

Trade before Civilization

LONG-DISTANCE EXCHANGE and the RISE OF SOCIAL COMPLEXITY

EDITED BY

Johan Ling • Richard J. Chacon Kristian Kristiansen

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TRADE BEFORE CIVILIZATION

Trade before Civilization explores the role that long-distance exchange played in the establishment and/or maintenance of social complexity and its role in the transformation of societies from egalitarian to non-egalitarian. Bringing together research by an international and methodologically diverse team of scholars, it analyzes the relationship between long-distance trade and the rise of inequality. The volume illustrates how elites used exotic prestige goods to enhance and maintain their elevated social positions in society. Global in scope, it offers case studies of early societies and sites in Europe, Asia, Oceania, North America, and Mesoamerica. Deploying a range of interdisciplinary and cutting-edge theoretical approaches from a crosscultural framework, the volume offers new insights and enhances our understanding of sociopolitical evolution. It will appeal to archaeologists, cultural anthropologists, conflict theorists, and ethnohistorians, as well as economists seeking to understand the nexus between imported luxury items and cultural evolution.

Johan Ling is a professor in the Department of Historical Studies at the University of Gothenburg. He is also the director of the Rock Art Research Archives (SHFA). His research interests include Bronze Age rock art, warfare, long-distance exchange, secret societies, and the rise of social complexity. He has conducted archaeological excavations throughout Scandinavia.

Richard J. Chacon is a professor in the Department of Sociology and Anthropology at Winthrop University. His research interests include indigenous peoples, warfare, long-distance exchange, secret societies, and the rise of social complexity. He has conducted ethnographic fieldwork among the following indigenous groups: Yora, Yanomamö, Achuar, Cotacachi, Otavalo, and Haida.

Kristian Kristiansen is a professor in the Department of Historical Studies at the University of Gothenburg. His research interests include the Bronze Age, archaeological theory, and archaeological heritage. He has also explored the movement of people, things, animals, and ideas in antiquity. He has conducted archaeological excavations in Sicily, Hungary, Denmark, and Sweden.



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JOHAN LING

University of Gothenburg

RICHARD J. CHACON

Winthrop University

KRISTIAN KRISTIANSEN

University of Gothenburg



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CHAPTER FIFTEEN

FOLLOWING THE BREAD CRUMBS

Epistemological and Methodological Issues in the Interpretations of Long-Distance Trade in the Caribbean

L. Antonio Curet and José R. Oliver

INTRODUCTION

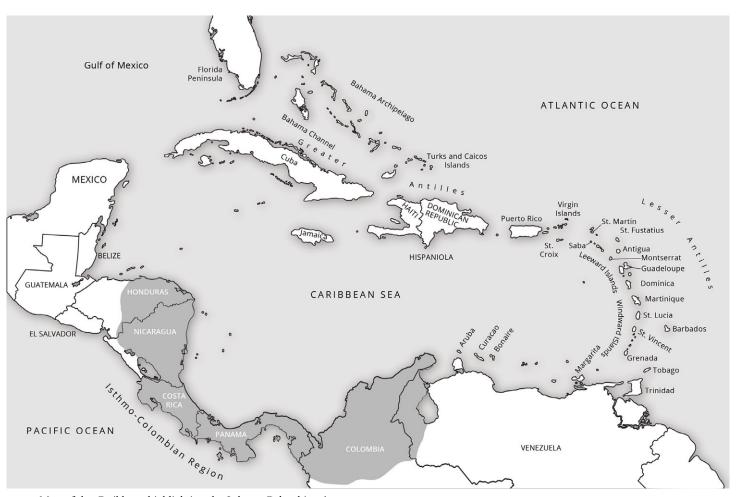
At the arrival of Columbus to the Americas, the Spanish concentrated their colonial enterprise in the Caribbean. Here they encountered some groups that showed strong social differentiation but without the presence of a state bureaucracy. It is for this reason that the ancient Caribbean has been considered since early on by anthropology and archaeology as an ideal place for the study of non-state, stratified societies (e.g., Fewkes 1907; Mason 1941). For example, recognizing the stratification among these groups and, yet, the absence of the institution of the state, Steward (1948) classified them as the Circum-Caribbean Tribes, eventually becoming an intermediate stage in his evolutionary scale between the egalitarian and traditional Tropical Forest Tribes and the Andean civilizations. The description of this category is very similar to today's concept of chiefdom developed decades later by Service (1962), a former student of Steward. In 1955, Oberg also used the Caribbean as an example of a category in his classification system that he called Political Organized Chiefdoms, the first time the term chiefdom was formally defined in anthropology. The interest on the Caribbean waned in anthropological archaeology in the 1960s with the advent of the New Archaeology that favored focusing on the study of stratified societies on the so-called core areas such as Mesoamerica and the Andes.

Despite this hiatus, in the past few decades, Caribbean archaeology has seen a revival produced by new paradigms, young blood with new ideas and interests, the use of new technology, and the interest on new questions. Long-distance exchange is one of these inquiries that has received considerable attention catalyzed in part by an increase on cross-regional comparative studies and the sourcing of green stones traced back to the jadeitite source of Motagua Valley, Guatemala (Harlow et al. 2006). Encouraged by these initial findings, many researchers expanded their studies to include stylistic, iconographic, botanical, chemical, and other types of evidence to find further traces of such "overseas" contacts. In a matter of few years, the amount of evidence available for long-distance exchange in the Caribbean increased exponentially and, with it, interpretations on the social and cultural nature of these interactions. Most of these interpretations tend to propose the existence of a direct route of interaction and exchange between elites from the islands and Lower Central America and Colombia across the Caribbean Sea.

In this chapter, we take a closer look at this trend that dominated the "headlines" of Caribbean archaeology for over a decade. In doing this, we evaluate the evidence or, in some instances, the lack of evidence, the interpretations, and some of the issues innate to the proposed explanations. We specifically focus on aspects of the epistemology and methodology in the process of developing interpretations. Geographically, we concentrate on the potential exchange between the Greater Antilles (specifically Puerto Rico, Hispaniola, and Cuba) and the Isthmo-Colombian culture area (Figure 15.1) as defined by Hoopes and Fonseca (2003). Moreover, because most of the works cited in this chapter use the evidence for *trade* as evidence for a variety of *interactions*, it should be of no surprise that our discussion alternates between those two concepts as if they were synonymous. We begin with a brief description of the ancient history of the region followed by a discussion on the concepts of trade and exchange and their potential role in non-state societies to clarify how we use this terminology and concepts.

