Antillean Lithic Settlement In Haiti
Habitat Lithique Antillais À Haïti
El Sistema Del Poblado Del Lítico Antillano
En Haití
Abstract
The earliest prehistoric settlement period in Haiti is the Antillean Lithic. Its material culture is characterized by flake and blade tools knapped from chert (silex). Information concerning the Antillean Lithic is limited. Its origin, chronology, and relationship to the later Antillean Archaic settlement period are unclear. Interpretation is complicated by the occurrence of multicomponent (multiple cultural component) sites and potential later reuse of Lithic artifacts. My research has identified settlement types and analyzed their distribution across terrain zones using three-variable, three-dimensional graphs. Many Lithic sites are likely to be situated on terrain now submerged due to rising sea level. Underwater research to investigate these is needed. Differences between Lithic and Archaic settlement types and distribution suggest possible cultural discontinuity and/or a hiatus in occupation. These findings may be useful for identifying the Antillean Lithic’s ancestral origin. I suggest it may be the Aterian of northwest Africa.

Resumen
El período del poblado prehistórico más antiguo que se estableció en Haití fue el Lítico Antillano. Su material se puede caracterizar por herramientas (las lascas y navajas) de pedernal. La información sobre esta cultura Lítico Antillano es limitada. Su origen, cronología, y relación con el período de la población Arcaico Antillano que se estableció después, no es muy clara. Existen complicaciones de interpretación cuando los sitios de la cultura Lítico son habitadas por culturas posteriores, así mismo cuando los artefactos vuelven a ser usados por grupos de diferentes culturas en años posteriores. Mi investigación ha identificado los tipos de estos poblados y analizado su distribución a través de las zonas terrenales usando tres variables de gráficas de tres dimensiones. Es muy probable que muchos poblados Líticos estén situados en terrenos que han sido sumergidos debido a la altura del nivel del mar. Investigaciones subacuáticas serían necesarias para estos estudios. Diferencias entre poblados Líticos y Arcaicos en su distribución sugieren una posible discontinuidad cultural y/o lagunas en la ocupación de Haití. Estas investigaciones pueden ser útiles para identificar los orígenes ancestrales del Lítico Antillano. Yo opino, que tal vez sea de Aterian, del noroeste de África.

Resume
La période d'occupation préhistorique la plus ancienne à Haïti est le lithique antillais. Sa culture matérielle se caractérise par des outils (éclats et lames) débités dans le silex. L'information touchant le lithique antillais est limitée. Son origine, sa chronologie et son rapport avec la période subséquente d'occupation archaïque antillais ne sont pas clairs. L'interprétation est rendue compliquée par l'existence de sites à composantes multiples (composantes culturelles multiples) et par la possibilité d'un réemploi ultérieur d'objets lithiques. Ma recherche a identifié des types d'habitat et a analysé leur répartition sur des zones de terrains en utilisant des graphiques à trois variables et en trois dimensions. De nombreux sites lithiques sont probablement situés sur des terrains maintenant submergés suite à l'élévation du niveau de la mer. Il faut faire des recherches sous-marines pour examiner ces sites. Les différences entre les types d'habitat lithique et archaïque et leur répartition suggèrent la possibilité d'une discontinuité culturelle et/ou un hiatus de l'occupation. Ces découvertes peuvent être utiles pour identifier l'origine ancestrale du lithique antillais. Je suggère qu'il pourrait s'agir de l'Atérien d'Afrique du Nord-Ouest.

Text
The Antillean Lithic is the earliest non-agricultural settlement period in West Indies prehistory. Knowledge concerning its culture history and absolute chronology is limited and unclear. Correlating available information on the Lithic has been problematic, due partly to the several names terms applied to it including Casimiroid, Barreroid, Early Archaic (Arcaico Temprano), Lithic Age, Paleoarchaic, and Paleoindian (see Koski-Karell 2003:98-100). A valuable radiocarbon data ostensibly relating
to this period may not be reliable. Several dates are from sites containing multiple cultural components (multicomponent sites) and their association with the Lithic is uncertain. Other dates may be inaccurate because of contamination.

