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THE APUTU: AN EXAMINATION AND ANALYSIS OF A WAR CLUB-FORM
DISTINCTIVE TO THE GUIANAS

by

Don Arp, Jr.

A THESIS

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Under the Supervision of Professor Stephen Glazier

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May, 2011

THE APUTU: AN EXAMINATION AND ANALYSIS OF A WAR CLUB-FORM
DISTINCTIVE TO THE GUIANAS

Don Arp, Jr., M.A.

University of Nebraska, 2011

Advisor: Stephen D. Glazier

This work examines a type of war club unique to South America and to the area of the three Guianas. The so-called block war club of the Guianas, often noted in the memoirs of explorers and soldiers in the New World, has received little academic attention. Mining firsthand accounts and what little academic attention has been focused on the clubs, this paper examines a set of clubs from the Heye Foundation Collection now housed in the National Museum of the American Indian. This thesis seeks to classify the block type club as the flared quadrilateral club, which is a more accurate description of this type of implement and distinguishes it from other club types encountered in the Guianas and South America. Given that this club type has not received a full analysis, this thesis examines both forms of the club (bladed and non-bladed), hafting techniques and strategies, and the combat uses and injuries incurred from the club. Additionally, it suggests that a tentative origin of 400 to 600 A.D. can be given to the club based on the current level of knowledge of the Guianas archaeological record.

DEDICATION

My dedication of this work is twofold. First and foremost, I dedicate this to my friend, Mr. Tony Vieira of Georgetown, Guyana. Tony and his family introduced me to the land of Guyana, its history, traditions, and rich culture. The discussions we had of Guyana and its history, either occurring at a distance via e-mail or in person while traveling by boat up the mighty Essequibo River, fueled my interest in this great land. I am in his debt.

And secondly, I dedicate this work to those brave persons who once looked at a map, picked a spot, quietly wondered what was there and left with trowel and notebook in hand to find out. As archaeologists, we are forever, in some form, following in their footsteps.

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I would also like to thank the faculty of the University of Nebraska-Lincoln Department of Anthropology. Special thanks go to:

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TABLE OF CONTENTS

Chapter 1: Introduction		7
Data	8	
Guiana vs. Guyana vs. Guianas	8	
Chapter 2: The Club Types of the Guianas		11
Categorizing War Clubs	11	
The Club Types of the Guianas	13	
Spatulate	14	
Paddle-shape	15	
Dagger	16	
A Need for Additional Forms?	17	
Chapter 3: The Block Type Clubs		22
Terminology	22	
General Description	24	
The Bladed Variety	26	
Hafting the Blade	28	
Resin	34	
Cross-cultural Comparisons of Inclusion Hafting	34	
Non-Bladed to Bladed: An Escalation of Violence?	36	
Aboriginal Names for Clubs	38	
Chapter 4: Use and Forensic Analysis of the Flared Quadrilateral Club		40
Use	40	
The Physics of Trauma	41	
Impact on Soft Tissue	42	
Impact on Bones	43	
Chapter 5: Challenges to Dating the Flared Quadrilateral Club		44
Fieldwork and Theory	44	
Issues of Preservation	47	
Phases	48	
Origins of the Flared Club	49	
Chapter 6: Conclusion and Suggestions for Future Research		52
Fieldwork and Typology	52	
Further Cement/Resin Analysis	53	
Bibliography		55

LISTS OF MULTIMEDIA OBJECTS

Map: The Guianas, along with neighboring areas of South America.

Roth's generalized shapes for spatulate clubs (Roth 1924:172).

Roth's generalized shapes for paddle-shape clubs (Roth 1924:172).

Roth's generalized shape for the dagger club (Roth 1924:172).

A club attributed to the Guianas, but closely resembling a type known from northern Brazil (NMAI 177006.000).

A club from the Guianas that closely resembles the sword-type clubs of Brazil (NMAI 146494.000).

Club attributed to Carib or Culima in the Guianas that resembles a belaying pin (NMAI 058277.000).

Club attributed to the Guianas and strongly resembling an ax (NMAI 132949.000).

A club with a partial resemblance to Roth's (1924) block or cubical style, albeit different in several key elements.

Two clubs that appear related to both the spatulate form and paddle-shape form, but being shorter than either type and built more like a truncheon (NMAI 104145.000, top; NMAI 100122.000, bottom).

John G. Stedman, in modern day Suriname, circa 1799.

The parts of the flared quadrilateral war club (club image from Im Thurn 1883:299; labels by author).

NMAI 196669.000 – Akawai bladed flared quadrilateral club.

A drawing from Im Thurn's "Among the Indians of Guiana" of the blade style he associated with the flared quadrilateral war club (1883: Plate X)

Roth's conjectured methods of hafting (Roth 1924: 74).

Hafting by inclusion, wherein a socket is carved and the blade inserted.

NMAI 199534.000 – Showing ovoid socket with no blade.

NMAI 088846.000 – Showing a slit socket for an iron blade; blade missing.

NMAI 167037.000 – Macusi club exhibiting a filled in square socket.

NMAI 096631.000 – Exhibiting a stone blade in a fitted socket.

NMAI 146394.000 – Tucano axe exhibiting inclusion hafting.

A Carib family (based on the work of John Stedman). Note the flared quadrilateral war club at right.