THE ANCIENT HISTORY OF THE GREATER ANTILLES: A SYNOPSIS

As mentioned above, at the arrival of Europeans, the Greater Antilles were mostly populated by stratified groups, the product of a long history of migrations and social and cultural interaction. This history starts with migrations as early as 4500–4000 BC in Cuba with groups probably from Central America, as, for example, the Yucatan Peninsula (Wilson et al. 1998) or farther south (Callanghan 2003), and on Puerto Rico with groups of South American origin arriving around 3500–3000 BC (Rodríguez López 1997, 1999; Rodríguez Ramos 2010a). These seem to have been groups who subsisted on hunting and gathering complemented by some level of cultivation of both wild and



15.1. Map of the Caribbean highlighting the Isthmo-Colombian Area

domesticated cultivars. On Puerto Rico, these peoples were joined later by two groups that arrived around 500 BC. One of them, the Saladoid (Boomert 2001; Bérard 2013), spread from northeastern South America and the second, known as the Huecoid (Chanlatte Baik 1981; Chanlatte Baik and Narganes Stordes 2005), of unknown origin. Both of these groups are characterized by village life, agriculture, and ceramics, although their pottery and lithic productions are remarkably different. The encounter of all these groups seemed to have created the conditions for an intense yet selective process of interaction and the exchange of tangible and intangible resources leading to the development of new, localized identities or ethnogenesis throughout the archipelago (Curet 2003; Ulloa 2014). In some places, these processes also included the development of new social and political orders, including institutionalized and stratified formations which were referred by the Spanish as *cacicazgos* (*cacique* being the term used to refer to their leader).

By the late Pre-Colombian period, the cultural development in some parts of the Greater Antilles reached a climax as represented by an increase in the sophistication of many aspects of their material culture. Large and elaborate ball courts, plazas (Figure 15.2), and ceremonial centers were built mostly in Puerto Rico but also in Hispaniola Cuba and the Virgin Islands. Religious, ceremonial, and highly-valued objects increase in size and elaboration, including ceremonial pottery (Figures 15.3a and 15.3b), stools or *dujos* (Figure 15.3c), stone and wooden idols (Figure 15.3d), stone collars (Figure 15.3e), elbow stones, and, in some cases, the presence of gold ornaments (Figure 15.4).

The early chronicles in many ways confirm the developments suggested by the archaeological evidence. For example, they report that, at least, Hispaniola had few powerful, paramount chiefdoms and, possibly, the presence of a variety of other forms of socio-political organizations throughout the archipelago. In some cases, they also inform the presence of social strata, sophisticated religious practices, elite-controlled ceremonies, ball games, and feasting. In many occasions, these accounts include descriptions of objects similar to the ones found in the archaeological record (see various chapters in Oliver et al. 2008).

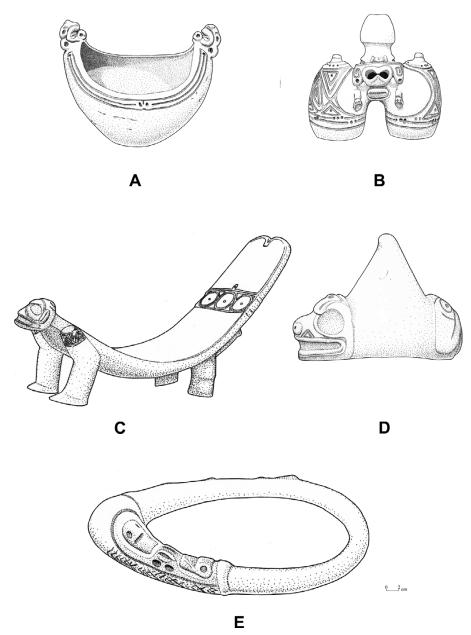
TRADE, EXCHANGE, AND NON-STATE SOCIETIES

A cursory review of the archaeological literature on trade and exchange shows that, while most people tend to use these terms in more or less the same way, they differ in very important details. On one hand, the general agreement is that trade refers to the exchange of material goods across cultural or social boundaries (e.g., Polanyi 1975; Renfrew 1975: 4; Hirth 1984: 15; Oka and Kusimba 2008; Agbe-Davies and Bauer 2010: 15), while, on the other, the disagreements concentrate more on the nature of the trade (social aspects) than on the exchange itself. The diverse perspectives on this vary along multiple



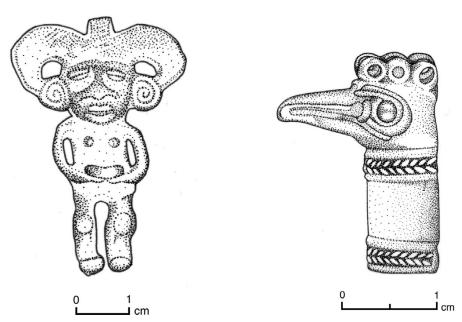
15.2. Main Plaza (A) and Main Ballcourt (B) of the Ceremonial Center of Caguana, Utuado, Puerto Rico (photographs by the J. R. Oliver)

vectors or dimensions creating oppositions such as substantivist vs. formalist perspectives, elite control vs. independent, and trade in stratified vs. non-stratified societies (see Oka and Kusimba 2008 for a detailed discussion). For example, Renfrew (1975: 4), following Polanyi, considers that trade and exchange are virtually synonymous and defines them as "the mutual appropriative movement of goods between hands." Nonetheless, Polanyi (1975)



15.3 Pottery and ceremonial objects from the late pre-Columbian period of the Greater Antilles: **A-B** pottery from Hispaniola (Postcards in possession of the author); **C** ceremonial seat or *duho* from Hispaniola (After Kerchache 1994); **D** three-pointed idol or zemi from Puerto Rico (Postcard in possession of the author); **E** stone collar or belt from Puerto Rico (After Bercht, Brodsky, Farmer, and Taylor 1997 Drawings by Jill Seagard).

defines trade solely within the context of market economies. Others such as Hirth (1984) and, to a certain point, Hodder (1980), consider trade as being a particular form of exchange where the latter can include the movement of both material and non-material "goods," while the former is defined as the



15.4. Objects made of gold-copper alloy from Cuba (Drawings by Jill Seagard)

translocation exclusively of material objects. For many, yet, trade refers to exchange in stratified societies with market economies, an institutionalized form of exchange, or both. While even others believe that trade can happen independently of the socioeconomic system.

