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Prehistory of the West Indies

The Indians Columbus encountered when he discovered the New World were moving up from South America.

Irving Rouse

The islands of the West Indies are of interest to prehistorians because they lie like a series of stepping stones between the northeastern part of South America and the peninsulas of Florida and Yucatan, projecting from North and Middle America, respectively (Fig. 1). From which of these three mainland regions did the Indians reach the islands? When did various groups of Indians first arrive? Did they continue through the islands into other mainland regions? And did certain customs and beliefs spread to or from the islands without an accompanying displacement of the population? Research on the prehistory of the West Indies is designed to answer these questions (*1–3*).

The islands have also attracted attention because they were the scene of the first significant contacts between the Old and New Worlds. The earlier Norse encounters with the Eskimo had contributed nothing to the development of western civilization, but when Columbus discovered the New World in the West Indies, he set in motion a chain of events which led to the adoption by Europeans of a number of new crops, such as maize and tobacco, and new artifacts, such as hammocks and canoes, which we now consider our own. Even the names for these crops and artifacts are taken from the West Indian languages. It is of some interest, therefore, to determine how they reached the islands.

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Natural and Cultural Setting

The Lesser and the Greater Antilles form the backbone of the West Indies. The Lesser Antilles consist mainly of small, volcanic islands, which curve to the north and west from the mouth of the Orinoco River in eastern Venezuela (Fig. 1). The Greater Antilles, composed of much larger, mainly sedimentary islands, extend westward from the northern end of the Lesser Antilles toward Florida and Yucatan. From east to west, the principal islands of the Greater Antilles are Puerto Rico, Hispaniola (which is now divided between the Dominican Republic and Haiti), Jamaica, and Cuba.

Lesser island groups include the Turks and Caicos Islands and the Bahamas, scene of Columbus's first landfall;

both groups stretch north from Haiti and Cuba along the southeast coast of Florida. A series of islands just off the coast of Venezuela are often also considered part of the West Indies. Only the easternmost of these concern us here: Margarita, Cubagua, and Coche, which belong to Venezuela, and Trinidad, a former British possession.

Trinidad is closest to the mainland and, indeed, was attached to it until about 6000 B.C., well after the time of the Indians' arrival in South America (*4*). There is a gap of 145 kilometers between Trinidad and Grenada, the southernmost of the Lesser Antilles, but the islands of the Lesser and Greater Antilles are closer together, most within sight of one another. Cuba is 195 kilometers from Yucatan and 145 kilometers from Key West, the closest part of Florida.

The prevailing winds and currents proceed westward from the Guianas past Trinidad to Margarita, Cubagua, and Coche islands. Some currents are deflected northward from Trinidad into the Lesser Antilles, and this northward movement is reinforced by the water pouring out of the mouth of the Orinoco River. When the Orinoco River is in flood it muddies the sea out past Trinidad, and some of its debris is carried into the Lesser Antilles (*5*).

The winds and currents likewise proceed mainly from east to west through the Greater Antilles. The straits of Yucatan and Florida serve to channel the flow of the currents, swinging them back to the northeast between Florida and the Bahamas, where they unite to form the Gulf Stream. Both straits lack large rivers, the waters of which would cut across the currents as the Orinoco does in South America.

These factors have favored movement, first of animals and later of man, out into the Antilles from South America, rather than from either Middle or North America (*6*). So also has the existence of two large, sheltered gulfs at the southern end of the island chain: Paria, between Trinidad and the mainland, and Cariaco, south of Margarita, Cubagua, and Coche islands. Here, as we shall see later, the Indians acquired the seafaring skills which they needed to move out into the Antilles.

That the Indians did, in fact, move out from South America is indicated by the distribution of their culture in the time of Columbus. Eastern Venezuela, the adjacent part of the Guianas, and the West Indies form a single, Caribbean culture area, the native inhabitants of which were closely interrelated in language and culture (Fig. 2).

Unfortunately for Columbus, who had hoped to impress the King and Queen of Spain with the importance of his discoveries, the Indians of the Caribbean area had not attained civilization. This was limited to two areas on the Pacific side of the hemisphere: Mesoamerica, comprising the modern countries of Mexico, Guatemala, and Honduras, and the Central Andes area in the present nations of Peru and Bolivia. In these two areas the Indians had cities, monumental architecture, empires or kingdoms, advanced scholarship and scientific knowledge, extensive commerce and industry, and other manifestations of civilization (*7*).

The Mesoamerican and Andean civilizations were separated by a region of lesser development, extending south along the Pacific coast from Nicaragua to Ecuador and east along the Caribbean shore as far as western Venezuela. This has become known

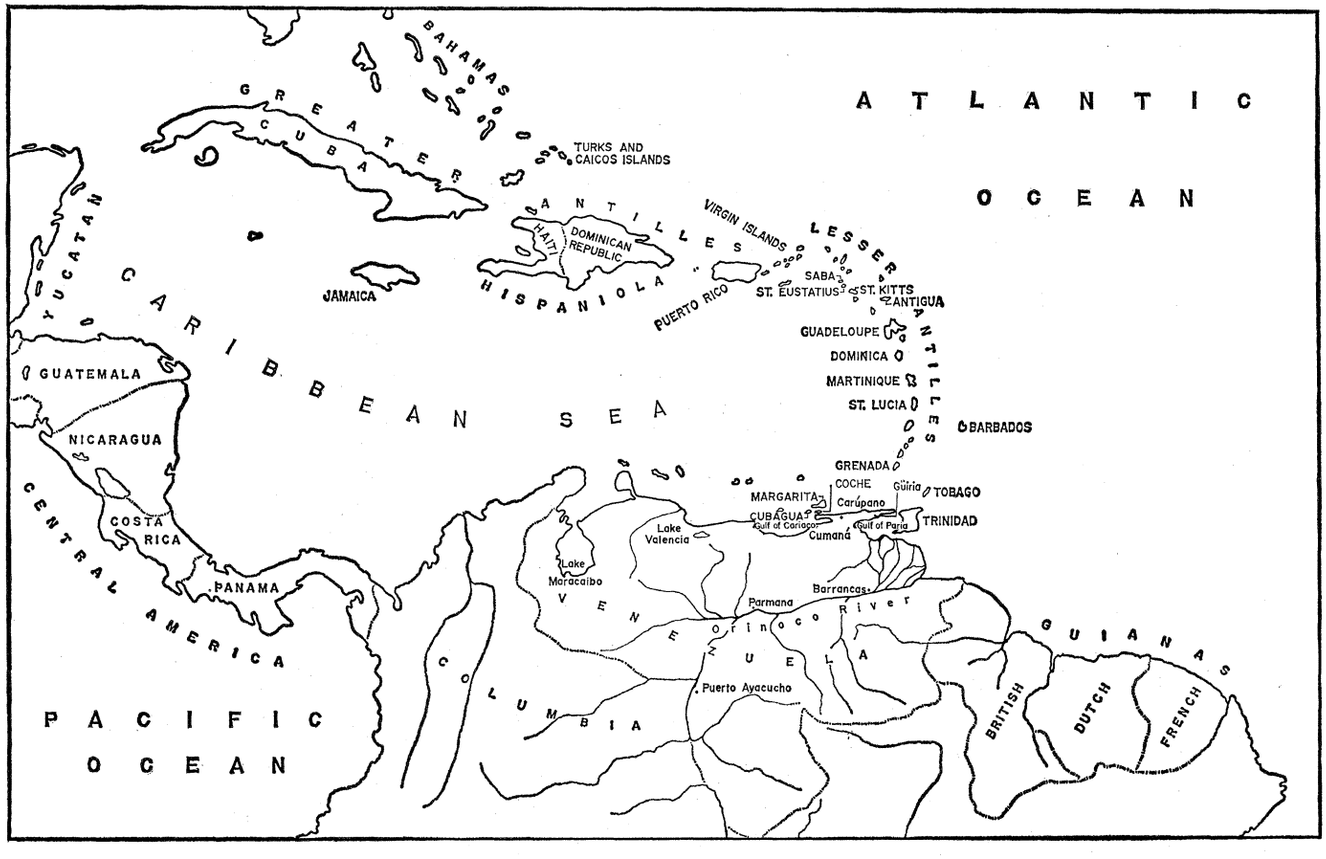

Fig. 1. Map of the Caribbean Sea and surrounding lands.

as the Intermediate area, because of its position between the two civilizations (Fig. 2). Unlike them, it had only towns and villages, constructed of perishable materials; chiefdoms were its largest political units; and commerce, industry, and scientific knowledge were all poorly developed. The Indians of the Intermediate area are notable mainly for their skill in working precious metals, in which they surpassed the Mesoamericans, and for their art, expressed in the form of grave objects and religious figures (*8*).

In the time of Columbus the Caribbean area was at the same general level of development as the Intermediate area, differing from it only in details. The staple crop was manioc rather than maize, though the latter frequently served as a secondary crop; metallurgy was poorly developed, despite Columbus's claims to the contrary; burial received little attention; and religious figures were rare. There were a few notable exceptions which, as we shall see, are likely to have been the result of influences from the Intermediate area or Mesoamerica. A game played with a rubber ball was probably also derived from one or the other of these sources.

To fill out the picture of historic distribution of Indian culture, let us take a brief look at the situation south and north of the Caribbean area (Fig. 2). Amazonia, to the south, had a simpler version of Caribbean culture, lacking most of the latter's influences from the Intermediate area and Mesoamerica. The eastern United States contained a different and more advanced form of culture, characterized by maize agriculture and temple mounds, both of which seem to have diffused directly from Mesoamerica by way of the Gulf Coast (*9*).