Chapter 1

Introduction

Since the moment one of our hominid ancestors first picked up a fallen tree branch and wielded it in self-defense, humans have produced a vast array of clubs, cudgels, maces, bludgeons, and associated implements that constitute a broad category of impact weapons. These weapons not only served in martial capacities, but as Warwick Bray (2001) notes, were also used in hunting and dances, as symbols of social or political position, in executions, and in corporal punishment (both officially and within the confines of the family unit). Given the tremendous variation in shape, size, and design, the study of impact weapons provides an avenue for the exploration of cultural exchange as well as other issues like weapon design, selection of materials, and artistic styles.

This thesis will examine a type of war club unique to South America and confined to the area known as the Guianas. The so-called block war club of Guiana, while noted in the memoirs of explorers and soldiers in the New World, has received very little academic attention. Warwick Bray (2001) has provided an excellent overview of war clubs of the Guianas. Marshall Saville (1921) paid special attention to block clubs, especially block clubs bearing stone or metal blades. However, little else has been done to describe the weapon, analyze its uses, or to examine differences in design. This thesis will address these issues and offer a study of the block war clubs of the Guianas.

Specifically, this thesis will:

1. Examine the club types of the Guianas.

2. Analyze differences between the unbladed and bladed block clubs, discuss hafting techniques¹, and develop a better nomenclature for describing the club.
3. Examine the club's uses, with attention to its efficacy as an impact weapon from a forensic perspective.
4. Explain the geographic and temporal origins of the club type with respect to the state of archaeological investigation in the Guianas and issues of preservation related to the environment.

Data

Clubs were collected in areas first explored and settled by Europeans, creating a rich—if at times limited in scientific merit—body of data for examination. Often, issues of context and provenience plague research into clubs and similar implements. This thesis will use as its data set the Heye Foundation Collection (now a part of the National Museum of the American Indian or NMAI). The block clubs in the Heye collection have documented histories that often note the Amerindian group from which the club was procured.

Guiana vs. Guyana vs. Guianas

There can be much confusion when dealing with areas of the north coast of South America. For many decades, there were three Guianas: British Guiana, Dutch Guiana, and French Guiana. The French possession remains French Guiana or more often French Guyane. Dutch Guiana is now Suriname, and British Guiana changed its name to Guyana

¹ Hafting is the process used to attach an object capable of puncturing, cutting, or impacting to a handle or shaft. This process increases the functionality of the original object. Hafting techniques are the approaches taken to achieve hafting and can include practices such as binding, socketing, gluing, etc.

after achieving independence in 1966. Despite these name changes, the region is often referred to as the Guianas or sometimes just “Guiana”. In this thesis, I will refer to this area as the Guianas, especially since modern political boundaries meant nothing aboriginally and, of course, the geographic parameters of the area much more important. It must be noted that Whitehead (2009) makes a case to use the term “Guayana”, a spelling from Spanish, to give “epistemological priority over the colonial and national political territories also termed ‘The Guianas’” (2) to describe the area. Whitehead’s intentions for his terminology are well reasoned, but Guayana is not free of the connotations he seeks to avoid. Citizens of Guyana are sensitive to the term as Venezuela uses the phrase *Guayana Esequiba* to refer to the area from the border to the Essequibo River that it claims as its territory, even denoting possession on maps published in Venezuela.² For my purposes, I have borrowed Bray’s definition of Guiana: “Guiana in its broadest sense includes all the northeastern part of mainland South America between the Orinoco and the Amazon rivers, extending inland as far as the Rio Negro and the Cassiquiare Canal, and incorporating the former British, Dutch, and French colonies, together with the adjacent regions of Brazil and Venezuela” (Bray 2001: 252).

² For more the dispute, see The Trail of Diplomacy - A Documentary History of the Guyana-Venezuela Border Issue by Dr. Odeen Ishmael http://www.guyana.org/features/trail_diplomacy.html



The Guianas, along with neighboring areas of South America.

Chapter 2

The Club Types of the Guianas

Study of weapons in general and the war-clubs of the Guianas in particular provide an opportunity to examine and analyze an item that provides insight into a culture's approach to violence. Dye (2009) notes of weapons:

Weapons provide one of the critical pieces of archaeological information in assessing the degree and nature of conflict in the past. Weapons used in warfare are often difficult to distinguish from implements used in butchering, hunting, and woodworking, although specialized weapons become evident as violence becomes increasingly institutionalized and ritualized over time. (Dye 2009: 13)

Interestingly, in the case of the club type of chief concern in this thesis, examination the weapon's use and design has not been hampered by crossover uses—these clubs served as weapons of war, only later finding ritual/symbolic uses.

As a first step in examining the specific club type at question here, a study of club typology, in and out of the Guianas, is necessary to give context to the analysis.

Categorizing War Clubs

Developing typologies and classifications is always a challenging endeavor. Should we look at function? Should we look at form? Alternatively, should we look at both? Several approaches have been taken to classify war clubs into both general and specific categories and these tend to vary greatly in regards to sophistication.

Some systems are broad and are used on weapons as a whole or on a specific kind of weapon. For example, Taylor (2001), in examining weapons used by Native American groups in North America, used two broad categories: 1) utilitarian (used to denote

weapons with a combat role); and 2) sociotechnic or symbolic (used to denote weapons used for ritual, prestige, and symbolism). Both categories could apply at a macro or micro level. Other systems aim at classifying war clubs specifically. As Taylor (2001) focused on use to categorize, others have focused on construction.