It is not our intention here to add another opinion to this list. Instead, in this chapter, we use the simplest of definitions where trade and exchange share the same meaning: the transfer of possession and ownership of goods across social (or cultural) boundaries. In other words, no conditions such as centralized power, market economy, or institutionalized regulations are necessary for trade or exchange to occur. Social or cultural boundaries can range from the interaction between individuals to a multitude of institutions ranging from kinship groups and families to states and empires. The main reason for using this simple and broad definition is the lack of information available in the Caribbean on the nature, context, and conditions in which exchange took place in ancient times. While it is true that there was non-state, stratified society in the Caribbean at the time of Contact, and that there is evidence for long-distance exchange, our knowledge of the details of the processes of exchange is almost null. For example, despite what many scholars cited below believe, we really do not know if long-distance trade in the Caribbean included factors such as centralized leadership, the market principle of demand-and-supply, trading partners, friendships or independent entrepreneurs, if trade was direct or down-the-line. We know even less of many of the other factors and variables discussed by Hayden and Earle (Chapter 16). Considering that the context imposed by the theme of this volume is within

the concept of trade in non-state societies, we cannot assume that some or all of the long-distance exchange was necessarily formalized, institutionalized, or regulated (see Hayden and Earle, Chapter 16). Thus, from that perspective, our analysis must be open to many possible forms of exchange ranging from a simple gift-exchange between friends or strangers, to trading partners, to chiefly sponsored trading expeditions, and even to the possibility of a non-state, market system.

As testified by many chapters in this volume, this increase in the popularity of trade is not unique to the Caribbean. Probably one of the main reasons for this is the availability of new sourcing techniques and the identification of new sources of raw materials. Despite these advances, however, we have to recognize that technological applications, such as sourcing an object, is only the first step in gaining a good understanding of the processes that were involved in an exchange. The same can be said about comparative studies on symbols; it is a tool to identify similarities and dissimilarities, but it is not interpretative. Sourcing points out the origin of the raw material/object and comparative studies identify commonalities of symbols and their uses, but they say nothing about the type of exchange, the "traders," or the social processes involved. Knowing the beginning and ending points and the type of object does not allow us to determine the type of movement and the social processes involved in an exchange, as many scholars, such as Renfrew (1975) and Hodder and Orton (1976), warned decades ago. To gain an understanding of these issues, we need to go beyond the object and consider a number of other factors such as scale, intensity and periodicity of the exchange, among many others. In this same line of thinking, for example, Agbe-Davies and Bauer (2010; see also Stein 2002) have suggested recently that focusing on aspects of context, communication (information carried by the objects), and consumption (medium through which social relations are constructed and maintained) can produce a more complete and comprehensive view of trade as a social phenomenon that combines many of the approaches from both the processual and post-processual perspectives.

Finally, it is important to recognize that the archaeological study of trade in non-state societies may need different epistemologies and methodologies than in dealing with state level societies. We don't want to dwell on this now, but consider, as an example, the strict control of artistic and craft canons in many states whose products can be easily identified even when found hundreds of miles away from its territory. This clearly is not the case in many non-state societies.

APPROACHES IN THE STUDY OF LONG-DISTANCE EXCHANGE IN CARIBBEAN ARCHAEOLOGY

Historically, long-distance interaction is not a topic foreign to Caribbean archaeologists. On the contrary, since its inception, Caribbean archaeology

has given much attention to ancient interaction between insular and continental groups (e.g., Rouse 1964, 1982, 1986; Helms 1987). Most of it, however, has been in the form of migration and diffusion (Curet 2011), using mostly consistent similarities of stylistic modes (sensu Rouse 1986, 1992) across the region. As these ideas became antiquated, especially with the rise of the New Archaeology in the Americas and Social Archaeology in Great Britain, they were gradually demoted to a lower plane until they were considered outdated. It is within this last context that the recent wave of studies on long-distance interaction found a revival. This section summarizes some of the evidence obtained in recent studies and which has been used to claim direct contact mostly between the Greater Antilles and some continental regions, especially the so-called Isthmo-Colombian culture area (Hoopes and Fonseca 2003) (Figure 15.1). This culture area has been demarcated mostly by the distribution of Chibchan languages at the time of Contact and roughly covers a region from eastern Honduras to Colombia and possibly parts of Andean Venezuela. Although a considerable stylistic variability exists within this region, great similarities are present in sumptuary objects made of jadeitite and gold or tumbaga (gold-copper alloy), language, and iconic representations.

Not all of the evidence we discuss here pertains directly to trade, as some of it is more evidence of migration or other forms of interaction (e.g., staples brought by the first immigrants). However, it is included here as many of the studies being reviewed below use it to show the extension and longevity of the direct interaction between both areas.

Foodstuff. With the advances in the study of micro botanical remains, especially phytolyths and starch grains, our knowledge and understanding of the use of plants in the past have increased considerably. In the case of longdistance connections with Central America, introduced species have been reported for even the earliest cultural contexts of the islands (about 5000 BP), especially Puerto Rico. For example, Pagán-Jímenez and colleagues (Pagán-Jímenez et al. 2005; Pagán-Jiménez 2013) have reported a list of nonendemic plants identified in the earliest Archaic sites of Puerto Rico. Some of these species include maize (Zea mays), manioc (Manihot esculenta), sweet potato (Ipomoea batatas), marunguey/guáyiga (Zamia sp.) (Figure 15.5), yautía (Xanthosoma safittifolium), ñame (Discorea/Rajania), beans (Phaseolus sp.), yellow sapote (Poutevia campechiana), sapodilla (Manilkara zapota), and avocado (Persea americana). This repertoire of foreign plants, that we call here the "Archaic menu," was compared to those found in more or less contemporaneous continental contexts and found them present mostly in the region of Panama around 7000-5500 BC (e.g., Piperno and Pearsall 1998; Dickau 2005; Dickau et al. 2007). Quoting Piperno and Pearsall (1998: 316), who suggest that the "spread of entire plant complexes is often indicative of population migration rather than diffusion between groups," (Rodríguez Ramos 2010a: 85), it has



15.5. Guáyiga or Zamia bread from El Cabo, Dominican Republic (photograph by José R. Oliver)

been argued that the presence of these plants in Puerto Rico suggests a direct migration from Lower Central America.

