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**NUMBER 6  
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## THE VIRGIN ISLANDS ARCHAEOLOGICAL SOCIETY

Founded and incorporated, January 1974, at St. Thomas, U.S. Virgin Islands as a non-profit, scientific organization.

The object for which this corporate society is formed is to bring together those persons having a serious interest in archaeology, history and related studies; to explore, excavate (under the aegis and direction of the appropriate authorities), chart and study the cultures of primitive peoples who once inhabited our Islands; to publish the Society's findings; to communicate with other archaeological and historical societies and disseminate knowledge acquired through such activities.

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## BIOGRAPHICAL NOTES

RICHARD EARL DAGGETT was born in Providence, Rhode Island. He holds a B.A. *cum laude* and a M.A. in anthropology, both from the University of Massachusetts, where he is a Ph.D. candidate. His research interests include Mesoamerica and the Andean area.

WILLIAM BAYARD GLADFELTER is a biologist at the West Indies Laboratory of Fairleigh Dickinson University, here on St. Croix. His undergraduate education was at Cornell University, where he earned an A.B. in zoölogy, and he completed his graduate studies at Stanford University, with a Ph.D. in biological sciences.

JULIAN MICHAEL GRANBERRY was born in Montclair, New Jersey. Long a student of West Indian prehistory, he completed his B.A. at Yale University, his M.A. at the University of Florida, and his Ph.D. at the State University of New York at Buffalo. He is the foremost authority on Bahamian archaeology, and has done considerable research besides in American Indian and Creole linguistics. He is currently Professor and Chairman of the Department of Anthropology at St. John Fisher College.

JAMES WILLIAM LEE is a native of North Vancouver, Canada, who has lived in Jamaica since 1951. A geologist by training, he holds a B.A.S. and a M.A.S. from the University of British Columbia, and a Ph.D. from Stanford University. Currently President of the Archaeological Society of Jamaica, Lee was elected a Corresponding Member of our Society in 1975, as a public recognition of his contributions to West Indian archaeology. 'Jamaican Redware' was published earlier in *Archaeology-Jamaica*.

MALCOLM PICKETT WEISS acquired his Ph.D. in geology from the University of Minnesota in 1953, and since that date has made many contributions to his field in the western states and the Caribbean region, especially with regard to continental lacustrine carbonates and associated beds of the latest Cretaceous and earliest Tertiary of the Laramide mobile belt of central Utah. He is currently Professor of Geology at Northern Illinois University.

JOHN HENRY WINTER is Assistant Professor in the Department of Sociology, Anthropology, and Social Work, Molloy College. He holds a B.A. and a M.A. in anthropology, both from Northern Arizona University. His special research interest is Bahamian archaeology, but he has also done much work (including his master's thesis) in physical anthropology (particularly osteology).

*For the biographical note of Alfredo Ezequiel Figueredo, please see the penultimate page of issue number 2; for the biographical notes of Stephen Davey Glazier and Fernando Royo Guardia, please see the inside back cover of issue number 5.*



Few art objects from the prehistoric Virgin Islands have found their way to responsible museums, and the student of art history has little enough to work with when dealing with our past. The above is a bright exception, reported by Carl Christian Rafn in the *Antiquarisk Tidsskrift* for 1852-1854, p. 439; it still should be with the collections of the Royal Society of Northern Antiquarians, in Copenhagen.

Here is a translation of Rafn's description of the piece:

Also on St. Croix [no locality is given] was found an Idol of Stone, 5 ½" long, on one side decorated with a zoöomorphic head, and on the other with extraordinary winding lines.

We pray that a benefactor of West Indian archaeology may visit the collections and ascertain whether this valuable piece is in good condition; also, the publication of sharp, glossy photographs are called for eventually. In the meantime, we can rejoice in the knowledge that it exists, and envy happy Denmark its good fortune.



**José Antonio Caro Alvarez**  
**1910-1978**

**A Memoir**

**By Alfredo E. Figueredo**

José Antonio Caro Alvarez was born in the noble city of Santo Domingo de Guzmán, Dominican Republic, on the 7th of June, 1910. He graduated as an architect from the Ecole Spéciale d'Architecture, Paris, in 1934. Caro was one of the many Dominicans whose interest in archaeology was stimulated by Emile de Boyrie Moya and René Herrera Fritot.

His career as an architect was long and productive. He planned the campus of the University of Santo Domingo, and the building of the National Library of the Dominican Republic. He found time for teaching, and was a Professor at the Faculty of Exact Sciences of the University of Santo Domingo since 1939. Appointed Dean of the Faculty of Engineering and Architecture in 1958, he became Rector of the University in 1961, being in fact the successful promoter of autonomy.

Caro's private archaeological collection has been referred to in the literature since the early 1950's, as a valuable asset to the profession. His closeness to government (he held positions of cabinet rank) gave him the opportunity to conceive and carry through to completion a projected Dominican Museum of Man, which opened its doors to the public in 1973. Caro designed the building and became the first Director.

Under Caro, the beautiful building eventually housed one of the most valuable collections of Dominican archaeology and ethnography anywhere.

The Museum became a thriving institution, inaugurating research inside and outside the country, and publishing a *Boletín* which has now grown to the status of a major regional journal. Archaeologists from all over the Caribbean visit the Museum for instruction, and a list of its staff would be a veritable *Who's Who* of Dominican anthropology.

The great man died of a cerebral haemorrhage on the 11th of February. In a move that did credit to his wisdom and intelligence, President Joaquín Balaguer appointed to succeed his late friend of many years, the energetic and talented Bernardo Vega de Boyrie. In a short time, he has become a worthy successor to a directors' Director, and the Dominican Republic has just cause to be proud of both, and satisfied that chief executives who know how to govern have governed indeed!

Caro left us a major Museum (born out of his hands and mind), and an exemplary life: ever the very soul of patriotism, modesty, kindness, and courage. We shall miss him dearly!

### Archaeological Bibliography

- 1972a    Introducción. *Boletín del Museo del Hombre Dominicano*, no. 1, p. 3, Santo Domingo.  
[22.3 cm.]
- 1972b    Una escultura taína excepcional en el Museo del Indio Americano. *Boletín del Museo del Hombre Dominicano*, no. 1, pp. 5-7. Santo Domingo.  
[22.3 cm.]
- 1973a    La Isabela. *Boletín del Museo del Hombre Dominicano*, no. 3, pp. 48-52. Santo Domingo.  
[21.1 cm.]
- 1973b    Estado General de las Poblaciones de la Isla Española de Santo Domingo, con el Número de su Vecindad, a Fines de 1769 y el que en el de 1782 le Regula el Racionero Don José Sánchez Valverde. *Boletín del Museo del Hombre Dominicano*, no. 3, pp. 327-331. Santo Domingo.  
[21.1 cm.]
- 1975    *Cemíes*. {private and limited edition which I have not seen}
- 1976    Introducción. *Boletín del Museo del Hombre Dominicano*, no. 6, p. [9]. Santo Domingo.  
[22.2 cm.]
- n.d.    *Cemíes y Trigonolitos*. Santo Domingo. (40) p.  
{it was published in 1977} [21.8 cm.]
- n.d.    *La Coboba*. Santo Domingo. (32) p. [+ plate]  
{it was published in 1977} [21.8 cm.]

## THE CLIFTON PIER ROCKSHELTER, NEW PROVIDENCE, BAHAMAS

By John H. Winter

Julian Granberry (1955: 140-143) reports that nine cave sites from New Providence, Bahamas, have yielded archaeological material, although the exact location of most of these caves is no longer known. I was fortunate enough to have been shown yet another such cave on New Providence by Mr. Pericles Maillis, in August, 1977. The location of the cave is southwest of Clifton Pier, coördinates 25°00' N and 77°34' W, and it faces toward the ocean some 15 meters from the water's edge. The cave is divided into two sections. The front section has a maximum depth of 5.01 meters and a maximum width of 5.53 meters. There are three pot-holes in the ceiling. The rear section is separated from the front section by a narrow corridor and is 1.54 meters in diameter with a pot-hole in the ceiling. No pictographs or petroglyphs were noticed on the walls of the cave. The interior of the cave showed evidence of having been disturbed.

As archaeological evidence from the northern Bahamas is scarce, I decided to dig two one meter by one meter test squares to see if any material remained in the cave. Even though the cave had been disturbed, I excavated in arbitrary 10 centimeter levels, screening the earth through a ¼ inch wire screen. From the first square, two pottery sherds, fish and mammal remains were screened out. The pottery sherds were uncovered at depths of 9 cm. and 12 cm. Bedrock was reached at 15.2 cm. The second square was dug into a circular pit area in the cave. The bottom of the pit was reached at 70.1 cm. A complete conch shell (*Strombus gigas*) with a circular hole opened at the apex (a characteristic technique of the Indians of the Bahamas) was uncovered at a depth of 22.9 cm. Six fragments of pottery were found between 56-58 cm.'s depth.

As the unearthened material was probably disturbed prior to excavation, this analysis will be based on the pottery and conch shell. The fish and mammal remains will not be analyzed in this report.

The six pottery fragments from the second square are all shell-impregnated. The outer surface is smooth and slightly polished. The outer surface varies in color from orange-red to brown. The interior surface is smooth and brown in color. The fragments are remnants from the body of a vessel. As for classification of the fragments, they could fit either the San Salvador Plain Red variety (Granberry 1952: 13), or the Palmetto Plain variety (Sears and Sullivan 1978: 12), depending on whose model one chooses.

The pottery fragments from the first square were rim sherds, which were

also shell-impregnated, but grey in color. The outer surfaces were smoothed, but contained incised decorations of diagonal parallel lines (figures 1 and 2). This decoration bears a close resemblance to the Meillacoid Series. Again, depending on whose classification one chooses, one could call them San Salvador Incised Red (Granberry 1952: 14), or Palmetto Punctate Incised (Sears and Sullivan 1978: 13). The vessels from which the rims came were estimated to have diameters of 12.7 cm. and 13.1 cm., respectively. Dissimilar vessel fragments often can be associated in the same vessel (Winter 1978a and 1978b), however, based on design, profile, and size, I believe that these two sherds could also be from different vessels.

The conch shell from the cave was sent to the University of Georgia Geochronology Laboratory for radiocarbon analysis. A reading of  $805 \pm 55$  B.P., or A.D.  $1145 \pm 55$  (UGa-1930) was given for the shell. This date precedes the dates from the McKay site, Crooked Island, Bahamas, which average about A.D. 1250 (Winter 1978b: 239).

Although the cave had been disturbed previously, it appears that some useful information was retrieved regarding the habitation of the northern Bahamas. It is believed that the shell-impregnated pottery styles, whether San Salvador or Palmetto, were established between A.D. 900 and A.D. 1100, and that this pottery style spread throughout the Bahamas reaching the northern islands near the end of this time period or afterward (Sears and Sullivan 1978: 16; Granberry 1973: 32). It should be noted that the Meillacoid styles were in existence in the Hispaniolan region between A.D. 800 and A.D. 1500 (Rouse 1964; Veloz Maggiolo *et al.* 1973), which should have allowed plenty of time for a migration into the Bahamas. If 100 years were allowed for the migration of Meillacoid influence, then the date given for the conch shell could be the date when the incised rim sherds were in use at the cave near Clifton Pier. This would then show that the Lucayans of the northern Bahamas were under Meillacoid influence by A.D. 1145, and that perhaps even earlier influences or occupations of the northern Bahamas may exist.

## Bibliography

Granberry, Julian M.

1952 *A Preliminary Ceramic Typology and Chronology for the Bahamas*. MS, Department of Anthropology, Yale University.

1955 *A Survey of Bahamian Archeology*. M.A. Thesis, Department of Anthropology, University of Florida.

1973 The Lucayans, Our First Residents. *Bahamas Handbook and Businessman's Annual*, pp. 21-35.

Rouse, Irving

1964 Prehistory of the West Indies. *Science*, vol. 144, no. 3618, pp. 499-513.

Sears, William H., and Shaun D. Sullivan

1978 Bahamas Prehistory. *American Antiquity*, vol. 43, no. 1, pp. 3-25.

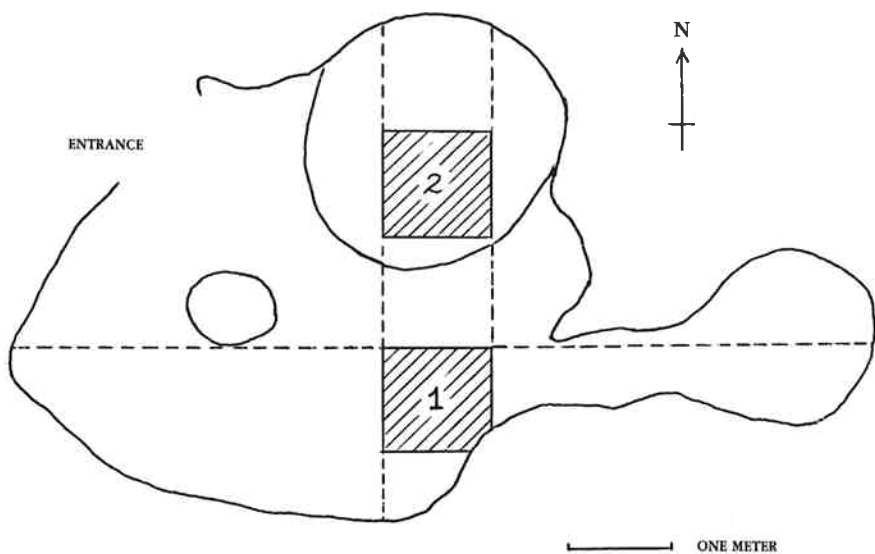


FIGURE 1  
Clifton Pier Rockshelter: Ground Plan

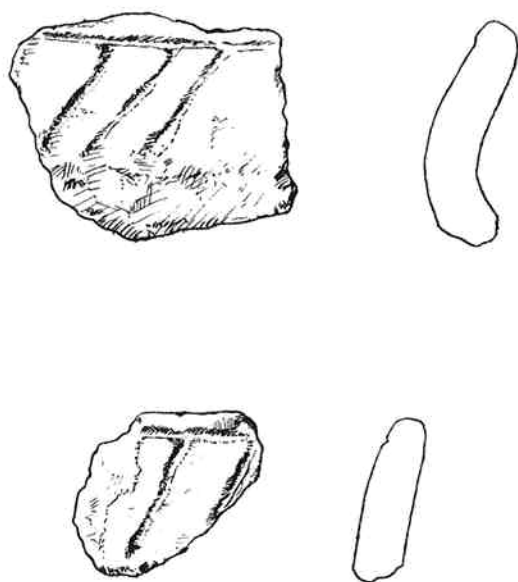


FIGURE 2  
Rimsherds from Clifton Pier  
1:1  
*Drawing by Jeffrey M. Gross.*

**Veloz Maggiolo, Marcio, Elpidio Ortega, and Plinio Pina**

- 1973 Fechas de radiocarbón para el período ceramista en la República Dominicana. *Boletín del Museo del Hombre Dominicano*, no. 3, pp. 138-198.

**Winter, John H.**

- 1978a A note on Bahamian Griddles. *Proceedings of the Seventh International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles*, pp. 231-236.  
1978b Preliminary work from the McKay site on Crooked Island. *Proceedings of the Seventh International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles*, pp. 237-242.

### **The Sale of Back Issues**

Back issues of our *Journal* are available for sale only to members of the Society in good standing, and research or scholarly institutions which hold current subscriptions to the *Journal*; the price per copy of back issues in stock is \$2.50 for individuals and \$3.50 for institutions. Issues no. 1 (1974) and no. 2 (1975) are out-of-print. Specialized institutional libraries may be allowed to purchase complete sets of the *Journal* at the discretion of the Editor. Except in the case of institutions unable to comply, all orders must be pre-paid in full.

Libraries may place orders through their agents, but bookdealers may not purchase issues of the *Journal* from the Society for sale to third parties.

### **Congress to be held on St. Kitts**

The International Association for Caribbean Archeology announces that the Eighth International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles will be held by the Association at the Royal St. Kitts Hotel and Country Club, 29 July to 4 August, 1979. Persons wishing to attend are encouraged to make early arrangements by writing to the Congress Chairman: R. Christopher Goodwin, Department of Anthropology, Arizona State University, Tempe, Arizona 85281. Copies of the *Proceedings* of past Congresses may be ordered from the Centre de Recherches Caraïbes, Université de Montréal, C.P. 6128, Succursale A, Montréal, P.Q. Canada H3C 3J7.

## THE EARLY EUROPEAN COLONIZATION OF ST. CROIX (1621-1642)

By Alfredo E. Figueredo

The early European colonization of St. Croix usually is dismissed as a sequence of anecdotes (*cf.* Knox 1852), or reduced to two paragraphs (Dookhan 1974: 42-43). This is unfortunate, because through it we can gain insight into the initial stages of European colonization in the eastern Caribbean, and also begin to explain certain later developments on St. Croix itself. The task is made difficult—but not impossible—by very incomplete documentation.<sup>1</sup>

This paper is based upon the direct consultation of primary sources. It is therefore irrelevant to debate issues with historians who have not done likewise. The informed reader should check against this narrative any unfounded allegations based upon secondary and/or garbled sources: *e.g.*, the nonsensical statement that St. Croix was settled by Dutch and English colonists in 1625, who partitioned the Island between themselves.

Wright and van Dam (1935: 89, no. 1) have suggested that the earliest European settlement on St. Croix was that of some Frenchmen, who came in 1621 armed with a brief from the Admiral of France, Duc de Montmorency; Lewisohn (1970: 21) has repeated this suggestion, and it is time to dismiss it. According to the original document cited by Wright and van Dam (*loc. cit.*), *i.e.*, an undated letter to the Crown written by Juan de Vargas, governor of Puerto Rico (A.G.I. 54-3-7), and read before the Royal Council of War for the Indies on 29 April 1622 (*ibid.*), all involved was a party of Frenchmen building a long-boat on St. Croix in order to turn pirate. They had been left ashore by a convoy of 6 ships out of Dieppe bound for Guinea, and had finished their long-boat by the time the Spaniards came upon them (*ibid.*).

Juan de Vargas sent two frigates under his aide, Pedro Hernández, to oppose the interlopers, and Hernández was fortunate enough to capture eight Frenchmen and the long-boat, which he brought to San Juan. The captives were punished summarily for piracy, this being quite likely a euphemism for the gallows (*ibid.*). Juan de Vargas acted promptly against a party of boat-builders, but there was no colony with a commission from the Duc de Montmorency: only a thwarted piratical venture.

The importance of this event lies rather in that it is an early indication of French interest in St. Croix, an interest which would grow and lead to colonization eventually. Perhaps more significant is de Cahussac's expedition of 1629, which brought back to France such a glowing report of St. Croix (Lewisohn 1970: 24-25).

<sup>1</sup>Signatures preceded by 'A.G.I.' in this paper refer to 'Archivo General de Indias,' Seville, Spain. The system used by Wright and van Dam (1934-1935) has been adopted.

The distinction of being the first European settlers of St. Croix, however, belongs to the English, who in 1631 established a colony on the Island with substantial plantations of tobacco, maize, sweet potatoes, and watermelons (A.G.I. 136-6-13). The English were led by a brother of the governor of Barbados, whose name I have been unable to ascertain, and who had the good sense to bring his mistress along. He was described by his enemy and conqueror, Enrique Enríquez de Sotomayor, as 'a man of intelligence and discourse' (*ibid.*).

Captain Henry Hawley was governor of Barbados in 1631, and he had a brother, William, whom he trusted enough to name deputy governor in 1638 (Southey 1968: I, 269, 281); perhaps William Hawley was the 'brother of the governor of Barbados' who first governed St. Croix for England, and therefore (if we exclude Juan Ponce de León) the first Christian governor of a Virgin Island.

Regardless of whether it was William who first governed St. Croix, or another brother of whom notice has not reached us, it is patent that Captain Henry Hawley was behind the scheme to settle St. Croix, and likely that he (and his brother, particularly if it *was* William) supported later attempts as well. Henry Hawley is a man much abused by his contemporaries and by historians, labelled a firebrand; indeed, a person as often deposed from as appointed to high office (Southey, *loc. cit.*). Perhaps he has been misunderstood; at any rate, Captain Hawley's stature in West Indian history is such that his life must be assessed dispassionately and critically: firebrand or no, he undertook adventures whose consequences are still felt today. His brother, 'a man of intelligence and discourse', also most certainly deserves the attention of the historians of the Virgin Islands.