The Diagram Group (2007) uses five categories to classify clubs: 1) Simple, defined as “non-metal clubs made of only one material”; 2) Composite, defined as “clubs using more than one material, non-articulated”; 3) Articulated, defined as “clubs with a flexible head”; 4) All-metal, defined as a mace; and 5) Ceremonial, defined as being a symbol of office, station, or authority (Diagram Group 2007: 14). Taylor’s (2001) classificatory system and that used by Diagram Group (2007) overlap, but have decidedly different levels of discernment. Taylor’s approach is broad, whereas the Diagram Group’s approach provides finer distinctions. In addition, the Diagram Group counts throwing clubs not as clubs, but as missiles (Diagram Group 2007: 78-79). I take issue with the Diagram Group’s approach, as the definitions are confusing and do not aid our understanding of the club group. In this regard, Taylor’s (2001) system reveals a bit more.

Others classification systems have strayed from function and materials, and focused more on appearance. Brasser (1961), in his research classifying the war clubs of the Native Americans living in Eastern North America developed a six category system, consisting of: slingshot; hammer; pickax; sword; gun-shaped; and ballhead (77-83). Van Horne (1993), working on the clubs of groups living in Southeastern North America, also had a six category system, but one category differed from that of Brasser. Van Horne’s system consisted of: stick with inset projection; globe-headed; swordform; swordform

with globe-head; spatulate; and staff (Van Horne 1993: 62-73). Some forms attempt to combine both appearance and use. One such example is that of Churchill (1917), who classified the clubs of Nuclear Polynesia as: billet; rootstock; missile; pandanus; axe-bit; lipped; talavalu; coconut-stalk; paddle; carinated; serrated; crescent; mushroom; horned; sickle; and staves (Churchill 1917: 17-80). Churchill's categorization is more complex than many others are, but considering the expanse of his field, both geographically and stylistically, the reasoning for such detailed categorization is clearer. Other researchers, apart from basic separation as to function (i.e., clubs versus throwing clubs), have categorized clubs according to the names used by the cultures that developed these weapons. An example of this is an approach developed by Clunie (2003) for his work on Fijian weapons.

The Club Types of the Guianas

Building on the observations of Richard Schomburgk (1841) who correctly noted that each Amerindian group had a distinctive style of war club, Walter Roth (1924) collated various observations of Amerindian war clubs in the Guianas into a classificatory system based on shape. Roth's classificatory system was quite similar to the work of Churchill (1917), and those of Brasser (1961) and Van Horne (1993). Roth's system stayed away from classification such as that used by Taylor (2001), because several of the club types had both martial and symbolic functions.

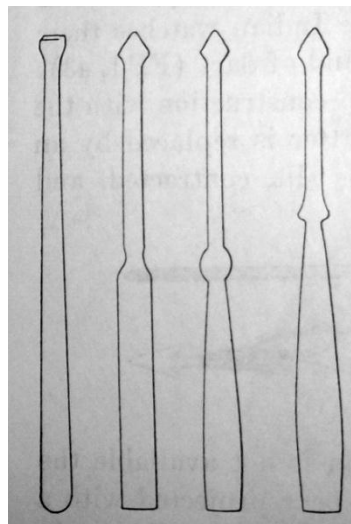
Roth describes nine shapes (or styles) which, he claims, constitute the four major club groups: 1) spatulate; 2) paddle-shape; 3) dagger; and 4) block or cubical. The block

or cubical form is the focus of this study, however, other forms will be considered since a number of groups carried clubs of more than one major group.

Spatulate

Clubs of this group, despite some physical variations, are universally long, narrow clubs terminating in thin, spatula-like areas that form a narrow impact surface (Roth 1924: 172). Clubs with an edge functioned much like a sword, delivering similar types of wounds. Aboriginal groups in New Guinea used wooden sword clubs capable of delivering cutting blows; similarly, the Maori *patu* and *wahaika* caused wounds in much the same way but with added weight due to construction material (jade, whalebone, etc) (Diagram Group 2007: 15). Clunie (2003) highlights several types of clubs in Fiji that could slice through bone (101).

Roth notes that spatulate clubs come from the area of the Caiary and Içana rivers or upper Rio Negro. Traditionally made of hard redwood, clubs of this group are over a meter in length and often have an engraved handle area (Roth 1924:172).

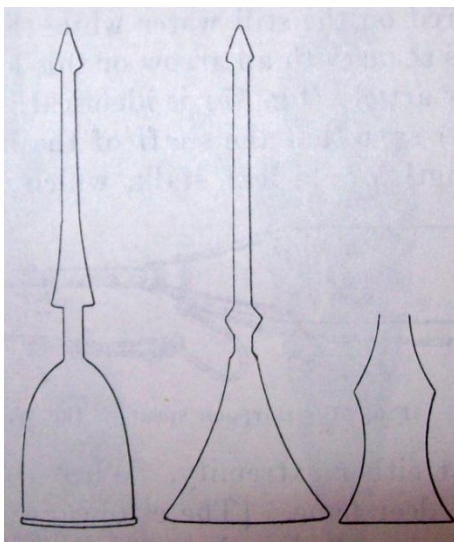


Roth's generalized shapes for spatulate clubs (Roth 1924:172).

Paddle-shape

The Paddle-shape clubs are appropriately named. They resemble canoe paddles, but given their stylized profile, they would never be mistaken for actual paddles. Roth (1924: 172) states that the Paddle-shape clubs had a wide geographical distribution ranging “practically from Cayenne to the Orinoco.” Members of the Arekuna, Wapishana, Makusi, Arawak, Warrau, Oyana, Koróa, and Umáua used these clubs.