It is also argued that this plant complex is associated with a toolkit that includes a specific type of food-processing stone tool: the edge-ground cobble/milling-stone complex (Rodríguez Ramos 2005). Accordingly, this particular tool can be found for this period only in the Isthmo-Colombian Area (particularly in Panama) and the northern Antilles, giving additional support to the idea of the migration across the Caribbean Sea from the former to the latter regions.

Stylistic similarities. Another piece of evidence used to argue for the direct route between both regions is stylistic similarities that are not found in the territories in between (e.g., Rodríguez Ramos 2010a, 2010b, 2011a, 2011b; Chanlatte Baik and Narganes Storde 2005). This comes in two forms. The first one refers to similarities on designs and motives, mostly on the iconography of ornamental, sumptuary, or religious artifacts of personal use (mostly pendants). The majority of these objects are made on mother-of-pearl or greenstone. The second form is the presence in the Greater Antilles of objects of a style related to the Isthmo-Colombian region but that most probably were manufactured locally (e.g., Costa Rican "metate" found in Jamaica). However, the latter form tend to be in lesser numbers than the former.

Sourcing. As already mentioned, the sourcing of some green stones to the Motagua Valley jadeitite deposit in Guatemala was one of the main reasons for

the revival of long-distance trade in the Caribbean. Since then, more pieces have been identified to this provenience (Harlow et al. 2006; Rodríguez Ramos 2010a, 2010b, 2011a).

Technology. Another type of imported, continental material are objects made of gold-copper alloys known as *tumbaga* or *guanín*. Since no evidence for the presence of smelting or alloy technology has been found in the Greater Antilles, the origin of these pieces is most probably Colombia or Lower Central America. Very few pieces, if any, made of this material have been found in Venezuela and the Lesser Antilles. A second significant technology, but in this case present in both regions, is the use of string-sawing in the production of early pendants (500 BC to AD 500). Accordingly, contemporary use of this technique at this time has been found only in the Isthmo-Colombian region, Mexico and southeastern United States (Rodríguez Ramos 2013: 162).

Computer simulations. Finally, another line of evidence used to support the argument of direct contact has been navigational simulation studies done by Richard Callaghan (2001, 2013). These studies, which take into consideration many aspects ranging from the type and size of canoes to currents and seasonality, have demonstrated that successful direct trips between the Isthmo-Colombian region and the Greater Antilles are, in theory, plausible.

INTERPRETATIONS

The evidence presented above, both for trade and for interaction in general, has been interpreted to support the idea of direct contact between the Greater Antilles and the Isthmo-Colombian region. In addition to this low-level theory, other interpretations of higher-level have been made in terms of the nature of this contact or interaction. Here we present few examples of different interpretations that focus on (1) who is trading, (2) the impact of the exchange in the local cultures, and (3) the socio-historical significance of this interaction.

Who is Interacting? Since most of the objects imported to the Greater Antilles seem to be luxurious or sumptuary artifacts, a common and widespread interpretation/assumption is that this is evidence for elite interaction. For example, Hofman and Hoogland (2011: 20) state: "The [jadeitite] axes may have formed part of a circulation system by which they were transferred between elites."

Impact of the interaction. Some researchers believe that the evidence is enough to suggest "that the interaction between inhabitants of northern Antilles and those of the Isthmo-Colombian Area were highly influential in the configuration of the cultural landscape that took shape between 4000 BC and AD 500/700 in both areas" (Rodríguez Ramos 2013: 166).

Also, it has been argued that "this [pan-regionally cosmovision] could have been a very important element in social practices that eventually gave rise to pyramidal social structures in these areas, which intensifies after AD 500" (Rodríguez Ramos 2010b: 35).

Intensity and scale of interaction. Likewise, this evidence is interpreted as showing very intense interactions and the presence of networks that created some kind of cultural/social macro-unit:

On a micro-scale, there has been evidence of intensive interaction between peoples throughout the Caribbean archipelago for many years. Recently though, increasing evidence has come to light to suggest that these relationships extended over far larger areas, bridged greater distances and variably intersected one another more than had been previously anticipated. Conceiving of the wider Caribbean as a circum-Caribbean region ... as inhabited by a multitude of pre-Colonial Amerindian communities, is to render (at least conceptually) the region a variegated yet cohesive entity, and lend it a degree of commonality and shared identity. (Hofman and Bright 2010: i)

When envisioning, not only the Antilles, but the Greater Caribbean as a seascape of plurality within which peoples with distinct ancestral histories contested and negotiated ideologies and identities in varying ways through time, the inadequacy of the current essentialist definition of the Caribbean culture area becomes readily apparent.

(Rodríguez Ramos 2010b: 24)

The trans-Caribbean engagements registered during this period not only indicate the movement of raw materials, technological styles, and iconographic themes but also seem to have entailed the macro-regional negotiation of a system of belief that was materially and symbolically objectified in the aforementioned materials. The pan-regionally negotiated structural principles of this cosmovision perhaps laid the foundation for the eventual materialization of some of the most conspicuous ideological grammar observed in later contexts in the Antilles and the Isthmo-Colombian area. (Rodríguez Ramos 2010b: 35)

GENERAL ISSUES

When the evidence of direct, long-distance trade in the Caribbean and the interpretations that have been derived from it is reviewed more closely, some issues arise, particularly those related to the lack of concordance between the epistemology, the methodology, and the empirical data. Of particular interest is the lack of efforts to determine the details of very important aspects of the low-level interpretations such as the nature of the interaction/exchange, before suggesting high-level theory interpretations (see below and Hayden and Earle [Chapter 16] for examples of these aspects).

EPISTEMOLOGICAL ISSUES

Two epistemological issues related to the general trend in these studies have to do with aspects of scale. The first one is that in the great majority, if not all, of the interpretations, the units of observation and analysis are the artifact/object (or botanical remains) and not the assemblages. The problem with this disparity is that while the object is rightfully the initial unit of observation and of analysis in terms of determining its origin, it is neither the only nor the appropriate unit of analysis to reach conclusions on or interpretations about the social and cultural dynamics of ancient groups. In order to do that, artifacts/objects need to be assessed within the context of the assemblage and higher levels of archaeological units (e.g., community, site, region) (see also the quotation from Geurds and Broekhoven below). Ignoring this lack of concordance between the units of observation and analysis brings up the second problem: using observations at the level of the objects to reach interpretations and conclusions at the level of the culture or, in some cases, the whole Circum-Caribbean region, without considering intermediate levels of analysis. Again, the concatenation of the relationships of the evidence at various levels and contexts is not being considered. As discussed below, these epistemological issues trickle down to create problems also at lower methodological and empirical levels.