Four months after the English arrived on St. Croix, Enrique Enríquez de Sotomayor, governor of Puerto Rico, sent a tartan with some infantry to dislodge them. The Spaniards had a colorful time of it, sighting a ship of the Netherlands between Culebra and Vieques, and being set upon by a French ship as they were about to land on St. Croix. After a long struggle, the French broke off at nightfall and turned toward the Main. The Spaniards landed, met the English, and prevailed. The English plantations were uprooted, and all settlers brought as captives to Puerto Rico (A.G.I. 136-6-13).

Enrique Enríquez de Sotomayor reports that the English in Barbados were facing ruin due to depressed prices for tobacco in England, and the lack of fertile soil on the colonies of Barbados and St. Christopher's, which once bore good crops, but no longer did so. Despairing of their plight, they were investigating the possibilities available on St. Croix for agricultural enterprise, with an eye to abandoning Barbados altogether if St. Croix proved more fertile (*ibid.*). Something of Don Enrique's zeal for the defense of San Juan must be read into his report, and our assessment of it tempered accordingly. It is likely that many English settlers on Barbados and on St. Christopher's were dissatisfied

with conditions on those islands; it is unlikely that they were about to abandon either of them altogether.

What is clear is that the English were expanding, and that St. Croix had been selected as a goal for their expansion. Another thing which is clear is that Spain would not allow St. Croix to fall into unfriendly hands, leaving San Juan (in Don Enrique's words):

deprived of intercourse and commerce with Cumaná, Caracas, and Margarita, and almost of the ships from Spain and the Canary Islands as well, since their precise crossing is between Santa Cruz and St. Christopher's, a venture impossible without obvious risk; besides, this land would be deprived of the turtle fishery, which being its chief sustenance it is also upon that Island in which it is more abundantly caught, leaving [the City] scarcely less than beleaguered and difficult to succour [...] (*ibid.*)

Don Enrique destroyed the English colony late in 1631 because he did not want 'the fame of this land's fertility to draw the people from the other islands to settle and fortify this one' (*loc. cit.*).

Don Enrique was to face enemies on St. Croix a second time, when the first French colony was established in 1634 (A.G.I. 54-3-7). In his letter to the Crown dated 20 February 1635 (*ibid.*), Don Enrique states how he sent forty men (between soldiers and settlers) in a frigate, to attack the French on St. Croix, and how the Spaniards lost one soldier and one settler in the engagement, taking six Frenchmen prisoners and killing ten, and burning the straw huts [*bujios*] and plantations of the French.

Don Enrique's successor, Iñigo de la Mota Sarmiento, bore the brunt of a massive English onslaught on St. Croix. Don Iñigo is *the* Spaniard vituperated by John Milton (1937:541) for destroying the English on 'Sancta Cruce' in March, 1636; to be fair, the English, evacuating Tortuga, came to St. Croix in great strength; Don Iñigo had only twenty soldiers and a motley following of seamen and settlers to send (as is clear from his letter to the Crown, 27 March 1637—A.G.I. 54-3-7), but he also had a capable lieutenant to lead them, his aide Domingo Rodríguez. The heroism displayed by Rodríguez and his improvised warriors was such that it permitted Don Iñigo to report laconically: 'Enemies occupied the Island of Santa Cruz, so harmful to the safety of this one, with very considerable strength; they were dislodged by these arms, even to the benefit of the royal treasury' (letter to the Crown, 28 August 1638—*loc. cit.*).

A perusal of the governors' reports for these years (so bloody for Spain) is necessary to assess the magnitude of Rodríguez' deed, and the valor of the Puerto Rican settlers: the garrison in San Juan was scarcely manned, its treasury knew only penury. It took the noblest loyalty to King and country to fight (and win!) against superior forces repeatedly, gaining nothing but the satisfaction of a job well done. If the royal governors and their troops acquitted themselves bravely, the creoles did no less, and gave victory its wings.

The years to follow the debacle of 1636 left Spain in control of the Archipelago. Nonetheless, some interesting activity is apparent during these

years, and this activity, it will be seen, foreshadows the developments to come with the next decade.

It was in 1636 that the Zealander Jan Snouck sent two ships to the Caribbean with a charter from the Dutch West India Company to settle St. Croix (Hartog 1964: 54). The fighting on the Island between Spaniards and Englishmen doubtless motivated Snouck's Commander, Pieter van Corselles, to settle St. Eustatius instead, but St. Croix was not forgotten.

How the merchants of Flushing became interested in St. Croix, dragging the United Provinces with them, is something which is unclear at present. The Zealanders were not to forget St. Croix. Three years after their detour, Don Iñigo reports that Dutchmen and Frenchmen had formed a company to settle the Island (first enclosure in letter to the Crown, 6 April 1639—A.G.I. 56-1-13 A). Equally alarming to the Puerto Rican governor were the activities of the English, who visited St. Croix in strength *en route* to Tortuga (second enclosure, *loc. cit.*). Three nations were about to converge on the chief of the Virgins.

The English were the first to arrive once more, probably in February of 1641.<sup>2</sup> They came ruled by the proprietary patents, in somewhat feudal style, under a Colonel William Caverly, governor, who held a grant from the Earl of Carlisle. Caverly did not govern directly, he sent instead a deputy, Thomas Brainsby, to do so for him. The colonists (including Brainsby) were recruited from St. Christopher's.

The English under Brainsby had uncontested possession of the Island for 14 months (*ibid.*). At the end of that period—probably in mid-April, 1642 (Lewisohn 1970: 26)—the English were set upon by a party of Zealanders, 'the chiefe of whom were one called Capoone & another called Snooke, who landing in the said Isle pistolled the said Deputy Governor Brainsby, hanged 11 of his men and forcibly possessing themselves of the said Isle' initiated a fascinating period in the history of St. Croix (*loc. cit.*).

Louys Capoen, the high-handed new Dutch governor of St. Croix, represented his *patroons* Jan Snouck and Claes Corneliszoon Brouckaert. The Chamber of Zealand of the Dutch West India Company controlled the Island now, and the control was monopolistic (*cf.* Downing 1863: 538).

Snouck and Brouckaert were prominent Flushing merchants involved in many schemes throughout the eastern Caribbean and the Guianas. Their conquest of St. Croix proved to be a 'costly adventure', as the new colony absorbed an investment of £200,000 in gold within three years (Hartog 1964: 60). Let us see how this expense might have been incurred.

For a settlement under the Dutch West India Company to rate a *patroon* (as St. Croix did), it must have a minimum of 20 households of three members each (Goslinga 1971: 263, 493). At least 60 men would have been employed at

<sup>2</sup>To the right honorable the Committee for forreine affaires: The humble petition of Elizabeth Terresa wife of Colonel William Caverly Esquier Governor of the Island of S<sup>t</sup><sup>c</sup>Cruse in the behalfe of her said husband, hee being infirm and beyond the Seas' (14 April 1652)—Public Record Office, U.K.

the Dutch fort,<sup>3</sup> which mounted 11 cannon as of 23 January 1643 (letter of Juan de Bolaños to the Crown, A.G.I. 54-3-16); the total number of fighting men by this time is set at 300, in three towns (*ibid.*).

It is not our task now to go beyond 1642 and narrate the history of Dutch St. Croix, or to continue through the English (1645-1650) and French (1650-1696) periods that follow: 1642 represents the first major fortification of St. Croix, and hence, to that extent, the beginnings of permanent European settlement. The Island may change hands twice yet, but until 1696 it was never truly abandoned—always, the forts were manned!

Seeds for change were sown in 1642. Capoen, in his arbitrary fashion, overpowered the English, but did not expel them. They remained, to rebel in 1645 and spoil Snouck and Brouckaert's enterprise. It will be remembered also that the French were in league with the Dutch since 1639 in order to settle St. Croix; 120 Frenchmen came to St. Croix under the Dutch (mostly from St. Christopher's); they were to be expelled by the English in 1645 as allies of their enemies the Dutch, but this second experience on St. Croix (the first was in 1634) was to be useful: five years after being expelled, the French returned as masters.

Thus Bolaños, at the very beginning of 1643: three towns, *i.e.*, one Dutch, one English, one French. The Island was not partitioned, but ruled by the misguided Capoen with an iron hand, under the aegis of the monopolistic Dutch West India Company. All shipping, *e.g.*, was in Dutch hulls (*vid. Downing loc. cit.*). If we add that Spain remained (until at least 1686) *actively* interested in destroying any settlements by other powers in the Virgin Islands, many sources of deadly conflict are present, and every one of them came to play its part in turn.

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<sup>3</sup>Almost certainly on the site of Fort Salé.

## Bibliography

### Dookhan, Isaac

- 1974 *A History of the Virgin Islands of the United States*. Charlotte Amalie: College of the Virgin Islands.

### Downing, George

- 1863 Sir George Downing to John Winthrop, Jr. *Collections of the Massachusetts Historical Society*, Fourth Series, vol. VI, pp. 536-540.

### Goslinga, Cornelis Christiaan

- 1971 *The Dutch in the Caribbean and on the Wild Coast 1580-1680*. Gainesville: University of Florida Press.

### Hartog, Johannes

- 1964 De Bovendwindse Eilanden Sint Maarten-Saba-Sint Eustatius. Eens Gouden Rots nu Zilveren Dollars. *Geschiedenis van de Nederlandse Antillen*, IV. Aruba.

### Knox, John P.

- 1852 *A Historical Account of St. Thomas, W.I., . . . and incidental notices of St. Croix and St. Johns*, New York: Charles Scribner.

### Lewisohn, Florence

- 1970 *St. Croix Under Seven Flags*. Hollywood (Florida): The Dukane Press.

### Milton, John

- 1937 Scriptum Dom. Protectoris Reipublicae Angliae, Scotiae, Hiberniae, &c. Ex consensu atque sententiâ Concilii Sui Editum; In quo hujus Reipublicae Causa contra Hispanos justa esse demonstratur. [orig. publ. 1655] *The Works of John Milton* (New York: Columbia University Press), vol. XIII, pp. 509-563.

### Southey, Thomas

- 1968 *Chronological History of the West Indies*. London: Frank Cass & Co., Ltd. 3 vols.

### Wright, Irene Aloha, and Cornelis Frans Adolf van Dam

- 1934-1935 Nederlandsche Zeevaarders op de Eilanden in de Caraïbische Zee en aan de Kust van Columbia en Venezuela gedurende de jaten 1621-1648 (9). Documenten hoofdzakelijk uit het Archivo General de Indias te Sevilla bijeengebracht en uitgegeven door Irene A. Wright B.A., met vertalingen der documenten door Prof. Dr. C. F. A. van Dam. *Werken uitgegeven door het Historisch Genootschap (gevestigd te Utrecht)*, Derde Serie, nos. 63-64.

# THE GORDON HILL SITE, CROOKED ISLAND, BAHAMAS

By Julian Granberry

## Background

During February and March 1934 Froelich G. Rainey, then a graduate student at Yale University, conducted an archaeological site survey of the Bahamas on behalf of the Yale Peabody Museum. This expedition, part of Yale's ongoing Caribbean research program, was made possible by Mr. Allison V. Armour of New York, who invited Rainey to accompany him on his research yacht *Utowana* for a general survey of archaeological sites in the Bahamas and, particularly, Haiti (Rainey 1941: 3). A brief account of the survey is contained in part 1 of volume XVIII of the *Scientific Survey of Porto Rico and the Virgin Islands* (Rainey 1940) and detailed information is available in his field notes (Rainey 1934), which are on file in manuscript form at the Yale Peabody Museum in New Haven.

Dr. Rainey undertook investigation on eleven islands, including: Grand Bahama, Great Abaco, New Providence, Eleuthera, Cat Island, Conception Island, Rum Cay, San Salvador, Long Island, Crooked Island, and Great Inagua. Other islands, including Mira Por Vos and the Fish Cays, were visited briefly during the course of the voyage. A considerable amount of Dr. Rainey's material, particularly the stone celts, was purchased at various islands along the route. Fifteen productive sites, however, were also located.

Primarily because of time limitations—the goal of the expedition was Haiti, and the survey of the Bahamas was intended only as a reconnaissance—Rainey did not have the time to undertake a great deal of excavation. Only one site, the Gordon Hill site on Crooked Island, was completely excavated. This, however, remained the only methodical and professional excavation of a prehistoric site in the Bahamas until Charles Hoffman's excavation of the Palmetto Grove site on San Salvador in 1965 (Hoffman 1967, 1970). At the time—1934—the site and, indeed, the Bahamas themselves were not considered important enough to Caribbean culture history to merit a published excavation report. The data have consequently remained unpublished until now. A report, however, is needed, as is indicated by the increasing amount of professional interest and work in the archipelago during recent years (Hoffman 1967, 1970; MacLaury 1968, 1970; Sears and Sullivan 1978; Sullivan 1974, 1976; Winter 1974, 1978a, 1978b), including particularly Winter's work at the McKay site on Crooked Island (Winter 1978a, 1978b). Certain questions concerning ceramic typology, raised primarily by Sears and Sullivan's article in

*American Antiquity* in January 1978, are of crucial importance to Bahamian archaeology and need to be resolved as soon as possible. The Gordon Hill data have pertinence here.

Though Rainey's material has been referred to and used as example, apparently without review (Sears and Sullivan 1978: 6, 7, 11, 17), no one other than Dr. Rainey himself and the present writer seems to have been interested enough to actually examine it physically. The physical examination and accompanying notes taken, however—done by the writer in 1949 and again in 1954—paint a picture rather at odds with the more monolithic view of Bahamian ceramics given by Hoffman (1967, 1970), Sullivan (1974), and Sears and Sullivan (1978). Because it is important that alternate views become part of the published record, the writer has taken it upon himself, with Dr. Rainey's permission (Rainey 1978), to prepare the present report.

### The Site and its Excavation

Rainey spent five days on Crooked Island. On the north end of the island, near Gordon Bluff, a series of caves in a limestone ledge about five hundred yards from the shore were located—they had been discovered the year before, 1933, by Dr. Thomas Barbour and Dr. James Greenway of the Harvard Museum of Comparative Zoölogy. Between the caves and the shore crops had been planted at the time that Rainey was on the island.

Seven caves in this series were dug. Four of these had been partly dug out at an undetermined earlier date for cave-earth, which is locally used in the Bahamas as fertilizer, and it was therefore not possible to say whether or not they had contained any cultural deposit. In two other caves, however, burials were found, and in a third cave—the one of primary concern to us—there was an undisturbed culture deposit.

Two primary burials were found in the first, low and open, burial cave. Whether they represent multiple, successive, or just more than one burial, is unknown. The first skeleton, the upper part quite fragmentary, was lying on its left side with the legs partly flexed on a small rock shelf on the cave floor just beneath the earth. Its finger bones covered the pubic region. Only the lower part of the skeleton was complete; the torso bones and most of the cranium were missing, and the cranium fragments themselves were found eight inches below the surface, while the pelvis was fourteen inches below. Other parts of the torso and the cranium were recovered on digging around the skeleton. Part of the cranium and the jaw were found two and a half feet from the skeleton. These pieces fitted the cranium fragments *in situ* and were therefore assumed to belong to it. The earth around the skeleton contained bird, rat, and hutia (*Capromys ingrahami*).



FIGURE 1  
Entrance to the Dwelling Cave

At the south side of the cave, where it sloped up to the entrance, a second burial was found. It, too, had been disturbed, although the pelvis and upper ends of the femurs were in place. The burial lay on the rock floor of the cave. A few stray bones belonging to this skeleton were found on the north side of the cave as well (Rainey 1934: 20-22; 1940: 152).

In another low cave immediately adjacent to the first, a pelvis, radius, ulna, and many other stray bones were found on the rock floor of the cave where it sloped up near the entrance. The radius and ulna seemed to be in original place of deposition. Most of the cave had been dug out for cave-earth, however, and it could not be determined whether there had originally been more than one burial or not (Rainey 1934: 22).

The single cave showing any sign of occupation was about 120 square meters in area and consisted of a central chamber about eight feet high and two smaller side chambers averaging four and five feet high respectively.

Forty-seven meter squares and a test pit were excavated.

The cave was laid out in meter squares and taken down by natural strata. All culture deposit was within the first thirteen inches, two or three inches of recent, sterile surface sand being immediately underlaid by three to four—never more than eight to ten—inches of blackened sand containing the culture deposit. Sub-sand of a whitish-yellow, varying from two to three feet in depth, lay between the culture deposit and bed rock.

The front and rear of the cave contained the greatest amount of cultural material. The richest deposits were up against the walls, while the low chambers at the sides were completely sterile. Fire-pits were numerous, though never more than nine to ten inches deep. Charcoal appeared all over the cave floor. Hutia, fish, and bird bones, and some clam and *Strombus* shells were found in the refuse deposit. Conch feet were very numerous. One cut and cracked human bone was found near the entrance of the cave, and fragments of human bone were found in the field in front of the cave. It is likely that some

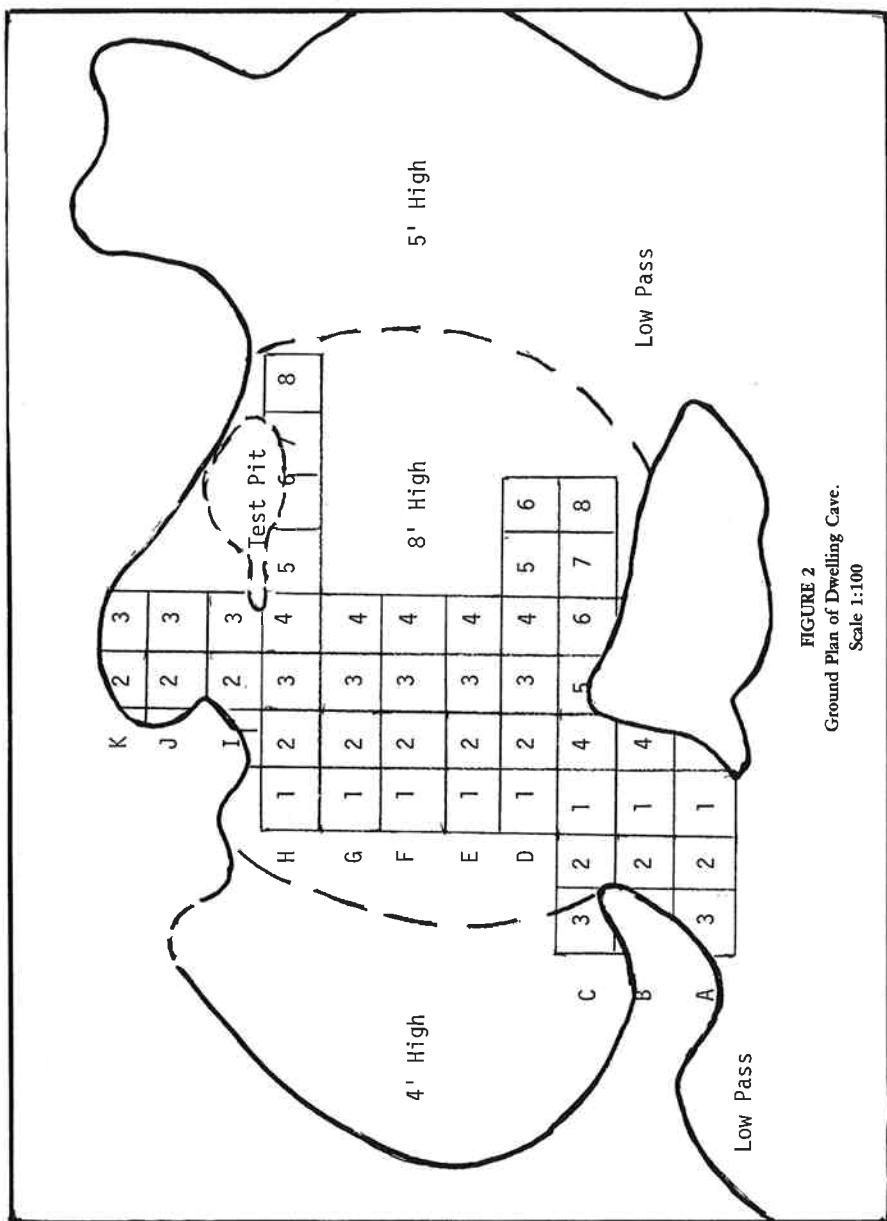


FIGURE 2  
Ground Plan of Dwelling Cave.  
Scale 1:100



FIGURE 3  
The Culture Strata

earth had been removed from the cave at some prior date and that the bone fragments were thrown out along with the cave-earth then.