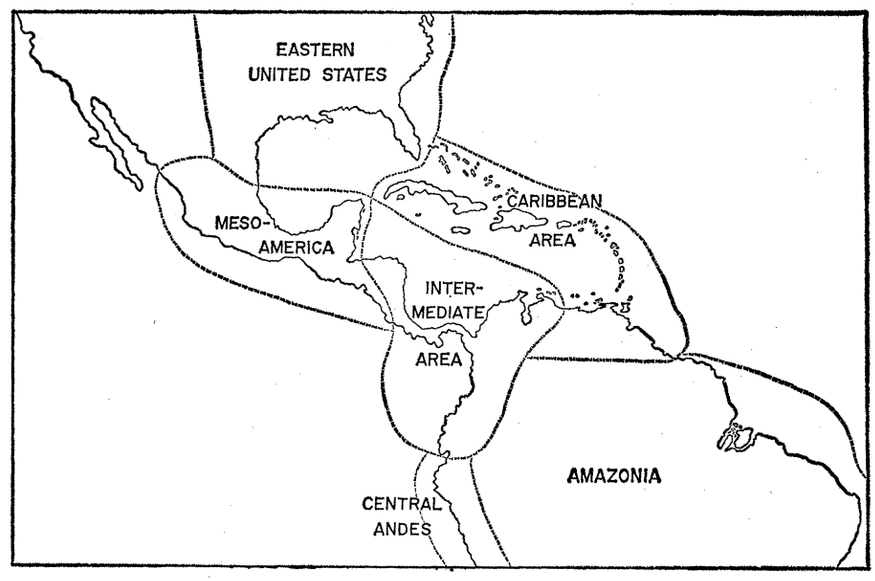

Fig. 2. Culture areas in the vicinity of the Caribbean Sea.

Ethnic and Linguistic Groups

Three major groups of Indians inhabited the Caribbean area in the time of Columbus: Marginal (Archaic) peoples, the Arawak, and the Carib. The principal Marginal tribes were the Warrau, who lived in the delta of the Orinoco River, and the so-called Ciboney, who inhabited the western part of Cuba (from Havana to the Yucatan Channel), islets off the coast of Cuba, and the long southwestern peninsula of Haiti. They were apparently remnants of an earlier population which had been pushed back into these peripheral positions by later migrants. They lived by hunting and fishing, without agriculture; inhabited small, temporary camps, which were often in caves; and had simple forms of social organization and religion (*10*).

It is important to note that the southern part of Florida, up to and including Cape Kennedy (Canaveral), was likewise occupied by hunting and fishing peoples when the Spaniards arrived. One problem of West Indian archeology is to determine the relationship, if any, between the Marginal peoples of Florida and those of the Caribbean area. Were the former derived from the latter, or vice versa? Or, as the archeology seems to indicate, did the two groups develop separately, each being pushed back into its historic, peripheral position by more advanced people, moving in from the south and north, respectively?

The Arawak were also widely dispersed. One group lived on the South American mainland and on the islands immediately offshore, where their settlements were sometimes interspersed among those of the Carib. By far the greater part of the Arawak,

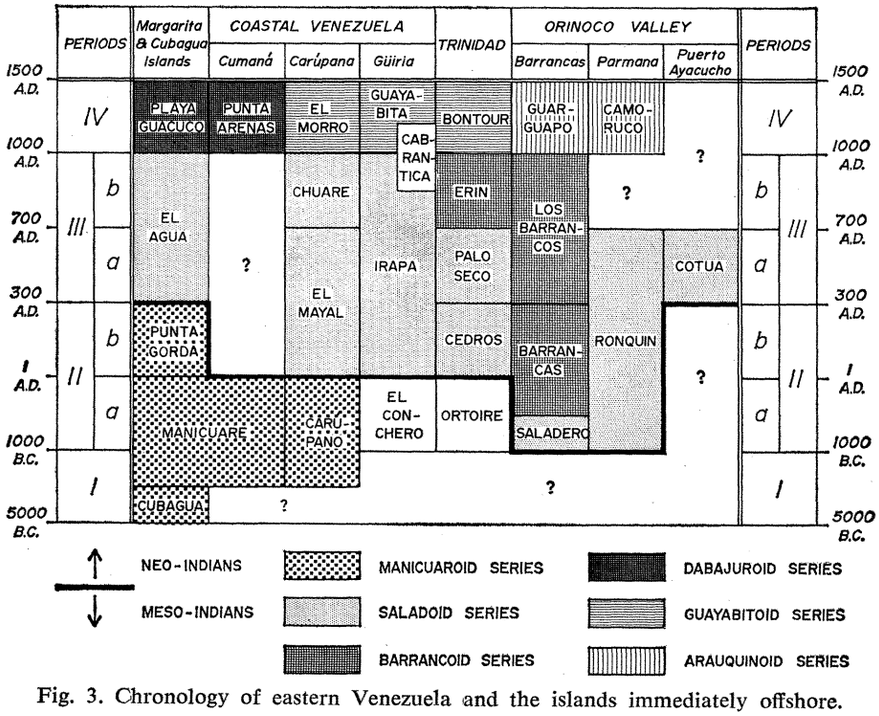

Fig. 3. Chronology of eastern Venezuela and the islands immediately offshore.

numbering in the millions according to the conquistadores, were in the Greater Antilles, the Turks and Caicos Islands, and the Bahamas. These Island Arawak were skilled agriculturists (though they also obtained much food by fishing), lived in settled villages ruled by hierarchies of chiefs, made good pottery, and had a relatively elaborate religion, centering around the worship of deities known as *zemis*. The mainland Arawak were somewhat less highly developed (*2; 11*, p. 507).

Both groups spoke languages of the great Arawakan family, which was widespread throughout Amazonia and extended into the Intermediate area as well but did not occur in either Middle or North America. Hence, we may assume that the Arawak invaded the West Indies from the south, pushing the Marginal tribes back into the peripheral positions they occupied in historic time. Columbus was able to use the same interpreters wherever he went among the Island Arawak, and this suggests that the Arawak invasion of the Antilles cannot have begun very long before his time, else there would have been stronger dialectal differences.

The Island Arawak told Columbus that they were subject to raids by man-eating Indians known as Carib (*12*). Intrigued, Columbus directed his second voyage into the Lesser Antilles, where the Carib lived, and confirmed the Arawak report. The Carib were agriculturists and pottery makers, but, unlike the Arawak, they paid more attention to warfare than to religion and ate captives in order to absorb their fighting ability. (Our word *cannibal* is a corruption of *Caribal*, the Spanish form of *Carib*.) The chiefs were not hereditary, as they were among the Arawak, but were chosen for their ability in warfare (*11*, p. 547).

The Carib claimed to have arrived in the Lesser Antilles only a few generations before Columbus, having come from South America, where many Carib still lived. They had conquered the previous Arawak inhabitants of the Lesser Antilles and, so they said, killed off the men but married the women. Apparently the women's language prevailed over that of the men, for the descendants of the Island Carib speak an Arawakan language (*13*). The Cariban languages were confined to South America proper, where they were as widespread as Arawakan, occurring in Amazonia and the Intermediate area as well as in the Caribbean area.

There can be little doubt, then, that both the Arawak and the Carib, if not the Ciboney, entered the West Indies from South America. It remains for archeology to determine when and how they came and to work out the extent of their contacts, if any, with the Indians of Mesoamerica and the eastern United States.

Table 1. Relative time scale for Caribbean cultures.

Epochs	Periods	Duration
Paleo-Indian		15,000–5000 B.C.
Meso-Indian	I	5000–1000 B.C.
Neo-Indian	II	1000 B.C.–A.D. 300
Neo-Indian	III	A.D. 300–1000
Neo-Indian	IV	A.D. 1000–1500
Indo-Hispanic	V	A.D. 1500 on

Chronology and Cultures

Extensive stratigraphical excavations in the Caribbean area made it possible in the 1940's to set up a relative time scale consisting of five periods, which were arbitrarily numbered from

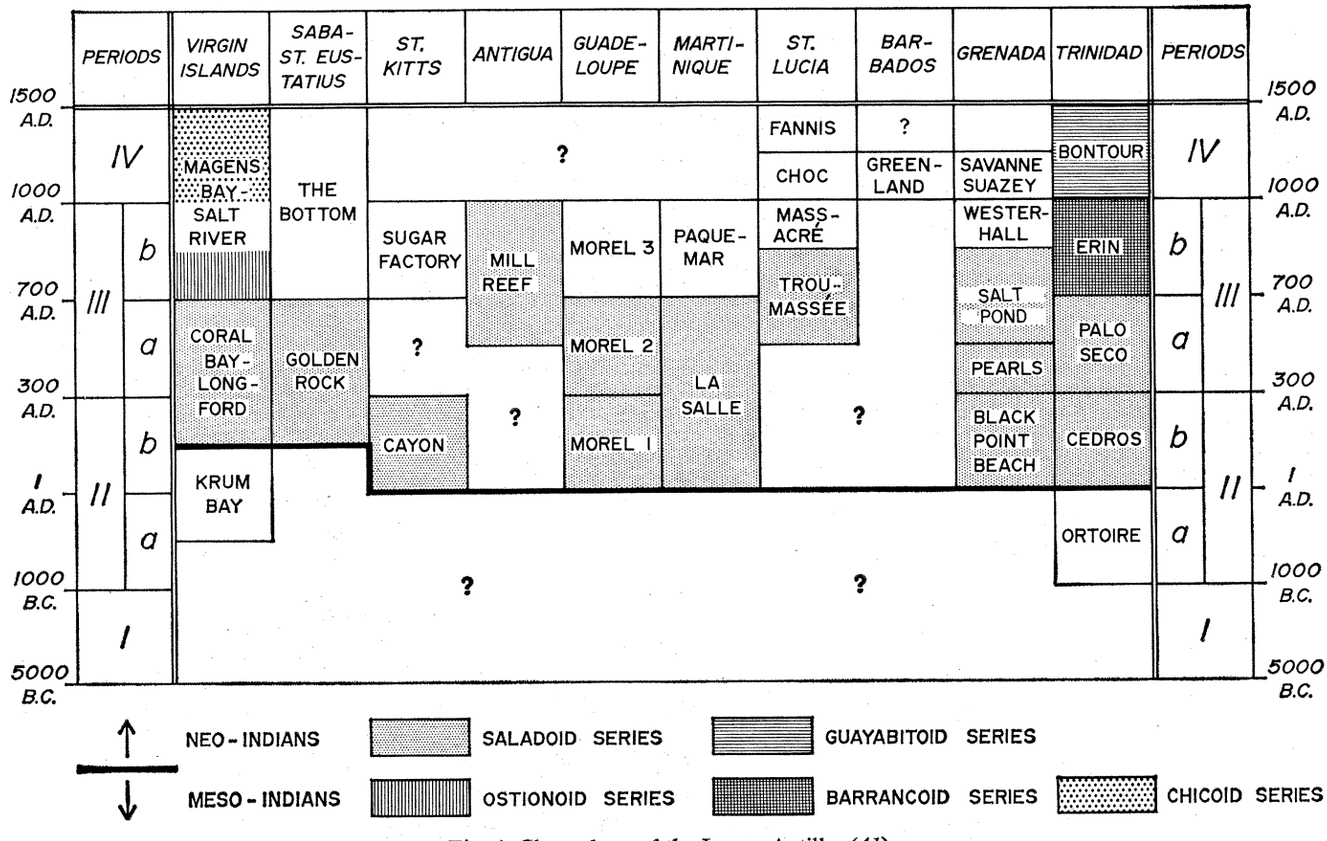

Fig. 4. Chronology of the Lesser Antilles (*41*).