A final, related epistemological issue is a pervasive problem encountered in many of the comparisons: "abductive reasoning" (for definition and use, also see Gell 1998: 15; see also Oliver 2009: 60, for a discussion of abduction). Alexander Geurds (2011) has best expressed our own concerns regarding what he calls, the "Similarity Trap":

The reasoning entailed in many of the comparative investigations of circum-Caribbean mobility and exchange is suggestive of some form of interaction. However, in all cases, except for the arguments based on provenance studies of artefacts, they are not based on samples of a particular data-set; they are a form of probable argument, perhaps a conjecture. In essence, the growing list of publications arguing pan-Caribbean interaction is predominantly built around comparisons of resemblance [analogy]. This resemblance is deemed sufficient to warrant these conjectures. This is abduction, in Peircian terms. By themselves, abductions cannot warrant any particular conclusion, they need to be accompanied by follow-up research taking a regional and site level perspective. If surprising resemblances between objects across the Caribbean Sea are observed in pre-Colonial material cultures, and if we assume that these resemblances coincided with the existence of a Greater Caribbean interaction sphere, or a primordially shared Caribbean worldview and so forth, such resemblances are rendered obvious, and we can assume that the Greater Caribbean thesis is true. Whilst archaeological reasoning holds abduction as part of its essence of reasoning about the past, not furthering initial probable arguments by means of local scale case studies will have the Greater Caribbean thesis fall short of being convincing.

(Geurds 2011: 52; our italics and our additions in brackets)

This is not to say that the first step in selecting materials for technological and/ or morphological comparison from two or more distant regions should not be grounded on similarity, but like Geurds, we do emphasize that the reasons (causes) for such similarity cannot be based on abductive or circular reasoning.

The "Trap of Similarity" problem aside, the first analytical step in apprehending what similarity (through analogy) means is to identify and formulate the appropriate research questions besides just asking where the object or symbols might have originated. Questions that can help us begin to understand the social, cultural, and physical nature and dynamics of the long-distance movements of objects and symbols across space. Examples of such questions relate to topics such as:

- Acquisition/fidelity of transmission: How similar objects and/or meanings must be to 'count' as originating from a singular source? At the risk of stating the obvious, analogy is not homology and vice versa.
- *Meaning*: How were these oral and/or material objects reinterpreted by the recipient society vis-a-vis the group of origin?
- *Intensity of interaction*: How much, for how long, how often and how many actors (and objects)?
- *Functions*: How and where were they used (contexts)? How and where were they disposed of?
- *Importance*: What were the impacts of the interaction on the local historical processes on both sides of the interaction?

To answer these questions, detailed studies at multiple levels of analysis are necessary. Of course, the object itself and, if available, the associated or attached symbols have to be the primary unit of analysis. Eventually, however, the analysis must go beyond the object to obtain information at other levels and scales. For example, studies focused on the physical composition of the object can provide valuable information on the origin of the raw material used to construct it. Likewise, stylistic features are important for cross-cultural comparison. But, by themselves, the objects would not provide contextual information that can help address many of the questions listed above, unless we fall in the "Similarity Trap." With better contextual evidence, at the level of the assemblages and the site, we may answer questions of its uses, potential meaning, and whether it was the finalized object or only the raw material that was imported.

METHODOLOGICAL ISSUES

Choosing the object as the supposed appropriate unit of analysis brings several methodological problems that impede dealing with the general issues mentioned above. In other words, it limits the number and types of questions we can answer in order to come up with a clear and realistic explanation of past

human behavior. For example, emphasizing objects instead of assemblages eliminates the important variable of context. Lack of context does not allow answering probably most if not all the questions presented above in relation to intensity, meaning, usage, and impact or importance of the interaction. This problem, in many, but not all cases can be exacerbated by the lack of use of quantitative methods so as to increase confidence in interpretative analyses or, even more important, to support many of the contentions presented about the degree and extension of the impact of the interaction/exchange. The use of a variety of methods ranging from simple descriptive and multivariable statistics to more sophisticated spatial quantitative techniques can help test many "conclusions." For example, using quantitative analysis can help in obtaining details about the degree of influence of the "exotic" object in the local cultures and histories (e.g., their proportion in assemblages compared to the local ones of similar type; their distribution and concentration within the assemblage, site, and region; or patterns of association or co-occurrence with other objects). Evidence like this can help answer other questions: How does this look at the level of the assemblage, the site, the locality, and the region? How many locally made objects are in the foreign style? In short, we need to go back to basics and do the painstaking work of collecting and analyzing detailed and fine-grained contextual data and how it relates to other aspects of the archaeological record. Without this information on the assemblages and contexts, it is impossible to reach conclusions on many aspects of the nature of the interaction including intensity and regularity of the interaction, its impact on cultural and social processes, and how these objects may have been reinterpreted and reused in their new local context.

EMPIRICAL ISSUES

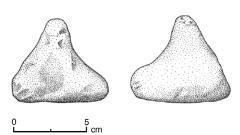
Both the epistemological and methodological issues presented above obviously have an impact on how empirical data is used in the arguments presented above. It is clear that, by not considering many possibilities or skipping steps in the chain of arguments, many of the authors have ignored or do not realize that the many problems imbedded in their arguments are reflected in their use of the data and that other explanations can be equally possible with the evidence at hand.

For example, one of the issues with the direct interaction across the Caribbean Sea is that, so far, no object or plant of Caribbean origin has been found in the Isthmo-Colombian region. This issue has been addressed on a few occasions by arguing that the evidence exists, but it has not been found yet. In other words, the problem is not with the premises, assumptions, and abductive reasoning used in their arguments; it is more a sampling problem. However, if the possibility exists for the absence of Caribbean material to actually be real, then other more plausible explanations can be suggested. One option is that

the nature of the direct interaction required the transfer of materials only in one direction, although we find this possibility highly improbable. A second prospect can be that material goods flowed from Central America to the Caribbean, while intangible "goods" moved in the opposite direction. For example, sumptuary objects may have been traded for sacred or other kind of knowledge. Finally, perhaps the direct route is not right and a not-so-direct route through the chain of islands and the northern coast of Venezuela may have been used instead.