### The Artifacts

Specimens were found in the test pit and in 24 of the 47 sections excavated. The other sections contained refuse but no cultural material as such. Of the specimens 29 are non-ceramic, some fragmentary, while a total of 225 are ceramic sherds of various sizes, none large.

The non-ceramic artifacts, partly illustrated in Fig. 4, were: two bone points; one point made from the bone barb of a stingray; four bone awls, a bone gouge; six finely made, though small (averaging less than an inch from top to the bottom of the curve of the hook), wooden fishhooks; a fire-board, a *Strombus* cup; a fragmentary, pierced, *Strombus* pendant; an inlaid tortoise shell bracelet; four shell beads made from the Bleeding Tooth (*Nerita* sp.), and various probably worked, fragmentary pieces of bone representing unclassifiable artifact types if, indeed, they were artifacts.

The ceramic wares fall, descriptively, into five classes. I will at this stage avoid the terms *series*, *type*, *style*, etc., since these are part of the current problem in defining Bahamian ceramic wares. The descriptions are taken from my defini-

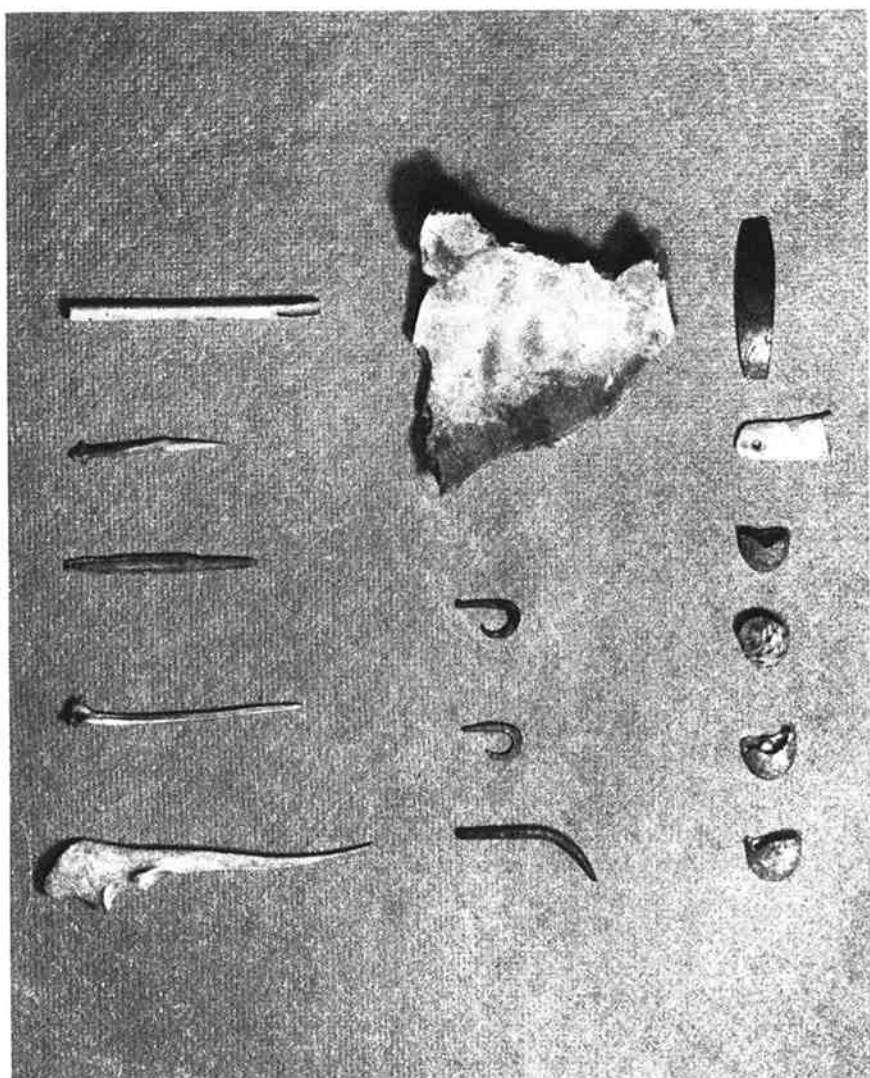


FIGURE 4.

Selected Non-ceramic Artifacts

Top Row: Bone awl, bone awl, stingray barb point, bone awl, bone gouge

Center Row: Three wooden fishhooks, *Strombus* cup

Bottom Row: Four *Nerita* shell beads, fragment of a pierced shell pendant, turtle shell bracelet (in-laid)

tion of 1952, contained in a paper entitled *A Preliminary Ceramic Typology and Chronology for the Bahamas* (Granberry 1952), on file in manuscript form at the Yale Peabody Museum. Rather than use type and series designations, as I did then, I will simply number them and use gross descriptive labels for purposes of identification.

#### 1. RED SLIPPED

*Paste:* Probably Bahamas Red Loam.

*Method of Manufacture:* Coiled and fired in an oxidizing atmosphere.

*Temper:* Sparsely tempered with shell particles of moderate size.

*Texture:* Moderately to finely granular. Relatively friable.

*Hardness:* 3.5 to 5.5 on Moh's scale. Average between 4 and 4.5

*Color:* Grey to light black. Core sometimes darker.

*Surface texture, color, and finish:* All specimens have a moderately thick to thin dark brick-red clay slip. It was applied before firing, for it is firmly united to the body paste from which it is, nevertheless, distinctly demarcated.

*Form:* Rims may be rounded or flat, rounded rims predominating and occasionally showing complex bevelling techniques. Thickness ranges from 6 to 14 mm, the average being 7-10 mm. There is insufficient data to postulate other statements on form other than to suggest that the curvature of body sherds would seem to indicate that the typical specimen was a bowl of moderate size.

*Decoration:* None.

#### 2. PLAIN

*Paste:* Bahamas Red Loam, moderately to finely granular.

*Method of Manufacture:* Insufficient evidence; probably coiled

*Temper:* Moderately tempered with shell particles of medium size.

*Texture:* Fractured surfaces are earthen and friable.

*Hardness:* 2.5 to 5.5 on Moh's scale. Average between 3 and 3.5

*Color:* A uniform red, ranging from buff to brick-red, due probably both to firing variations and differences in the clay used for manufacture.

*Surface texture, color, and finish:* Both inside and outside surfaces are relatively smooth and moderately polished, occasionally reflecting light. Exterior surfaces are often coated with soot.

*Form:* A thick-walled vessel, probably a bowl, either round or boat-shaped. Rims are usually round, though flat rims occur. Round rims are bevelled, either on the exterior or interior. Interior-bevelled rims flare slightly on the exterior side, and rims tend to taper slightly. Shoulders are rare. Insufficient evidence for further description.

*Decoration:* None.

#### 3. INCISED-PUNCTATE

*Paste:* Identical with PLAIN.

*Method of Manufacture:* Identical with PLAIN.

*Temper:* Identical with PLAIN.

*Texture:* Identical with PLAIN.

*Hardness:* Identical with PLAIN.

*Color:* Identical with PLAIN.

*Surface texture, color, and finish:* Identical with PLAIN.

*Form:* In general similar to PLAIN, though flat rims predominate. A few specimens have necks formed by a slight outturn of the shoulder. The outturn is abrupt and is highlighted by an incised line, encircling the vessel in all probability, and dividing the neck from the body proper. This *may* indicate jar forms, though there is not sufficient evidence to postulate this with any certainty.

*Decoration:* Cutting, engraving-incision, and modelling were the decorative techniques used, with engraving-incision predominating. Modelled zoomorphic lugs seem to have occurred, as do strips on outside rims. There is insufficient evidence to clearly define design distribution, but dominant designs are: oblique parallel lines, curved incised lines, line and dot incision, and curvilinear incision.

#### 4. CHECK MARKED

*Paste:* Same as PLAIN

*Method of Manufacture:* Identical with PLAIN

*Temper:* Identical with PLAIN.

*Texture:* Identical with PLAIN.

*Hardness:* Identical with PLAIN.

*Color:* Identical with PLAIN.

*Surface texture, color, and finish:* Identical with PLAIN.

*Form:* The sherds of this variety of ware are too small to reconstruct vessel shape or size. They vary from 7 to 12 mm in thickness and show no wall curvature, though their thinness would seem to indicate that they were from vessels and not griddles.

*Decoration:* A mat pattern, the impressions consisting of square checks approximately 4 mm. across. All sherds found are completely covered with the impressed pattern. This *may* imply that the design covered the total vessel or, of course, because of the basic similarity of this ware, other than in decorative design, to PLAIN, it may have covered only apartial area.

#### 5. WHITE ON RED

*Paste:* Identical with PLAIN.

*Method of Manufacture:* Identical with PLAIN.

*Temper:* Identical with PLAIN.

*Texture:* Identical with PLAIN.

*Hardness:* Identical with PLAIN.

*Color:* Identical with PLAIN.

*Surface texture, color, and finish:* Sherds of this ware have what seems to be a thin white limestone slip on both exterior and interior surfaces (but not on broken edges). The slip is chalky, rubs off easily, and is not united with the body paste.

*Form:* Identical with PLAIN.

*Decoration:* Identical with PLAIN.

In addition to these wares, all shell-tempered, two sherds of plain, unslipped ware with a yellow-brown paste and quartz temper were found in section J-3. Since quartz is not found in any part of the Bahamas, these are obviously trade ware from one of the neighboring quartz-bearing islands of the Greater Antilles.

Of the remaining 223 sherds recovered by Rainey, 102 are RED SLIPPED, 79 are WHITE ON RED, 8 are CHECK MARKED, 12 INCISED-PUNCTATE, and 22 are PLAIN. This, obviously, is too small a sample to postulate definite styles or types. However, those twenty-nine year old definitions show interesting relationships to more recent definitions of Bahamian wares, as will be seen.

It should be added that sherds of all five varieties are found at the same levels within the culture deposit. Though Rainey did not excavate by arbitrary depth levels, he specifically mentions the fact that no one kind or combination of kinds of wares came from a specific depth level. Nor is there a concentration of one or more varieties in any specific area section of the site. It can specifically be noted that PLAIN ware sherds and WHITE ON RED sherds often occurred in the same site sections. This is of interest inasmuch as it has been suggested, in a Haitian context, that such a slip is really a natural coating acquired from

the soil since sherd deposition (Rouse 1941: 114-115). This was initially the feeling of this writer until the above fact was noted in the progress of the analysis of the artifacts and their distribution. It is, certainly, nevertheless the case that WHITE ON RED as a ware may be a figment of the analyst's imagination. Its occurrence in other sites should be carefully checked before any final statement is made.

### Discussion

It is of interest to note that Winter (1978b:237-238) in his excavations at the McKay site, also on the north coast of the island, describes precisely the same varieties of ceramic wares, with the exception of WHITE ON RED. Of the 608 sherds recovered, he reports five quartz-tempered sherds, including two with the light-brown paste also found at Gordon Hill. He also reports 17 RED SLIPPED sherds, while the remainder fit rather exactly into the category I have called simply PLAIN. His finds verify the postulated large circular vessel form and the boat-shaped vessel form, suggested by the Gordon Hill data (Winter 1978b: 238).

In my original analysis of Bahamian ceramic wares, including those from Gordon Hill (Granberry 1955: 202-222), I suggested a Haitian origin for Bahamian pottery-making techniques and designs, though I pointed out (Granberry 1956) that Ostionoid and Cuban Baní characteristics could also be seen. I made this suggestion largely on the presence of some gross near-identities between Haitian Meillac and what I have here called RED SLIPPED on the one hand and, on the other hand, Haitian Carrier and what I have called here PLAIN, INCISED-PUNCTATE, CHECK MARKED, and WHITE ON RED.

The primary linking characteristics between Haitian Meillac and RED SLIPPED were the red slip itself, the relative hardness of the pottery and, when present in decorated RED SLIPPED variants, not found at Gordon Hill, the type of decorative design and technique—primarily straight, cut-line incision with little curvilinear design, punctuation, or modeling. The main linking characteristics between Haitian Carrier and the series of wares called here PLAIN, INCISED-PUNCTATE, CHECK MARKED, and WHITE ON RED were the relative softness of the wares, the questionable white slip, and, most importantly, the presence of modelling, curvilinear designs, punctuation, and the total lack of red slip.

These are, of course, hardly sufficient similarities to say that the wares *are* Meillac and Carrier, as I have apparently been misunderstood as saying (Sears and Sullivan 1978: 6, 15; Sullivan 1974: 8). With other traditionally defined pottery types, which may or may not stand the light of further scrutiny now that more data is available, I called (Granberry 1952: 13) RED SLIPPED a type

in a *Bahamian Meillac Series*. I did not refer to the ware as Meillac. In the same manner, I included all of the remaining four wares (Granberry 1952: 15-20) as *Bahamian Carrier*, not as Carrier proper. It is unfortunate, in this later perspective, that I did not publish my 1952 paper at that time, for it would have obviated the need to clarify my ceramic statements at this late a date. Winter (1978b: 238) also notices the Meillacoid and Chicoid traits in the same kinds of pottery wares that I did from Rainey's Gordon Hill data.

It is, I think, of considerable importance to note that the ware definitions I have recapitulated in this paper from my 1949 analysis are almost identical to those for *Palmetto Plain* (my PLAIN) *Palmetto Mat Marked* (my CHECK MARKED), *Palmetto Molded Applique* and *Palmetto Punctate Incised* (my INCISED-PUNCTATE) as given very adequately, and with considerably more of a data-base than I had, by Sears and Sullivan (1978: 12-13). That is, what they are calling, after the initial use of the term by Hoffman (1967), the Palmetto Series is identical to what I had been calling the Bahamian Carrier Series. My choice of terms was, of course, framed within the data available in the late 1940's, while theirs is framed within a much wider picture. The term Carrier was used by me not in slavish imitation of Rouse (Sears and Sullivan 1978: 6-7), but simply because the Chicoid traits, specifically Haitian Carrier-like traits of the series seemed paramount then. In truth, they still do today, though there is certainly no objection to calling the series Palmetto, since Carrier may to some seem to restrict the probable or possible historical origins of the series to Haiti (Sears and Sullivan 1978: 15).

To limit the wares of the Bahamas, however, to the Palmetto Series, calling everything else 'trade ware', by implication, seems too simplistic to this writer. Sears and Sullivan (1978: 14) refer to the absence of a red slip in Palmetto wares, but they nowhere mention the fact that such slipped ware does occur. In fact, I found (Granberry 1952: 14) that it was the most frequently occurring ware in northern Bahamian sites, defined then as including the Exumas and Cat, but not San Salvador, Rum, Long Island, nor the Ragged Chain. This statement was based on the examination in 1949-55 of *all* then known Bahamian collections. Hoffman (1970: 7) refers to a 'red slipped, black core' sample of sherds, though admittedly only a total of six, at the Palmetto Grove site on San Salvador. They occurred at all levels of the site. Sullivan (1974: 30), in describing the color of Palmetto Plain ware, states that, though normally red, cores may be dark grey-brown. One wonders whether he may not actually be lumping red slipped ware with Palmetto Plain.

In any case, the red slipped ware that I have defined is *not* trade ware, since it seems to be made from local Bahamas Red Loam and is always shell-tempered. These are not the finely made, quartz-tempered true Meillac trade wares known from the Caicos (Sears and Sullivan 1978: 16). Furthermore, they coexist, at Gordon Hill and the McKay sites, and, to judge from Hoffman (1970: 7) at the

Palmetto Grove site as well, with Palmetto (as I will join Sears and Sullivan in calling those wares, though I will not go so far as to use the term series).

The crux of the problem lies in the determination for a certainty if, as Winter, Hoffman, and I have indicated, there actually *is* a red slipped ware, or, as Sullivan, in the previously cited instance, seems to imply, that it is, rather, a kind of pseudo-slip caused by firing variations.

If the RED SLIPPED ware is not spurious, but is, indeed, the representative in the Bahamas of something Meillacoid or Ostionoid-Meillacoid, then, from the Gordon Hill data, substantiated by the data from the McKay site (Winter 1978b), it coexisted with the more Chicoid Palmetto wares, the full panoply of which, as defined by Sears and Sullivan, is present at Gordon Hill. To judge from Winter's radiocarbon dates for the McKay site (1978b: 238-239), we are talking about the middle 1200's A.D.

If, in turn, this is so, it has far-reaching implications for the reconstruction of Bahamian culture history. It means that both Ostionoid-Meillacoid and Chicoid traditions reached the archipelago, whether through migration of peoples or trait movement, as separate movements. They probably stemmed from separate Haitian traditions, coming sequentially into the archipelago. Certainly what I have called Bahamian Meillac and what we all seem to agree now to call Palmetto wares are but areal variations on the Meillacoid and broad Chicoid themes further south. There seems no reason to assume that Palmetto ware is a *strictly* indigenous amalgam from almost simultaneous Ostionoid, Meillacoid, and Chicoid themes from—to avoid the question—unknown and undeterminable multiple places of origin (Sears and Sullivan 1978: 7, 9, 15-16). *Certainly* the bulk of the pottery itself is indigenous; *certainly* the Lucayans built their own ceramic traditions—but from a helter-skelter base? It seems unlikely, given the kind of data provided by Gordon Hill and the McKay sites, to name just two.

Of considerable interest, perhaps, is the dual use of the term *style* and the term *series* by Rouse, on the one hand, and Sears and Sullivan, on the other. It seems that Sears and Sullivan both equate *style* with the standard term *type*, or that, at least, they are implying that a style underlies a type. To them, quite clearly, a *series* consists of a number of historically related styles (or types, as you will). To Rouse, however, this is not at all the case. What is now called Palmetto would, including all the sub-categories of Plain, Mat Marked, Molded Applique, and Punctate Incised, constitute a single *style*, the Palmetto, *not* a *series*. That *style* could, then, be seen as an historical part of a larger series. My personal candidate for the series would be Chicoid, since Chicoid traits seem to me to dominate the Palmetto wares that I have examined over the past twenty-nine years. If Sears and Sullivan see equal elements of Ostionoid, Meillacoid, and Chicoid influence, which is difficult to rationalize historically, the burden of proof is certainly on them. So far it has not been provided.

It is almost trite to say that more excavation and analysis is needed, but it certainly is so. Until that time, there is the sticky problem of coexistence of Meillacoid wares and Chicoid wares of the Palmetto style within single sites in the Central Bahamas. There is also the more fundamental problem remaining: what theoretical framework shall we use to describe the Bahamian wares—the McKernian typological framework so usual in American anthropology, or Rouse's already widely used and very adequate framework? Perhaps—for it would easily work—we might consider using both, on different levels of analysis.

## Bibliography

### Granberry, Julian

- 1952 *A Preliminary Ceramic Typology and Chronology for the Bahamas*. Manuscript on file at the Yale Peabody Museum, New Haven.
- 1955 *A Survey of Bahamian Archeology*. Thesis on file at the University of Florida Library, Gainesville, Florida.
- 1956 The Cultural Position of the Bahamas in Caribbean Archaeology. *American Antiquity*, vol. 22, no. 2, pp. 128-134.

### Hoffman, Charles A. Jr.

- 1967 *Bahama Prehistory: Cultural Adaptations to an Island Environment*. Ph.D. Dissertation, University of Arizona, Tucson.
- 1970 The Palmetto Grove Site on San Salvador, Bahamas. *Contributions of the Florida State Museum, Social Sciences*, No. 16, pp. 1-26.

### MacLaury, James C.

- 1968 *Archaeological Investigations on Cat Island, Bahamas*. Thesis, Florida Atlantic University, Boca Raton, Florida.
- 1970 Archaeological Investigations on Cat Island, Bahamas. *Contributions of the Florida State Museum, Social Sciences*. No. 16, pp. 27-50.

### Rainey, Froelich G.

- 1934 *Diary Beginning January 22, 1934, upon Arrival in Port-au-Prince, Haiti*. Manuscript on file at the Yale Peabody Museum, New Haven.
- 1940 Porto Rican Archaeology. New York Academy of Sciences: *Scientific Survey of Porto Rico and the Virgin Islands*. Vol. XVIII, pt. 1.
- 1941 Excavations in the Ft. Liberté Region, Haiti. *Yale University Publications in Anthropology*, No. 23.
- 1978 Communication from Dr. Froelich G. Rainey to Julian Granberry, 31 July 1978.