The Antillean Lithic's material culture is both unusual and intriguing. It resembles assemblages associated with the Eurasian Paleolithic, African Stone Age, and Paleoamerican (Paleoindian) of North and South America. These artifacts consist almost exclusively of knapped cryptocrystalline chert (also called silex, pedernal, or flint). They include blades, backed blades, sidescrapers, endscrapers, burins, denticulates, and truncated macroblades (see Dávila-y-Dávila 1978; Kozlowski 1974; Moore 1991; Roumain 1943). Implements are generally made on unifacial flakes and blades though bifacial flaking also occurs. There are multiple point types with various distinguishing characteristics including lanceolate and foliate shapes, pressure flaking, basal thinning, and stems (tangs). The Lithic is followed in the West Indies non-agricultural era by the Antillean Archaic settlement period. This began around 5,000 years ago and continued through the later Agroceramic (agriculture and ceramic) period. The Archaic's material culture is very different from the Lithic. It is characterized by marine shell and non-crystalline stone implements produced by grinding. The use of chert is not central to Archaic technology as with the Lithic. Chert implements encountered in Archaic contexts tend to be very different from Antillean Lithic materials. Instances where Lithic or Lithic-like artifacts have been encountered in Antillean Archaic cultural contexts may be due to multicomponent sites or reuse of Antillean Lithic implements by later groups.

An aspect of the Antillean Lithic that merits greater attention is its settlement system. I investigated this as part of my doctoral research on indigenous settlements in Haiti from initial occupation to early Spanish colonial times (Koski-Karell 2003). My dissertation focuses on relationships between habitation types, their distribution, and terrain relief. It includes comparisons of Lithic, Archaic, and Agroceramic settlement characteristics.

This paper is a summary of my research findings concerning the Antillean Lithic. I also discuss sites on underwater terrain and the Lithic's possible origin. In this paper I use the terms settlement, habitation and site interchangeably.

This settlement investigation included field surveys and collections research. Particular attention was directed to compiling a site database with information on cultural affiliation(s), areal extent (size), and location. Field work consisted of surface inspection survey and data recordation. Collections research included the inventory of sites in Haiti compiled by Clark Moore (Moore 1997) for the Bureau National d’Ethnologie (National Bureau of Ethnology), and the Dr. William H. Hodges Collection at the Museé de Guahaba (Guahaba Museum).

The setting for this investigation is Haiti’s northern coast region and a smaller area along the country’s western coast (Figure 1). The study area includes five topographic subareas (Northwest Peninsula, Tortue Island, Northern Massif, Northern Plain, and Cabaret). I divide these into seven terrain zones based on differences in landform and elevation. There are four inland zones (montane, highland, piedmont, and river valley) and three coastal terrain zones (coastal plain, shoreline, and waterland). Six of these terrain zones are easily understood, though the waterland requires explanation. The waterland terrain zone extends from the existing shoreline to a depth of 135 meters (443 feet) below sea level. It contains formerly habitable terrain submerged by rising sea level since the Last Glacial Maximum, which occurred during the late Pleistocene circa 23,000 to 19,000 years ago. Worldwide sea level during the Antillean Lithic was lower than at present. Consequently, coastal and other sites from this period are now underwater.

The database for this settlement analysis consists of 105 sites dating to the non-agricultural era.
These include 50 Lithic habitations (46 single component and four multicomponent sites), and 55 Archaic settlements (47 single component and eight multicomponent sites). I believe these data represent fairly the study area’s overall population of terrestrial non-agricultural era sites. However, I recognize that the waterland contains additional undiscovered sites and there may be others onshore, possibly buried beneath sediments and thus difficult to identify. Future investigations that add to the study area site database will be useful for refining the results of this research. My analysis of the investigation's settlement database focuses on classifying habitation types and assessing their distribution. In this research I define habitation types based on the areal extent of single component sites that functioned as settlements, as indicated by cultural materials on the ground surface. This approach is feasible because ground surface visibility is good across much of the study area.

Exploratory analysis of these data revealed that non-agricultural era single component settlements cluster into groups according to size. These size groups tend to increase in areal extent from smallest to largest following a geometrical progression based on a factor of two (Koski-Karell 2003:83-90). I used this characteristic to establish settlement size categories. The group of smallest sites forms the first size category and subsequent categories increase in areal extent from one to another following a geometrical progression with factor of two. This method requires eight size categories to accommodate the overall areal extent range of non-agricultural era (Lithic and Archaic) single component sites in the database. I pair these eight size categories to establish four nonagricultural era settlement types. They are small camp (<0.024 hectare), medium camp (0.0241 to 0.114 ha), large camp (0.1141 to 0.474 ha), and very large camp (>0.4741 ha).