It is also important to point out that the absence of Antillean influence in the continental area between the Isthmian-Colombian region and the Orinoco River mouth (i.e., northeastern Colombia and the north coast of Venezuela) has been used as supportive evidence for the direct contact models. In other words, the absence of Antillean objects in alternate routes along the island chain is taken as testimony of the interaction, across the Caribbean Sea. However, there are two problems with this argument. First, the continental coastal region of Venezuela and northwestern Colombia has seen little archaeological work and the absence of Caribbean objects may be more the result of a sampling problem. Therefore, as in the case discussed above, the absence of evidence may not be evidence for the absence. Or put more tritely: not present is not equivalent to absent.

Having said that, however, some Antillean objects have been found recently in this poorly studied intermediate region. These include the presence of early cultivars (e.g., maize, zamia, etc.) in Trinidad as early as 7700 BP (Pagán-Jiménez et al. 2015), as old as or older than the cases from Panama. Additionally, three-pointers or *cemís*, a type of object unique to the Caribbean, have been found in Malambo, Colombia (Figure 15.6) (Veloz Maggiolo and Angulo Valdez 1982) and in the northwestern coast of Venezuela (Figure 15.7) (Curet 2015). Finally, a green-stone pendant pertaining to the "Huecoid" complex depicting a raptorial bird (Fewkes 1907: Pl. XVIb) many of which have been sourced with jadeitite from Guatemala, was also found in Trinidad (Figure 15.8). This evidence, while limited, presents the



15.6. Three-pointer from the site of Malambo, near Barranquillas, Colombia (After Veloz Maggiolo and Angulo Valdés 1982. Drawings by Jill Seagard)

possibility of multiple arguments to explain the evidence for long-distance trade such as (a) the Antillean objects may have been traded directly with Central America first and, eventually, entered in circulation reaching the locations where they were found; (b) the direct route model is not correct and objects were traded through the island chain to Trinidad, northern Venezuela, and northeastern Colombia; and (c) there were multiple routes, including the direct and indirect



15.7. Three-pointer from near Tocuyo, Lara State, Venezuela (National Museum of the American Indian, Smithsonian Institution [Cat. No. 048837])



15.8. Green stone "Huecoid" pendants of raptorial birds from Trinidad (left) (Cat. No. 03725, Department of Anthropology, Smithsonian Institution) and La Hueca, Vieques, Puerto Rico (center and right) (photo by Jose R. Oliver) The raw material of similar pieces has been traced to the jadeitite source of Motagua, Guatemala.

ones, active at the same time (see below for other possibilities). Independently of which of all these possibilities is the correct one, however, at the present time the presence of these few objects is not enough to support any of them and further examination following a broader methodology and detailed data such as suggested above are needed.

DISCUSSION AND CONCLUSION

Summarizing, it is clear that some materials from the Isthmo-Colombian region found their way in ancient times to the Greater Antilles and, in some cases, the Lesser Antilles. But what is not completely clear are the interpretations of (1) the exclusivity of the direct and intense interaction between the Greater Antilles and the Isthmo-Colombian regions that (2) affected and impacted the direction of local historical and social processes, (3) leading to the development of social stratification and, even less, (4) that were part of a supra-regional network that can be called Pan-Caribbean or Greater Caribbean. When the issues of the arguments, the evidence, and the analytical process of these claims are considered, other suggestions seem to be equally or more plausible.

One additional problem with this position is that it views human interaction and trade as vectors with a start point and end point joined by a straight line. We now know that regional and extra-regional interactions are more multifaceted and convoluted than that and may include multiple actors and social and political dimensions. A different view that can explain and clarify some of the "discrepancies" in the evidence is the use of other models. For example, (and it is just that, an example), if instead of using interregional similarities traits and foreign objects to define new "culture areas," they are considered as actors in the internal dynamics within a sphere of interaction then we can argue that multiple of such spheres existed in the regions between Nicaragua, northern South America, and Amazonia. It can be contested, likewise, that these spheres may have overlapped allowing objects and ideas circulating in one sphere to be transposed to other spheres in a down-the-line fashion. The Isthmo-Colombian region, for example, may have been one of those spheres, which may have overlapped with the one from the Orinoco-Amazonian regions. This last one, at the same time, may have overlapped with the insular Caribbean sphere of interaction, allowing products from the Isthmo-Colombian region to the Greater Antilles. Of course, how far some objects (or ideas) travel will depend on factors such as the systems of value and desirability in the different spheres. In that manner, one can suggest that the objects from the Isthmo-Colombian region were highly desired in most spheres, while the ones from the Caribbean may have been less valued. Models like this one can be complemented by other concepts such as the network models (Brughmans 2012), communities or even constellations of practice (Lave and Wenger 1991), and symbolic reservoir (Macintosh 1998) that can help producing a more realistic view of the past. However, it is clear that, independent of which modeling approach is chosen, future interpretations have to take into consideration many of the epistemological, methodological, and empirical issues discussed here.

In conclusion, it is clear that some kind of long-distance trade or interaction was present since early on in the Caribbean. It is also clear, however, that the evidence for the claims of intense and widespread interaction across the Caribbean Sea is not as strong and clear-cut as many would like to believe. On the contrary, some of the evidence suggests a more complex panorama and that the existence of other, alternate routes and processes are equally possible. Furthermore, because of the lack of understanding of the archaeological context or assemblages where the traded objects were found/used, it is very difficult to develop an informed idea of the intensity and impact of the interaction. In light of all this, the arguments on the role of exchange in the formation of stratified societies, in the cultural and historical trajectory of the regions, and in the creation of a pan-Caribbean entity are, at best, questionable.

