a private collection of pre-Columbian artifacts that was obtained some years ago by Mr. Wilfred Creque, an Anegada resident, from an undocumented locality in the island's remote and unsettled East End. The several hundred artifacts in that collection include a variety of undecorated ceramic body sherds; two rims bearing anthropomorphic adorns (human faces); two conch shell adzes; and some 15 ground and polished stone adzes manufactured on various fine-grained volcanic rocks.

With an area of 39 km² and a population of approximately 180, Anegada is the second largest but the least populated and most remote of the British Virgin Islands. With a maximum elevation of 8.5 m, the topography of this "drowned land," as the Spanish named it, presents a sharp contrast with the much higher volcanic and metamorphic islands that comprise the rest of the Virgin group. Like the Outer

Leeward Islands to the south, Anegada's low topography and coral/limestone bedrock derive from its location at the northeastern edge of the Caribbean tectonic plate (U.S. Geological Survey n.d.).

Although Anegada is characterized by poorly developed soils, low rainfall, and relatively sparse (primarily scrub) vegetation (Figure 2), its distinctive geology provides certain resources that would have been valuable for pre-Columbian inhabitants. Unlike many other low-lying islands in the northeastern Caribbean, Anegada has a readily available supply of fresh water, which occurs in natural wells in the exposed limestone (Schomburgk 1832). Fresh to slightly brackish (but potable) water can also be obtained from shallow hand-dug wells in the sandy soils near the coastline (Schomburgk 1832) (Figure 3, this paper). Although much of Anegada is marked by exposed limestone or coral bedrock, or by sand, limited areas of shallow organic soils do occur in the eastern third of the island. Indeed, in the early and mid 20th century, cotton, bananas, and sugar cane were produced in that area by the small resident population (B-V-I Guide n.d.). The island also possesses a wealth of marine resources in its shallow offshore waters. Lobsters, conch, and a wide array of other shellfish and bonefish are abundant, particularly near Horseshoe Reef, which, with a total length



Figure 2. The interior of Aneгада is dominated by scrub vegetation.

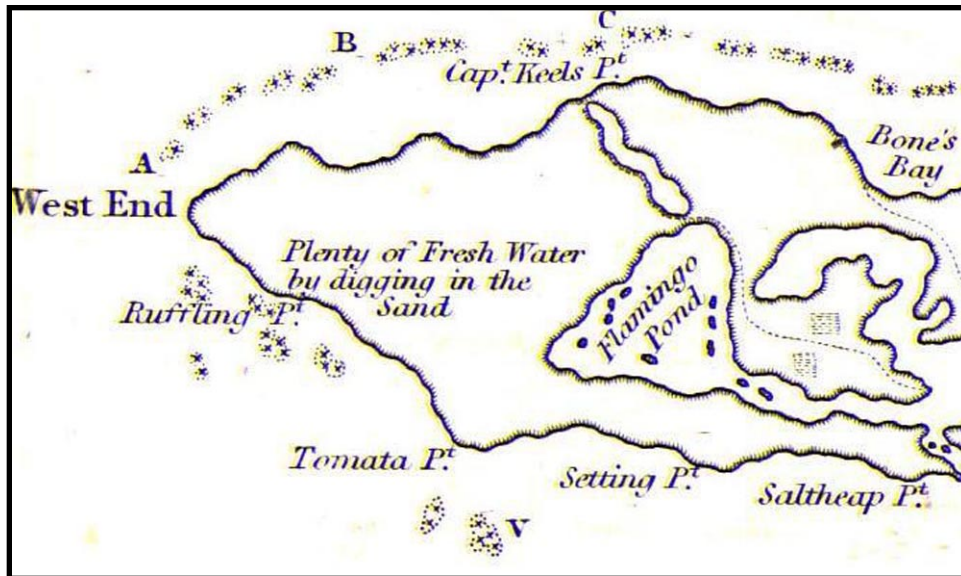


Figure 3. Western portion of Aneгада in 1832. From Schomburgk (1832).

of 51 km, is the world's third largest barrier reef (British Virgin Islands n.d.).