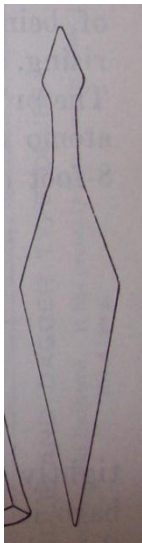
Wielding this weapon was a two-handed effort, making the thin edge capable of causing cutting blows, although it is doubtful that such a blow could have severed a limb unless the wood edge was very narrow. Burton (1884) deals extensively with paddle clubs, especially those from South America, when examining the evolution from club to sword. Roth (1924) notes that the Umáua used their paddle clubs as canoe benches until needing them in conflict. The Paddle-shape clubs also have a non-martial role. According to Roth (1924), several groups, including the Makusi, Oyana, and Wapishana, used modified Paddle-shape clubs in dances. Paddle-shape clubs are known from other cultures around the world, especially the Fijians (Clunie 2003).



Roth's generalized shapes for paddle-shape clubs (Roth 1924:172).

Dagger

The Dagger style club is the rarest of club types found in the Guianas. Roth (1924: 173) notes that Schomburgk attributed these weapons to the Makusi and the Maionkong, although he adds that both the island-Carib and Arawak reported that their ancestors used this style of club. Schomburgk (1841) claims that the sharpest point of the club was used to stab opponents in the brain via the auditory canal. This claim seems a bit improbable. Roth (1924: 173) states that the implement was “a club, a cutting weapon, and a bayonet.”



Roth's generalized shape for the dagger club (Roth 1924:172).

A Need for Additional Forms?

As noted above, Roth (1924) identified four major club groups: 1) spatulate; 2) paddle-shape; 3) dagger; and 4) block or cubical, with great variability within each of these groups. The block or cubical clubs are discussed at great length in the chapters that follow. Could there be a need for more than four groups? Review of the NMAI collection indicates affirmative.

Each of the Roth's club types are represented in the NMAI collection, with spatulate, paddle-shape, and the block clubs having the most examples. However, there are a few clubs attributed to the Guianas that do not neatly fit within these established categories.

Developing new categories is problematic. For example, one of the clubs in the collection attributed to the Guianas is very close in size, shape, and style to a club type from the Caraja and Cayapo (Kayapo) of northern Brazil (Verswijver 1992). Whether this similarity denotes mimicry, misattribution, or contact is unclear. Considering this uncertainty and that there is only one example attributed to the Guianas, it seems dubious to develop a completely new category for it. The same can be said for another club in the collection that, although attributed to the Guianas, is clearly related to the sword-type clubs found in Brazil.



A club attributed to the Guianas, but closely resembling a type known from northern Brazil (NMAI 177006.000).



A club from the Guianas that closely resembles the sword-type clubs of Brazil (NMAI 146494.000).

Some of the other clubs attributed to the Guianas, but not assignable to one of Roth's four categories, could possibly be separated into a fifth category: Derivative or Mimic Clubs. One such club, known from two specimens, is circular in cross section, and generally appears to mimic the shape of a belaying pin. No other clubs in the Guianas or northern South America could be found that have this kind of design. Another club, known only from a single specimen, resembles an ax, complete with head. It too has no resemblance to any other club form found in South America.



Club attributed to Carib or Culima in the Guianas that resembles a belaying pin (NMAI 058277.000).



Club attributed to the Guianas and strongly resembling an ax (NMAI 132949.000).

The remaining clubs could be categorized as Experimental. These appear to be transitional forms between either Roth's (1924) established categories, or simply experiments in devising new club forms. Each bears a resemblance to one of the other forms, but with enough variance to make complete attribution questionable. One club square in cross section, with a pronounced pommel and head, which could be a stylized representation of the pronounced ends of the clubs Roth (1924) categorizes as block or cubical. However, distinct from this type, this club has predominately parallel lines. Another form appears to be related to both the spatulate and paddle-shape forms, although shorter than either form; in many ways, it looks like a hybrid of a truncheon and a spatulate club. Two examples are known from the collection.



A club with a partial resemblance to Roth's (1924) block or cubical style, albeit different in several key elements.



Two clubs that appear related to both the spatulate form and paddle-shape form, but being shorter than either type and built more like a truncheon (NMAI 104145.000, top; NMAI 100122.000, bottom).

The classification of the war clubs of the Guianas may be improved by adding two categories, Derivative or Mimic, and Experimental, to Roth's (1924) original four categories so that all clubs have a place in the categorization system.

Chapter 3

The Block Type Clubs

The fourth type of club described by Roth (1924) is the block or cubical type. Bray (2001: 254) notes that the block type club is a “distinctive form that is found nowhere else in Amazonia.” Roth suggested that this club type may have had a wider distribution (geographically and culturally) than the ubiquitous paddle-shape clubs. Despite its wide distribution and distinctiveness, the block type war club has not been thoroughly analyzed.

Terminology

Inconsistent descriptions of the so-called block club raise a number of issues concerning this weapon. Stone (1961: 420) called the implement a *macana* (see below for Amerindian names) and described it as, “A South American club of rectangular section, largest at one end and smallest near the middle”. Roth (1924: 173) describes it as a “block or cubical type” that has “square ends with sharp corners, thinned in the middle.” Neither of these descriptions is wrong, but both lack clarity. Stone (1961) is technically correct in stating that clubs of this type have a rectangular cross-section, but some examples have a square cross section. Cross-sections are not overly useful in defining the objects. Also, Stone’s denotation of areas on the club that were larger or smaller is vague since he fails to provide a frame of reference.