### Rouse, Irving

- 1941 Culture in the Ft. Liberté Region, Haiti. *Yale University Publications in Anthropology*, No. 24.

### Sears, William H. and Shaun D. Sullivan

- 1978 Bahamas Prehistory. *American Antiquity*, vol. 43, no. 1, pp. 3-25.

### Sullivan, Shaun D.

- 1974 *Archaeological Reconnaissance of Eleuthera, Bahamas*. Thesis, Florida Atlantic University, Boca Raton, Florida

- 1976 *Archaeological Reconnaissance of the Turks and Caicos Islands, British West Indies*. Report submitted to the Government of the Turks and Caicos.

Winter, John H.

- 1974 Bahamas. Charles A. Hoffman Jr., Caribbean, in Mary Elizabeth Wing, Current Research, *American Antiquity*, vol. 39, no. 2, part 1, p. 381.
- 1978a A note on Bahamian Griddles. *Proceedings of the Seventh International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles*, pp. 231-236.
- 1978b Preliminary work from the McKay site on Crooked Island. *Proceedings of the Seventh International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles*, pp. 237-242.

# JAMAICAN REDWARE

By James W. Lee

## Previous Literature

The earliest recognition of Jamaican Redware as a separate style of pottery was recorded by Marian DeWolf (1953) when she described material excavated from three sites in the Parish of St. Ann during 1933. Two of the digs produced typical Meillac or Sub-Taino pottery that today would be classified as White Marl style but the third site at Little River (now coded A-15) contained earthenware sherds distinctly different from the usual Indian wares of Jamaica.

DeWolf refers to Rouse (1951: 256) who had stated that sherds of the early Ostiones style of Puerto Rico 'retain (from still earlier Cuevas) such characteristics as painting or polishing of restricted surfaces but bowls are straight-sided instead of bell-shaped and handles looped rather than D-shaped'. She then described the Little River style as between Cuevas and Ostiones based on the following features:

curvature of the surface; simplicity of decoration; ware, medium fine grained but poorly fired; color; reds, tans, and greys; average thickness 0.5 cm; shape, open bowls with some flat bottoms; shoulder, straight or incurving; rim, tapered to the lip; lip, rounded or flat; D-shaped handles, amorphous and tab lugs; some painting and rubbing of restricted areas.

Rarity of incised decoration helps link this style to Cuevas but most other evidence favors early Ostiones. The resemblance to Cuevas-Ostiones is said to be subtle yet unmistakable.

The other six sites lie between Luana Point and Alligator Pond on the south coast. Two are of small extent, shallow and much disturbed—A-6 and A-8; two others—Great Bay (E-4) and Alligator Pond (E-5) have been adversely affected by sand excavators and the last pair, Calabash Bay (E-11) and Bottom Bay (M-4), which are the most extensive and least disturbed sites are both liable to future damage through housing development schemes.

Earlier writers have described the graceful, simple, and artistic qualities which set Redware apart from the brusque, sturdy White Marl style. It should be stated that, in site selection too, these primitive peoples had different tastes. Every Jamaican Redware site is located right at the high water mark, adjacent to a sandy beach, and the settlements built on sand soil. The midden deposits are rarely undisturbed, whether by man or nature. Sherds at the E-5 site appear to have been scattered by storm waves, (a hurricane, perhaps) and similar evidence is seen at E-6 and E-8. By contrast, the later Arawaks almost always chose raised ground or even hill-tops for their villages and preferred marl subsoil for its firmness and good drainage.

## Red Pottery

By far the most conspicuous feature is a red slip or paint applied to the shoulders of vessels. These bowls had flattish to gently rounded bottoms and nearly vertical or slightly incurving sides. Once the angle is turned from side to bottom, no more red slip. Not all rim sherds exhibit the red color and this may mean either that some bowls were originally unpainted or that the red has worn off. Certainly the red pigment rubs off or washes away easily from some freshly excavated sherds.

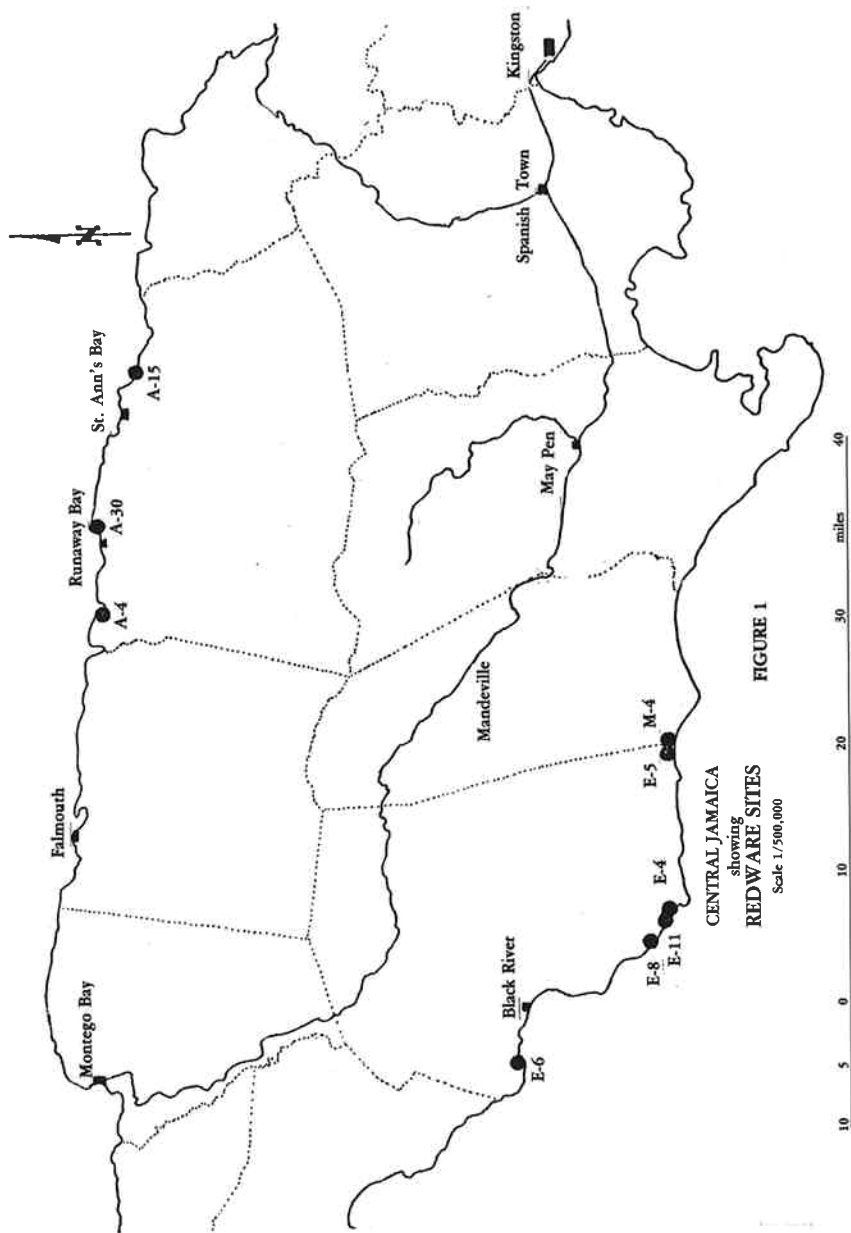
Well formed zoöomorphic handles were popular, especially the turtle motif but 'D' handles were by far the most common (see Fig. 1). Other decorations depicted fish, birds, snakes, lizards, and crocodiles. Incised lines were used to give extra clarity to the sculpture as in fish gills, eyes, mouths, turtle flippers and even a few abstract designs. In one specimen, the incision seems to have been filled by white pigment. Cassava griddle fragments are common, particularly in the south coast sites. A nearly spherical earthenware spindle whorl was found at E-5, indicating the use of cotton from very early times. A few larger dishes apparently had feet but the massive water bottle handles, so plentiful in White Marl sites, are absent. Elongate or boat-shaped bowls in the turtle design would have head and 'tail' handles at each end flanked by pairs of 'flipper' lugs.

## Associated Artifacts

Brother Michael, an amateur who excavated a small part of E-6, found pieces of greenstone petaloid celts and one complete specimen about 9 inches long. The author collected a 2 inch greenstone celt at E-5 and polished stone beads have been found at E-4, E-5, E-11 and M-4. Most of these are the usual dirty white to pale grey chalcedony, cylindrical, pierced longitudinally, and usually  $\frac{1}{2}$  inch by  $\frac{1}{2}$  inch in size. However, at least two beads are known to have been found at E-11 which are made from an exceptionally distinctive rock; coarsely crystalline and pure white with just occasional flecks of a jet black mineral. What must surely be the identical rock is much prized for small sculptures such as beads, three-pointer stones and other trinkets in the south-east Antilles. Were the Jamaican beads family treasures brought here from the travellers' homeland? Or were they trade pieces? The rarity of this rock found here as artifacts and its relative abundance in Trinidad lead to the inference that the source is far from Jamaica.

## Summary

It is apparent that the Indians who made the Redware pottery were the



earliest people to live in Jamaica. They settled here about 650 A.D. and the shallowness of the few examples of undisturbed midden accumulations is evidence of a relatively short occupation period, possibly only for about 50 years. Indeed, it is unlikely that the White Marl and Redware peoples co-existed in Jamaica. At least three burial caves in St. Elizabeth contained Redware style pottery, a custom common also to the White Marl style.

Similar pottery, both in style and age, occurs in Puerto Rico (Ostiones) Dominican Republic (Anadel) and in Haiti (Macady). None has been described from Cuba.

### Bibliography

**DeWolf, M.W.**

- 1953 Excavations in Jamaica. *American Antiquity*, Vol. 18, No. 3, pp. 230-238

**Howard, R.R.**

- 1956 Archaeology of Jamaica: A Preliminary Survey. *American Antiquity*, Vol. 22, No. 1, pp. 45-59.

**Rouse, Irving**

- 1951 Areas and Periods of Culture in the Greater Antilles. *Southwestern Journal of Anthropology*, Vol. 7, No. 3, pp. 248-265.  
1964 Prehistory of the West Indies. *Science*, Vol. 144, No. 3618, pp. 499-513.

**Tyndale-Biscoe, J.S.**

- 1962 The Jamaican Arawak. *The Jamaican Historical Review*, Vol. 3, No. 3, pp. 1-9.

**Vanderwal, R.L.**

- 1967 Summer Excavation Program. *Archaeology-Jamaica* No. 67-8, pp. 2-3.

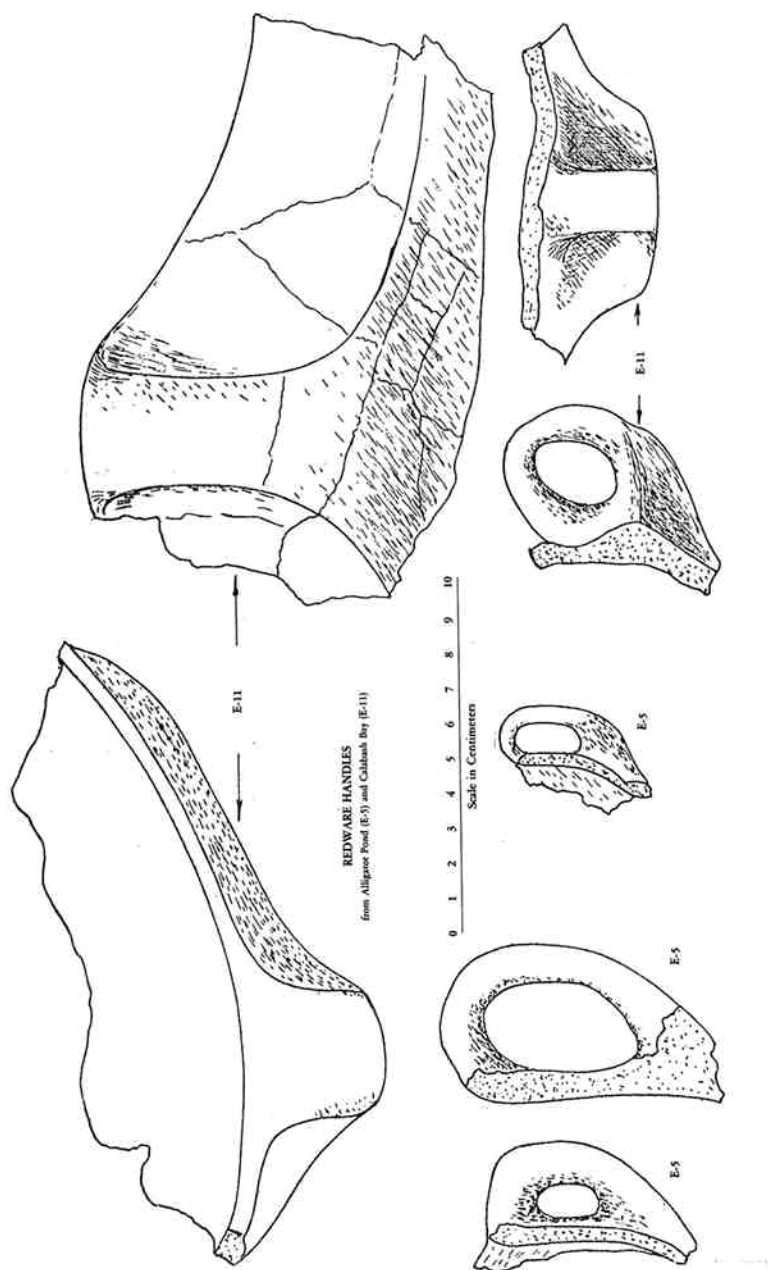


FIGURE 2



Oswaldo Ignacio Morales Patiño  
1898-1978

A Memoir

By Fernando Royo Guardia

The 17th of June, Dr. Oswaldo Morales Patiño died of a heart ailment in Key West, Florida. He was born on the 6th of September, 1898, in Havana, Cuba, and had been prominent in many fields of scholarship.

Morales Patiño studied in the School of Medicine of Havana University, completed his M.D. (1922) with brilliant grades, and was named a Distinguished Alumnus. In his professional career as a medical doctor he attained great prestige and honor.

A man of strong character, of firm convictions, frank, sincere, and loyal to his principles of lofty morality and compassion for his fellow man, he knew always how to uphold truth and justice in every moment, facing squarely (at times in blunt confrontations) the legions of pseudo-science, and the vain efforts of they who place their personal goals above what is just, legal, and humane.

A good fencer and accurate marksman, Morales Patiño won many prizes in competitive tests. Needless to say, he was proficient in the hunt.

He dedicated much of his time to archaeology, founding the *Grupo Et-nológico Guamã* (with the assistance of René Herrera Fritot and myself) in 1942. The *Grupo* united a whole generation of Cuban archaeologists, and sponsored a Museum which was both visited and praised often by archaeologists and other personages, Cuban and foreign. Outstanding in the Museum were its methodic presentation of displays, and the systematics used for the classification of artifacts.

Morales Patiño was President of the *Junta Nacional de Arqueología y Et-*

*nología* from 1948 to 1952, shaking it out of inertia and transforming it into an active organization whose contributions to knowledge were spread widely throughout the museums, libraries, and universities of the Americas and Europe, with its excellent *Revista*, which he himself edited.

Ever active, Morales Patiño convened the *Mesa Redonda de Arqueólogos del Caribe* (1950) in order to standardize the archaeological nomenclature of the time, and determine the methods to be used in the study of precolumbian peoples and cultures of the Caribbean area.

As a result of the *Mesa Redonda*, an expedition of Cuban archaeologists was organized to investigate several of the Caribbean islands and, at the same time, to establish relations with the archaeologists and institutions of those islands so as to expedite future archaeological and ethnographic work in them. The expedition was led by Morales Patiño, and it visited and explored Jamaica, Haiti, Puerto Rico, and the Virgin Islands during 1951.

Morales Patiño was not limited to Caribbean prehistoric cultures: he did archaeological work also in Florida, Mexico, Guatemala, Honduras, and Venezuela, everywhere making valuable contributions and discrediting fallacious theories. His papers on aboriginal West Indian religions and shamanism in the New World are noteworthy.

A sordid campaign initiated by Communists (who were beginning to seize all scientific and cultural centers in Cuba at the time) forced him to resign as President of the *Junta* in 1952. Morales Patiño belonged to numerous and prestigious scientific corporations, and always did his utmost to support them with his enthusiasm and his widely acclaimed intellectual contributions.

In recent months, he was writing a book on cave art, which, regrettably, remains unfinished. Rest well, good friend!

**The Anthropological Bibliography  
of Oswaldo Ignacio Morales Patiño (1898-1978)**

**By Alfredo E. Figueredo**

Oswaldo Ignacio Morales Patiño was one of the leading West Indian archaeologists. It is customary, upon the death of a prominent scholar, to publish his professional bibliography. By default, this *Journal* has inherited all of West Indian archaeology, and with it, the obligation to serve and the privilege to lead.

The written word is rarely heeded in our vapid age, so we need not complain that the bulk of the literature cited is in Spanish: a soul hardy enough to effect a passage from cover to cover of this issue unscathed, can muster also the courage to learn another tongue. We deal with but a few, alas!, and in these, motivation (at least) will not be lacking.

Why read these entries? One is tempted to say solely because they exist, but, if more reason be sought, then add that one may gain enjoyment, understanding, and comfort in these titles (if the three are not the same). To be pedestrian, here are paths that have been trod: they may help us lumber on.

A simpler age of fewer people and more frugality issued most of these works in short runs with bad paper. The attrition they suffer at the hands of heirs, librarians, and undergraduates is to be pondered. One is tempted to ask the government of Cuba to let bygones be bygones and publish the collection in more durable form, before the process of destruction (already well underway) blanks out more of our collective mind.

Six years ago, I could have done a worse job than this, and thought better of it. Then my (scuttled) bibliography of West Indian archaeology was in galley proofs, and I could have cited perhaps even more entries, most of which I would not have seen. It seems clear now that many of the entries in my erstwhile bibliography (cheerfully pirated from many sources) could never have been seen, as they do not exist. Generations of copyists have driven error into the realm of fantasy!

I have seen most of the entries listed here, and taken the full notation myself. When I have not seen an entry, I have followed some sensible courses of action: 1) the source for the reference is cited; or, 2) an asterisk (\*) denotes that it may exist in MS only, though it most likely is published in some form; or, 3) I have left it out altogether.

Inestimable help has been provided by the widow of our scholar, Isabel Salas de Morales Patiño, in the way of a *Curriculum vitae* containing a list of publications rather clearly cited chiefly from memory. It has assisted in organizing the entries, and has provided indispensable evidence for the existence

of completed MSS and duplicate imprints ('folletos'). With regard to the latter, the barbaric custom these days of throwing away offprints and other pamphlets has hindered checking these sources directly.

Excluded from this compilation are films, book reviews, and translation (including those in anthropology); also, all newspaper articles whatever, and the many titles on folklore, hygiene, medicine (*except* ethnomedicine), and sociology. History has been included, for to Morales Patiño it was always ethnohistory and/or colonial archaeology.

There are 79 works in all, 56 (71%) of which are published, and 23 are in MSS; 89% of all publications (50 titles) fall within the years 1942-1952; 80% of all publications (45 titles) are authored singly, the balance (11 titles) being co-authored; 95% of all MSS (22, all but one) are authored singly, while 5% (one!) is co-authored.

Were one to break down the titles into categories dictated by a broad common sense (just shy of nonsense), the following table is a caricature for impressionistic assessment:

13 historical narratives (7 MSS), 9 archaeological typologies (1MS), 9 notes on current archaeological work, 7 local archaeological reports (2 MSS), 6 works on Mesoamerican archaeology (1 MS), 5 works on aboriginal religion, 4 works on historical archaeology (1 MS), 4 reports on archaeological museums and private collections, 3 works on archaeological methods (2 MSS), 3 biographical works (1 MS), 2 archaeological vocabularies, 2 expedition reports, 2 professional obituaries, 2 novels (1 MS) which include information of archaeological interest, 2 MSS on aboriginal West Indian medicine, 2 MSS on aboriginal West Indian cave art, 2 MSS research proposals, 1 work on Peruvian archaeology, and 1 MS on aboriginal West Indian ethnozoölogy.

Those who have come thus far without faltering will do well to travel widely and read these works in their entirety. I have read the greater part, and feel the better for it.