The Reconnaissance

Our eleven-day reconnaissance was aimed at determining whether any substantial evidence of

pre-Columbian occupation could be found on Aneгада. In keeping with most preliminary investigations of this kind, limitations of time did not allow for a systematic survey of the entire island, nor a stratified survey of selected habitats. Instead, we focused on areas that seemed most likely to contain evidence of

middens or other occupation refuse, covering as many of those areas as we could reach by pedestrian survey given the limitations of time. During the course of the reconnaissance, we completed a pedestrian surface survey of the southern shore of Flamingo Pond (Figure 1); the northern shore of the unnamed pond to the southwest of Budrock Pond; the southeastern shore of Budrock Pond (including the location of Anegada I; see Figure 1 and below); the western half of the southern coast; the western end of the island; the coastline of Loblolly Bay (on the north coast to the northeast of the airport); and an area of approximately 0.5 km² immediately to the east of The Settlement (including the location of Anegada II; see Figure 1 and below).

Archaeological reconnaissance in the West Indies typically is guided by the results of previous investigations on other islands. However, this procedure cannot be readily applied to Anegada. Although a great deal of archaeological research has been completed elsewhere in the Virgin Islands and in the northern Lesser Antilles, many of the landforms and habitat types that are common on those islands are absent on Anegada. Several of the landform types that have figured prominently in characterizations of pre-Columbian settlement patterns on other small islands in the eastern Caribbean -- particularly valley bottomlands with good agricultural soils and access to fresh water, deep bayheads, and small peninsulas (e.g., Davis 1988; Haviser 1990, 1997) -- are absent on Anegada (most bays on the island are merely slight indentations in the coastline). In short, settlement pattern models developed on higher islands are largely inapplicable on Anegada.

Looking somewhat farther afield, the Bahamas, with their limestone and coral bedrocks, low terrain, and relatively undifferentiated interiors, would seem to offer better guidance. Assessing the results of some 40 years of archaeological survey in the Bahamas, Keegan stated that:

These surveys have identified a predominantly coastal orientation of

settlement. More specifically, Lucayan sites tend to be restricted to leeward sand beaches adjacent to shallow marine grass flats ... Because previous studies have shown that Lucayan settlements were usually restricted to coastal habitats, these locations have been the focus of most research efforts (Keegan 1992:68).

This general preference for coastal localities is consistent with other islands in the Virgin group, and most islands in the Lesser Antilles, where the vast majority of pre-Columbian sites, especially before and after the early Ceramic Age, are located within a few hundred meters of the coast; indeed, many sites on those islands are situated less than 100 m from the shoreline. On Anegada, however, our examination of numerous areas along and near beaches yielded no evidence of pre-Columbian human activity. The contrast with other islands in the Virgin group, as well as with the Bahamas, is striking. On high islands like St. John and St. Thomas (e.g., Bullen and Sleight 1963; Brewer and Hammersten 1988), pre-Columbian sites can be found on or just behind the beaches at the head of nearly every major bay. Indeed, the importance of the sea for transportation and as a food source were excellent reasons for pre-Columbian peoples to live in close proximity to the shoreline.

The apparent absence of sites in coastal locations on Anegada may be a product of natural post-depositional processes rather than of pre-Columbian settlement patterns. Even in historic times, storm surges and wave action have significantly altered the Anegada coastline. Local informants report the deposition of more than a vertical meter of sand at coastal locales by a single hurricane. Shoreline loss has also been extensive. Following the passage of Hurricanes Gabrielle and Hugo in 1989, 15 horizontal meters of beach was lost on Anegada's north shore at Loblolly Bay, while Cow Wreck Bay, also on the north shore, gained over 30 meters. On the south shore, over 15 m of beach was lost at the Anegada Reef Hotel, and over 32 m were lost at Nutmeg Point (UNESCO n.d.).