Roth's (1924) description is more accurate, but is also problematic. His description of square ends most likely denotes a flat surfaces found on each end of the

club. Further issue is taken with his description of the club being “thinned in the middle” (173). It is true, as will be noted in a future chapter, that many such clubs did thin in the middle, but this is not a characteristic of this club type. While the clubs narrow in the middle, some remain quite robust while others are, in fact, thinned. Roth’s use of the terms block or cubical to describe this club is also inaccurate. Seemingly, the term “cubical” can be dispensed with as no sources identified have used it to refer to these implements. As noted, Roth’s use of “block” to name this type is vague. What does the term “block” mean? For example, in the NMAI collection, there is a club that is square in cross section and is, for all intents and purposes, a block.

Some interesting descriptive writing can be found in the catalogs of the major auction houses. For example, auctions by Christie’s in 1994 and 2002, which sold such war clubs, described the weapons as art objects with attention to materials and composition. In one sale, a club was listed as:

A GUYANA CLUB, *macana*, of quadrangular form, the grip bound with woven rattan and plaited cotton suspending white glass beads, the butt with twisted cotton, plaited wrist cord to one side, dark glossy patina.³

A sale of two similar clubs noted:

THREE GUYANA CLUBS

Two of waisted quadrangular form, the smaller with cotton binding and wrist thong, the larger with band of woven cotton and rattan about the centre and with finely incised ornament to the flat top, the third with semi oval head and rattan binding above the neck, dark glossy patinas 33cm. to 61.5cm. long.⁴

³ Sale in 1994: http://www.christies.com/LotFinder/lot_details.aspx?intObjectID=3116024

⁴ Sale in 2002 http://www.christies.com/LotFinder/lot_details.aspx?pos=8&intObjectID=3938660&sid=

Using “quadrangular form” and “waisted quadrangular form” are closer in accuracy to describing the club type, but these descriptions have limitations. With some clubs, “waisted” would be accurate, but for the most part, the clubs do not have a waist inasmuch as they narrow toward the pommel section of the club. Quadrangular is a good term, but quadrilateral is more grammatically correct.

Instead of block type, I propose the phrase “flared quadrilateral” to refer to block type clubs. Flared quadrilateral is a more accurate description and easily distinguishes this type of club from other club types encountered in the Guianas and South America. Using this terminology alleviates the confusion caused by clubs that are true blocks and sets out the angularity of the club, which is in stark contrast to the smooth lines and rounded transitions exhibited by the other club types of the Guianas and South America.

General Description

Im Thurn (1883: 299) provided an adequate description of the flared quadrilateral club. Reviewing the club types of the Guianas, Im Thurn noted, “One is four-sided; that part which is grasped in the hand is square, but from that point the sides gradually curve outward, the one end much more than the other, until they are abruptly cut off and end in both directions in flat surfaces at right angles.” Due to their flat ends, flared quadrilateral clubs have sharp edges and corners (Roth 1924: 173). One end, typically considered the ‘head’ of the club, is wider than the opposing end, which serves as a pommel and not as a striking surface. This middle portion serves as a handle for club and is often wrapped in cords (Roth 1924:173). The progression of the narrowing seen as club shaft transforms from the larger head to the pommel varied greatly within the NMAI collection. Some

narrowing is straight and tapering, while other narrowing is curved. The degree of narrowing can also be quite distinctive, with some clubs having a rather robust handle and others possessing a very thin handle.



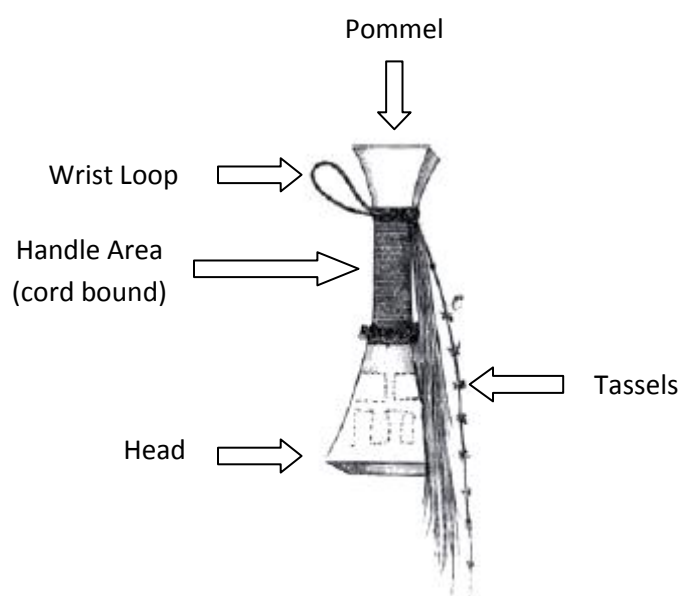
John G. Stedman, in modern day Suriname, circa 1799.

This club was a formidable weapon. John G. Stedman, a mercenary operating in what is now Suriname against escaped slaves in the mid-1770s, encountered the flared quadrilateral club in his adventures. Writing in his *The Narrative of a Five Years Expedition against the Revolted Negroes of Surinam* (1796), Stedman reports:

“I must not forget that every Indian carries a club, which they call Apootoo, for their defence. These clubs are made of the heaviest wood in the forest; they are about eighteen inches long, flat at both ends, and square, but heavier at one end than the other. In the middle they are thinner, and are wound about with strong cotton threads, so as to be

grasped, having a loop to secure them round the wrist, as the sword-tassels are used by some cavalry. One blow with this club, in which is frequently fixed a sharp stone, scatters the brains. These are used by the Guiana Indians like the tomahawk by the Cherokees, on which, besides other hieroglyphical figures, they often carve the number of persons slain in battle” (Stedman 1796: 396-397).