- 1937 Investigaciones Arqueológicas en Cienfuegos. *Revista Bimestre Cubana*, vol. XL, 2.do semestre, pp. [306]-309. Habana. [23.2 cm.
- 1939 *Dos Ensayos Arqueológicos*. Estudios de Investigación Científica. Habana: Cultural, S.A. (6) 7-46 p. [22 cm.  
{pp. 9-18: 'Investigaciones Arqueológicas en Cienfuegos', same as 1937 except for the plates on pp. [11]-[12], 14-15, and 17 (the earlier version was published without illustrations); pp. [19]-46: 'Notas y Observaciones sobre "El Tlachtlí" (Juego de Pelota)', deals with the Mexican ball game}
- 1942a Exploraciones arqueológicas en las zonas de Cantel y Camarioca, Provincia de Matanzas. *Revista de Arqueología*, Año IV, núms. 7 y 8, pp. [7]-23. Habana. [24.8 cm.
- 1942b El "Indio del Cajío": Como se crea una leyenda falsa y se establece una historia errónea. *Revista de Arqueología*, Año IV, núms. 7 y 8, pp. [24]-28. Habana. [24.8 cm.
- 1942c Las olivas sonoras en México y en Cuba. Utilización de la Oliva reticularis. *Memorias de la Sociedad Cubana de Historia Natural "Felipe Poey"*, vol. XVI, núm. 2, pp. 141-165, láminas 18-25. Habana. [23.7 cm.
- 1942d Las olivas sonoras en México y en Cuba. Utilización de la Oliva reticularis. Contribución del Grupo Guamá: *Antropología*, Núm. 2,(4) 5-29 (1) (+ 8) p. Habana. [23.7 cm.
- {same as 1942c, but the plates are left unnumbered}

- 1942e *Cuadros sinópticos de las culturas indias de Cuba.*  
{from *Curriculum vitae*}
- 1943a Glosario terminológico de arqueología indocubana y clasificación de ejemplares. Contribución del Grupo Guamá: *Antropología*, Núm. 3. Habana.  
{taken from my student notes; I saw a copy which belonged to Irving Rouse}
- 1943b La religión de los indígenas antillanos. (Con especial referencia a los de Cuba). Primer Congreso Histórico Municipal Interamericano: *Actas y Documentos*, pp. 292-356. Habana.  
[21.5 cm.]
- 1943c La religión de los indígenas antillanos. Primer Congreso Nacional de Historia: *Trabajos Presentados*, vol. II, pp. [164]-166. Habana.  
[23.9 cm.]
- {an abstract of 1943b}
- 1944 Los códices mexicanos y las culturas indígenas de México y Centro América. *Ultra: Cultura Contemporánea*, vol. XV, no. 93, pp. 284-285. Habana.  
[22.4 cm.]
- {abstract of a lecture}
- 1945 La rebeldía de los indocubanos. Rectificaciones de hechos históricos. *Revista Bimestre Cubana*, vol. LVI, Segundo semestre, pp. [97]-134. Habana.  
[23.2 cm.]
- 1946a La mítica indoantillana del tabaco. *Revista de Arqueología y Etnología*, Segunda Epoca, Año I, núm. 1, pp. [57]-88. Habana.  
[25.6 cm.]
- 1946b Dos nuevos lugares indocubanos. *Revista de Arqueología y Etnología*, Segunda Epoca, Año I, núm. 1, pp. [89]-90. Habana.  
[25.6 cm.]
- 1946c La mítica indoantillana del tabaco. Contribución del Grupo Guamá: *Antropología*, Núm. 6, 40 p.  
{from *Curriculum vitae*; the same as 1946a; this article appeared a third time in the journal *Tabaco* for February of 1946, but I have been unable to locate a copy in the U.S.}
- 1946d La Iglesia de Pipián. *Revista de Arqueología y Etnología*, Segunda Epoca, Año I, núm. 3, pp. [59]-68. Habana.  
[25.6 cm.]
- 1946e Fallecimiento de George C. Vaillant. *Revista de Arqueología y Etnología*, Segunda Epoca, Año I, núm. 3, p. 79. Habana.  
[25.6 cm.]
- 1946f *Esquema de Arqueología Peruana y Resumen Comparativo de la Medicina del Antiguo Perú.* Conferencia en la Sociedad Lyceum, Diciembre.  
{from *Curriculum vitae*}
- 1947a El emblema del Instituto Indigenista Cubano: Simbología. *América Indígena*, vol. VII, no. 2, pp. [172]-174. México.  
[23 cm.]
- 1947b Fray Bartolomé de Las Casas. *Revista Bimestre Cubana*, vol. LX, no. 1, 2, y 3, pp. [5]-46. Habana.  
[23.2 cm.]
- {also in 'folleto número 13 del Grupo Guamá—48 páginas, 1948'—*Curriculum vitae*}
- 1947c Arqueología Cubana. Resumen de actividades durante el año 1946. Exploraciones, Informes, Convenciones, Exhibiciones, Conferencias, Publicaciones. *Revista de Arqueología y Etnología*, Segunda Epoca, Año II, núm. 4-5, pp. [5]-54. Habana.  
[25.6 cm.]
- 1947d Notas. *Revista de Arqueología y Etnología*, Segunda Epoca, Año II, núm. 4-5, pp. [263]-264. Habana.  
[25.6 cm.]
- {contains 2 obituaries: 'Rafael Azcárate Rosell', p. [263], and 'Ignacio Avello', p. 264}
- 1948a Los Mayas de Honduras y los Indígenas Antillanos Precolombinos. *Tzunpame*, Año VII, Nos. VI y VII, pp. [9]-40. San Salvador.  
[23.9 cm.]

- 1948b Arqueología Cubana. Compendio cronológico de actividades sobre Arqueología y Etnología durante el año 1947 en Cuba. *Revista de Arqueología y Etnología*, Segunda Epoca, Año III, núms. 6-7, pp. [5]-36. Habana. [25.6 cm.]
- 1948c Ejemplares únicos y ejemplares escasos de la arqueología indocubana en el Museo "Guamá". *Revista de Arqueología y Etnología*, Segunda Epoca, Año III, núms. 6-7, pp. [55]-90. Habana. [25.6 cm.]
- {appeared without by-line; claimed in *Curriculum vitae*}
- 1948d La Colección Fornaguera. *Revista de Arqueología y Etnología*, Segunda Epoca, Año III, núms. 6-7, pp. [99]-107. Habana. [25.6 cm.]
- {appeared without by-line; claimed in *Curriculum vitae*}
- 1949a Arqueología Cubana. Resumen de actividades durante el año de 1948. *Revista de Arqueología y Etnología*, Segunda Epoca, Año IV, núms. 8-9, pp. [5]-48. Habana. [25.6 cm.]
- 1949b Guamuhaya. Estudio arqueológico de esta región indocubana. Revisión del llamado "Hombre del Plurial" {sic}. *Revista de Arqueología y Etnología*, Segunda Epoca, Año IV, núms. 8-9, pp. [111]-174. Habana [25.6 cm.]
- {also in 'folleto No. 15 del Grupo Guamá'—*Curriculum vitae*}
- 1950a Arqueología Cubana. Relación de Actividades Durante el Año 1949. *Revista de Arqueología y Etnología*, Segunda Epoca, Año V, núms. 10-11, pp. [5]-34. Habana. [25.6 cm.]
- 1950b Los mayas de Honduras y los indígenas antillanos precolombinos. Contribución al estudio de los posibles contactos e influencias culturales entre los indígenas de las Antillas y los del Continente. *Revista de Arqueología y Etnología*, Segunda Epoca, Año V, núms. 10-11, pp. [69]-100. Habana. [25.6 cm.]
- {same as 1948a}
- 1950c La antigüedad de los asentamientos indocubanos. *Revista de Arqueología y Etnología*, Segunda Epoca, Año V, núms. 10-11, pp. [115]-133. Habana. [25.6 cm.]
- 1951a *The Antillean Prehistoric Cultures*. Conferencias en el Institute of Jamaica, Kingston, y en l'Institut Français, Port-au-Prince, Junio 1951. {from *Curriculum vitae*}
- 1951b Cosculluela. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VI, núm. 12, pp. [16]-23. Habana. [25.6 cm.]
- 1951c Carlos de la Torre y Huerta. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII {sic}, núms. 13-14, pp. [5]-[17]. Habana. [25.6 cm.]
- 1951d Arqueología Cubana. Relación de actividades durante el año 1950. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII {sic}, núms. 13-14, pp. [8]-35. Habana. [25.6 cm.]
- {contains obituary 'Juan Antonio Cosculluela', p. [8]; see also 1951b}
- 1951e Estudio comparativo del pendiente efígie de oro encontrado en Banes. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII {sic}, núms. 13-14, pp. [166]-227. Habana. [25.6 cm.]
- 1951f Los indígenas en los primeros municipios cubanos. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII {sic}, núms. 13-14, pp. [368]-387. Habana. [25.6 cm.]
- 1952a El médico-hechicero entre las tribus indoamericanas. Shamanismo y Behiquismo. *Memoria del V Congreso Histórico Municipal Interamericano*, Tomo Primero, pp. [133]-147. Ciudad Trujillo. [21.6 cm.]
- {also 'en folleto'—*Curriculum vitae*}
- 1952b Arqueología Cubana. Relación de actividades durante el año 1951. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII, núms. 15-16, pp. [5]-30. Habana. [25.6 cm.]

- 1952c ¿Dónde estuvo la Encomienda del Padre Las Casas? *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII, núms. 15-16, pp. [239]-242. Habana. [25.6 cm.  
{also 'en un folleto'—*Curriculum vitae*}
- 1952d Los complejos o grupos culturales indocubanos. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII, núms. 15-16, pp. [259]-267. Habana. [25.6 cm.  
{also 'en un folleto'—*Curriculum vitae*; 1951a may be no more than an English translation of this same article}
- 1952e Despedida. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII, núms. 15-16, p. [423]. Habana. [25.6 cm.
- 1953 El capitán Chino, teniente coronel Quirino Zamora: historia de un mambí en la Provincia de La Habana. *Cuadernos de Historia Habanera*, no. 54, 135 p. Habana. [23 cm.  
{taken from *The National Union Catalog*}
- 1977 *La última salida de Don Quijote*. Miami: Xerox Copy Center. [6] [1]-175, (2) [+ 1] p. [21.6 cm.  
{a novel; 'Capítulo V', pp. 39-51, contains much privileged information regarding archaeological personalities and publications}
- MS *Supervivencias indígenas en Cuba*. Trabajo presentado al Cuarto Congreso Nacional de Historia. Santiago de Cuba, 1945.
- MS *Exploraciones arqueológicas en los antiguos cacicazgos de Camagüey y Sabaneque*. Trabajo presentado al Cuarto Congreso Nacional de Historia. Santiago de Cuba, 1945.
- MS *Discurso ante la Estela D (donde está la tumba del arqueólogo Owens)*, en Copán, Honduras, 1946.
- MS *Los primeros sacerdotes y obispos de América*. 1948.
- MS *Conceptos esenciales sobre la Prehistoria, Descubrimiento, Conquista, Colonización e Historia de los Indocubanos*. Trabajo presentado al Décimo Congreso Nacional de Historia. Habana, 1952.
- MS *Estudio de la Iglesia de Tapaste*. n.d.
- MS *Proyecto para una exploración arqueológica en las Antillas Menores*. n.d.
- MS *Proyecto para una exploración arqueológica revisando el recorrido de Colón por la costa sur de Cuba*. n.d.
- MS *Zonas y sitios arqueológicos de Cuba*. n.d.
- MS *Significado del Arte Rupestre*. n.d.
- MS *La Medicina Protohistórica de Cuba*. n.d.
- MS *Los conocimientos médicos aplicados a los niños por los indígenas cubanos*. n.d.
- MS *El Arte de los Indocubanos*. n.d.
- MS *Zoología Aborigen*. n.d.
- MS *Guanabo y el residuario perdido*. n.d.
- MS *Historia de la Arqueología Indoantillana*. n.d.  
{according to *Curriculum vitae*, of book-length}
- MS *El Juego de Batos*. n.d.
- MS *Litoglifos y Litogramas de Cuba y el problema de la Cueva de Punta del Este en Isla de Pinos*. n.d.
- MS *Maroguan*. Relato sobre la época del hombre y el *Megalocnus* en las cavernas de Cuba. n.d.  
{according to *Curriculum vitae*, a short novel with archaeological artifacts used as illustrations}
- MS *Las Bolas de Cristal que aparecen en las costas de Cuba, de otras islas antillanas y en la costa Atlántica de la Florida*. n.d.
- MS *Study of a Raft at the East Martello Tower Museum, Key West, Florida*. October 20, 1972.
- MS *Busca y comprobación de la identidad de los restos de la poetisa y pintora cubana Juana Borrero en el cementerio de Key West y Acta de Exhumación*. 26 de Noviembre, 1972.

Morales Patiño, Oswaldo, Juan Antonio Cosculluela, Fernando Royo Guardia & René Herrera Fritot

- 1951 Documentos base para discutir la unificación de la terminología arqueológica del Caribe. Reunión en Mesa Redonda de Arqueólogos del Caribe: *Actas y Trabajos*, pp. [23]-91, Habana. [27 cm.

Morales Patiño, Oswaldo, René Herrera Fritot, Fernando Royo Guardia, Antonio González Muñoz, Ignacio Avello & Antonio Leiva

- 1947 "Cayo Ocampo": Historia de un Cayo. Estudio de una de las isletas de la bahía de Cienfuegos, determinando el emplazamiento del poblado indio que encontraron los españoles. *Revista de Arqueología y Etnología*, Segunda Epoca, Año II, núm. 4-5, pp. [55]-123. Habana.

[25.6 cm.

Morales Patiño, Oswaldo, Orencio Miguel Alonso & Luis Cabrera Torrens

- 1950 Introducción al estudio de los llamados pilones y morteros fijos. *Boletín de Historia Natural*, vol. I, no. 4, pp. 151-160. Habana.

[27.3 cm.

Morales Patiño, Oswaldo, & Roberto Pérez de Acevedo

- 1946 El período de transculturación indo-hispánico. *Revista de Arqueología y Etnología*, Segunda Epoca, Año I, núm. 1, pp. [5]-36. Habana.

[25.6 cm.

{also 'folleto No. 4, 35 pgs. del Grupos Guamá'—*Curriculum vitae*}

Morales Patiño, Oswaldo, & Fernando Royo Guardia

- 1949 La Colección del Sr. Fernando García y Grave de Peralta (Santiago de Cuba). *Revista de Arqueología y Etnología*, Segunda Epoca, Año IV, núms. 8-9, pp. [98]-110. Habana.

[25.6

- 1950 Informes sobre la Ciudad de Baracoa, que elevan a la Junta Nacional de Arqueología y Etnología para su estudio y consideración los comisionados doctores Oswaldo Morales Patiño y Fernando Royo Guardia. *Revista de Arqueología y Etnología*, Segunda Epoca, Año V, núms. 10-11, pp. [101]-113. Habana.

[25.6 cm.

- 1978 The Cuban Scientific Expedition to the Virgin Islands (1951). Translated and Annotated by Alfredo E. Figueredo. *Journal of the Virgin Islands Archaeological Society*, no. 5, pp. [17]-31. Frederiksted.

[21.5 cm.

{a partial translation of the entry below}

Morales Patiño, Oswaldo, Fernando Royo Guardia, Luis Cabrera Torrens, Leandro de Oña Urquijo & Justo Salvador Cabrera

- 1952 La Expedición Científica Cubana: Jamaica, Haití, Puerto Rico e Islas Vírgenes. *Revista de Arqueología y Etnología*, Segunda Epoca, Año VII, núms. 15-16, pp. [93]-202. Habana.

[25.6 cm.

Morales Patiño, Oswaldo, René Herrera Fritot & Fernando Royo Guardia

- MS *Los Estudios Prehistóricos en Cuba* durante los primeros cincuenta años de la República. 1952.

Herrera Fritot, René, Pedro García Valdés & Oswaldo Morales Patiño

- 1942 Modelo de Catálogo. *Revista de Arqueología*, Año IV, núms. 7 y 8, pp. [46]-70. Habana.

[24.8 cm.

Royo Guardia, Fernando, & Oswaldo Morales Patiño

- 1948 Colección "Félix Duarte", Batabanó, Provincia de La Habana. *Revista de Arqueología y Etnología*, Segunda Epoca, Año III, núms. 6-7, pp. [91]-98. Habana.

[25.6 cm.

Royo Guardia, Fernando, René Herrera Fritot & Oswaldo Morales Patiño

- 1951 Propuesta. Reunión en Mesa Redonda de Arqueólogos del Caribe: *Actas y Trabajos*, pp. [21]-22. Habana.

[27 cm.

# A PRE-COLUMBIAN CONCH MIDDEN, ST. CROIX, U. S. VIRGIN ISLANDS

By Malcolm P. Weiss and William B. Gladfelter

## Introduction

Many punctured and weathered conch shells occur on the southeast margin of Green Cay (Fig. 1), a small island off the north shore of St. Croix. They lie at the beach behind a small fringing reef tract, on the nearby bottom, and within the steep soil bank at the foot of the colluvial slope of the island. Because they are so thoroughly weathered, buried in a soil of unknown age, and punctured crudely (by modern standards), we believe a description of the deposit and determination of the age of the shells is of interest.

## Occurrence

Green Cay (Fig. 1) is an uninhabited island 19 m. high, about 500 m. long, lying 370 m. offshore midway between Punnett Point and Pull Point on the north shore of St. Croix, and nearly 4 km. airline from Christiansted. The maximum depth between the cay and the big island is 3 m. below low water. Green Cay is formed of layered hornblendite intrusives and roof pendants of steeply dipping quartzose hornfels of the Cretaceous Caledonia Formation (Ratté 1976). The intrusives are probably a part of the Southgate Diorite of Whetten (1966). The island slopes are covered locally with stony *terra rosa*, a reddish soil; the stones are angular chunks of the closely fractured bedrock. Cliffs form much of the island perimeter, but colluvial slopes have been cut back by the surf locally, perhaps as a result of the Holocene rise of sea level. Such a cut, up to 2.5 m. high, has formed for about 60 m. along the southeastern margin of the island, at the inner edge of the windward fringing reef. The cut (Fig. 2) is mostly in stony colluvium and partly in sand. A stratum in the cut is charged with numerous weathered and bleached conch shells (Fig. 3). All have been punctured near the apex to release the animal from the shell for food. Shells fallen from the stratum are scattered on the shore and inner part of the reef by slopewash and surf.

Conch shells occur in the stratum along that part of the island rimmed by colluvium, supratidal sand, and the narrow modern beach (Figure 1, A-D). The shells are particularly abundant in that part of the exposure that has been cut back by the waves to form a cutbank about 2.5 m. high (Figure 1, B-C; Figure 2). Most of the cutbank and the uncut slopes from A to B (Figure 1) are in stony colluvium and *terra rosa*; the north part of the cutbank and the unconsolidated materials from C to D (Figure 1) are sand, but not a part of the modern beach deposit.

Most of the shells are at or below 2 m. above present-day low tide, the approximate level of the inner surface of the reef flat. The conch-bearing stratum is thickest at the north end of the colluvium, becomes thinner, with fewer and more scattered shells, toward the south in colluvium and to the north in sand. Some shells lie below the stratum, probably by slump, but none occur in place above it. Some old shells are scattered on the vegetated slopes *above* the cutbank; we cannot account for them, unless they may have been tossed there by casual visitors. Along the southern 50 m. of this exposure (Fig. 2) nearly 200 shells protruded (22 January 1975) from the soil bank and as many more lay in the nearshore shallows.

The average present seaward declivity of the surface of this part of the island is estimated from maps to be about 20°. If one assumes that the conch midden was established on a similar slope, down to the shore, the surface of the conch deposit that is now 2 m. above low tide could have extended as much as 5 m. farther eastward. The area of the shell-strewn slope removed since then by the surf would be about 275 m<sup>2</sup>.