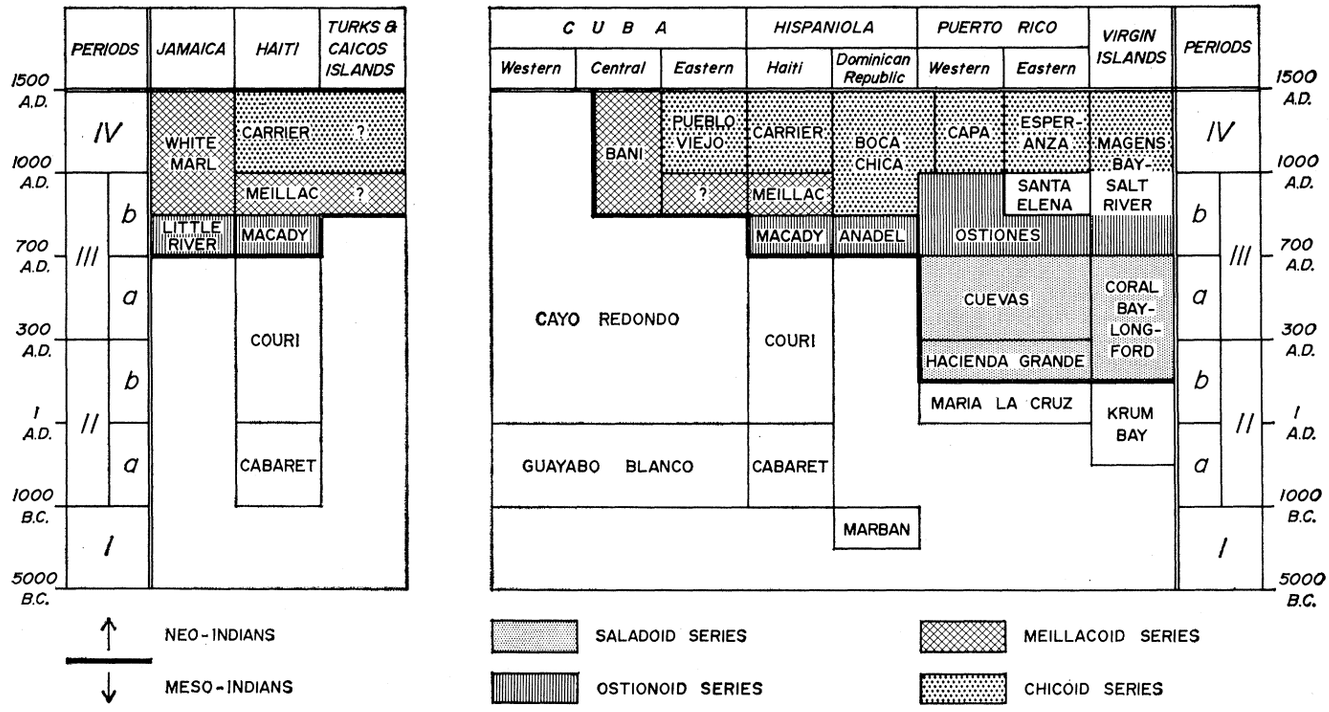

Fig. 5. Chronology of the Greater Antilles and the Turks and Caicos Islands.

I to V. These were subsequently grouped into three epochs, and a fourth was added at the beginning, as shown in Table 1.

Following a common practice in prehistory and history, we have named each epoch after its most advanced people. The original Paleo-Indians were hunters; this epoch is characterized by artifacts of chipped stone. The Meso-Indians turned to fishing if they lived along the coast, and probably to the gathering of wild vegetable foods if they lived in the interior. They made a greater variety of artifacts, including the first shell tools (on the coast) and the first pottery (in the interior). The Neo-Indians were agriculturists and pottery makers, and the Indo-Hispanic people, as the term implies, were Indians who had become more or less influenced by European civilization. The Indo-Hispanic people are beyond the scope of this discussion.

With the development of radiocarbon analysis in the 1950's, it has become possible to determine the duration of the epochs and periods (see Table 1, col. 3). A total of 65 dates have been obtained for the Caribbean area proper. These are well distributed over all the epochs except the first; the duration assigned this first epoch is based upon evidence from outside the Caribbean area (*14*, p. 155; *15*).

A number of cultures have been distinguished for each of the epochs and periods. Those of the Paleo- and Meso-Indian epochs are termed complexes, since each one has been defined in terms of all the types of artifacts represented in its sites. The Neo-Indian cultures, on the other hand, are called styles, in recognition of the fact that they must be defined primarily in terms of pottery, since relatively few nonceramic artifacts are found in the Neo-Indian sites.

Most of the complexes and styles can be fitted into lines of development, in each of which it appears that the original complex or style gave rise to a second, the second to a third, and so on. Such lines of development are termed "series" (*14*, p. 23). The simplest form of series consists of a succession of complexes or styles which the people of a single locality developed with the passage of time. In other cases the people of the original locality seem to have migrated, sometimes over long distances, changing from one complex or style to another as they went. In still other cases it is probable that the people of the original locality influenced people of a second locality, those of the second locality passed the influences on to a third, and so on, and that a series of new complexes or styles was thus produced by a process of acculturation rather than migration. All the series are widely distributed in either time or space, or in both.

In accordance with standard archeological practice, each complex or style is named after a type site. Each series is similarly named after a typical complex or style, by addition of the suffix *-oid* to the name of the complex or style. For example, the style found in a group of sites just above the delta of the Orinoco River is termed Barrancas, since the modern town of that name is situated directly on the type site, and this style is assigned to the Barrancoid series, so-called because the Barrancas style is the type member of the series.

The complexes and styles are shown in the chronological charts of Figs. 3–5. The Meso-Indian complexes appear below the heavy black line on each chart and the Neo-Indian styles above it. Various kinds of shading are used to indicate how the complexes and styles are related to form the series.

The charts of Figs. 3 and 5, which represent the mainland part of the Caribbean area and the Greater Antilles, respectively, can be considered fairly reliable, since they are based upon extensive stratigraphic excavations; but the chart of Fig. 4 is only a first approximation, for excavation has lagged in the Lesser Antilles, to

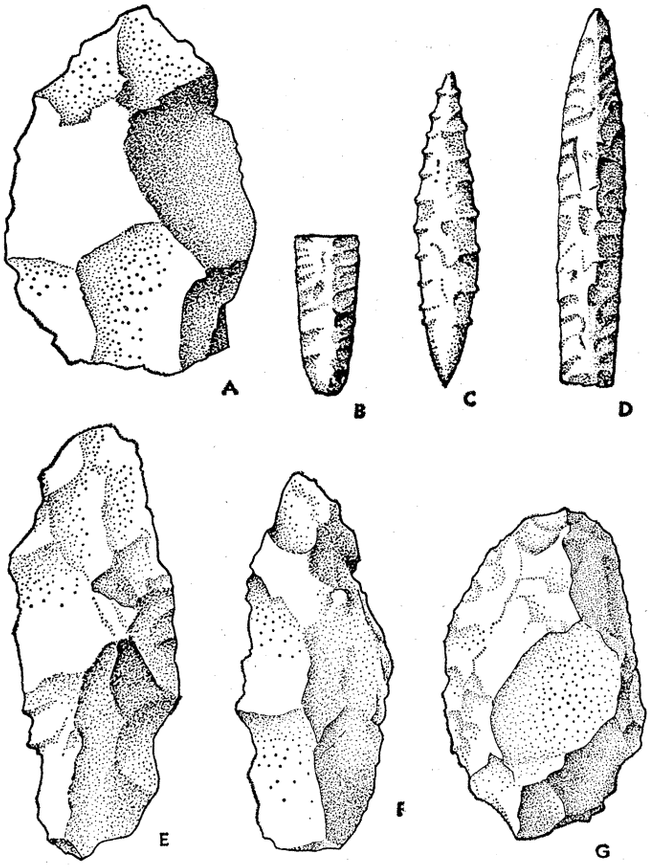

Fig. 6. Some artifacts of the Joboid series, western Venezuela. [Courtesy Yale University, Department of Anthropology]

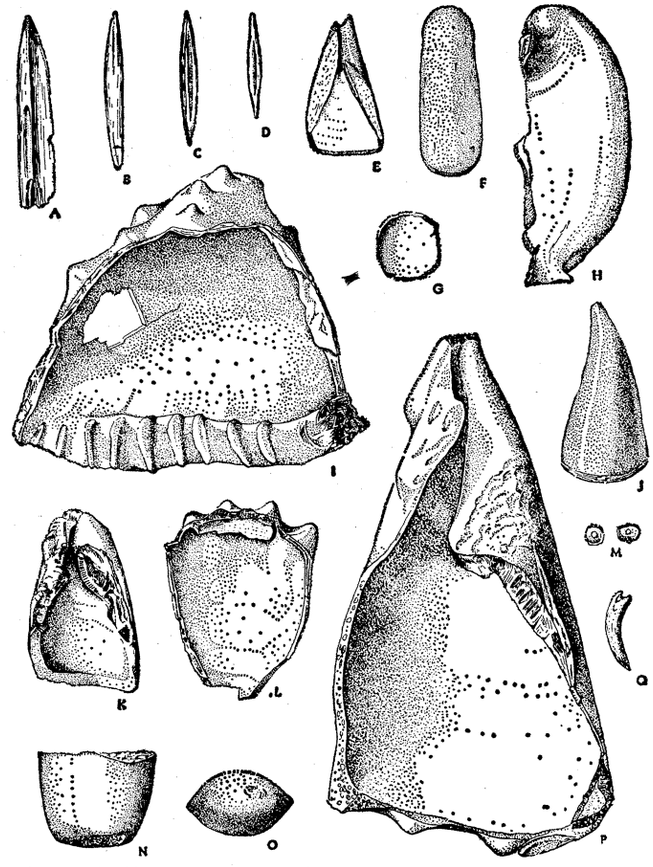

Fig. 7. Artifacts of the Manicuaroid series, eastern Venezuela. [Courtesy Yale University, Department of Anthropology]