Stedman noted a variety of the flared quadrilateral clubs: the bladed club.



The parts of the flared quadrilateral war club (club image from Im Thurn 1883:299; labels by author).

The Bladed Variety

Although uncommon in collections, the bladed variety of flared quadrilateral club may not have always been rare. Stedman (1796: 397) notes that the clubs “frequently” had a stone blade fixed in one face. However, by the time of Im Thurn’s work, he notes clubs were “occasionally” so outfitted (1883: 300). Im Thurn also notes that the clubs in

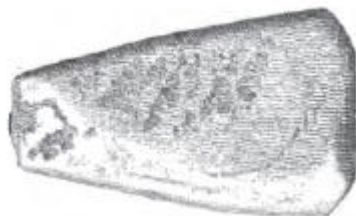
the Guianas as his time were all of wood with no blades (he only found one bladed specimen during his work), something he attributed to the end of intertribal warfare in the area (1883: 425).



NMAI 196669.000 – Akawai bladed flared quadrilateral club.

Im Thurn conducted initial fieldwork on the bladed club due to a number of celts discovered in the archaeological record of the Guianas that were broken in a specific manner. The climate of the tropics makes preservation of wood exceedingly rare and thus it is often absent in the archaeological record. Im Thurn, working with stone celts, made the connection between the blades he saw and the war clubs known to have been outfitted with a blade. Im Thurn (1883: 424-425) noted that “in all examples, not few in number, that I have seen of this type, the narrow end—that which was undoubtedly attached to the handle—is peculiarly fractured.” This peculiar fracture involved the narrower end of the blade being snapped off. Im Thurn (1883: 425) believed this indicated “the exact use of these blades and an unusual mode of attachment to the handle.” To test his theory, Im

Thurn compared a blade in his possession to a flared quadrilateral club in a European collection and found that the blade shapes matched.



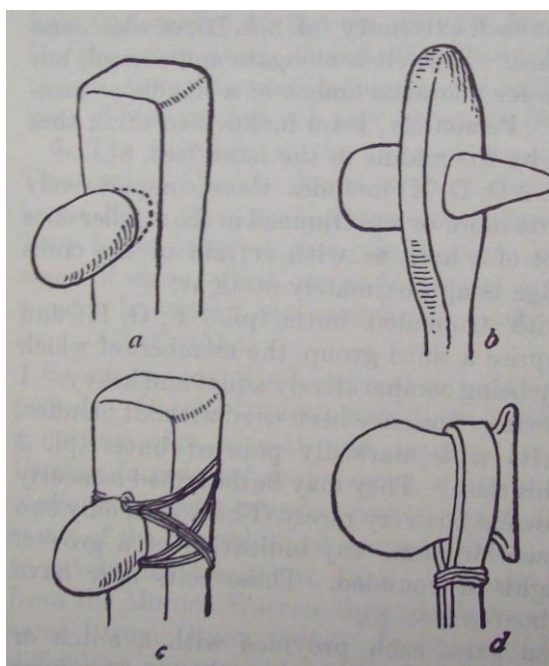
A drawing from Im Thurn's "Among the Indians of Guiana" of the blade style he associated with the flared quadrilateral war club (1883: Plate X)

Saville (1921) studied three flared quadrilateral clubs, two with stone blades and one with a metal blade, which were housed in the Heye Foundation Collection. He described the one stone blade as being "identical with the greater number of petaloid celts from Porto Rico" (9). He notes that one blade is about 1.75 inches in length (from club surface to edge) and another blade is about 2.25 inches in length; the third specimen, the one with the iron blade, has a length of 1.625 inches (9). Saville notes that as of the time of his writing (1920-21), he doubts clubs of this variety could be found in British Guiana, noting that a contemporary expedition from the University of Pennsylvania failed to identify a single example of this club variety during its work. Unfortunately, Im Thurn gives no scale for the blade reproduced in his book, thus obviating a comparison between his blade and those studied by Saville.

Hafting the Blade

Roth (1924), in studying stone blades in the archaeological record of the Guianas, put forth what he calls "mainly conjectural" (1924: 74) methods for hafting or the attachment of the blade/head to a handle. His four methods were: a) socket and resin;

b) celt completely piercing handle; c) lashing with no handle socketing; and d) the “Australian type” that used a doubled over handle along with resin and bindings (Roth 1924: 73-74). Interestingly, Roth said it was “hard to understand” a different approach than Method D for hafting what he termed the open-grooved ax head type. In fact, this type of hafting is seen in Argentina and Chile, but not for ax heads of the style noted by Roth (Mayer 1986: Plate 76). Hafting Method C is also seen in axes from Argentina and Chile (Mayer 1986: Plates 8, 10, and 81).



Roth's conjectured methods of hafting (Roth 1924: 74).