A pit was dug laterally into the conch bed (Figs. 2, 4) to measure the abundance and the diversity of the skeletal debris. One hundred conchs (*Strombus gigas* Linné) were excavated from 0.16 m<sup>3</sup> of undisturbed colluvium, giving an abundance of 600 conchs/m<sup>3</sup> of soil. Minor amounts of other marine creatures occurred with the conchs in the pit, which contained the following estimated volumes.

|                                                                                                                                                                             |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Conch shells (typically filled with soil & small rock fragments)                                                                                                            | 40% |
| Coral fragments: <i>Acropora palmata</i> (Lamarck), <i>Montastrea annularis</i> (Ellis & Solander), <i>Diploria strigosa</i> (Dana), and trivial fragments of other species | 10% |
| One topshell ( <i>Cittarium</i> sp.) of 2.5 cm. dia.                                                                                                                        | Tr  |
| <i>Terra rosa</i> soil with angular pebble-sized pieces of bedrock                                                                                                          | 50% |

One shell of the Atlantic hairy triton, *Cymatium martinianum* d'Orbigny (Fig. 3), was collected 22 January 1975, from the colluvium about 1 m. above low water level near the middle of the deposit, but no others have been found. A second topshell was found on the outcrop the day the pit was dug (26 January 1976).

The colluvial slope, at the time the shells were spread there, may well have been graded to a sea level perhaps 0.5 m. lower, although the deposit itself does not demonstrate this possibility. If the average thickness of the shell-bearing stratum in the cutbank (Fig. 2) is taken to be 0.2 m., and the stratum is considered to have been graded only to present sea level, the volume of the stratum now removed was about 55 m<sup>3</sup> and the number of shells released to date as high as 33,000. More remain buried in the residual slope, to an unknown depth into the flank of Green Cay. The less numerous shells buried

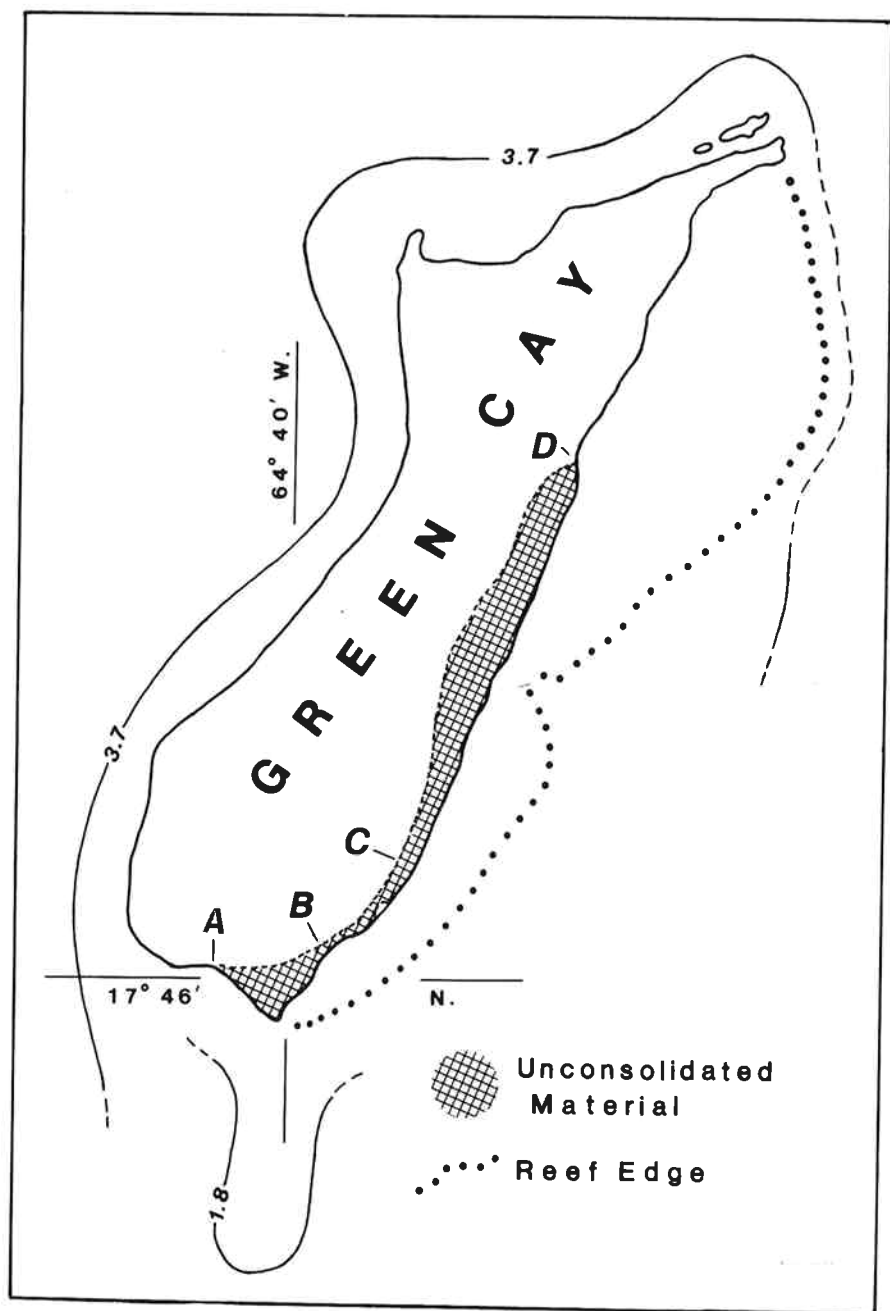


FIGURE 1

at about the same level between A and B and between C and D (Fig. 1) are not included in this estimate.

### The Conchs

Although some of the conchs are small, they are mostly of the large size illustrated in Figure 3, and have thick, heavy shells as well. This suggests that they came from a stable population of very mature individuals. The one shown in Figure 3, for example, weighs 1600 gms. although its spire and spines are much reduced and the nacreous layers are dissolved away. In size it is representative of most of the conchs in the deposit. The modern one from Isla Mujeres (Fig. 5) is virtually the same length and span, as well as complete, but weighs 1422 gms.

A striking feature of all the conchs in the Green Cay deposit is the large ovoid or elliptical hole punctured near the spire (Figs. 3, 6). Such holes give access to the retractor muscle which, when cut, releases the whole snail from the shell. The practice is still common in the Bahamas and around the Caribbean, but modern implements such as screwdrivers make a neater job of it (Fig. 5) than was done on the shells in the Green Cay deposit. The area of the puncture shown in Figure 6 is 8.5 times larger than that shown in Figure 5. The Green Cay conchs must have been prepared with stone tools. The single triton shell found had not been punctured.

### Radiocarbon Age

A conch shell taken from undisturbed colluvium near the middle of the deposit, and close to the one pictured (Figs. 3, 6), was examined for possible effects of diagenesis. Three thin sections made of parts of the heavy wall of the body whorl, including one quite close to the columella, were examined before and after differential staining. The shell material is still entirely aragonite. The lamellae and bundles of fine crystals are appropriate for the several layers of *Strombus gigas*, and like those illustrated by Majewske (1969, pl. 92, fig. 2), except that the outer and inner nacreous layers (layers 1 & 5) have dissolved away. Small cavities and tubules, galleries bored by the sponge, *Cliona* sp., occur close to the exterior of the shell wall. Most of the galleries are now unroofed by solution, as seen on both specimens of Figure 3. The shell material is micritized quite close to the surface and bordering the clionid galleries, but the galleries are not filled or cemented and the shells are not otherwise altered mineralogically. There has thus been no reëquilibration in the vadose zone, and we may be confident the aragonite of the interior layers will give a radiocarbon

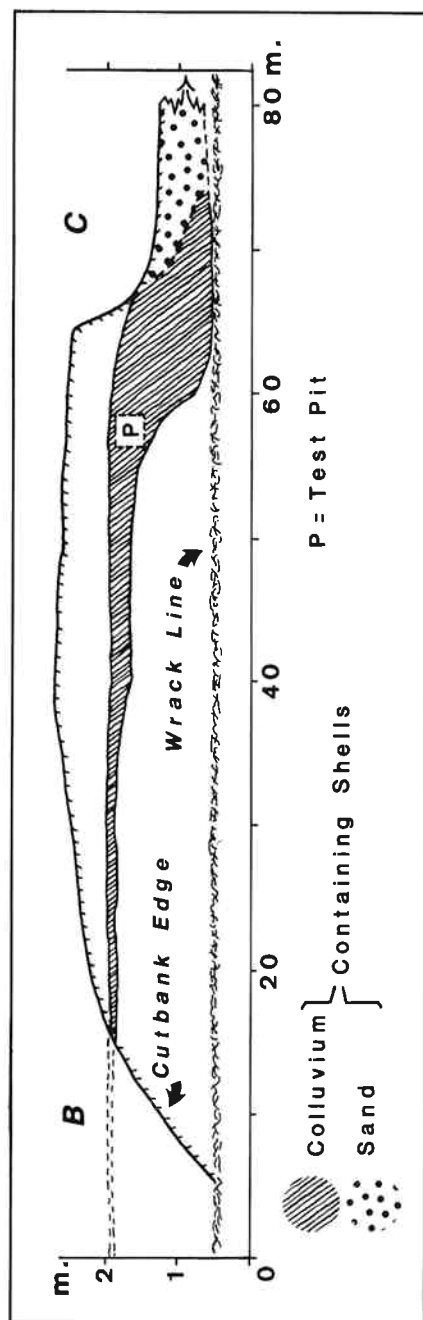


FIGURE 2  
Diagram of longitudinal section of the cutbank outcrop. For location of B-C see Fig. 1. Datum is low tide.

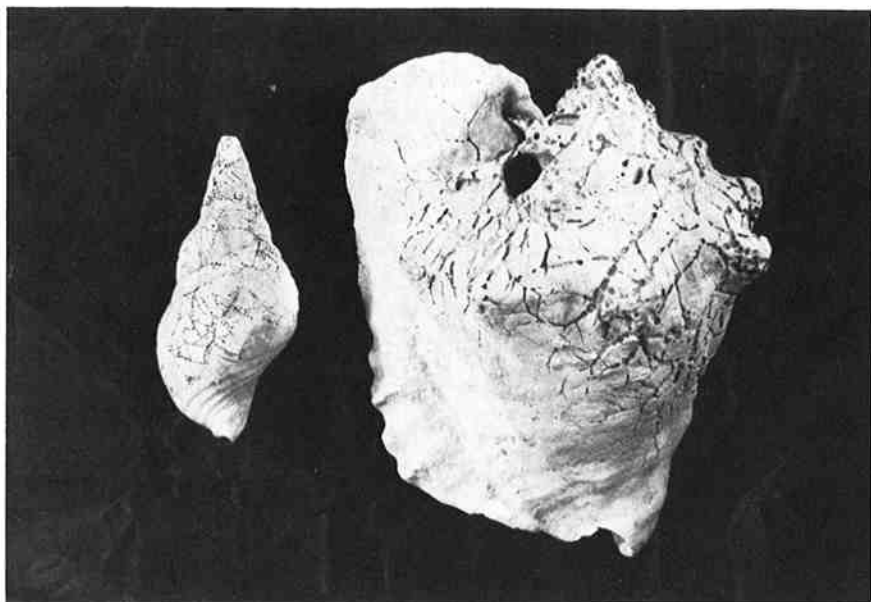


FIGURE 3

*Strombus gigas* Linné and *Cymatium martinianum* d'Orbigny taken from the conch bed near the middle of the exposure. The conch (R) is 22 cm on axis, but had lost 2-3 cm of the spire; the triton (L) is 14 cm on the axis, with perhaps 1-2 cm having been lost, mostly from the spire.



FIGURE 4

Photograph of exposed conch bed, taken near the sample pit (see Fig. 2).



FIGURE 5

Inclined view of apical region of a modern *Strombus gigas* killed for food on Isla Mujeres, Quintana Roo, México. The axial length of this perfect specimen is 22 cm (cf. Fig. 3). The narrow slot is 4 × 21 mm.

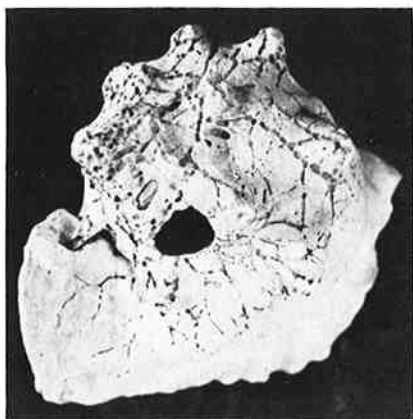


FIGURE 6

Inclined view of apical region of conch shell shown in Fig. 3. The ovoid hole is 24 × 30 mm.

date representing the age of the shell rather than the date of some diagenetic event(s) or a mixed date.

The radiocarbon age of the conch sample was determined at the Illinois State Geological Survey, and the uncorrected age is  $930 \pm 75$  radiocarbon years B.P. (ISGS-368). Because the  $^{14}\text{C}$  concentration of ocean water is lower than that of the atmosphere, radiocarbon dates on marine shells must be corrected for this difference. Although no record of the  $^{14}\text{C}$  content of ocean water in the Antillean region is known, an average correction factor of  $-400 \pm 100$  years, based on data from other parts of the world, should be appropriate (D.D. Coleman, personal communication 1975). Plants and animals do not always incorporate all isotopes of carbon in exactly the same proportion, therefore a correction for isotope fractionation is also necessary. Isotopic analysis of three samples of the same conch (from the laminae of the shell exterior, the interior of the shell wall, and the inner surface of the shell) indicate that the necessary correction factor is  $+420 \pm 5$  years.

The two corrections are of opposite sign and nearly of the same magnitude, so that when the age is corrected by these factors, the result is  $950 \pm 130$  radiocarbon years B.P. If this value is corrected for the error in the halflife of  $^{14}\text{C}$  and natural fluctuations in the  $^{14}\text{C}$  content of the atmosphere using the table of Damon, Long, and Wallick (1972), the corrected date is  $930 \pm 140$  B.P.

This makes the archaeological age 1020 A.D., nearly half a millenium before Columbus. This date places the conch fishermen at the boundary of Neo-Indian Periods III and IV (Rouse 1964). They may have been members of an early phase of the Magens Bay-Salt River culture (*op.cit.*, fig. 5), in all likelihood part of the newly-defined Elenoid Series (Rouse 1976: 37).

### Summary

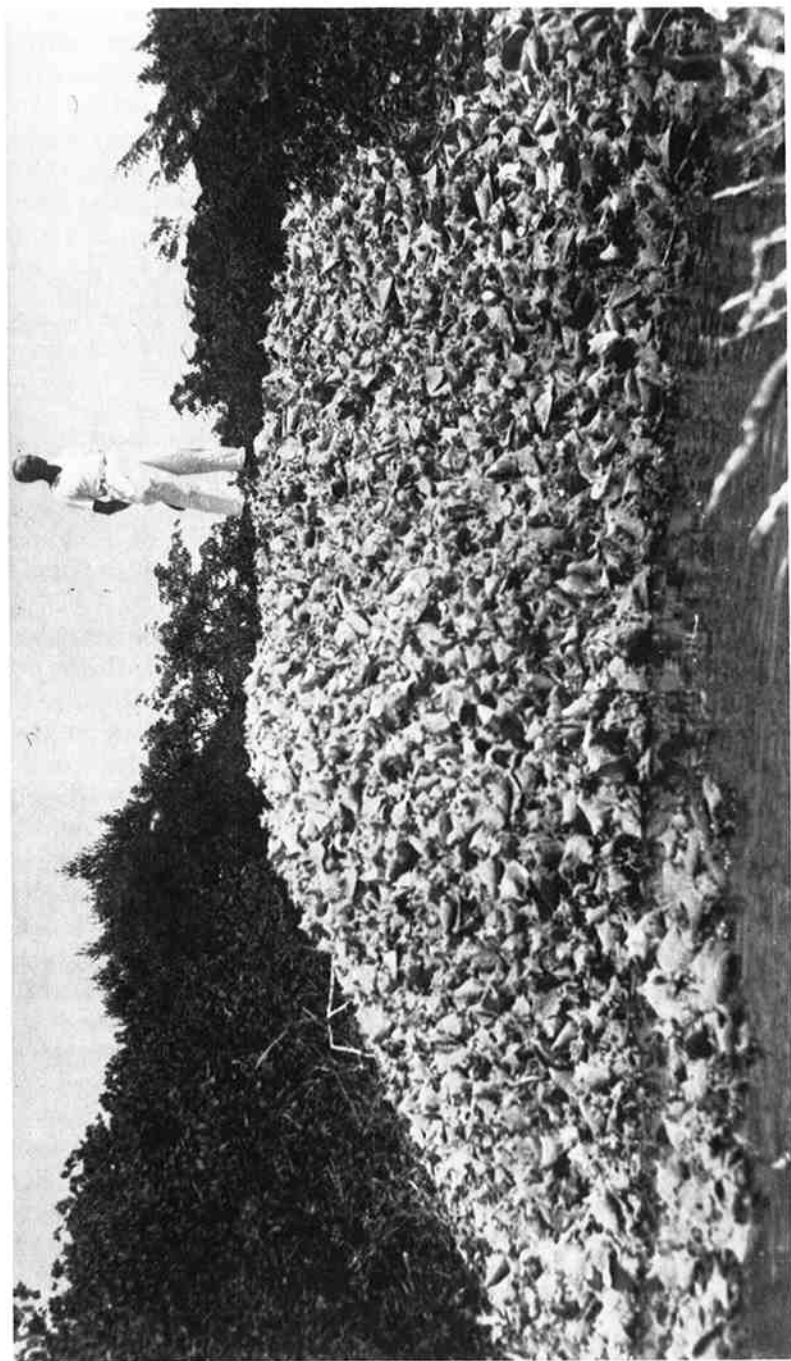
Evidence shows that Neo-Indians used Green Cay as a site for processing of conchs for food a millenium ago, and extracted them by methods still in use, although their tools were less convenient. If the extent and thickness of the exposed shell-bearing stratum is reconstructed to sea level of that time, the volume removed can be estimated to have held at least 33,000 discarded shells. Had sea level been slightly lower then, as is probable, the deposit would have been wider and the shells even more numerous. More remain, of course, in the still uneroded part of the midden on the southeast flank of Green Cay.

### Acknowledgements

We are very grateful to D.D. Coleman for measuring the radiocarbon date; Mr. David Read measured the  $\delta^{13}\text{C}$  PDB values under the direction of Prof. E.C. Perry, Jr. Elizabeth Gladfelter assisted with the field work. Prof. J.W. Springer and Mr. A.E. Figueredo suggested several improvements in the text.

### Bibliography

- Damon, P.E., A. Long, and E.I. Wallick  
1972 Dendrochronologic calibration of the Carbon-14 time scale. *Proceedings of the Eighth International Conference on Radiocarbon Dating*, vol. I, pp. 45-59.
- Majewski, O.P.  
1969 *Recognition of invertebrate fossil fragments in rocks and thin sections*. Leiden: E.J. Brill.
- Ratté, C.A.  
1976 Geology of Green Cay, St. Croix, U.S.V.I.—A Preliminary Report. *Transactions of the VII Caribbean Geological Conference*, pp. 271-276.
- Rouse, Irving  
1964 Prehistory of the West Indies, *Science*, vol. 144, no. 3618, pp. 499-513.  
1976 The Saladoid sequence on Antigua and its aftermath. *Proceedings of the Sixth International Congress for the Study of Pre-Columbian Cultures in the Lesser Antilles*, pp. 35-41.
- Whetten, John T.  
1966 Geology of St. Croix, U.S. Virgin Islands. H.H. Hess, editor, *Caribbean Geological Investigations* (The Geological Society of America: *Memoir* 98), pp. 177-239.



INDIAN CONCH HEAP IN EASTERN ANEGADA

Much has been written about these aboriginal conch heaps, present in many parts of the West Indies. Here is one on our very own turf. Photograph taken in 1937 by Herbert William Krieger (*courtesy of the Smithsonian Institution*).

## THE LIFE CYCLE OF AN IDEA: TRANSPACIFIC VOYAGES AND AMERICAN ARCHAEOLOGY

By Richard E. Daggett

The decade following the end of the Second World War was remarkable in many respects, not the least of which was the resurgence of an interest in transoceanic contacts during pre-Columbian times. Certainly the well-publicized voyage of the raft *Kon-Tiki* (Heyerdahl 1948; 1950; 1952a; 1952b) served to puncture arguments which suggested the near-total isolation of the New World prior to European incursions. While Heyerdahl's exploits fueled the imagination of the American public, the impressive exhibit of the American Museum of Natural History under the direction of a leading American anthropologist served to promote increased scholarly interest in apparent cultural parallels between the New and Old Worlds (Ekholm 1950). This exhibit, held in conjunction with the XXIX Meeting of the International Congress of Americanists, heralded a fresh look at the question of potential prehistoric contacts (Tax 1951; Smith 1953).

