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*ANTHROPOLOGY.—PREHISTORIC CONTACT BETWEEN SOUTH
AMERICA AND THE WEST INDIES*

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The primary historical problem which has intrigued the archeologists of the Caribbean area has been that of the cultural relations between the West Indies and the two adjacent continents. A cultural connection with South America has for long been a generally accepted hypothesis, and more recently evidence has been increasing in support of the view that there were prehistoric contacts between the Greater Antilles and the United States¹ and Mexico.² In one case at least, hypothesis can now be set aside, for as a result of archeological work carried on during the past summer (1940), it is possible for the first time to link the West Indies with the South American mainland in an empirical manner which places the question of prehistoric contact beyond reasonable doubt. It is the purpose of this paper to indicate the nature of the evidence in support of this statement, and in a general way to correlate the newly discovered cognate mainland culture with the pattern of cultures previously recognized among the islands of the Caribbean.

A positive and provocative indication of direct contact appeared during the summer of 1933 when the writer, engaged in the Caribbean Archeological Program of the Yale Peabody Museum, found in the lowest stratum of a mound in the Lake Valencia region of Venezuela, a number of fragments of fine-grained, well-polished pottery with broadly incised lines and the so-called "doughnut eye." These specimens were absolutely atypical of the local culture and were described as trade sherds with West Indian affinities.³

In 1941, when the writer and Mr. George Howard of Yale University undertook an archeological survey of Venezuela, a culture was located on the lower Orinoco River which appeared to be the source of the trade sherds mentioned above.⁴ Excavation in a site of this culture near the town of Barrancas produced fragmentary remains of a fine-grained pottery beautifully decorated with broadly incised curvilinear designs on lustrous

slips of red, black, yellow and brown. Outstanding among obvious features of the material were modeled *adornos* or ornamental heads of various animals which served as decorations for the sides of pots. A few days after the excavation at Barrancas was completed, the writer flew to Trinidad and had the pleasure of examining the material recently excavated by Mr. J. A. Bullbrook and Capt. J. E. L. Carter from the great shell midden at Erin Bay. This site is but a short distance across the Serpent's Mouth (as the intervening ocean channel is called) from the northern entrance to the Orinoco River, and only about 100 kilometers or 52 miles airline from the site at Barrancas. Some of the decorated pottery from the lower of the two strata at Erin Bay is to all appearances identical with that from the Orinoco River, and certainly such similarity exists as to rule out any likelihood of chance convergence in styles or even of sameness resulting only from casual contacts. As nearly as could be judged, numerous peculiar pieces from one site could be replaced by samples from the other without differences being readily detected. The similarity is further borne out by a comparison of the Barrancas material with that excavated at Erin Bay by Fewkes in the winter of 1912-1913 and illustrated in several of his papers.⁵ Such is the present evidence for positive prehistoric contact between the West Indies and the South American mainland.

In order to correlate these connected cultures with the pattern of those recognized conditionally for the West Indies, we may first review the present theory regarding the population of the islands. From the linguistic and historical point of view, three major groups, the *Carib*, the *Arawak* and the *Ciboney*, appear to have occupied the Antilles in pre-Columbian times. These we shall consider in turn.

Carib. The most recent group in the West Indies is certainly the Carib, a people who are known historically to have raided and overrun most of the islands of the Lesser Antilles shortly before European contact.⁶ Their South American origin is scarcely questioned but their culture, in terms of archeological remains, is very inadequately known. It may even be that any detailed knowledge of their culture is unobtainable, since the period of occupation by the Carib group possibly was too short to leave any accumulations sufficient for archeologists to interpret.

Arawak. The most widely spread of the major groups in the West Indies is the Arawak. Like the Carib, its presence is known from historic sources. Arawak occupation certainly antedated that of the Carib and is of larger duration, sufficiently long, indeed, so that it is not possible, on direct linguistic and historical evidence, to be certain that we are dealing with only a single group which, properly speaking, can be called Arawak. Rainey, working in Puerto Rico, described two cultures, an earlier Crab and a later Shell, which serve to distinguish phases of the Arawak group as I use the term here.⁷ Although Rainey, with reasonable caution, did not

regard both cultures as Arawak, recent investigations by Rouse in Puerto Rico support this thesis.⁸ In what is the most complete summary of West Indian archeology, Rainey went on to find widely spread evidences for his two cultures, identifying the Shell culture principally with the Greater Antilles and the Crab with the Lesser Antilles.⁹ Regardless of revisions which may be made in his correlations, the existence of distinguishable earlier and later phases appears definitely established.

Ciboney. The third and most restricted of the major groups in the West Indies is the Ciboney which is best known from Cuba. Unlike the Carib and Arawak groups, the Ciboney people are not known from historical contacts but are referred to indirectly in the source literature. They clearly stand apart from the others, however, on archeological evidence, as they lacked pottery. Whenever they occupied the same territory as the Arawak (there is no evidence that the Ciboney and the protohistoric Carib ever shared the same islands), the Ciboney appear as the earlier group, which fact, however, by no means signifies that, in terms of actual time, they entered the West Indies before the Arawak. That the affinities of the Ciboney are with Florida is a widely proposed hypothesis¹⁰ for which adequate empirical evidence, however, is yet to be established.