The study area’s 46 single component Lithic habitations include examples of each nonagricultural era settlement type. Of these, 20 (43%) are small camps, 17 (37%) are medium camps, six (13%) are large camps, and three (7%) are very large camps. The frequency of each type varies inversely with size. The smallest habitations are the most common while the largest are most rare. These results may indicate that the various site types were occupied by groups of differing sizes, and perhaps served different functions relating to subsistence, socio-cultural, and/or economic factors. The smaller habitations may have been occupied by small group social units and the larger sites by larger groups. An alternative explanation is that the greater extent of some settlement sites may have resulted from multiple intermittent occupations by small groups over time instead of larger population concentrations. The distribution of settlement types may relate to a seasonal round subsistence pattern where groups varied in size on a seasonal basis while moving from place to place to exploit natural changes in food resource availability.

My analysis also assesses relationships between habitation type distribution and terrain zones. I accomplish this by constructing settlement Type-Distribution (T-D) Models. These use data from single component sites to produce computer-generated three-dimensional (3-D) abstract models from triaxial (XYZ) surface plot graphs of data for three variables. The three variables are settlement type, terrain zone, and type-zone combinations. I produced these T-D Models using the Axum 6.0 data analysis program (MathSoft, Inc. 1999). It allows surface plot graphs to be rotated for viewing and comparison as if they were solid 3-D figures.

In the Antillean Lithic T-D Model it is apparent that habitations are widely distributed across the study area’s terrain zones with about 70% located inland and 30% in coastal areas (Figure 2). This indicates that the Lithic settlement system is strongly oriented to interior lands, and suggests that subsistence emphasized hunting and gathering inland food resources.

The T-D Model includes two settlement concentrations that appear as peaks separated by the river valley terrain zone. The apparent absence of river valley habitations could be misleading. It may reflect
site destruction from erosion, concealment due to sediment deposition, insufficient survey coverage, or other factors.

Evidence from various sources suggests that shellfish collecting was also important in Lithic subsistence. Marine shell is reportedly present at various Lithic sites and this may indicate exploitation of shellfish as a food resource (e.g., Veloz Maggiolo and Ortega 1973). However, the degree to which this pertains is unclear. A number of these sites include or may include non-Lithic cultural materials and their shell content may be associated with later groups.

The overall distribution of Antillean Lithic settlements in the study area correlates well with the natural distribution of good quality chert. Of the 50 Lithic sites in the database, 36 (72%) are in the Cabaret subarea where chert is abundant. The remaining 14 settlements are in the northern coast region where 10 (71%) are in the eastern Northern Plain near an area containing chert that is situated across the Dominican Republic border. A correlation between Lithic site distribution and chert has also been reported from Cuba (Kozlowski 1974:38, 40).

Additional insights concerning the Antillean Lithic can be obtained by comparing it with the second non-agricultural era settlement period, the Antillean Archaic. The Archaic T-D Model shows that its habitations are located almost exclusively in coastal terrain zones and that settlement farther inland is very limited (Figure 3). Of the 47 single component Archaic sites in the study area database, 39 (83%) are in the shoreline terrain zone. Small camps account for 31 (66%) of these single component sites, with 30 (97%) in coastal areas and only one (3%) in an inland terrain zone. Of the 14 medium camps (30% of the total), 13 (93%) are in coastal areas and only one (7%) is inland. There are only two large camps (4% of single component Archaic habitations) and both are in coastal areas. This coastal oriented type-distribution pattern is also evident when all 55 single plus multicomponent Archaic sites are considered together.

The Archaic T-D Model indicates a strong orientation to settling directly along the seacoast, a predominance of small camps, and suggests a subsistence emphasis on exploiting marine resources. This is very different from the Antillean Lithic where 57% of single component settlements are medium or larger camps with two-thirds of all these sites being located on inland terrain. In addition, there is no correlation between Archaic site distribution and proximity to natural deposits of chert. It is clear that the Antillean Lithic and Antillean Archaic differ a great deal both in material culture and settlement system. Furthermore, since available radiocarbon data for the Lithic may not be an accurate measure of age it remains unclear how this settlement period relates to the Archaic in terms of absolute chronology.