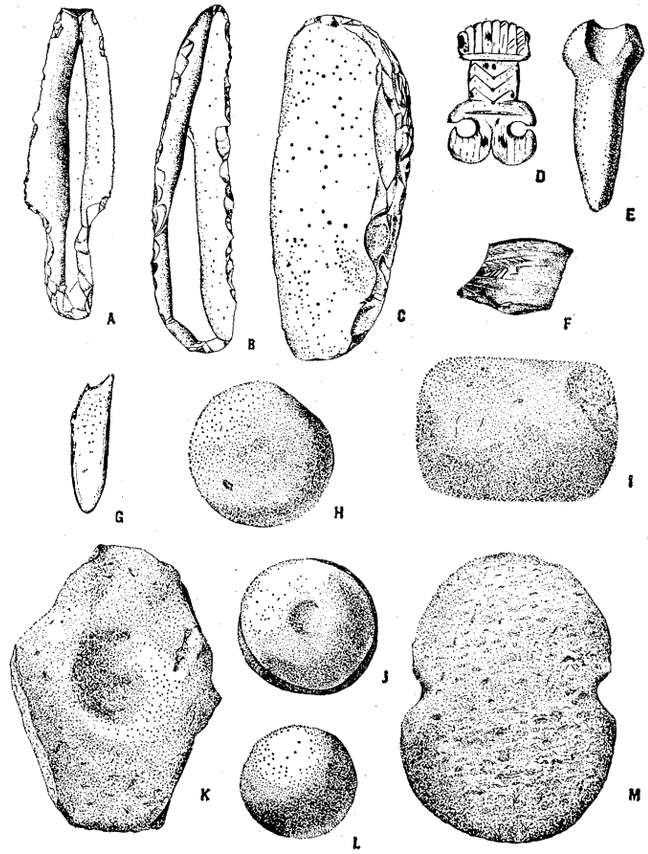

Fig. 8. Artifacts of the Couri complex, Haiti. [Courtesy Yale University, Department of Anthropology]

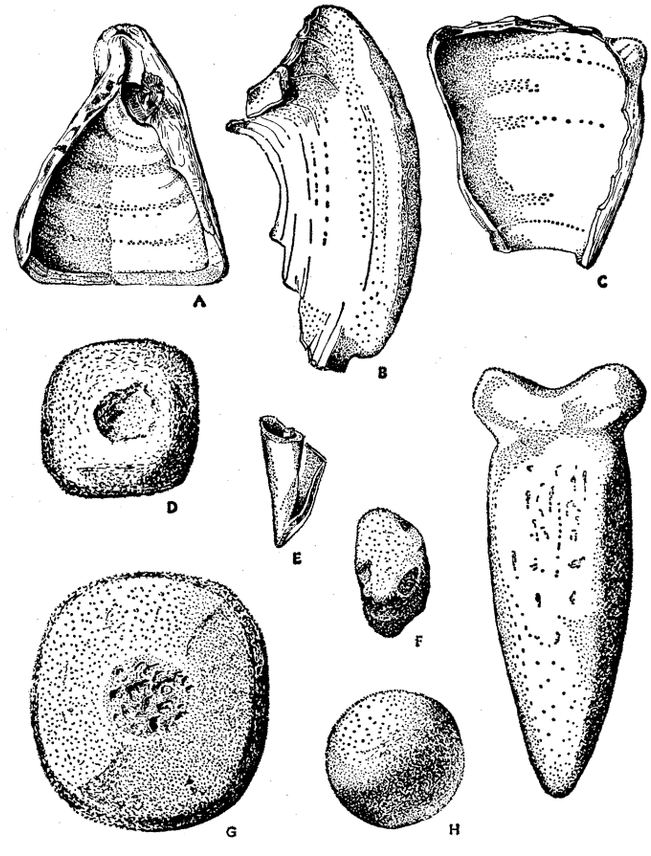

Fig. 9. Artifacts of the Cayo Redondo complex, Cuba. [Courtesy Yale University, Department of Anthropology]

which it refers. It is included only to give some idea of the present state of our knowledge, and it will undoubtedly have to be modified when current research in the Lesser Antilles is completed.

It may be seen that period I was purely Meso-Indian. Periods II to IV were marked by gradual encroachment of the Neo-Indians upon Meso-Indian territory, a process which had not been completed by the time of Columbus. This substantiates the theory concerning the fate of the Ciboney Indians presented earlier—that they had been gradually pushed back by later migrants into the peripheral positions in which Columbus found them. It follows that some of the Meso-Indian series and complexes must be ancestral to the Ciboney, but we do not know which ones were. Neither can we say for sure which of the Neo-Indian series and styles were Arawak and which Carib. Therefore, in the following survey of the archeology, epoch by epoch, the series, complexes, and styles are discussed per se, and the problem of tribal identifications is treated separately at the end.

Paleo-Indian Epoch

The nearest known remains of the Paleo-Indian epoch are in western Venezuela, just outside the limits of the Caribbean area. Here, J. M. Cruxent has succeeded in distinguishing a single, Joboid series and several other complexes which cannot yet be assigned to series. Similar remains should eventually turn up in the mainland part of the Caribbean area and on the island of Trinidad, which was attached to the mainland during the Paleo-Indian epoch, but it is doubtful that the West Indies were inhabited at the time, since the Paleo-Indians were not seafarers. Moreover, they did not eat sea foods, so far as we know, and remains of the large, now extinct land mammals—for example, the mastodon, horse, and sloth—upon which they apparently relied for food do not occur on any of the islands except Trinidad (*6, 16*).

Let me briefly summarize the finds in western Venezuela as a background for consideration of the Meso-Indians, who did reach the Antilles. Cruxent distinguishes a succession of Camare, Las Lagunas, El Jobo, and Las Casitas complexes within the Joboid series. These are based upon his finds in the valley of the Rio Pedernales in the state of Falcón, east of Lake Maracaibo. They are associated, respectively, with the uppermost, upper middle, lower middle, and lower terraces formed by the river. In the Camare sites, Cruxent found only choppers and scrapers of quartzite, which, he suggests, may have served to make wooden spears for use in hunting mammals (Fig. 6, *A*). The Las Lagunas sites also contained large bifacially worked blades, which could have been hafted in heavy thrusting spears (Fig. 6, *E–G*). The subsequent, El Jobo complex yielded lanceolate projectile points, small enough to fit in darts (Fig. 6, *B–D*). The final, Las Casitas complex had in addition a few stemmed points with triangular blades (*14*, p. 27).

Three dates, obtained by the radiocarbon method, of about 15,000 to 13,000 years ago have been obtained, two from Muaco, on the coast near the mouth of the Rio Pedernales, and the third from Rancho Peludo, in the Maracaibo basin further west, where a presumed Paleo-Indian deposit underlies successive occupations by Meso- and Neo-Indians (*17*). The Muaco site belongs to the Joboid series, but the deposit at Rancho Peludo apparently represents, instead, a Manzanillo complex, which is characterized by chopping tools of fossil wood (*18*).

Meso-Indian Epoch (Period I)

The Meso-Indian epoch began with the retreat of the Pleistocene ice sheets in the Northern Hemisphere. This caused a rise in the sea level and separation of Trinidad from the mainland. However, the sea cannot have reached its present level until relatively late in the epoch, for a number of the Meso-Indian sites along the shore are now partially under water (*14*, p. 39).

The beginning of the epoch was also marked by extinction of the large land mammals upon which the Paleo-Indians had relied as a main source of food. Either these animals were overhunted or they failed to adapt to the gradual drying up of the climate which took place in western Venezuela at the time (*19*). The Indians of the Guiana highlands continued to hunt the surviving game, as evidenced by the presence of stemmed projectile points in the Canaima complex of that area, but elsewhere the Meso-Indians must have de-emphasized hunting, for they ceased to produce projectile points of stone. Evidently they turned to new sources of food—fish and shellfish along the shore and vegetable foods in the interior. These foods, which had been relatively little used during the Paleo-Indian epoch, are hallmarks of the Meso-Indian epoch.

The Meso-Indian sites along the shore consist of large refuse heaps containing not only shells but also fish bones and the remains of echinoderms. Most of those investigated in eastern Venezuela belong to a single, Manicuaroid series, which is best represented on Cubagua Island at the large midden of Punta Gorda, 4 meters high. Excavation in this midden has revealed a stratigraphic succession of three complexes—Cubagua, Manicuare, and Punta Gorda (Fig. 3)—marked by an increasing variety of shell artifacts. The Cubagua complex has only hammers, cups, and a disk (Fig. 7, *H, I, L, G*); to these the Manicuare complex adds beads, pendants, and gouges (Fig. 7, *M, Q, E, J, K*), and the Punta Gorda complex, celts (Fig. 7, *F*) and points. The gouges are most distinctive; each consists of a triangular section from the outer whorl of a conch shell that has been ground along the base to form a bit. The shell points appear to be copies of bone points, which are common to the three complexes; both may have been hafted in fishhooks or on harpoon heads (Fig. 7, *B–D*). Also distinctive are stone pebbles which have been pointed at either end, possibly for use as sling stones (Fig. 7, *O*).

To be able to colonize Cubagua and Margarita islands, where remains are most abundant, the Manicuaroid Indians must have developed considerable seafaring ability. We may suppose that they used dugout canoes, which they hollowed out with their shell gouges. Dates obtained by the radiocarbon method indicate that the series had begun by at least 2500 B.C. and that it lasted until shortly after the time of Christ, which is the date of trade pottery in the latest, Punta Gorda complex (*14*, p. 44).