To return to the question of how the recently correlated sites of Barrancas, Venezuela and Erin Bay, Trinidad, fit into the general West Indian pattern, certain conclusions can be reached. From every point of view, the Erin Bay culture seems to belong to the Arawak group and it is the earlier phase of the remains which has direct ties with the Orinoco.¹¹ It is the feeling of some workers in Trinidad that this same phase correlates with the material at Cape Mayaro on the east coast of Trinidad which, we may note, has been described by Rainey as demonstrating a "remarkable similarity" with the Crab culture in Puerto Rico.¹² Thus it can be said that the Barrancas culture probably correlates with the early (Crab culture?) phase of the Arawak group in the West Indies.¹³

¹ Rouse, I., "Some Evidence Concerning the Origins of West Indian Pottery-Making," *Amer. Anth.*, 42, 49-80 (1940).

² Ries, M., "Summary Report on the Tulane University-Cuban Navy Expedition to Cabo San Antonio, Cuba," Manuscript (1937).

³ Osgood, C., "Excavations Near Lake Valencia, Venezuela," Manuscript (1935).

⁴ This work was financed through the Institute of Andean Research by the Committee for Cultural and Commercial Relations with the Latin American Republics. It is expected that detailed results will appear in the *Yale University Publications in Anthropology* during 1942-1943.

⁵ Fewkes, J. W., "Prehistoric Objects from a Shell-Heap at Erin Bay, Trinidad," *Amer. Anth.*, 16, 200-220 (1914). Reprinted in *Contrib. from Heye Museum*, 1 (1915). The same illustrations are also available in Fewkes, J. W., "A Prehistoric Island Culture Area of America," *Bur. Amer. Ethnol.*, An. Rep. 34, 70, plates 2-8 (1922).

⁶ Loven, one of the principal writers on the prehistory of the West Indies but one who depends primarily on the historical sources, holds that the *Caribs* were in Trinidad

as well as the other small islands of the Lesser Antilles. In this view Bullbrook also concurs. Contrarily, Fewkes believes that the Caribs did not gain a foothold there, chiefly, it seems, because the typical stonework of the Lesser Antilles associated with the Caribs by Fewkes and other archeologists has not been found in Trinidad. There is a question, however, as to whether the stone artifacts referred to are actually Carib remains. In either event, there seems to be a sufficiency of historical evidence to demonstrate the reasonableness of Loven's theory. Loven, S., *Origins of the Tainan Culture, West Indies*, Göteborg, pp. 32-42 (1935); Bullbrook, J. A., "The Ierian Race," *Public Lectures . . . of the Hist. Soc. of Trinidad and Tobago, 1933-1939* pp. 40-41 (1940); Fewkes, J. W., "A Prehistoric Island Culture Area of America," *Bur. Amer. Ethnol.*, An. Rep. 34, 64-65 (1922).

⁷ Rainey, F. G., "A New Prehistoric Culture in Puerto Rico," *Proc. Nat. Acad. Sci.*, 21, 12-16 (1935).

⁸ Rouse, I., "New Evidence Pertaining to Puerto Rican Prehistory," *Proc. Nat. Acad. Sci.*, 23, 185 (1937). For a discussion of the evidence that these cultures are Arawak, see Rouse's section on the West Indies, soon to be published in the "Handbook of the South American Indians," *Bur. Amer. Ethnol.*, Washington, D. C.

⁹ Rainey, F. G., "Scientific Survey of Porto Rico and the Virgin Islands," *New York Acad. Sci.*, 18, part 1 (1940).

¹⁰ Harrington, M. R., "Cuba Before Columbus," *Indian Notes and Monographs*, part 1, 2, 423 (1921); Loven, S., *Origins of the Tainan Culture, West Indies*, Göteborg, p. 662 (1935).

¹¹ I am indebted to Capt. J. E. L. Carter for unpublished information on the distinctions between the upper and lower strata of the Erin Bay site.

¹² Rainey, F. G., "Scientific Survey of Porto Rico and the Virgin Islands," *New York Acad. Sci.*, 18, part 1, 175 (1940).

¹³ Our understanding of this problem will be greatly advanced by stratigraphic analyses of the Erin Bay and Barrancas deposits. The Trinidad research, it is hoped, will soon be furthered by coöperation between Trinidad archeologists and the Yale Peabody Museum.

GUANINE AND FACTOR Z₁, GROWTH SUBSTANCES FOR PHYCOMYCES

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Previous reports¹ have shown that the spore germination, early mycelial growth and gametic reproduction of *Phycomyces* at or near 25°C. in the presence of excess thiamin are markedly benefited by extracts from various natural products. By treatment with charcoal the natural extracts were separated into two fractions.² One of these, the Ca fraction, was the material adsorbed on charcoal from acid solution and eluted with ammoniacal acetone; the other, the D_R fraction, was the filtrate from the charcoal