These characteristics are consistent with a culture history model in which the two periods are separated by socio-cultural and temporal discontinuity. A situation of that character appears to be consistent with Haiti’s archeological record which does not exhibit a clearly conformable transition from the Lithic period to the Archaic. Instead of continuity in developmental cultural change from one to the other through time, the available evidence suggests the occurrence of a hiatus separating the end of the Lithic period from the beginning of the Archaic. From this it follows that the study area may have been abandoned for an extended period of time, perhaps even several millennia. This potential for a settlement hiatus opens the way to explore previously unexamined research directions. One of these is a new approach to the problem of the Antillean Lithic’s ancestry. Previous work seeking to resolve this issue has pointed to various groups and areas on the continental mainland of South, Central, and North America. However, each candidate for origin becomes problematic when artifact assemblages and other data pertaining to the mainland are compared with the West Indies.
I propose an alternative hypothesis. It is that the Antillean Lithic originated with the arrival of waif voyagers who drifted across the Atlantic Ocean from Africa during the late Pleistocene.

A central assumption underlying this hypothesis is that prehistoric people could have survived an involuntary drift voyage from northwest Africa along the North Equatorial Current to the West Indies. The potential for this having occurred is supported by research that shows this current's velocity was greater during the late Pleistocene than at present, and that through time it has brought a variety of Old World flora and fauna to the New World (Crowley 1981; Hedges 2001; Marchitto, Curry, and Oppo 1998).

The present day North Equatorial Current environment is characterized by available food resources and limited fresh water. Circumstances favoring human survival have probably varied through time in this area. They may have been better at various times during the late Pleistocene than now. Other evidence favoring a drift voyage hypothesis includes the great time depth of marine resource exploitation in North Africa (more than 70,000 years) which demonstrates cultural activity in the littoral, along with the early development (by 40,000 years ago) of watercraft capable of open-water marine navigation (Klein and Scott 1986; Troeng 1993:152-161).

Artifact assemblages associated with the Antillean Archaic also provide evidence for possible cultural connections with northwest Africa. They are remarkably similar to artifacts associated with the Aterian cultural tradition of Africa's late Middle Stone Age (MSA) and early Late Stone Age (LSA). While stages within the chronology of the Aterian is poorly defined, the overall cultural tradition in northwest Africa appears to date from greater than 60,000 years ago to as late as 10,000 years ago (Allsworth-Jones 1999; Cremaschi, Di Lernia, and Garcea 1998; Hawkins and Kleindienst 2001; Peregrine 2001). The Aterian's later material culture includes a strong preference for using chert to produce unifacial and bifacial implements of the same types and characteristics described earlier in this paper for the Antillean Lithic. These include various flake and blade implements as well as lanceolate and foliate points exhibiting pressure flaking, basal thinning, and tangs (Hawkins and Kleindienst 2001; Phillipson 1993). Like the Antillean Lithic, the Aterian is especially characterized by the production of tanged (stemmed) implements.

The upshot of my investigation of the Antillean Lithic is that it may be much older than has been previously thought. It also presents an interesting and challenging research opportunity because much work will be necessary to achieve a clear understanding of this earliest period of West Indies prehistory. It is also clear that future investigations must include attention to the waterland as well as onshore areas. Because of evidence that Antillean Lithic coastal sites must have been inundated by rising sea level, research that includes both underwater and terrestrial environmental settings will have the greatest likelihood to obtain definitive data.

Does the Antillean Lithic date to late Pleistocene and relate to Aterian drift voyagers from Africa? At the present time I do not have the answer to this question, but I am sure it can be found. That answer may resolve the mystery concerning how the West Indies first came to be inhabited. Moreover, it has the potential to provide important insights concerning an even greater mystery, the earliest human settlement of the American continents.

References Cited
Crowley, T. J. 1981. Temperature and circulation changes in the eastern North Atlantic during
the last 150,000 years: evidence from the planktonic foraminiferal record. Marine Micropaleontology 6, 97-129.


Figure 1: Haiti and the Study Area.
Figure 2. Antillean Lithic Type-Distribution Model.

Figure 3. Antillean Archaic Type-Distribution Model.