Remains of the Manicuaroid series have been found eastward along the coast of Venezuela only as far as the present city of Carúpano (Fig. 3). The Meso-Indian remains further east, on the peninsula of Paria and the island of Trinidad, cannot be assigned

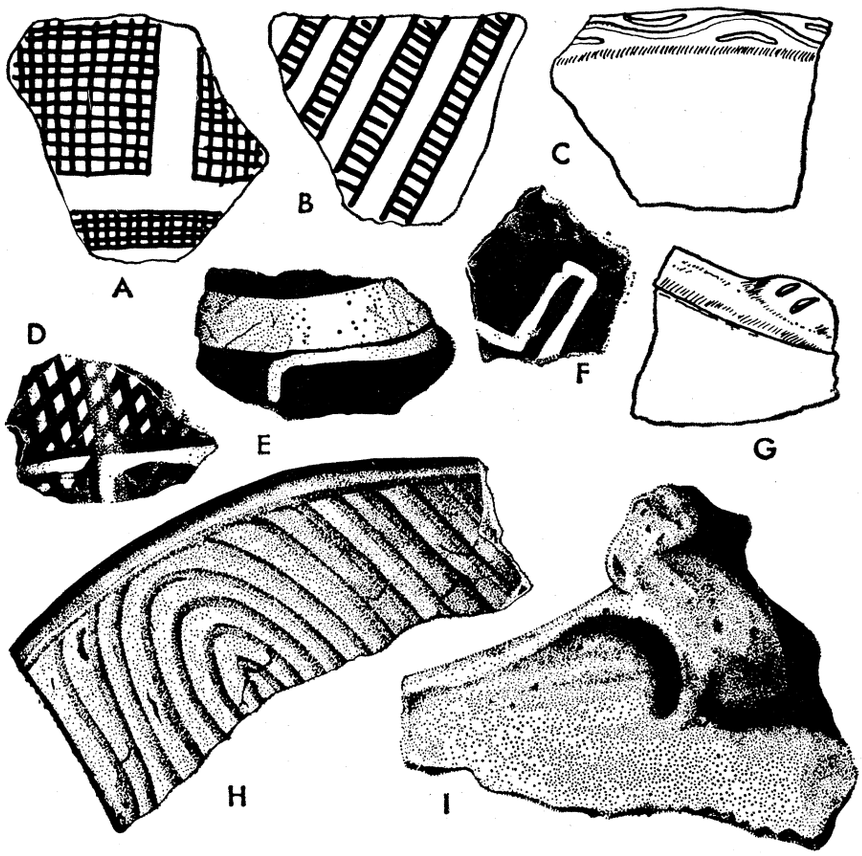

Fig. 10. Pottery of Saladero, type style of the Saladoid series, eastern Venezuela. [Courtesy Yale University Press]

to the series. For example, the Ortoire complex of Trinidad lacks the distinctive Manicuaroid artifacts of shell and stone and is characterized instead by tiny chips of stone, of unknown use (*16*, p. 10).

There is no evidence that either the Manicuaroid or the Ortoire people followed the course of the currents out into the Lesser Antilles, although they seemingly had the seafaring ability to do so. Indeed, no trace of any Meso-Indians has yet been found in the Lesser Antilles, except on St. Thomas in the Virgin Islands, farthest away from South America, and there the remains are very different from those on the mainland. They belong to a Krum Bay complex, characterized by bifacially chipped and ground stone artifacts (*20*).

By contrast, Meso-Indian remains have been discovered on most islands of the Greater Antilles, but here, too, evidence of a progression from east to west, in the direction of the prevailing winds and currents, is lacking (Fig. 5). Each island has its own complexes, the various complexes being unrelated in the form of series, and each is characterized by its own types of artifact—pebble grinders, faceted on the edges rather than the sides, in the case of the María la Cruz (Loiza Cave) complex of Puerto Rico; plain blades, worked only on the edges, in the case of the Marban, Cabaret, and Couri complexes of Hispaniola; and shell gouges in the Guayabo Blanco and Cayo Redondo complexes of Cuba (*21, 22*). The Couri and Cayo Redondo complexes also have a series of ground stone and shell artifacts, several of which are decorated with rectilinear incised designs (Figs. 8 and 9).

Another puzzling point about the Meso-Indian complexes of the Greater Antilles is that there are resemblances to complexes in different parts of the mainland. The edge grinders of María la Cruz link that complex with Cerro Mangote in Panama and with several complexes of central and western Venezuela, notably El Heneal (*14*, p. 46; *23*). The plain blades of Marban, Cabaret, and Couri are in the Central American tradition of flint working; their most elaborate type, a stemmed projectile point belonging to the Couri complex (Fig. 8, *A*), is duplicated among the Maya of Yucatan, in Central America, and nowhere else (*24*). The shell gouge of Guayabo Blanco and Cayo Redondo is found also in the Manicuaroid series of Venezuela and in the preceramic sites on the St. Johns River in Florida (*16*, p. 20). Rectilinear designs resembling those on Couri and Cayo Redondo artifacts likewise occur in Florida.

How are we to explain the irregularities in distribution of the Meso-Indian complexes in the Antilles and the diversity of their resemblances to mainland complexes? These may simply be due to gaps in our knowledge, but there is an alternative possibility. It happens that the mammalian fauna of the Antilles shows a similar irregularity of distribution and diversity of resemblances. Simpson has accounted for this irregularity and diversity by theorizing that mammals accidentally floated out to the Antilles on natural rafts—that they were cast into the sea by the great rivers of northern South America, such as the Orinoco, and were then blown to different islands (*6*, p. 6). Man may have first reached the Antilles in a similar manner; that is, Meso-Indian families traveling in canoes along the shore or to nearby islands such as Cubagua may have been caught in storms, blown out to sea, and, if lucky enough to survive, deposited haphazardly on the shores of different islands (*16*, p. 23).

A special problem is presented by the occurrence of shell gouges not only in the Manicuaroid complex of Venezuela but also in Cuba and Florida. If all three of these occurrences are related—and they may not be, since there is so great a gap between the first and the other two—do they indicate diffusion from South America northward or from North America southward? There is disagreement about this problem; Cruxent and I, for example, have favored a Venezuelan origin, whereas Alegría has argued for diffusion from Florida to Cuba (*14, 25*).

The time of arrival of Meso-Indians in the Antilles is also in doubt. The Cuban complexes are reportedly associated with extinct forms of ground sloths and monkeys, but this means nothing, since the Indians are likely to have caused the extinction (*16*, p. 21). The earliest date obtained for the area by the radiocarbon technique

is 2190 ± 160 B.C., for the Marban complex, but this may not be reliable, since the next earliest date is only 450 ± 175 B.C., for the Krum Bay complex (*25, 20*). A date of A.D. 990 ± 60 for the Cayo Redondo complex attests to the survival of Meso-Indians alongside the Neo-Indians in the Greater Antilles (*27*).

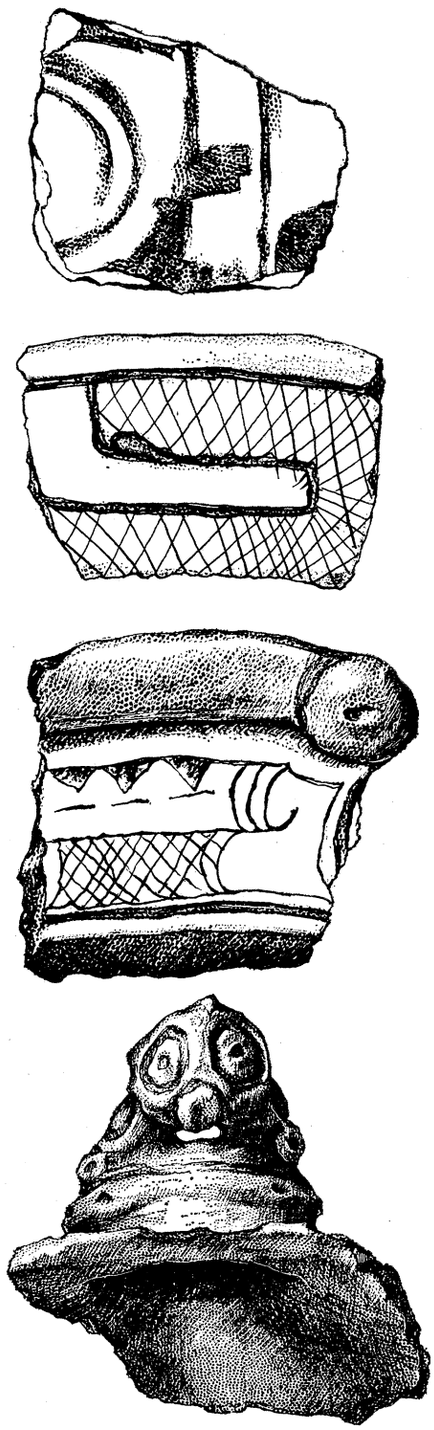

Fig. 11. Pottery of the Saladoid series from layer 1, Morel site, Guadeloupe.

Neo-Indian Epoch: Period II

The Meso-Indian epoch corresponds to period I of our relative time scale (Figs. 3–5). The Neo-Indian epoch includes the three remaining periods, II–IV. It is convenient to discuss these separately.

The most important problem of period II is that of the origin of Neo-Indian culture. Here we must turn from the Meso-Indians of the coast and islands to the Meso-Indians of the interior. Unable to exploit the sea, the inland Indians subsisted mainly on fruits and vegetables, which they at first gathered wild and eventually learned to cultivate. The original cultivation was too rudimentary to supply more than a small part of the Indians' food, but the techniques and crops were gradually improved to the point where agriculture replaced hunting and gathering as the principal means of subsistence. At this point, we may say, the Indians crossed the threshold between Meso- and Neo-Indian culture and the Neo-Indian epoch began.

No traces of the transition from Meso- to Neo-Indian culture have yet been found in the Caribbean area, though some have recently turned up at various places in the Mesoamerican, Intermediate, and Central Andean areas (*28*). This may mean that Neo-Indian culture diffused full-blown into the Caribbean area from the west, but it is more likely that there was some sort of local development, since the earliest Neo-Indian culture of the Caribbean area differs from anything to the west.

For an idea of what this local development may have been like, let us turn to the site of Rancho Peludo in western Venezuela, which has the nearest known occurrence of the Meso- to Neo-Indian transition. The presumed Paleo-Indian deposit at the site has already been discussed. Overlying it is refuse first of Meso- and then of Neo-Indians. There is pottery in both layers, as in the other sites which contain the later stages of the Meso- to Neo-Indian transition. The pottery includes flat, circular griddles of the type used in the time of Columbus to bake bread prepared from the flour of the manioc plant. These indicate that the Meso-Indians of Rancho Peludo cultivated manioc, though, to judge from the scarcity of griddles at the site, it cannot have formed an important part of their diet. A series of six dates places the time of this deposit between 2000 and 500 B.C. (*14*, p. 48).