Predictably, there was resistance to this liberated attitude toward New World prehistory. In a symposium on the historical approach to American anthropology, Alfred V. Kidder confessed to prejudice in the matter of transpacific influences and stated that he remained '100 percent American in the matter' while at the same conference, Alfred L. Kroeber declared himself 'a 90 percent chauvinist in Americanism' (Tax *et al.* 1953:47). However, despite a certain reluctance, American scholars were generally amenable to the idea of transoceanic voyages, while remaining skeptical of their importance to the development of New World cultures. Seemingly taking their cue from Heyerdahl's dramatic demonstration of the potential for ancient voyages and Ekholm's charge to look to mainland Southeastern Asia as the most likely source of transoceanic contact (Ekholm 1950), researchers turned their attention primarily toward the Pacific.

A problem which plagued the *Kon-Tiki* crossing and which raised questions about the success of the voyage was the craft's lack of maneuverability. In recognition of this difficulty Heyerdahl enlisted the aid of Sr. Emilio Estrada of Guayaquil in the construction of a balsa raft to be tested in the Bay of Playas, Ecuador. With a crew which included also the archaeologists Erik K. Reed and Arne Skjølsvold, the technique of *guara* sailing was rediscovered in 1953. Heyerdahl concluded enthusiastically that, for all intents and purposes, the range of South American balsa rafts was virtually unlimited within the Pacific Ocean (Heyerdahl 1959:340).

The above is intended to introduce the reader to the principal exponent of the Jomon-Valdivia hypothesis: Emilio Estrada. Sr. Estrada, apparently, was introduced to the study of New World prehistory crewing for Heyerdahl. Estrada was so impressed with prehistoric achievements that his spare time became devoted increasingly to the unearthing of Ecuador's past. In 1954, he established the Museo Víctor Emilio Estrada, intended initially as a facility to permit the housing and study of collections resulting from surface surveys and excavations conducted on his behalf.

With an apparent major interest in the Formative period of Ecuadorian prehistory, Estrada's efforts were directed toward clarifying the early ceramic period, as yet vaguely understood. A gradual survey of the Ecuadorian coast was conducted beginning with the area around Guayaquil. In May of 1956, Punta Arenas de Posorja was discovered on the north shore of the Gulf of Guayaquil. However, the utility of the site was restricted severely by erosion. The search continued northward until October of 1956 when Félix Martínez, an employee of Estrada, discovered the site of Valdivia (Estrada 1958:12).

Located along the coast of Guayas Province and named after the local fishing village, the site of Valdivia appeared to represent an important early ceramic occupation. In record time, Estrada published the preliminary results of this discovery (Estrada 1956). Then, cognizant of the importance of the site, he turned to Clifford Evans Jr. and Betty J. Meggers, a husband-and-wife team of American anthropologists, who were at that time working in Eastern Ecuador, along the Río Napo. Their assistance was sought 'to determine the exact limits of the Formative period occupation and to obtain a larger sample of pottery for classification and comparison' (Evans and Meggers 1958:175-176).

During four days of intensive work in January, 1957, Meggers and Evans surveyed, excavated and mapped in the vicinity of Valdivia. An unexpected bonus was the discovery nearby of a Formative site named Buena Vista. Based on their work, the investigators concluded that Valdivia pottery was indeed a Formative period complex which resembles more closely the Early Guañape complex of the Virú Valley, Peru, than that of Monagrillo, Panama. The carbon-14 analysis of uneroded shell of a single species dated the beginning of the occupation to between  $4450 \pm 200$  and  $4050 \pm 200$  B.P.<sup>1</sup> Due to coastal locations and an apparent preponderance of marine remains, the authors conclude that the ancient Ecuadorians had essentially a maritime adaptation. Finally, they conclude that Valdivia represents the earliest ceramic culture in Ecuador (Evans and Meggers 1958).

It was on the basis of additional excavations at Valdivia during 1960-1961 that a hypothetical link between the ceramics of Valdivia and those of the

<sup>1</sup>Three radiocarbon dates are reported by Meggers, Evans and Estrada (1965) for the 1956-57 excavations at Valdivia: W-630 ( $4050 \pm 200$ ), W-631 ( $4450 \pm 200$ ) and W-632 ( $4190 \pm 200$ ).

Jomon culture of Japan was proposed. A portion of the castellated rim of a Valdivia Red Incised vessel seemed to Estrada to compare remarkably well with some Middle Jomon pottery from the Japanese island of Honshu (Evans and Meggers 1966). Other discoveries in the depths of the Valdivia midden appeared to confirm this first impression. While Estrada was not the first to note similarities between Middle Jomon pottery and that of pre-Columbian aboriginal pottery (*vid.* Yawata 1955), he was the first to envision a transpacific voyage to Ecuador as the cause. True to his nature, Estrada quickly published the basics of this hypothesis (Estrada 1961), however, he succumbed unexpectedly to a heart attack that same year and was therefore unable to elucidate his idea fully. A later publication (Estrada, Meggers and Evans 1962) was the first to be addressed principally to an American audience. Meggers (1962) states that it was only at Estrada's insistence that she and her husband were included as joint authors, and that the discoveries and full credit for the hypothesis belonged to Estrada.

While potential critics seem to have been reluctant to voice dissenting views immediately after Estrada's passing, proponents of the hypothesis were more active. A study of the feasibility of transpacific drift voyages (Nelson 1962) lent an air of credence to the hypothesis, and Meggers and Evans made a trip to Japan in 1963 to study more fully Middle Jomon pottery. In 1965, the final and official report of the 1961 excavations at Valdivia was published as the inaugural volume of a series entitled *Smithsonian Contributions to Anthropology*. A much more thorough presentation of the Jomon-Valdivia hypothesis was included in this impressive report (Meggers, Evans and Estrada 1965). I believe it can be stated without hesitation that the considerable prestige of the publishing Institution served both to encourage the acceptability of the hypothesis and to discourage its immediate rejection.

Published reviews of the hypothesis ranged from unrestrained acceptance (Ford 1967) to outright rejection (Rowe 1966); however, the majority of critics assumed a more cautious stance. While granting the hypothesis a degree of merit, specific questions were raised which individually and collectively cast doubt as to its viability. The most frequent complaint was that the hypothesis failed to account adequately for the early ceramic site of Puerto Hormiga in Columbia which, according to one interpretation of the data, predated Valdivia (Bischof 1967; Coe 1967; Lathrap 1967, 1973). Related to this was the fact that proponents of the theory insisted on using a single radio-carbon date to suggest an older age for the site of Valdivia than is given by the remaining samples, which cluster around a younger date.<sup>2</sup> The result was an acceptance of

<sup>2</sup>Among the 12 radiocarbon dates obtained from Valdivia A contexts as reported by Meggers, Evans and Estrada (1965:149) all but one fall within the range of  $4620 \pm 140$  B.P. and  $4100 \pm 140$  B.P. A single anomalous date of  $5150 \pm 150$  B.P. (M-1320) was obtained from charcoal remains taken from Cut J, Section E at the level 360-390 cm.

the notion that Valdivia indeed was older than Puerto Hormiga, a judgement met with pessimism by many (Bischof 1967; Lathrap 1967, 1973).

Donald W. Lathrap (1967) was critical of the author's failure to dig by natural stratigraphic units where such stratigraphy was obvious. Others pointed to the lack of evidence showing the earliest ceramic culture at Valdivia to be superimposed on an underlying non-ceramic culture (Coe 1967; Ferdon 1966). The failure of the proponents of the hypothesis to demonstrate the existence of a single Jomon complex comparable to the earliest Valdivia complex likewise brought criticism (Lathrap 1967, 1973; Muller 1968). Again, Lathrap (1973) questioned the seaworthiness of Jomon vessels, while Edwin N. Ferdon, Jr. (1966) notes that the authors conveniently overlooked the abysmal state of Formative research in the New World and chose to look to Asia for a prototype of the Valdivian wares before a thorough New World investigation was conducted. To one reviewer (Noguera 1965) the seeming complexity of the Valdivia ceramics suggested not one inadvertent Asiatic voyage but a continuous repetition of contacts, which certainly is much more difficult to explain. Finally, Ferdon (1966) expressed regret at the decision to hypothesize a single inadvertent event to explain the introduction of the concept of pottery-making to the Valdivia people in particular and the New World in general. This last remark was to prove prophetic—by detailing the act of diffusion the progenitors of the hypothesis opened themselves up to specific and damaging criticisms.

While a cautious review of their 1965 tome was in progress, Meggers and Evans proceeded to publicize the Jomon-Valdivia hypothesis. The credentials of the authors combined with the previously mentioned institutional recommendation served to facilitate at least a tentative acceptance of the hypothesis. Mention of it became almost obligatory, especially in textbooks dealing with South American archaeology (Lumbreras 1974; Willey 1971). Even those who professed nothing but contempt for the idea of pre-Columbian transoceanic voyages suggested the viability of the Jomon hypothesis (Riley 1969). Such was the nature of the presentation of the hypothesis that unintentional but uncritical acceptance was a frequent result. This served to confirm further the hypothesis as accepted fact in the minds of many.

In one publication, Meggers and Evans actually provide a scenario whereby the hypothetical event is presumed to have taken place (Evans and Meggers 1966). However, a more theoretical approach taken in another published article (Meggers and Evans 1966) permits the reader to analyze better the specifics of their position. To the present writer, the following would seem to summarize their argument: Valdivia pottery is the oldest pottery in the New World (based on the single anomalous radiocarbon date discussed previously); the earliest Valdivia pottery, Valdivia A, lacks New World prototypes despite its relatively sophisticated manufacture; Early Valdivia and Middle Jomon are roughly contemporary; Middle Jomon culture provides prototypes for the Valdivia pottery

based on a comparative analysis of categories of decoration and shape; both Middle Jomon and Early Valdivia were fishing cultures; the Counter-Equatorial Current running eastward just north of the Equator leads directly toward the northern coast of Ecuador; Jomon fishermen blown out to sea during a storm in an open boat lacking propulsion could have drifted toward the New World; the westward projection of the Ecuadorian coast near Valdivia makes it a predictable landfall; similarities in subsistence activities would have facilitated the welcome of one group of fishermen by another; ceramic evidence is more likely to be preserved than less durable material and behaviorable manifestations of cultural borrowing; the net effect is the introduction of the concept of pottery-making to the New World from the Old. In what seems, retrospectively, to be an organized effort to disprove the Jomon-Valdivia hypothesis, a number of specific assumptions upon which it was based were attacked. The assumption that Valdivia A represented the oldest New World ceramics was the first to be tackled. In 1964 a Columbia University survey and excavation of the Santa Elena Peninsula in Ecuador provided evidence contrary to what had been found at Valdivia. Edward P. Lanning (1967) reported that a pre-Valdivia A ceramic complex was discovered at the site of Punta Concepción. This eventually led to a new excavation of Valdivia in 1971. Julio Viteri, Estrada's field assistant for the 1961 season, excavated a new cut near the earlier one in the presence of participants of the *Primer Simposio de Correlaciones Antropológicas Andino-Mesoamericanas* which was being held at Salinas, Ecuador. In light of Lathrap's (1967) criticism of the failure to dig by natural stratigraphic units, the following discovery is noteworthy: 'A pronounced dip of strata in 2 directions, the existence of artifact-bearing erosion channels, and of aboriginal pits, go far to explain the apparent longevity of ceramic features and the often contradictory radiocarbon dates which have resulted from previous research' (Bischof and Viteri 1972: 549).

The following are conclusions based on the 1971 excavation at Valdivia: there was an absence of sherds in the lower most layers at Valdivia but abundant evidence of man (charcoal, fish bones, burnt bones and stone and shell artifacts); the fully ceramic Valdivia A phase was preceded by a San Pedro phase when well-made pottery (polished, often bearing fine-lined and geometrical decoration) was used in small quantities; the minimum quantity of San Pedro sherds in the lower levels suggests that they were trade wares; Valdivia A probably represents the beginning of locally-manufactured pottery at Valdivia; pottery does not seem to make a sudden appearance at the site and the San Pedro complex is probably contemporaneous with Puerto Hormiga (Bischof 1972a, 1972b; Bischof and Viteri 1972; Lynch 1972).

Betsy D. Hill, while a graduate student at Columbia University, assisted Lanning in the 1964 survey of the Santa Elena Peninsula. An elaboration of her Masters thesis was published in the 1975 *Nawpa Pacha*. Essentially, she presents

a refinement of the earlier chronology offered by Meggers, Evans and Estrada (1965). Their original four-phase scheme has been modified to include eight phases, the first or earliest of which has been subdivided further into two phases both of which predate the earliest phase of the initial scheme (Valdivia A). Based on a new series of radiocarbon dates from southwestern Ecuador, the earliest occupation at Valdivia is now thought to have begun around 3500 B.C. with the San Pedro and Valdivia A occupations beginning around 3300 and 3200 B.C. respectively (Bischof 1972a).

Accompanying Hill's article in *Ñawpa Pacha* is a second one by Patricia Lyon (1975) concerning Valdivia. The author indicates the difficulties she experienced while attempting to utilize Meggers, Evans and Estrada's 1965 publication on Valdivia. Her criticisms range from incompatible data to insufficient data to actual obfuscation of critical data. She concludes that the volume is 'empty' and essentially useless as a tool of research (*op cit.*, p. 45).

A second basic assumption of the Jomon-Valdivia hypothesis, and the one upon which the successful act of exchange was predicated, was that Jomon and Valdivia shared a maritime pattern of subsistence. To a number of investigators the concentration on coastal surveys by Meggers, Evans and Estrada, to the total exclusion of inland surveys, biased their results seriously. As a balance to this approach a series of investigations were conducted in an effort to disclose a more complete settlement patterning for the Valdivia culture. Such work has proven most rewarding. Extensive research has redefined Valdivia as a settled agricultural manifestation with an inland settlement pattern (Marcos 1977; Norton 1977; Zeidler 1977; Zevallos *et al.* 1977). Sites such as Loma Alta and Azúcar which are located some 15 and 30 kilometers respectively from the coast demonstrate the inland pattern. The argument that intensive maize agriculture was basic to Valdivia culture has been presented recently (Zevallos *et al.* 1977).

A third major assumption of the Jomon-Valdivia hypothesis—that such a transpacific drift voyage could have occurred within the time and space parameters set forth—has been analyzed only just recently (McEwan and Dickson 1977). The investigators concern themselves primarily with the mechanics of the proposed voyage and in so doing enumerate a number of difficulties which would have hampered such a crossing. Lack of provisions and shelter, cold ocean temperatures and stormy weather, as well as more complex and less dependable systems of currents than presumed by the original hypothesis are cited. Even under ideal conditions they conclude that the proposed voyage could have taken two years! On the basis of the particulars of the hypothesis the authors conclude such a crossing to be highly improbable. However, unlike others who have viewed the Pacific as an impassable barrier in prehistoric times, they do not reject altogether the possibility of transpacific contacts.

To summarize, it may be stated that three assumptions basic to the Jomon-

Valdivia hypothesis are not supported by the facts. Valdivia A is not the oldest pottery complex in the New World, or even at Valdivia for that matter—San Pedro pottery is older and it has no Jomon affiliations. Hence, the concept of pottery-making appears to have developed independently of Jomon influences. Valdivia, unlike Jomon, was an essentially agricultural society and as such the assumption of a friendly welcome in the postulated event loses credibility. Finally, an in-depth analysis of all pertinent factors makes an inadvertent transpacific voyage, from Japan to Ecuador in an open canoe lacking propulsion, most unlikely during the period in question.

Thus we have traced the origin, development and dismemberment of an idea but have not yet witnessed the recording of its death. The recent correspondence between Paul F. Healy and Allison C. Paulsen (Healy 1976, 1977; Paulsen 1977) over an unguarded statement testifies to the confusion in this matter. Mere mention of the idea gives it life according to Paulsen and in a way she is correct. It will live on with those who have embraced it even in the face of overwhelming contrary evidence. Novices to the field will more often than not receive their introduction to the hypothesis while reading textbooks and will form their judgements based in part upon the observations of the authors. As noted previously numerous texts now in use present the hypothesis in a favorable light, thereby aggravating the problem. The proliferation of materials written during the controversial life of the hypothesis will certainly deter many from pursuing actively the truth of the matter. A paper such as the present one offers a relatively brief synopsis of the debate, chronicles the life history of the idea and, in the end, certifies its ultimate demise.

## Bibliography

### Bischof, Henning

- 1967 [review of] Betty J. Meggers, Clifford Evans and Emilio Estrada, Early Formative Period of Coastal Ecuador: the Valdivia and Machalilla phases. *American Journal of Archaeology*, vol. 71, no. 2, pp. 216-219.
- 1972a The Origins of Pottery in South America—Recent Radiocarbon Dates From Southwest Ecuador. *Atti Del XL Congresso Internazionale Degli Americanisti*, vol. I, pp. [269]-281. Roma-Genova.
- 1972b The Stratigraphy of Valdivia (Ecuador): New Evidence. *Atti Del XL Congresso Internazionale Degli Americanisti*, vol. I, p. [283]. Roma-Genova.

### Bischof, Henning and Julio Viteri Gamboa

- 1972 Pre-Valdivia Occupations on the Southwest Coast of Ecuador. *American Antiquity*, vol. 37, no. 4, pp. 548-551.

### Coe, Michael D.

- 1967 [review of] Betty J. Meggers, Ecuador. *Science*, vol. 155, no. 3759, pp. 185-186.

**Ekholm, Gordon F.**

- 1950 Is American Indian Culture Asiatic? *Natural History*, vol. LIX, pp. [344]-[351], [382].

**Estrada, Emilio**

- 1956 Valdivia: Un Sitio Arqueológico Formativo en la Costa de la Provincia del Guayas, Ecuador. *Publicación del Museo Víctor Emilio Estrada*, No. 1.
- 1958 Las Culturas Pre-clásicas, Formativas o Arcaicas del Ecuador. *Publicación del Museo Víctor Emilio Estrada*, No. 5.
- 1961 Nuevos Elementos en la Cultura Valdivia: Sus Posibles Contactos Transpacíficos. Guayaquil: *Publicación del Sub-Comité Ecuatoriano de Antropología*.

**Estrada, Emilio, Betty J. Meggers and Clifford Evans**

- 1962 Possible Transpacific Contact on the Coast of Ecuador. *Science*, vol. 135, no. 350, pp. 371-372.

**Evans, Clifford Jr. and Betty J. Meggers**

- 1958 Valdivia: An Early Formative Culture of Ecuador. *Archaeology*, vol. 4, no. 4, pp. 175-182.

**Evans, Clifford Jr. and Betty J. Meggers**

- 1966 Transpacific Origin of Valdivia Phase Pottery on Coastal Ecuador. *XXXVI Congreso Internacional de Americanistas*, vol. 1, pp. [63]-67.

**Ferdon, Edwin N. Jr.**

- 1966 [review of] Betty J. Meggers, Clifford Evans and Emilio Estrada, Early Formative Period of Coastal Ecuador: the Valdivia and Machalilla phases. *Science*, vol. 152, pp. 1731-1732.

**Ford, James A.**

- 1967 [review of] Betty J. Meggers, Clifford Evans and Emilio Estrada, Early Formative Period of Coastal Ecuador: the Valdivia and Machalilla phases. *American Antiquity*, vol. 32, no. 2, pp. 258-259.

**Healy, Paul F.**

- 1976 [review of] Howard Campbell, Who Discovered America? *American Anthropologist*, vol. 78, no. 2, pp. 361-362.
- 1977 Reply to Paulsen's Comment on Healy's Review. *American Anthropologist*, vol. 79, no. 3, pp. 653-654.

**Heyerdahl, Thor**

- 1948 The Voyage of the Raft Kon-Tiki. *Natural History*, vol. 57, pp. 264-271, 286-287.
- 1950 The Voyage of the Raft Kon-Tiki. *The Geographical Journal*, Vol. CXV, p. [20]-41.
- 1952a Kon-Tiki's Ancestors. *The Geographical Magazine*, Vol. 25, pp. 421-426. London.
- 1952b *American Indians in the Pacific: the Theory Behind the Kon-Tiki Expedition*. London, George Allen & Unwin Ltd.
- 1959 Guara Sailing Technique Indigenous to South America. *Actas Del XXXIII Congreso Internacional de Americanistas*, tomo 1, pp. [333]-340. San José.