REFERENCES

- Agbe-Davies, A. S., and Bauer, A. A. (2010). Rethinking Trade as a Social Activity: An Introduction. In A. A. Bauer and A. S. Agbe-Davies, eds., *Social Archaeologies of Trade and Exchange: Exploring Relationships among People, Place, and Things.* Walnut Creek: Left Coast Press, pp. 13–28.
- Bérard, B. (2013). In W. F. Keegan, C. L. Hofman, and R. Rodríguez Ramos, eds., *The Oxford Handbook of Caribbean Archaeology*. Oxford: Oxford University Press, pp. 184–197.
- Bercht, F., Brodsky, E., Farmer, J. A., and Taylor, D., eds. (1997). *Taino: Pre-Columbian Art and Culture from the Caribbean*. New York: El Museo del Barrio.
- Boomert, A. (2001). Saladoid Sociopolitical Organization. In G. Richard, ed., *Proceedings of the XVIII International Congress for Caribbean Archaeology*. Vol. 2. Guadeloupe: International Association for Caribbean Archaeology, pp. 55–77.
- Brughmans, T. (2012). Thinking through Networks: A Review of Formal Network Methods in Archaeology. *Journal of Archaeological Method and Theory* 20, pp. 623–662.
- Callaghan, R. T. (2001). Ceramic Age Seafaring and Interaction Potential in the Antilles. *Current Anthropology* 42, pp. 308–313.
 - (2003). Comments on the Mainland Origins of the Pre-ceramic Cultures of the Greater Antilles. *Latin American Antiquity* 14, pp. 323–338.
 - (2013) Archaeological Views of Caribbean Seafaring. In W. F. Keegan, C. L. Hofman, and R. Rodríguez Ramos, eds., *The Oxford Handbook of Caribbean Archaeology*. Oxford: Oxford University Press, pp. 312–328.
- Chanlatte Baik, L., and Luis, A. (1981). La Hueca y Sorcé (Vieques, Puerto Rico): Primeras migraciones agroalfareras antillanas. Santo Domingo: Published by the Author.
- Chanlatte Baik, L., and Narganes Storde, Y. (2005). *Cultura La Hueca. Museo de Historia Antropología y Arte.* Río Piedras: Universidad de Puerto Rico.
- Curet, L. A. (2003). Issues on the Diversity and Emergence of Middle-Range Societies of the Ancient Caribbean: A Critique. *Journal of Archaeological Research* 11, pp. 1–42.
 - (2011). Irving Rouse's Contribution to American Archaeology: The Case of Migration. In L. A. Curet and M. Hauser, eds., *Islands at the Crossroads: Migration, Seafaring, and Interaction in the Caribbean*. Tuscaloosa: University of Alabama Press, pp. 13–21.

- (2015). Exchange and Interaction in the Caribbean: The View from Two Objects from the Smithsonian. Paper presented at the 80th Annual Meeting of the Society for American Archaeology, San Francisco, CA.
- Dickau, R. (2005). Resource Use, Crop Dispersals, and the Transition to Agriculture in Prehistoric Panama: Evidence from Starch Grains and Macroremains. Unpublished PhD dissertation. Philadelphia: Department of Anthropology, Temple University.
- Dickau, R., Ranere, A. J., and Cooke, R. G. (2007). Starch Grain Evidence for the Preceramic Dispersals of Maize and Root Crops into Tropical Dry and Humid Forests of Panama. *Proceedings of the National Academy of Sciences* 104, pp. 3651–3656.
- Fewkes, J. W. (1907). The Aborigines of Porto Rico and the Neighboring Islands. In *Annual Report of the Bureau of American Ethnology for 1903–1904, No. 25.* Washington, DC: Smithsonian Institution, pp. 1–220.
- Gell, A. (1998). Art and Agency: An Anthropological Theory. Oxford: Clarendon.
- Geurds, A. (2011). The Social in the Circum-Caribbean: Toward a Transcontextual Order. In C. L. Hofman and A. van Duijvenbode, eds, *Communities in Contact: Essays in Archaeology, Ethnohistory and Ethnography of the Amerindian Circum-Caribbean*. Leiden: Sidestone Press, pp. 45–61.
- Geurds, A., and Van Broekhoven, L. N. K. (2010). The Similarity Trap: Engineering the Greater-Caribbean. A Perspective from the Isthmo-Colombian Area. *Journal of Caribbean Archaeology*, Special Publication Number 3, pp. 52–75.
- Harlow, G. E., Murphy, A. R., Hozjan, D. J., de Mille, C. N., and Levinson, A. A. (2006). Pre-Columbian Jadeite Axes from Antigua, West Indies. *Canadian Mineralogist* 44, pp. 305–321.
- Helms, M. W. (1987). Art Styles and the Interaction Spheres in Central America and the Caribbean: Polished Black Wood in the Greater Antilles. In R. D. Drennan and C. A. Uribe, eds., *Chiefdoms in the Americas*. New York: University Press of America.
- Hirth, K. G. (1984). Early Exchange in Mesoamerica: An introduction. In K. G. Hirth, ed., *Trade and Exchange in Early Mesoamerica*. Albuquerque: University of New Mexico Press, pp. 1–15.
- Hodder, I. (1980). Trade and Exchange: Definitions, Identification and Function. In R. E. Fry, ed., *Models and Methods in Regional Exchange*. SAA Paper No. 1. Washington, DC: Society for American Archaeology, pp. 151–156.
- Hodder, I., and Orton, C. (1976). *Spatial Analysis in Archaeology*. Cambridge: Cambridge University Press.
- Hofman, C. L., and Bright, A. J. (2010). Towards a Pan-Caribbean Perspective of Precolonial Mobility and Exchange: Preface to a Special Volume of the Journal of Caribbean Archaeology. *Journal of Caribbean Archaeology*, Special Publication No. 3, pp. i–iii.
- Hofman, C. L., and Hoogland M. L. P. (2011). Unravelling the Multi-scale Networks of Mobility and Exchange in the Pre-Colonial Circum-Caribbean. In C. L. Hofman and A. van Duijvenbode, eds., Communities in Contact: Essays in Archaeology, Ethnohistory and Ethnography of the Amerindian Circum-Caribbean. Leiden: Sidestone Press, pp. 15–44.
- Hoopes, J. W., and Fonseca, Z. O. (2003). Goldwork and Chibchan Identity: Endogenous Change and Diffuse Unity in the Isthmo-Colombian Area. Washington, DC: Dumbarton Oaks
- Kerchache, J. (1994). L'Art Taïno. Paris: Musee du Petit Palais.