Anegada is not unique in this regard; similar and even greater amounts of beach loss occur during major hurricanes elsewhere in the Virgin Islands (UNESCO n.d.). At Cinnamon Bay, St. John, an undetermined but extensive portion of a late pre-Columbian beachfront site has washed into the sea as a result of scouring produced by hurricanes (Kenneth Wild, personal communication, July 2000). Also on St. John, the presence of a deeply buried preceramic site at Lameshur Bay (Wild 1989) attests to the deposition of substantial amounts of sand on beaches, presumably by storm-driven waves. Yet many pre-Columbian beachfront sites elsewhere in the Virgin Islands remain visible to surface examination. Since Anegada lacks deeply indented bays, it may be subject to greater reworking of the coastline during hurricanes. An 1832 map of the island by German-British explorer R.H. Schomburgk (Figure 2) provides some evidence in favor of this hypothesis. Schomburgk's map clearly shows that the western salt ponds, now separated from the ocean by over 100 m, were connected to the sea on the south shore when Schomburgk visited the island in 1831. Schomburgk (1832:158) reported that "there was likewise [a connection to the sea] on the northern side, but the hurricane of 1819 stopped its passage." He also stated that

The western end of the island has been covered with sand, forced forward by an immense ground sea or surf, to which it is still subjected from time to time, and hence the continual change of the figure of the bays in that part ... The whole north side is exposed to an impetuous sea, but mostly on the northwestern part, where the sand has formed little hillocks of 40 feet in height. Behind the first range is a second and a third (Schomburgk 1832:157).

In addition, over a hundred years earlier, Pere Labat noted that substantial areas of Anegada were invaded by the sea at high tide (Labat 1970:205). Finally, although direct reports from Anegada appear to be non-existent, tsunamis would have exerted significant impacts on such

a low island. For example, in 1867, an earthquake in the Anegada Trough between St. Croix and St. Thomas generated a tsunami that affected the entire West Indies east and south of Hispaniola. In Charlotte Amalie, St. Thomas, a wave 4.5-6 m high killed 12 people and swamped many boats. At Roadtown, Tortola, waves some 1.5 m high destroyed houses, and damage was experienced as far south as the Windward Islands (Lander, Whiteside, and Lockridge 2002). Evidence of potentially significant loss of pre-Columbian sites through natural post-depositional processes has been documented on other islands (e.g., Crock 2000; Delpuech et al. 1999). Because of Anegada's low topography and lack of enclosed harbors that could afford some protection from catastrophic events like tsunamis and major storms, the opportunities for both scouring and burial of archaeological sites appear to have been greater than on many other West Indian islands.

In light of the abundance of salt that is available from the ponds on Anegada during dry months, and the consequent possibility that indigenous people from other islands may have periodically extracted this resource from Anegada, close attention was paid to these landforms. Settlement around salt ponds has been reported from a number of other islands in the West Indies (e.g., Delpuech et al. 1999; Hofman et al. 1999; Nokkert et al. 1995; de Waal 1999). Approximately 5.8 linear km adjacent to salt ponds were examined on Anegada, but there was no indication of pre-Columbian human activity along the immediate pond shorelines. It should be noted, however, that both of the pre-Columbian sites that were identified during the reconnaissance (see below) are situated within 100 m of salt ponds; indeed, both sites are located on the closest firm, well-drained land to the nearby ponds. Sullivan (1981) suggested that certain Ceramic Age sites in the vicinity of salt ponds in the Bahamas were salt collection stations. We are, of course, not in a position at this stage to suggest whether either or both of the pre-Columbian sites on Anegada served a similar function.

Sites

The first of two sites found during the reconnaissance, Anegada I, was located with information provided by a local resident who reported finding "Indian artifacts" in the East End "years ago." The informant described the site's location as east of Budrock Pond on land with "soil and trees." By "soil," we learned, the informant referred to dark organic soils, which are virtually absent on Anegada outside of archaeological sites. Indeed, trowel tests indicated that Anegada I consisted of 9-22 vertical cm of dark midden sitting directly on top of limestone bedrock.