**Hill, Betsy D.**

- 1975 A New Chronology of the Valdivia Ceramic Complex From the Coastal Zone of Guayas Province, Ecuador. *Nawa Pacha*, vol. 10-11, pp. 1-32.

**Lanning, Edward P.**

- 1967 *Archaeological Investigations on the St. Elena Peninsula, Ecuador*. Report to the National Science Foundation.

**Lathrap, Donald W.**

- 1967 [review of] Betty J. Meggers, Clifford Evans and Emilio Estrada, Early Formative Period of Coastal Ecuador: the Valdivia and Machalilla phases. *American Anthropologist*, vol. 69, no. 1, pp. 96-98.
- 1973 [review of] Gordon R. Willey, An Introduction To American Archaeology Volume Two: South America. *American Anthropologist*, vol. 75, no. 6, pp. 1755-1767.

Lumbreras, Luis G.

- 1974 *The Peoples and Cultures of Ancient Peru*. Betty J. Meggers, trans. Smithsonian Institution Press.

Lynch, Thomas

- 1972 Current Research: Highland South America. *American Antiquity*, vol. 37, no. 2, pp. 274-278.

Lyon, Patricia J.

- 1975 'Early Formative Period of Coastal Ecuador': Where is the Evidence? *Ñawpa Pacha*, vol. 10-12, pp. 33-48.

Marcos, Jorge G.

- 1977 *Real Alto: Is Valdivia Really the Early Formative of Ecuador?* Paper presented at the 42nd Annual Meeting of the Society for American Archaeology. New Orleans.

McEwan, Gordon F. and D. Bruce Dickson

- 1977 *Valdivia, Jomon Fisherman and the Nature of the North Pacific: Some Nautical Problems with Meggers, Evans, and Estrada's (1965) Transoceanic Contact Thesis*. Paper presented at the 42nd Annual Meeting of the Society for American Archaeology. New Orleans.

Meggers, Betty J.

- 1962 Emilio Estrada: 1916-1961. *American Antiquity*, vol. 28, no. 1, pp. [78]-81.

Meggers, Betty J. and Clifford Evans

- 1966 A Transpacific Contact in 3000 B.C. *Scientific American*, vol. 214, no. 1, pp. 28-35.

Meggers, Betty J., Clifford Evans and Emilio Estrada

- 1965 Early Formative Period of Coastal Ecuador: the Valdivia and Machalilla Phases. *Smithsonian Contributions to Anthropology*, vol. 1. Washington.

Muller, Jon D.

- 1968 A Comment on Ford's Review of Early Formative Period of Coastal Ecuador. *American Antiquity*, vol. 33, no. 2, pp. 254-255.

Nelson, J.G.

- 1962 Drift Voyages Between Eastern Asia and the Americas. *Canadian Geographer*, vol. 6, no. 2, pp. 54-59.

Noguera, Eduardo

- 1965 [review of] Betty J. Meggers, Clifford Evans, and Emilio Estrada, Early Formative Period of Coastal Ecuador: the Valdivia and Machalilla phases. *Pan American Institute of Geography and History*, vol. 26-28, pp. 136-141.

Norton, Presley

- 1977 *The Loma Alta Connection*. Paper prepared for the 42nd Annual Meeting of the Society for American Archaeology. New Orleans.

Paulsen, Allison C.

- 1977 Differential Survival of the Jomon-Valdivia Hypothesis. *American Anthropologist*, vol. 79, no. 3, pp. 652-653.

Riley, Carroll L.

- 1969 *The Origins of Civilization*. Southern Illinois Press.

Rowe, John Howland

- 1966 Diffusionism and Archaeology. *American Antiquity*, vol. 31, no. 3, pp. 334-337.

Smith, Marian W. (ed)

- 1953 Asia and North America: Transpacific Contacts. *Memoirs of the Society for American Archaeology*, No. 9.

Tax, Sol (ed)

- 1951 *Civilizations of Ancient America*. Selected Papers of the XXIX International Congress of Americanists, vol. 1, pp. 299-309.

Tax, Sol, Loren C. Eiseley, Irving Rouse and Carl F. Voegelin, eds.

1953 *An Appraisal of Anthropology Today*. Chicago: University of Chicago Press.

Wiley, Gordon R.

1971 *An Introduction to American Archaeology*, Volume Two: South America. New Jersey: Prentice-Hall Inc.

Yawata, Ichiro

1955 The Affinity of Japanese and North American Prehistoric Pottery. *Anais Do XXXI Congresso Internacional de Americanistas*, vol II, pp. [867]-869. São Paulo.

Zeidler, James A

1977 *Early Formative Settlement in the Chanduy Valley, Southwest Ecuador*. Paper presented at the 42nd Annual Meeting of the Society for American Archaeology. New Orleans.

Zevallos, Carlos M., Walton C. Galinat, Donald W. Lathrap, Early R. Leng, Jorge G. Marcos and Kathleen M. Klumpp

1977 The San Pablo Corn Kernel and Its Friends. *Science*, vol. 196, no. 4288, pp. 385-389.

# TRINIDAD'S INDIANS IN THE GUIANAS

By Stephen D. Glazier

The Guianas area is a body of land entirely surrounded by water: the Orinoco River to the west and northwest, the Atlantic Ocean on the east and northeast, the Amazon River and its tributaries on the south, and the Casiquiare Canal on the west. It was not uncommon in the seventeenth century to make reference to the 'island of Guiana'; however, it must be remembered that modern Guyana, as a political unit, is much smaller than the 'island' area referred to in the seventeenth century chronicles and that today the area would include Guyana, Surinam, French Guiana, and parts of Venezuela and Brazil.

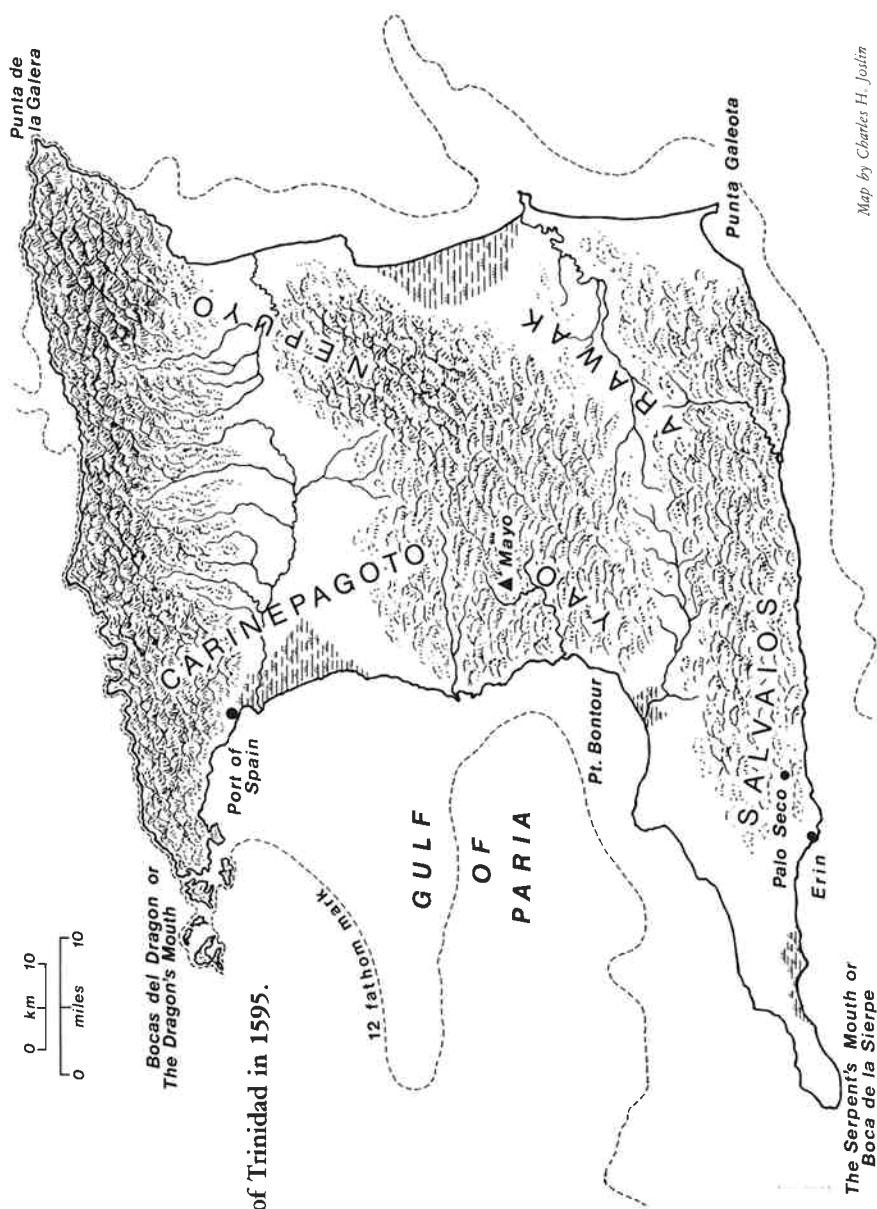
Geographical boundaries, as described above, do not coincide always with the limits of Guiana's culture, for, as Rouse (1953: 15) has suggested, rivers served as a means of communication rather than as a barrier to these peoples; *i.e.*, waterways should not be understood as cultural boundaries. In a recent presentation, Figueredo and Glazier (1978b: 5) suggest that the inland waterways from Margarita Island through the Gulf of Paria to the mouths of the Orinoco were the heart of a trading network. This is given additional support by the ethnohistorical sources (*viz.* Raleigh 1928: 86; Espinosa 1942: 75) and by Steward (1947: 50), who includes Guiana, Trinidad, the Orinoco Delta, and the Middle Amazon as one cultural area united by trade.

Archaeological evidence lends credence to Steward's position. Lovén (1935: 29), in his seminal study, suggests that the Arawak proper migrated from Trinidad to the mainland and the diffusion of pottery styles from Trinidad to the mainland has been documented well (*viz.* Osgood 1942; Bullbrook 1953; Rouse 1947, 1951, 1953). There is some evidence for contact with the Guianas even during the preceramic period. Harris (1976: 34) has identified greenstone from the Guianas in Trinidad.

Raleigh (1928: 12) and Keymis (1811: 183-186) refer to the Arawak as a group located in southeastern Trinidad (see Map) and at scattered points along the Guiana coast. Harcourt (1927) and Major John Scott (1925) also noted the presence of Arawaks in both Trinidad and the Guianas; thus providing a rare instance in which these four chroniclers agree.

Raleigh (1928: 85) claims to have heard the tale of El Dorado first from a Guianese Indian who was living in Trinidad. This Indian also gave a detailed account of his trading expeditions from Trinidad to Margarita and the mainland. The tribes of the Guianas, according to Raleigh's account, seem to have been in a constant state of flux; relatively few were associated with any one location.

The chroniclers do not agree concerning other Trinidadian tribes in the



0 km 10  
0 miles 10

Bocas del Dragon or  
The Dragon's Mouth

Aborigines of Trinidad in 1595.

GULF  
OF  
PARIA

Pt. Bontour

Punta Galeota

Palo Seco

Erin

The Serpent's Mouth or  
Boca de la Serpe

Map by Charles H. Jolin

Guianas. Harcourt, for example, differs from Raleigh in that he presupposes a higher level of political organization among the Indians, identifying seven separate 'Provinces' in the Guianas. Schomburgk (in Raleigh 1848: 20) contends that Harcourt's notions of 'Provinces' is more in keeping with European dreams of empire than it is descriptive of native political forms. He notes that the best writers on the Indians of Guiana give not a hint of permanently bounded territorial organization (*cf.* Gillin 1948: 799-860).

The list of tribes given by Harcourt does not correspond in many instances with the lists given by other explorers. Many of the twenty-one tribal names appearing in Harcourt do not appear elsewhere in the literature; however, other tribes, such as the Narrok and the Morowaria, are listed in other contexts (*e.g.*, de Laet 1640: 877). If we confine our attention to those tribes actually contacted by Harcourt's party, the number of tribes is narrowed down considerably to: the *Caribs*, the *Arawcios*, the *Yaios*, the *Sappaos*, and the *Paragotos* (Harcourt 1927: 75, 84, 86). All of these tribes, with the possible exception of the *Paragotos*, have definite links with the Indians of Trinidad (*vid.* Borde 1876; Figueredo and Glazier 1978a).

Harcourt (1927: 86) insists that the Caribs were the original inhabitants of the Guianas and that the other tribes mentioned in his account were driven from their homes in Trinidad and along the borders of the Orinoco. The Caribs were said to be in a state of constant warfare with these other tribes and it was for that reason, according to Harcourt (*id.*: 89), that the Caribs desired protection and made an alliance with the Crown.

A complex issue which has not been answered definitively by the archaeological and ethnohistorical record is: exactly how were these tribes driven from Trinidad to the mainland? Raleigh and Harcourt indicate that it may have been a result of warfare, but they are not specific as to the circumstances. There is also considerable evidence that population pressure may have been a factor (Newson 1976). Given sufficient time depth, I believe that both these explanations are plausible.

The chroniclers tend to overestimate the scale and significance of warfare in the area. It has been contended (Glazier 1978: 280) that wars, such as those reported in the literature, could not have been organized campaigns of political and/or territorial expansion and that the great battles described by Castellanos (1850) and Espinosa (1942) are highly exaggerated.

The Indians of Trinidad and the Guianas did not have a state organization. The worldwide ethnographic sample indicates that people at this cultural level usually do not have a strong sense of 'territoriality'; this is demonstrated for the Guianas by Rouse (1953: 68) who contends that Arawak and Carib settlements alternated along the Guiana coast.

This seemingly random distribution may have had an adaptive advantage. By the various groups alternating along the coastline and occupying settlements

on opposite sides of a river, a single tribal group is able to exploit different ecological areas. Lathrap (1973) has pointed out the importance of long-distance trade in a Tropical Forest setting, and Murra (1975), in his archipelago concept, has shown how very different ecological areas could be occupied by the same people, sharing portions of each with other ethnic groups.

A perennial problem in the ethnohistory of the Guianas is that tribes at both the Tropical Forest and Marginal levels of culture (Steward 1947) seem to have co-existed within the same area. This may have been due to a lack of communication between tribes which is explained partially in terms of dense forest cover (Rouse 1953: 99). Given the vast trading networks (Glazier 1978: 279), however, it is not likely that so-called Marginal tribes in the area would be unaware entirely of the techniques of horticulture.

The worldwide ethnographic sample contains many examples of peoples who have the means (and/or the knowledge) to pursue a horticultural subsistence but, for one reason or another, have not chosen to exercise that option (*cf.* Lee and De Vore 1968). Subsistence base may also have served as a 'badge' of ethnic identity in the area.

There is considerable linguistic evidence for communication between Trinidad and the mainland. Similarities between languages in the West Indies and the Guianas were noted by early chroniclers (*e.g.*, Espinosa 1942: 37; Dudley and Captain Wyatt in Warner 1899), and Amerindian word lists are scattered throughout the literature. Taylor (1977), in his ambitious book, attempts to classify languages of the West Indies and the Guianas; however, there is still a need for additional linguistic analysis. A rigorous application of the techniques of glottochronology (Swadesh 1971) may prove useful in future research.

In conclusion, it can be stated that the Indians of Trinidad and the Guianas were in a constant state of flux. There was continual movement back and forth from the mainland; few tribes (if any) became associated strongly with any one location (*vid.* Raleigh 1928: 85). With the possible exception of Harcourt's Paragotos, the chroniclers seem to indicate that virtually all of Trinidad's tribes also had settlements in the Guianas (Borde 1876; Figueredo and Glazier 1978a: 260); of these, the Arawak, the Carib, and the Nepuyo (*cf.* Lovén 1928: 711-713) are the best documented.

## Bibliography

Borde, Pierre-Gustave-Louis

- 1876 *Histoire de l'Île de la Trinidad sous le Gouvernement Espagnol*. Première Partie (1498-1797). Paris: Maisonneuve et Cie., Libraires-Éditeurs.

Bullbrook, John Albert

- 1953 On the Excavation of a Shell Mound at Palo Seco, Trinidad, B.W.I. *Yale University Publication in Anthropology* no. 50.

Castellanos, Juan de

- 1850 *Elegías de Varones ilustres de Indias*. Segunda Edición. *Biblioteca de Autores Españoles*, Torno Cuarto.

- Figueredo, Alfredo E., and Stephen D. Glazier**  
 1978a A Revised Aboriginal Ethnohistory of Trinidad. *Proceedings of the Seventh International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles*, pp. 259-262.  
 1978b *Spatial Behavior, Social Organization, and Ethnicity in the Prehistory of Trinidad*. Paper presented at the Annual Meeting of the American Ethnological Society, Québec City.
- Gillin, John**  
 1948 Tribes of the Guianas. Julian H. Steward, ed., *Handbook of South American Indians*. Bureau of American Ethnology: *Bulletin* 143.
- Glazier, Stephen D.**  
 1978 Trade and Warfare in Protohistoric Trinidad. *Proceedings of the Seventh International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles*, pp. 279-282.
- Harcourt, Robert**  
 1977 *A Relation of a Voyage to Guiana*. Edited with an Introduction by Sir Alexander Harris. London: Hakluyt Society.
- Harris, Peter O'B.**  
 1976 The Preceramic Period in Trinidad. *Proceedings of the First Puerto Rican Symposium on Archaeology*, pp. 33-64.
- Keymis, Lawrence**  
 1811 A Relation of the Second Voyage to Guiana. *Collection of Early Voyages, Travels, and Discoveries*. London: Hakluyt Society.
- Laet, Jan de**  
 1640 *L'Histoire du Nouveau Monde ou Description des Indes Occidentales*. Leyden: B. and A. Elseviers.
- Lathrap, Donald W.**  
 1973 The Antiquity and Importance of Long-Distance Trade Relationships in the Moist Tropics of Pre-Columbian South America. *World Archaeology*, vol. 5, no. 2, pp. 170-186.
- Lee, Richard B., and Irven De Vore**  
 1968 *Man the Hunter*. Chicago: Aldine.
- Lovén, Sven**  
 1928 The Orinoco in Old Indian Times. *Atti del XXII Congresso Internazionale degli Americanisti*, vol. II, pp. 711-725.  
 1935 *Origins of the Tainan Culture, West Indies*. Second Edition. Göteborg: Elanders.
- Murra, John Victor**  
 1975 *Formaciones económicas y políticas del mundo andino*. Lima: Instituto de Estudios Peruanos.
- Newton, Linda A.**  
 1976 *Aboriginal and Spanish Colonial Trinidad: A Study in Culture Contact*. New York: Academic Press.
- Osgood, Cornelius**  
 1942 Prehistoric Contact Between South America and the West Indies. *Proceedings of the National Academy of Sciences*, vol. 28.
- Raleigh, Walter**  
 1848 *The Discovery of the Large, Rich, and Beautiful Empire of Guiana*. Edited with notes by Sir Robert H. Schomburgk, Ph.D. London: Hakluyt Society.  
 1928 *The Discovery of the Large, Rich, and Beautiful Empire of Guiana*. Edited by V.T. Harlow. London: Hakluyt Society.
- Rouse, Benjamin Irving**  
 1947 Prehistory of Trinidad in Relation to Adjacent Areas. *Man*, vol. 7, pp. 93-98.  
 1951 Prehistoric Caribbean Culture Contact as Seen from Venezuela. *Transactions of the New York Academy of Sciences*, vol. XIII, pp. 342-347.  
 1953 *Guianas: Indigenous Period*. Mexico: Instituto Panamericano de Geografía e Historia.
- Scott, John**  
 1952 The Description of Trinidad. *Colonising Expeditions to the West Indies and Guiana, 1623-1667*. London: Hakluyt Society.
- Steward, Julian H.**  
 1947 *Handbook of South American Indians*. Bureau of American Ethnology: *Bulletin* 143.
- Swadesh, Morris**  
 1971 *The Origin and Diversification of Language*. Chicago: Aldine.
- Taylor, Douglas MacRae**  
 1977 *Languages of the West Indies*. Baltimore: Johns Hopkins University Press.
- Vásquez de Espinosa, Antonio**  
 1942 *Compendium and Description of the West Indies*. Charles Upson Clark, ed. and trans. Washington: Smithsonian.
- Warner, George F.**  
 1899 *The Voyage of Robert Dudley to the West Indies, 1594-1595*. London: Hakluyt Society.