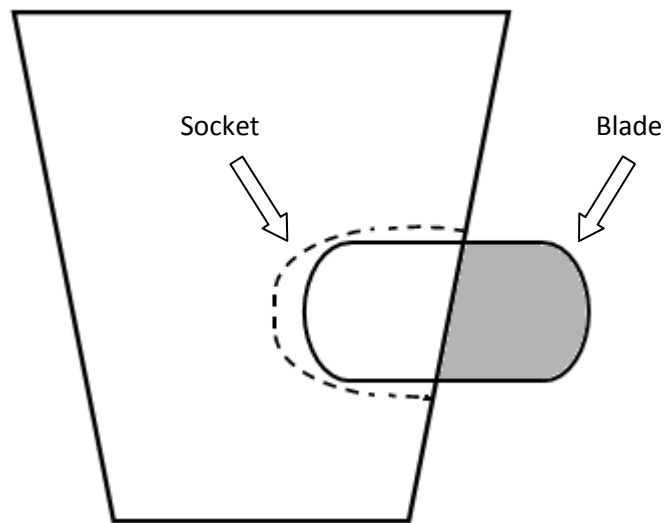
Upon further inspection, it is clear that the bladed form of the flared quadrilateral war club uses Roth's (1924) first approach to hafting, that being a socket for the blade. However, perhaps no other facet of the flared quadrilateral club has seen as much repeated error in understanding, especially in the face of perfectly viable and tested approaches, as to how this socketing was achieved.

Stedman (1796) advances an implausible explanation as to how Amerindians hafted the blade. He noted, “The manner of fixing the stone in the club or Apootoo is by sticking it in the tree while it is yet growing, where it soon becomes so fast that it cannot be forced out: after which the wood is cut, and shaped according to fancy” (1796: 397). Saville (1921) takes note of this method, but considers it patently false. Roth (1924) calls this method “extraordinary,” in an unflattering sense.

In their study of an axe dredged up in the Suriname River, Versteeg and Rostain (1999) examined two forms of hafting by inclusion, including Stedman’s tale of in situ hafting and supported the account by citing Vellard (1939) as finding such a method of hafting amongst the Guayaki (Aché) of Paraguay. Vellard, however, did not directly observe the practice, but rather heard of it from a guide. Vellard wrote:

L’examen attentive de ces haches ne montre aucun moyen auxiliaire de fixation. Avec une précision absolue la pierre s’encastre dans le bois qui la moule exactement. D’après mes guides Mbwihas—je n’ai pu faire aucune observation directe à ce sujet—un résultat aussi parfait serait obtenu en enfonçant la pierre de la longueur voulue dans de jeunes troncs d’arbre; après un certain temps les fibres se resserrent autour de ce corps étranger, le fixant avec force. Les Guayakis coupent l’arbre, sculptent le bois autour de la pierre avec d’autres haches et achevent de polir le manche avec des fragments de coquillages (Vellard 1939: 96).

I see no direct evidence for this type of hafting by inclusion in any of the clubs in the NMAI collection and, like Saville (1921) and Roth (1924), doubt its possibility.

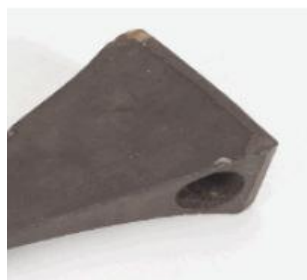


Hafting by inclusion, wherein a socket is carved and the blade inserted.

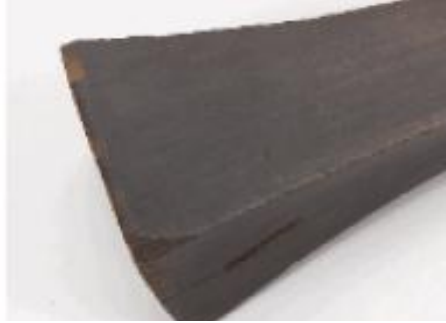
Im Thurn (1883) tested his theory that certain stone blade types were hafted in a manner exhibited by certain flared quadrilateral war clubs. Thus, he provided Amerindians with stone blades of this shape and asked them to fix the blades to a shaft. The Amerindians did so by socketing, the exact process used for the war clubs and postulated by Im Thurn as being the unusual method of affixing responsible for the blade breakage. Although not a complete refutation of Stedman's claim in 1796, the results do lean in favor of socketing to achieve hafting by inclusion.

Saville (1921: 11) studied two stone-bladed flared quadrilateral war clubs and found that the two flared quadrilateral war clubs exhibited a fitted socket on one end and

a square socket on another, with the square socket being filled in with a “coarse gum” (see the section titled “Resin” below). Roth (1924) found that in the specimens he examined with a blade still attached (something he noted as being “very rare”), the stones were fitted in a socket “cut to receive it with exactness” (1924: 73). This is not altogether accurate. Saville (1921) found a rectangular socket and other specimens in the NMAI collection that while lacking a blade, do still evidence a socket that is in some instances square and not ovoid. Regardless, hafting by inclusion is a time intensive process for making an axe and requires skill to avoid compromising the shaft with the socket and causing the implement to break on impact. Roth, however, continues to ascribe the use of resin in attaching the blade to the socket. Bray (2001) supports Roth's findings through his observations of clubs in European collections, and adds new information. Bray noted that all sockets were cut and used natural adhesives (see the section title “Resin” below). Some examples, according to Bray, used wedges to hold the blade. Bray also notes that blades were not only stone and metal, but also, rarely, hard wood (2001:259).



NMAI 199534.000 – Showing ovoid socket with no blade.



NMAI 088846.000 – Showing a slit socket for an iron blade; blade missing.



NMAI 167037.000 – Macusi club exhibiting a filled in square socket.



NMAI 096631.000 – Exhibiting a stone blade in a fitted socket.