Anegada I is located at and around 18°41.855' N and 64°16.706' W. The site is situated at an elevation of about 5 m on a low hill that overlooks Budrock Pond (Figures 4 and 5), which is some 40 m west of the site. Midden soil formation is adequate to support a number of broadleaf trees, which are exceedingly rare elsewhere on the island. The site surface is littered with shell and a fairly low density of potsherds, as well as fish and other bone.

Midden and artifacts were encountered over an area of approximately 45 x 30 m.

In addition to shell and animal bone, 25 potsherds were recovered from Anegada I. Two are rim sherds, and one of those is decorated with broad arching curvilinear incision reminiscent of late Ceramic Age ceramics from elsewhere in the Virgin Islands and Puerto Rico. That sherd and four of the body sherds contain a light-colored grit temper that appears to be plagioclase feldspar (a material that is absent in the carbonate bedrock of Anegada). The other rim sherd and the remaining body sherds have no apparent temper, and are relatively thin with homogeneous pastes.

A noteworthy artifact in the surface collection from Anegada I is a large mid-shaft fragment of a ground stone artifact, probably either a pestle or an ax. The raw material is diorite, a volcanic rock that is present in the East End range on Virgin Gorda (University of the West Indies n.d.) but absent on Anegada. The specimen weighs 425 g and measures approximately 8.3 cm x 7.4 cm x 1.9 cm.



Figure 4. Budrock Pond in the East End.



Figure 5. Goat trail across Anegada I.

Together with the feldspar tempered pot sherds that we collected and the ground stone adzes in the collection of Mr. Wilfred Creque (see above), this artifact provides evidence of pre-Columbian ties between Anegada and islands to the west or south.

Only three species of shell were observed at Anegada I: *Codakia orbicularis*, *Strombus gigas*, and *Nerita tessalata*. A variety of fishbone, including several specimens of parrotfish (Scaridae) were also found, as well as five fragments of bird longbone that have yet to be positively identified, but that may represent roseate flamingo (*Phoenicopterus ruber*) or another large bird.

Anegada II was found on the last day of the reconnaissance. The site is located at and around 18°43.048' N and 64°18.799' W, near the outer southeastern edge of The Settlement. As with Anegada I, the site was marked by dark midden soil that contrasted sharply with the surrounding sands, corals, and poorly developed limestone soils. The density of pre-Columbian artifacts at Anegada II was extremely low; our collection

consists of one undecorated rim sherd, three undecorated body sherds, and an articular end of a mammalian long bone that appears to be manatee. Only the mammal bone was found in a buried context. Also present on the site were various early and middle twentieth century artifacts that apparently were associated with an abandoned homestead. The midden soil ranges in depth from eight to over 30 cm.

Perhaps the most enigmatic anthropogenic features discovered during the reconnaissance was a series of three conch shell (*Strombus gigas*) platforms (Figure 6) that are located in the East End near White Bay and the southeastern shore of Shell Pond, about 400 m southwest of Anegada I. Limitations of time did not allow full mapping of these unusual features, each of which consists of thousands of conch shells. Unlike the large piles of opened conch of colonial and modern age that can be found in nearshore waters near The Settlement, the conchs in the platforms are heavily weathered and oxidized to a dark blue-gray color. The platforms are flat-topped, approximately 50 cm high, very roughly rectangular in plan form, and



Figure 6. One of three conch shell platforms in the East End.

range in area from approximately 70 m² to 130 m².

Residents of Anegada today regard the conch platforms as part of an "Indian burial ground," and that idea itself has considerable antiquity. Mr. Wilfred Creque of Anegada has a map dated June 10, 1824, entitled "A Chart of the Islands of Anegada, Together with the Vessels Wrecked Upon Them" (produced by Charles Noyce for the Queen's Quartermaster's Office) bearing four triangles in the location of the shell platforms. The triangles are labeled "Pyramids of Conch Shell Left by [word obscured] Indians."