The earliest known pottery-bearing sites of the Caribbean area proper must be considered fully Neo-Indian, since griddles are so numerous as to

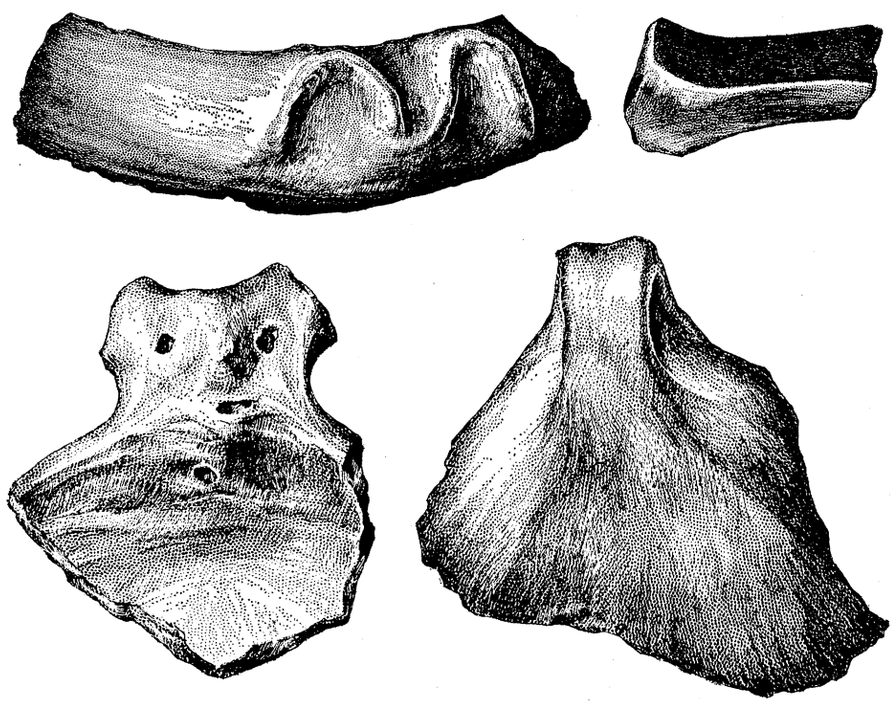

Fig. 12. Pottery of Ostiones, type style of the Ostionoid series, Puerto Rico.

Fig. 13. Pottery of Boca Chica, type style of the Chicoid series, Puerto Rico.

suggest that manioc had already become the principal item of the diet. These sites are situated along the middle and lower parts of the Orinoco River and belong to a series of styles known as Saladoid, for which we have three dates at the beginning of the first millennium B.C. Saladoid pottery is thin, hard, and so well made that there must be a long tradition of pottery making behind it. (It is better made than any of the later pottery in the Caribbean area.) Other traits that distinguish it are bowls shaped gracefully in the form of inverted bells; white-on-red painted designs; cross-hatching in red paint; simple incised designs; and tabular lugs (Fig. 10). Its origin is a complete mystery (*29*).

At the type site of Saladero, just above the delta of the Orinoco River, Saladoid refuse is overlaid by refuse of the Barrancoid series; dates for the two series partially overlap. Barrancoid pottery is much thicker, heavier, and coarser than Saladoid pottery. Bowls tend to have vertical sides and thick, flanged rims. Elaborate incised and modeled-incised designs occur on the flanges, on vessel walls, and on lugs (*14*). There is reason to believe that the Barrancoid people intruded into the lower part of the Orinoco valley from the west—Barrancoid remains are common in the Valencia basin of central Venezuela (Fig. 1)—and that they split the Saladoid people into two parts, one group remaining in the middle part of the Orinoco valley and the other passing out through the delta to the island of Trinidad and the peninsula of Paria (Fig. 3).

When the Saladoid people arrived in the Trinidad-Paria region they came into contact with the Meso-Indian fishermen who had survived there. They probably pushed some of them back into the delta of the Orinoco River (the modern Warrau Indians may be the descendants of this group) and absorbed others, teaching them the arts of horticulture and ceramics. But the acculturation cannot have been all one way; we may suppose that the Saladoid people acquired a taste for sea foods from the Meso-Indians, since shells and fish bones are common in their sites, and that they also learned seafaring from those Indians.

Several centuries elapsed before the Saladoid people put this seafaring ability to use in colonization. At about the time of Christ they began to expand in the directions of the prevailing winds and currents—that is, westward along the coast of Venezuela to the region of Cumaná and thence out to the islands of Cubagua and Margarita (Fig. 3), and northward through the Lesser Antilles to Puerto Rico, the first island of the Greater Antilles (Figs. 4 and 5). Along the coast of Venezuela they met and replaced the Meso-Indians of the Manicuaroid series, as is evidenced by the presence of Saladoid trade sherds

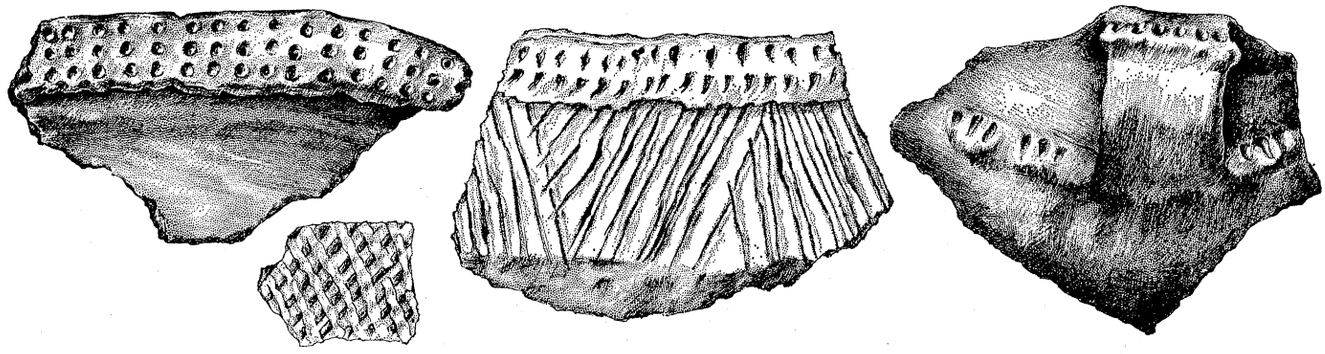

Fig. 14. Pottery of Meillac, type style of the Meillacoid series, Haiti.

in the latest Manicuaroid sites, and in the Virgin Islands and Puerto Rico they displaced the Meso-Indians of the Krum Bay and María la Cruz complexes, respectively (Figs. 3–5). They had reached Carúpano, halfway along the Venezuelan coast to Cumaná, by about A.D. 1, according to radiocarbon dating, and were on Margarita Island by A.D. 300. A series of ten dates places their movement out through the Lesser Antilles to Puerto Rico at about A.D. 200 (*15*).

There is a remarkable uniformity of pottery and other artifacts throughout this vast area which can only be explained by postulating a regular expansion of the Neo-Indians at the expense of the previous Meso-Indian inhabitants. The pottery continues the tradition of the original Saladoid pottery on the Orinoco River but with two important modifications: modeled-incised lugs have become common, and crosshatching is incised, not applied in red paint (Fig. 11). Both these changes can be ascribed to Barrancoid influence, resulting from the contact between the two series on the lower Orinoco River. The incised crosshatching provides a particularly good time marker for the movement of Neo-Indians out into the islands, since this trait lasted for only two to four centuries, to judge from the results of radiocarbon dating (*14*, p. 121).

Fig. 15. Ceremonial stone celts and figure, Greater Antilles. [From T. A. Joyce, *Central American and West Indian Archaeology* (Macmillan, London, 1916), plate xxiii]

Neo-Indian Epoch: Period III

The Neo-Indians continued during period III to expand into the Greater Antilles at the expense of the Meso-Indians, and by the end of the period they had pushed the Meso-Indians back into the peripheral positions they occupied at the time of Columbus (Fig. 5). The Neo-Indians of the mainland and possibly of the Lesser Antilles still made Saladoid pottery, but in the Greater Antilles there had been a change, and by period III*b* there were three new series of pottery —Ostionoid, Chicoid, and Meillacoid.

The development of the Ostionoid series was foreshadowed in Puerto Rico by a gradual loss of decoration during periods II*b* and III*a*. Hacienda Grande, the earliest ceramic style found in Puerto Rico (Fig. 5), possesses the full range of Saladoid decoration. Cuevas, the next style, has lost modeled-incised lugs and incised crosshatching but may still be considered Saladoid because it retains the bell shape of the bowl and the white-on-red painting. These traits, too, are gone in the subsequent Ostiones style, and with their loss, we may say, the Ostionoid series had begun (*30*). This series is characterized by a smooth finish, more-or-less straight-sided or incurving-sided bowls, plain tabular lugs, and simple red painting (Fig. 12).

It was apparently people of the Ostionoid series who introduced Neo-Indian culture to the Dominican Republic, Haiti, and Jamaica (Fig. 5). The series survived until the end of period III, but only in Puerto Rico. Late in the period it gave rise to the Chicoid series in the Dominican Republic and to the Meillacoid series in Haiti and Jamaica. Meillacoid Indians then expanded into Cuba, into the Turks and Caicos Islands, and possibly also into the Bahamas, thereby completing the Neo-Indian colonization of the Antilles (*31*).

Both the Chicoid and the Meillacoid series of pottery continue in the Saladoid-Ostionoid tradition so far as materials and shapes are concerned, but they differ in decoration, and therefore we may presume that the two series developed locally. The Chicoid series is distinguished by a renewed interest in modeled-incised lugs and incision (Fig. 13). Its designs look Barrancoid, and it may be no accident that, at the time the Chicoid series was arising in the Dominican Republic, Barrancoid people were expanding into Trinidad and the northwestern part of British Guiana (Fig. 3). There is no evidence of direct contact between the two groups, but Barrancoid decorative traits do occur throughout the Lesser Antilles and on the latest Ostiones pottery of Puerto Rico, whence they might have contributed to the formation of Boca Chica, the original Chicoid style in the Dominican Republic (*14*, *32*). One wonders, though, why the Barrancoid traits did not take hold as strongly in the Lesser Antilles and Puerto Rico as in the Dominican Republic.

The Meillacoid potters broke with the tradition of smooth surfaces that had previously prevailed in the Greater Antilles and developed a new set of techniques which roughened the surfaces: appliqué work, both on lugs and on vessel walls; punctuation; and incision, done in such a way that the edges of the grooves are jagged (Fig. 14). The lugs look like crude copies of Chicoid lugs (*22*), but the incised designs may well have been acquired from the Meso-Indians, for they resemble the latter's designs engraved on shell, stone, and wooden artifacts (Fig. 8).