- Lave, J., and Wenger, E. (1991). Situated Learning: Legitimate Peripheral Participation. Cambridge: Cambridge University Press.
- McIntosh, R. J. (1998). The People of the Middle Niger: The Island of Gold. Oxford: Blackwell.
- Mason, J. A. (1941). A Large Archaeological Site at Capá, Utuado, with Notes on Other Puerto Rican Sites Visited in 1914–15. Scientific Survey of Porto Rico and the Virgin Islands. Vol. 18, pt. 2. New York: New York Academy of Science.
- Oberg, K. (1955). Types of Social Structure among the Lowland Tribes of South and Central America. *American Anthropologist* 57:3, pp. 472–487.
- Oka, R., and Kusimba, C. M. (2008). The Archaeology of Trading Systems, Part 1: Towards a New Trade Synthesis. *Journal of Archaeological Research* 16:4, pp. 339–395.
- Oliver, J. R. (2009). Caciques and Cemí Idols: The Web Spun by Taíno Rulers between Hispaniola and Puerto Rico. Tuscaloosa: University of Alabama Press.
- Oliver, J. R., McEwan, C., and Casas Gilberga, A., eds. (2008). *El Caribe precolombino: Fray Ramón Pané y el universo taíno*. Barcelona: Co-edition of the Ministerio de Cultura, Ajuntament de Barcelona-Institut de Cultura, Museu Barbier Mueller, and Fundación Caixa Galicia.
- Pagán-Jiménez, J. R. (2013). Human-Plant Dynamics in the Pre-Colonial Antilles. In W. F. Keegan, C. L. Hofman, and R. Rodríguez Ramos, eds., *The Oxford Handbook of Caribbean Archaeology*. Oxford: Oxford University Press, pp. 391–406.
- Pagán-Jímenez, J. R., Rodríguez López, M. A., Chanlatte-Baik, L. A., and Narganes Storde, Y. (2005). La temprana introducción y uso de algunas plantas domésticas, silvestres y cultivos en Las Antillas precolombinas: Una primera revaloración desde la perspectiva del "arcaico" de Vieques y Puerto Rico. Diálogo Antropológico, 3:10, pp. 7–33.
- Pagán-Jiménez, J. R., Rodríguez Ramos, J. R., Reid, B. A., van den Bel, M., and Hofman, C. L. (2015). Early Dispersals of Maize and Other Food Plants into the Southern Caribbean and Northeastern South America. *Quaternary Science Reviews* 123, pp. 231–246
- Piperno, D. R., and Pearsall, D. M. (1998). The Origins of Agriculture in the Lowland Neotropics. San Diego: Academic Press.
- Polanyi, K. (1975). Traders and Trade. In J. A. Sabloff and C. C. Lamberg-Karlovsky, eds., *Ancient Civilization and Trade*. Albuquerque: University of New Mexico Press, pp. 133–154.
- Renfrew, C. (1975). Trade as Action at a Distance: Questions of Integration and Communication. In J. A. Sabloff and C. C. Lamberg-Karlovsky, eds., *Ancient Civilization and Trade*. Albuquerque: University of New Mexico Press, pp. 3–59.
- Rodríguez López, M. A. (1997). Maruca, Ponce. In A. Rivera Fontán, ed., Ocho trabajos de investigación arqueológica en Puerto Rico: Segundo encuentro de investigadores San Juan. Puerto Rico: Instituto de Cultura Puertorriqueña, pp. 17–30.
 - (1999). Excavations at Maruca, a Preceramic Site in Southern Puerto Rico. In J. H. Winter, ed., *Proceedings of the Seventeenth Congress of the International Association for Caribbean Archaeology*. Rockville Centre: Molloy College, pp. 166–180.
- Rodríguez Ramos, R. (2005). The Function of Edge-Ground Cobble Put to the Test. *Journal of Caribbean Archaeology* 5, pp. 1–22.
 - (2010a). Rethinking Puerto Rican Prehistory. Tuscaloosa: University of Alabama Press.
 - (2010b). What Is the Caribbean: An Archaeological Perspective. *Journal of Caribbean Archaeology*, Special Publication No. 3, pp. 19–51

- (2011a). The Circulation of Jadeitite across the Caribbeanscape. In C. L. Hofman and A. van Duijvenbode, eds., *Communities in Contact: Essays in Archaeology, Ethnohistory & Ethnography of the Amerindian Circum-Caribbean*. Leiden: Sidestone Press, pp. 117–136.
- (2011b). Close Encounters of the Caribbean Kind. In L. A. Curet and M. W. Hauser, eds., *Islands at the Crossroads: Migration, Seafaring, and Interaction in the Caribbean*. Tuscaloosa: University of Alabama Press.
- (2013). Isthmo-Antillean Engagements. In W. F. Keegan, C. L. Hofman, and R. Rodríguez Ramos, eds., *The Oxford Handbook of Caribbean Archaeology*. Oxford: Oxford University Press, pp. 155–170.
- Rouse, I. (1964). Prehistory of the West Indies. Science 144, pp. 499-513.
 - (1982). Ceramic and Religious Development in the Greater Antilles. *Journal of New World Archaeology* 5, pp. 45–55.
 - (1986). Migrations in Prehistory: Inferring Population Movement from Cultural Remains. New Haven: Yale University Press.
 - (1992). The Tainos: Rise and Decline of the People Who Greeted Columbus. New Haven: Yale University Press.
- Service, E. R. (1962). Primitive Social Organization: An Evolutionary Perspective. New York: Random House.
- Stein, G. J. (2002). From Passive Periphery to Active Agents: Emerging Perspectives in the Archaeology of Interregional Interaction: Archeology Division Distinguished Lecture AAA Annual Meeting, Philadelphia, December 5, 1998. American Anthropologist 104:3, pp. 903–916.
- Steward, J. H. (1948). Cultural Areas of the Tropical Forests. In J. H. Steward, ed., Handbook of South American Indians, Vol. 3, The Circum-Caribbean Tribes. Bureau of American Ethnology, Bulletin 143. Washington, DC: Smithsonian Institution, pp. 883–889.
- Ulloa Hung, J. (2014). Arqueología en la línea noroeste de La Española: Paisaje, cerámicas e interacciones. Santo Domingo: Instituto Tecnológico de Santo Domingo.
- Veloz Maggiolo, M., and Angulo Valdés, C. (1982). La aparición de un ídolo de tres puntas en la tradición Malambo (Colombia). *Boletín del Museo del Hombre Dominicano* 17, pp. 11–17.
- Wilson, S. E., Iceland, H. B., and Hester, T. R. (1998) Preceramic Connections between Yucatán and the Caribbean. *Latin American Antiquity* 9, pp. 342–352.