Large accumulations of presumably prehistoric conch were observed in the early 1830's by German-British naturalist R.H. Schomburgk (Figure 7), who wrote that

Pere Labat, the only early writer who speaks on the lesser West Indian isles, observes, that the aborigines used

[Anegada] as an occasional rendezvous, where they procured great quantities of conchs (*strombus gigas*); and large piles of these shells are still to be seen at the east end of the island, but nowhere else; which seems to prove decidedly that it was not permanently occupied, but merely resorted to from time to time ... the dry shells piled up all have a hole in the lower end of the spire, for which the most probable reason is, that the animal is thus most easily extracted. It appears surprising that so much care has been taken to pile them up, and it has been surmised, in consequence, that these heaps were burial-places; but several have been taken down, and burnt for lime -- without any trace having been found of human bones, or other extraneous substance. And it is more probable that they were merely piled up to be out of the way, the current not being strong enough to carry them off had they been thrown into the sea;

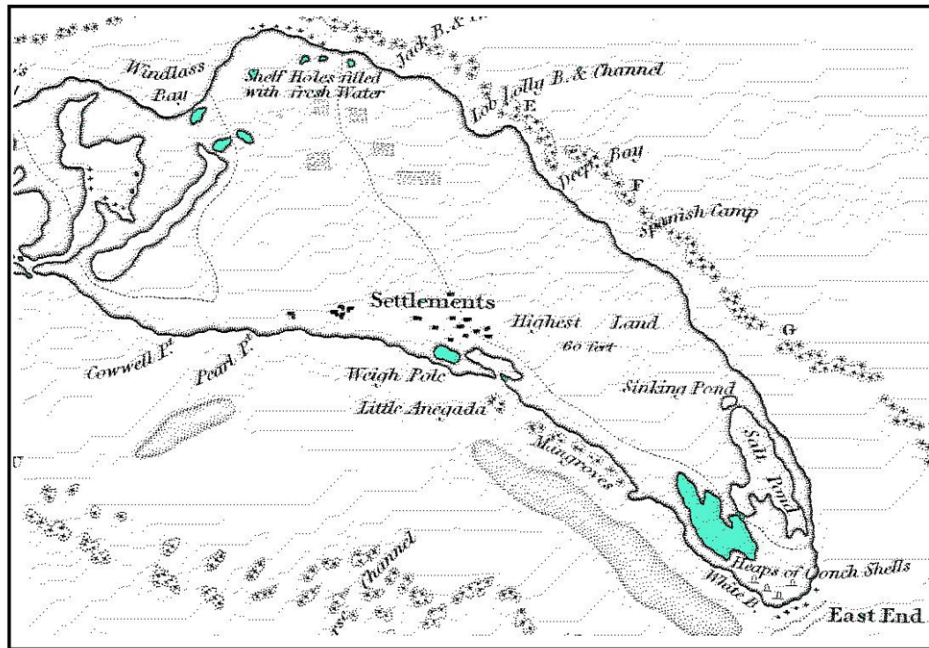


Figure 7. Eastern portion of Anegada in 1832. From Schomburgk (1832).

where, had they remained, they would have embarrassed the fishing for the living animal¹ (Schomburgk 1832:153).

The conch platforms that we visited do not appear to be the same "shell heaps" that were investigated by Krieger (1938), or Gross and Figueredo (Gross 1975). The higher of the two shell piles examined by Gross and Figueredo, which they identified with the mound visited by Krieger, was reportedly 2-3 m high, covering an area of about 200 m², making it both higher and more extensive than any of the three platforms we visited. Indeed, we identified a conch pile of roughly that dimension some 300 m east of the conch platforms, at 18°41.438' N and 64°16.643' W. Moreover, none of these authors noted that the mounds or heaps they examined were uniformly flat-topped. Further, Gross reported that at least one of the two piles they examined consisted of "whitened conch," whereas the platforms we saw were each composed of blue-gray, highly oxidized, shell. The color is notable; in our experience, shell typically weathers to a bright white color, and the blue-gray color of the shell in the platforms suggests the possibility that they were either

burned or covered with earth for some period of time. The functions of all the presumably pre-Columbian conch accumulations on Anegada, whether as substructures of some sort, adjuncts of burial or other ritual activity, or merely as dumps for harvested *Strombus* shells (however carefully discarded), remain undetermined.