Neo-Indian Epoch: Period IV

While there is no evidence of major population movements during period IV, a number of significant changes in pottery did take place. The original

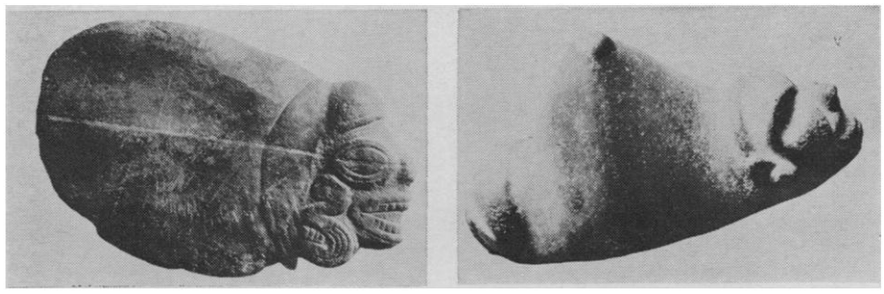

Fig. 16. (Left) Ceremonial stone ax, Puerto Rico. (Right) Three-pointed stone, Puerto Rico. [From H. A. Lavachery, *Les artes antiguas de América en el Museo Arquéologico de Madrid* (Sikkel, Antwerp, 1929)]

Saladoid and Barrancoid series finally came to an end (*14*). They were replaced on the mainland and nearby islands by the Guayabitoid, Dabajuroid, and Arauquinoid series, which need not concern us here (Fig. 3). In the Lesser Antilles, Saladoid pottery gave way to cruder material, as yet undefined except on St. Lucia, where McKusick has distinguished a succession of Choc and Fannis styles (Fig. 4). Both are characterized by griddles with legs. Choc pottery has monochrome painting in red, and the Fannis vessels are decorated principally with finger impressions on the rim (*33*).

In the Greater Antilles the Ostiones series also came to an end, through expansion of the Chicoid series. This appears to have been primarily a matter of acculturation rather than migration; the original, Boca Chica potters of the Dominican Republic influenced the people both to the east and to the west of them, causing the development of local versions of the Chicoid series in Puerto Rico and the Virgin Islands, to the east, and in Haiti, eastern Cuba, and the Turks and Caicos Islands, to the west (*31*). The Meillacoid series survived only in Jamaica and central Cuba, and Meso-Indian culture, in southwestern Haiti and western Cuba. This produced the situation found by Columbus when he discovered the New World at the end of period IV (Fig. 5).

Columbus found the Arawak of the Greater Antilles to be a gentle and religious people. Evidences of their religion first appear in the archeological sites of late period III and increase to a climax at the end of period IV. They center in the Dominican Republic and Puerto Rico, whence they may have spread east and west along with Chicoid pottery.

Intrigued by the Arawak religion, Columbus commissioned a priest, Ramón Pané, who accompanied him on his second voyage, to make a study of it on the island of Hispaniola. Pané's account, which has been called the first anthropological research in the New World, explains many features of the archeological record of period IV. Pané informs us that the Indians worshipped deities known as *zemis*, which were either human or animal in form, and that they were accustomed to portray these deities on their household utensils and implements. Apparently he was referring to the human and animal lugs of Chicoid pottery (Fig. 13); to effigy vessels, which are found principally in the Dominican Republic; and to comparable carvings on stone celts, axes, and pestles (Figs. 15; 16, left). Pané states that *zemis* were also portrayed on amulets, and these occur archeologically in stone, bone, or shell.

From various Spanish sources we learn that the Arawak villages contained plazas at the ends of which were temples devoted to the worship of *zemis*. These temples have not survived, for they were made of perishable materials, but there are still traces of the plazas—rectangular or oval areas, leveled by digging wherever necessary and lined with rough stone slabs, some of which bear pictures of *zemis*. The plazas were also used as ball courts. They have yielded large carved stone "collars," which resemble the stone yokes worn about the waist by ball players in Mexico (Fig. 17, left). These and other bizarre artifacts, including three-pointed stones and elbow stones (Figs. 16, right; 17, right) are not explained in the Spanish sources. They must have had some ceremonial significance, since all bear carvings of *zemis* (*11, 34*).

Fortunately for us, the Arawak also worshipped *zemis* in caves, where perishable materials are better preserved. Among the objects found there are tubes, statues, and stools of wood. According to Pané, the native priests sniffed tobacco or another narcotic through the tubes as part of their ritual (Fig. 18). He states that the

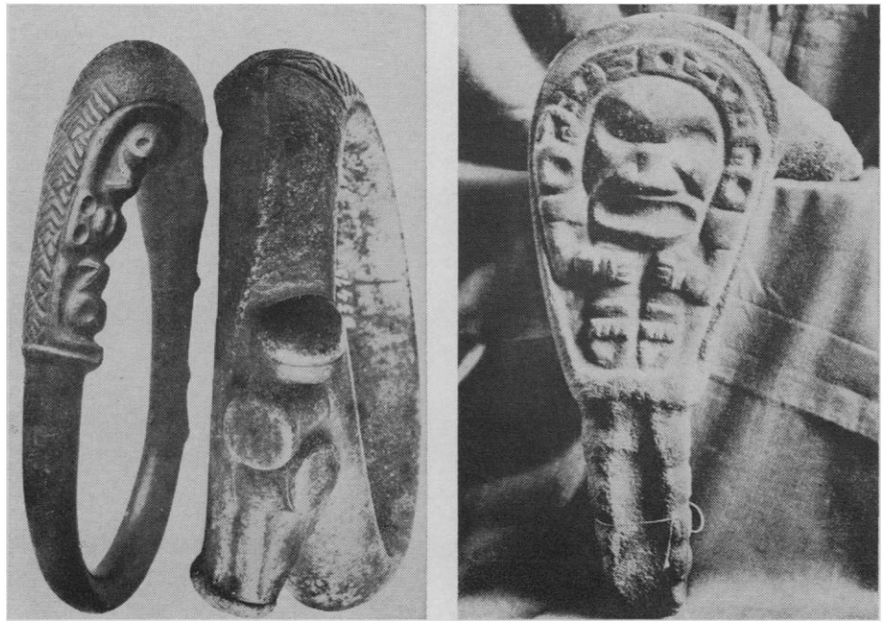

Fig. 17. (Left) Stone collars, Puerto Rico [From S. Lovén, *Origins of the Tainan Culture, West Indies* (Elanders, Gothenburg, 1935), plate xviii]. (Right) Elbow stone, Puerto Rico. [From H. A. Lavachery, *Les artes antiguas de América en el Museo Arquéologico de Madrid* (Sikkel, Antwerp, 1929)]

priests placed the snuff on top of *zemis*; many of the statues found in caves have platforms on top for this purpose (Fig. 19). The stools were used by chiefs as a sign of rank. The one illustrated (Fig. 20) is inlaid with gold disks and decorated with the head of a *zemi*. Inlaying of shell is more common, and plaster was also used.

Inspiration for the cult of *zemis* may have come from the mainland, where many of its elements are widespread. Mesoamerica is the most likely source of influences, since it is closest and has yielded the most detailed resemblances, such as effigy celts, stone yokes, and inlaying, but some authorities favor the longer route of diffusion from the Intermediate area by way of Venezuela and the Lesser Antilles (*2, 35*). Other elements of the cult appear to have had a local origin; for example, the large, elaborately carved three-pointed stones of period IV can be traced back to small, plain, three-pointed stones of period III, and these in turn may go back to even smaller three-pointers of shell, made during period II (*36*). The fact that the cult reached its highest development in the central part of the Antilles—that is, in the Dominican Republic and Puerto Rico—and shades off as one moves westward toward Mesoamerica and southward toward the Intermediate area, also indicates local development.

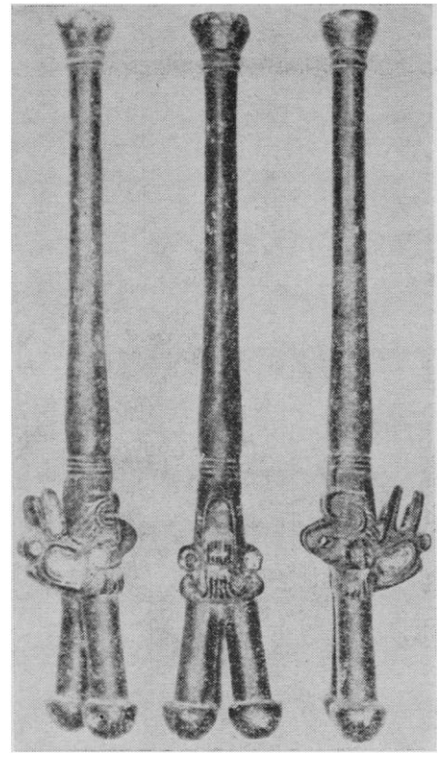

Fig. 18. Snuffing tube of wood, Haiti. [From E. Mangones and L. Maximilien, *L'art précolombien d'Haiti* (L'Imprimerie de l'Etat, Port-au-Prince, 1941), plate L]

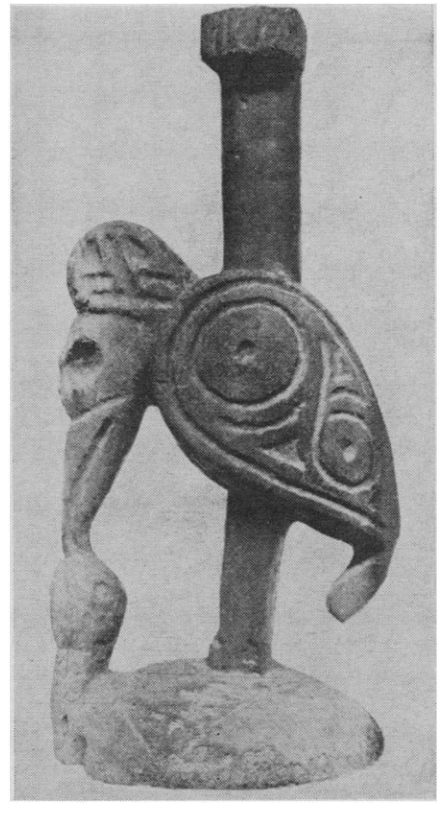

Fig. 19. Wooden figure of a *zemi*, Greater Antilles. [From T. A. Joyce, *Central American and West Indian Archaeology* (Macmillan, London, 1916), plate xxi]

Summary and Conclusions

We have traced the prehistory of the West Indies through three epochs, Paleo-, Meso-, and Neo-Indian. During the Paleo-Indian epoch, beginning about 15,000 B.C., hunting peoples colonized the Caribbean mainland but did not continue into the islands, apparently because they had no interest in sea food and lacked the ability to travel by sea. By the Meso-Indian epoch, about 5000 B.C., the large land mammals upon which the Paleo-Indians had relied for food had become extinct, making it necessary for the Indians to develop new sources of food. Along the coast they turned to fishing and the gathering of shellfish, and in the process acquired enough seafaring ability to colonize the nearby islands. I have suggested that some of them, from different parts of the mainland, may have been accidentally blown out into the Greater Antilles. This seems the best way to explain the irregular distribution of Meso-Indians on the islands, the diversity of the mainland resemblances, and, in particular, the lack of Meso-Indian remains in the Lesser Antilles. The Meso-Indians appeared on the coast soon after 5000 B.C., had reached Cubagua Island by 2500 B.C., and may have arrived in the Greater Antilles by 2000 B.C.