Questions and Potential for Future Research

In comparison to many other islands in the Virgin group and the Lesser Antilles, Anegada has thus far yielded only limited evidence of pre-Columbian occupation. Nevertheless, Anegada is intriguing for both substantive and methodological reasons. While our reconnaissance was not a comprehensive systematic survey, we did achieve a level of coverage that undoubtedly would have yielded more archaeological data on any number of other islands. These results suggest either that (as Schomburgk [1832] speculated) Anegada was visited only sporadically by pre-Columbian people from other islands; or that Anegada has experienced a high rate of archaeological site loss and/or concealment from storm action, normal tidal activity, and along shore currents.

While Anegada may have been a special procurement locality for conch, the uniform heights of the shell platforms, and the highly oxidized condition of the shells, suggest some activity additional to meat extraction. This question needs to be investigated through disassembly and careful recording of portions of the platforms, and through excavation of areas beneath the shells. In addition, of course, additional radiocarbon analyses of the shells should be conducted to ascertain their pre-Columbian age and the range of time that they represent.

The small collection of artifacts and food remains recovered from Anegada I is consistent with a habitation site, possibly of late pre-Columbian age. Although the site's remote location some seven km from the nearest road creates logistical challenges, further testing could document the presence of pre-Columbian settlers, as opposed to visitors. Anegada II should also be tested with the same question in mind.

It seems highly likely that the dynamic coastal geomorphic environment of Anegada has significantly affected our current view of the island's pre-Columbian archeological record. Deep testing of beaches and adjacent coastal areas through an augering program is theoretically possible, but would be highly time-intensive with little clear prospect of success. However, a more thorough survey of inland areas within 100 m of salt ponds, and of areas containing natural fresh water wells, should be undertaken with specific attention to identifying organic soils that may represent archaeological middens.

Pre-Columbian inhabitants of other Virgin Islands, especially Virgin Gorda and Tortola, clearly were aware of the existence of Anegada, and it is equally clear that indigenous people visited and almost certainly settled on the island for at least some period in prehistory. Rainfall is low and Anegada's weakly developed soils appear poorly suited to agriculture. Indeed, they are so shallow that it is difficult to imagine successful cultivation of a root crop like manioc, resistant as it is to drought and fluctuations in

rainfall. However, certain other resources are bountiful. In addition to the island's rich fishery and the availability of fresh water, in prehistory, roseate flamingos and rock iguanas, severely reduced in numbers during historic times, were abundant, and salt has been a readily available resource from prehistoric through modern times. We hope that more detailed investigations in the future will be able to determine which of these, or other, resources drew and sustained pre-Columbian inhabitants to this most distinctive of the Virgin Islands.

Acknowledgments. We gratefully acknowledge the assistance of Marcus Eberl in the production of Figure 3. We are also pleased to recognize the Perry-Castañeda Library Map Collection at the University of Texas, Austin as the repository of Schomburgk's (1832) map of Anegada (Figures 2 and 3 of this paper).

References Cited

- Brewer, D.M. and S. Hammersten
1988 *Archaeological Overview and Assessment, Virgin Islands National Park, St. John, U.S. Virgin Islands*. Southeast Archaeological Center, National Park Service, Tallahassee, Florida.
- British Virgin Islands
n.d. Coral Reefs. http://www.bvi.gov.vg/template.php?main=atbvi§ion=environment&sub=coral_reefs. Accessed 1/08/03.
- Bullen, R.P. and F.W. Sleight
1963 *The Krum Bay Site: A Pre-ceramic Site on St. Thomas, United States Virgin Islands*. The Wm. L. Bryant Foundation, American Studies No. 5. Orlando.
- B-V-I Guide
n.d. Anegada -- The Drowned Island in the BVI. <http://www.b-v-i.com/anegada/default.htm>. Accessed 1/08/03.
- Crock, J.G.
2000 *Interisland Interaction and the Development of Chiefdoms in the Eastern Caribbean*. Ph.D. dissertation, University of Pittsburgh. University Microfilms, Ann Arbor.
- Davis, D.D.
1988 Biogeography and Human Subsistence: Examples from the West Indies. *Archaeology in Eastern North America* 16:177-186.
- Delpuech, A., C.L. Hofman, and M.L.P. Hoogland
1999 Excavations at the Site of Anse a la Gourde,

- Guadeloupe: Organization, History, and Environmental Setting. *Proceedings of the XVIIIth International Congress for Caribbean Archaeology*, pp. 156-161. Grenada.
- Gross, J.M.
1975 The Archaeology of Anegada Island. *Journal of the Virgin Islands Archaeological Society* 2:12-16.
- Haviser, J.B., Jr.
1990 Geographic, Economic, and Demographic Aspects of Amerindian Interaction Between Anguilla and St. Martin-St. Maarten. Paper presented at the 55th Annual Meeting of the Society for American Archaeology, Las Vegas.
- Hofman, C.L., A. Delpuech, and M.L.P. Hoogland.
1999 Excavations at the Site of Anse a la Gourde, Guadeloupe: Stratigraphy, Ceramic Chronology and Structures. *Proceedings of the XVIIIth International Congress for Caribbean Archaeology*, pp. 162-172. Grenada.
- Keegan, W. F.
2000 *The People Who Discovered Columbus: The Prehistory of the Bahamas*. University Press of Florida, Gainesville.
- Krieger, H.W.
1938 Archaeology of the Virgin Islands. *Explorations and Field-Work of the Smithsonian Institution in 1937*:95-102. Smithsonian Institution, Washington, D.C.
- Labat, J.B.
1970 *The memoirs of Pere Labat, 1693-1705*. Translated and abridged by John Eaden; with an introduction by Philip Gosse. F. Cass, London.
- Lander, J.F., L.S. Whiteside, and P.A. Lockridge
2002 A Brief History of Tsunamis in the Caribbean Sea. *Science of Tsunami Hazards* 20(2):57-94.
- Nokkert, M., A. Brokke, S. Knippenberg, and T. Hamburg.
1995 An Archaic Occupation at Norman Estate, St. Martin. *Proceedings of the XVIIth International Congress for Caribbean Archaeology*, pp. 333-351. Grenada.
- Schomburgk, R.H.
1832 Remarks on Anegada. *The Journal of the Royal Geographical Society* 2:152-170.
- UNESCO
n.d. Hurricane Impact on Beaches in the Eastern Caribbean Islands 1989-1995. <http://www.unesco.org/csi/act/cosalc/hur16.htm>. Accessed 1/8/03.
- U.S. Geological Survey
n.d. Earthquakes and Tsunamis in Puerto Rico and the Virgin Islands. <http://pubs.usgs.gov/factsheet/fs141-00/fs141-00.pdf>. Accessed 8/9/02.
- University of the West Indies
n.d. Landslides in the U.S. Virgin Islands. Unit for Disaster Studies, Department of Geography and Geology, University of the West Indies, Mona, Jamaica. http://isis.uwimona.edu.jm/uds/Land_USVI.html Accessed 7/29/02.
- Waal, M.S. de
1999 The Pointe des Chateaux Survey (1998): A Preliminary Report. *Proceedings of the XVIIIth International Congress for Caribbean Archaeology*, pp. 268-278, Grenada.
- Wild, K.L., Jr.
1989 *Archaeological Investigations Conducted Along Lameshur Road, St. John, U.S. Virgin Islands*. National Park Service, Southeastern Archaeological Center, Tallahassee, Florida.

Notes

¹ Local fishers report that, if freshly cleaned conch shells are discarded in the sea, living conch will in fact abandon the area. This behavior may be a response to an increase in conch predators such as horseshoe crabs in conch discard areas (Julie Gauthier, personal communication, December 2002).