Lacking maritime resources, the Meso-Indians of the interior came to rely upon vegetable foods. They must originally have gathered these wild, but eventually they learned to cultivate them. The Neo-Indian epoch begins at the point where agriculture had become efficient enough to serve as the principal means of subsistence. This point was reached about 1000 B.C. by Indians of the Saladoid series, who lived on the lower Orinoco River. Soon afterward, Indians of the Barrancoid series intruded from the west and pushed some of the Saladoid people through the delta of the Orinoco River to the coast of Venezuela. There they came into contact with the surviving Meso-Indians, learned fishing and seafaring from them, and gradually expanded at their expense. The subsequent prehistory of northeastern Venezuela and the West Indies is primarily one of encroachment of the Neo-Indians on the Meso-Indians, until the latter had finally been driven back into the peripheral positions they occupied at the time of Columbus. The Neo-Indians reached Puerto Rico by A.D. 200 and were in Cuba by A.D. 1000.

Two other sets of events have been discussed. We have traced the development of Neo-Indian pottery from the Saladoid series to (i) cruder, as yet undefined ceramics in the Lesser Antilles, and (ii) a succession through the Ostionoid series to the Chicoid and Meillacoid series in the Greater Antilles, and we have discussed the rise of a cult of *zemis* in the Greater Antilles. Both Chicoid pottery and the cult of *zemis* show evidences of influence from the mainland, yet both seem to have arisen first in the Dominican Republic and to have spread westward from there to eastern Cuba and eastward as far as the Virgin Islands.

We have seen that there is an unbroken continuity from the later Meso-Indians of the Greater Antilles, who survived the Neo-Indian invasion,

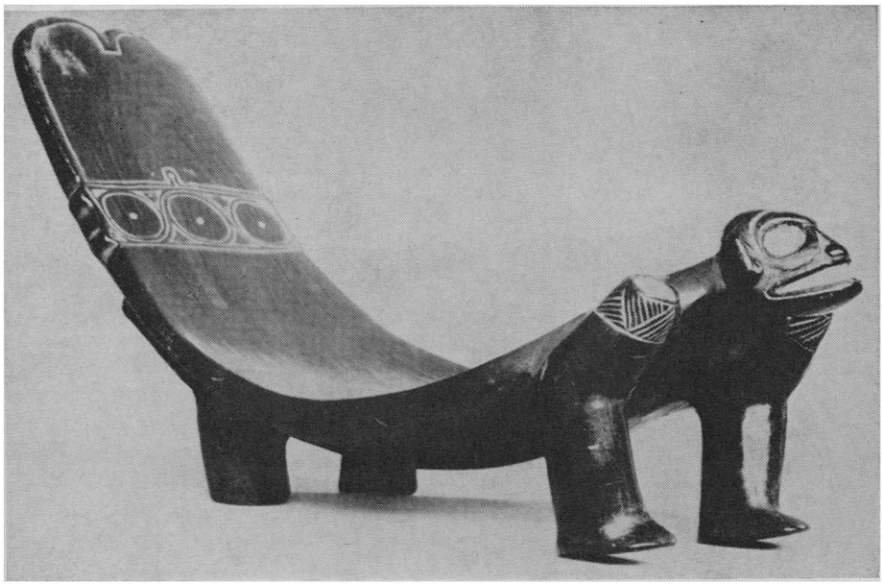

Fig. 20. Wooden stool, inlaid with gold, Hispaniola. [From H. J. Braunholtz, "The Oldman Collection: Ancient Arawak Stool," *British Museum Quart.* **16**, No. 2, plate xxiii (1951)]

to the Ciboney (Marginal) Indians of Columbus's time. There is a second, likewise unbroken, continuity among the Neo-Indians of the Greater Antilles, beginning with the original Saladoid series and extending through the Chicoid and Meillacoid series to the Insular Arawak. Between them, these two continuities account for all the Indians who inhabited the Greater Antilles, the Turks and Caicos Islands, and the Bahamas in the time of Columbus.

The situation in the Lesser Antilles is not so clear. Since the earliest known remains are those of the Saladoid series, we may assume, pending the discovery of contrary data, that the first inhabitants were the ancestors of the Insular Arawak on their way out to the Greater Antilles. Whether or not another Arawak group subsequently invaded the Lesser Antilles is not certain, though linguistic evidence suggests that one did (*37*); nor are we able to say when the Carib reached the islands. McKusick (*38*) has correlated the arrival of the Carib with the shift, during period IV on St. Lucia, from the Choc to the Fannis style (Fig. 4), but pottery may not be a good indicator of this event. As I mentioned earlier, when the Carib conquered the Lesser Antilles they killed the Arawak men and married their women, and it was the women's language which survived. Since the women were the potters, their ceramics should also have survived.

Religion may be a better indicator than ceramics of the arrival of the Carib. Evidence of the earlier stage of the cult of the *zemis*, in the form of small, plain, three-pointed stones, occurs throughout the Lesser Antilles, but evidence of the later stage, in which large, sculptured three-pointers, stone collars, and other distinctive artifacts were made, is lacking (*36*). This suggests that the Carib invasion may have taken place at the end of period III—that is, before the development of either the Choc or the Fannis style (Fig. 4).

From this unsatisfactory discussion of the prehistory of the Ciboney, Arawak, and Carib, let us turn in conclusion to the problem of their relationships with the Indians of Middle and North America. Recent reviews have brought out a number of similarities with Middle America. Hahn, for example, thinks that certain features of late Ciboney stonework, such as stone balls and disks, may have diffused from that direction (*27*). I am more impressed by resemblances in Arawak culture, such as hammocks, the ball game, and the elements in the cult of *zemis* discussed earlier. A prehistoric Maya record of a Carib raid upon Yucatan should also be mentioned (*39*).

Relationships with Florida and the rest of the southeastern United States are more difficult to find. Sturtevant has recently reviewed this problem from the standpoint of ethnology and has concluded that the similarities seen by previous writers are superficial and cannot be taken as evidence of valid relationships (*3*). On the archeological level, perhaps the best evidence consists of similarities in designs between Ciboney stone and shell work and the pottery of the Glades Indians of southern Florida (*40*). It is not clear whether this similarity is due to origin of the Ciboney Indians in Florida or to subsequent contacts between the Ciboney and Glades Indians.

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News and Comment

Population: Planning Group Hears Encouraging Reports on Efforts To Start Latin American Programs

San Juan, Puerto Rico. With a great deal of caution and discretion, the U.S. foreign aid program has begun efforts to stimulate government and Church leaders in Latin America to do something about that region's monumental population problems. These efforts, it must be acknowledged, are timid and small in the face of a population growth rate that leads the world. But they are significant, not only because they are unprecedented and relatively daring but because they have uncovered a surprising amount of receptiveness in both Latin-American governmental and Church circles. Such is the picture that emerged here last week at the fourth triennial Conference of the Western Hemisphere Region of the International Planned Parenthood Federation (IPPF), a nongovernmental organization that has heretofore been virtually alone in efforts to bring birth control to Latin America.

The disappearance of loneliness is perhaps best illustrated by the fact that while IPPF's three previous regional meetings failed to draw one governmental representative from any nation, officially appointed government delegates were sent to the latest meeting by Argentina, Bolivia, Brazil, Chile, the Dominican Republic, Ecuador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, the U.S., and Venezuela. (Representatives of 13 other Caribbean, Central American, and South American nations were also on hand in an unofficial capacity.) In addition, the United States Government not only gave its formal blessings to the conference but, safe behind last year's Fulbright amendment, which authorizes the use of foreign aid funds for "research into problems of population growth" (*Science*, 20 Dec. 1963), actually footed the bill for seven Brazilian delegates and paid $7500 for translating and interpreting services.

Reality calls for repeatedly emphasizing that the present state of population control in Latin America is less than trivial when viewed against a birth rate that, if unchecked, will triple the present population by the end of the century. But, if anything is to be accomplished, there has to be a beginning of concerted, well-financed, government-endorsed action, and, unless the conferees were engaging in comforting self-delusion, it appears likely that the Latin-American beginning is near at hand.

This impression was conveyed by representatives of the U.S. Agency for International Development (AID), which, over the past few months, has quietly been meeting separately with high Church and government officials throughout Latin America to test sentiments for developing population planning programs. On the basis of these meetings, AID has drawn an impression about the state of mind that exists in Latin-American ruling circles on the subject of birth control that may be stated as follows:

Despite the failure so far of the Alliance for Progress to meet its general goals, the requirement that long-range economic planning must precede participation has led to a broadened awareness of the relationship between population growth and economic development. As a result, government officials who previously were unaware of, or unconcerned by, their nation's birth rate are now becoming highly concerned, though not to the point that they are willing to do anything substantial that might conceivably result in a clash with the Church.

The Latin-American Church hierarchy, on the other hand, appears to be experiencing the liberalizing ferment that, in other parts of the world, has caused the Church to emphasize that it is not opposed to family planning but, rather, is opposed only to certain techniques of family planning. In addition, the Church has tacitly indicated a recognition that the social unrest that frequently accompanies uncontrolled population growth is not conducive to the well-being of the Church or its adherents. However, Church leaders, both in Latin America and elsewhere, are not the least bit receptive to the wishful thinking of population planners eager to jump them to the conclusion that the long and emotionally held Catholic position on family planning should suddenly be, or actually is in the process of being, re-