Resin

If the socketing techniques suggested by Im Thurn (1883), Saville (1921), Roth (1924), and Bray (2001) are accepted, one issue remains that plays a vital role in hafting: resin. Much of what has been written about resins is based on inference from what is considered the standard practices for other implements. No one has undertaken a study of the resins present in stone-bladed flared quadrilateral war clubs.

Roth (1924) notes that the blades he observed were held in place by *karaman* cement (173). He suggests that the tree *Moronobea coccinea* is the source of a yellow gum called *karamanni* by the Arawak (1924: 82-83). The gum, once collected from a cut tree trunk, is mixed with powdered charcoal and beeswax, creating a cement that seems to be the “Duct Tape” of the Amazon and Guianas as it was used to wax lines, seal canoes, and fasten projectile points to arrows (Roth 1924: 83). Versteeg and Rostain (1999) note that *mani* resin came from the tree *Symphonia globulifera*. The cement used to lock the blades in the sockets on the flared quadrilateral clubs is quite strong. Saville (1921: 11), working on clubs that were easily over 100 years old, found that the blades on the clubs he studied were so tight in their sockets that they could not “be removed without injury to the specimens.”

Cross-cultural Comparisons of Inclusion Hafting

The practice of hafting by using a socket and some form of resin has been noted in other cultures. Saville (1921) compared two stone-bladed flared quadrilateral clubs in the Heye Foundation Collection and specimens of axes from his other work, “Monolithic Axes and their Distribution in Ancient America” (1916). In Saville’s 1916 study, he

found only one example of an axe from the Antilles where the blade was still associated with a shaft (1921: 11) and it had a fitted socket although the blade passed through the shaft, something not seen in the flared quadrilateral clubs, but a possible hafting technique conjectured by Roth (1924). A Tucano axe in the NMAI collection (146394.000) collected on the Upper Rio Negro exhibits a fitted socket, but the blade does not pass through both sides of the shaft, thus illustrating a hafting more in line with the flared quadrilateral clubs. It seems reasonable that this form of hafting was first used on axes and possibly spread into the Guianas as Amerindians from the Rio Negro region migrated into the area and adapted the technique to the production of war clubs.



NMAI 146394.000 – Tucano axe exhibiting inclusion hafting.

Burton (1884) notes that the *mahquahuatl* club—a weapon used by the Aztecs consisting of a club shaped like a cricket bat, edged with obsidian blades—used holes along the club edges to hold the blades, which were also affixed with “a kind of gum” (Burton 1884: 49). Wilson (1862) notes that the Mayan version of the *mahquahuatl* used a gutter of sorts to hold the blades and affixed them with thread and bitumen (Wilson 1862: 216-217).

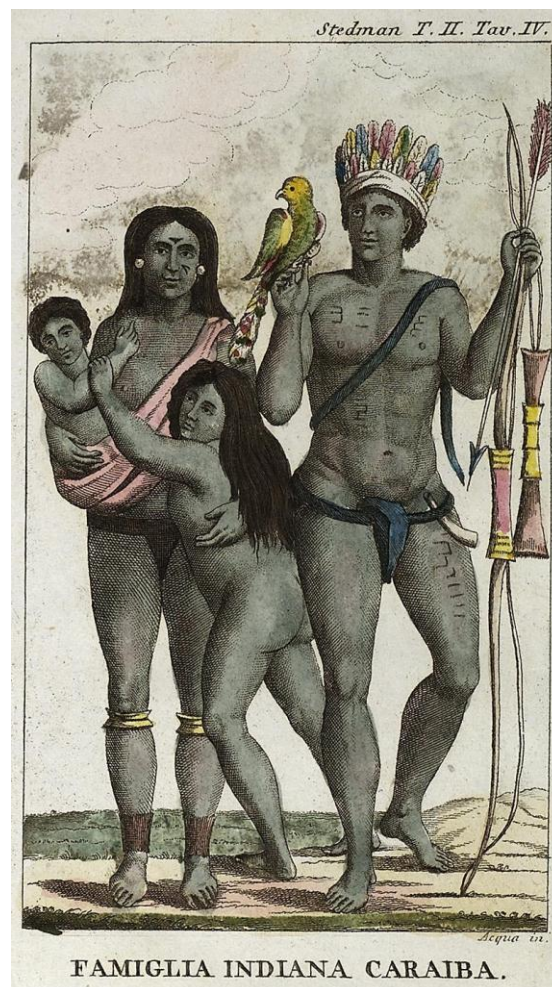
Dye (2009) in examining the weapons of the Middle Woodland Period in Eastern North America notes, “Presumably, many celts were socketed in wooden handles for use as warclubs, as well as for employment in land clearance and woodworking” (Dye 2009: 80). Socketing may also be suggested for the celts of the Village Farmer culture (ca. AD 1000-1400). Chapman and Chapman (1983) illustrate a celt of similar shape to those that were hafted by socketing (Chapman and Chapman 1983: 80).

Non-Bladed to Bladed: An Escalation of Violence?

What brought about adding a stone blade to the flared quadrilateral club? Im Thurn (1883: 425) notes that production of war clubs, bladed or otherwise, decreased significantly after European colonization reduced Amerindian inter-tribal violence. Could an earlier upswing in violence be responsible for the modification of the club? Burton (1884) argues that adding elements to a club like jagged edges and blades was inspired by nature and observations of items like stingray spines and teeth (1884: 13). Fox (1867) supports this arming as a natural evolution of the club. Burton’s (1884) argument is that this armament is part of the evolution of the sword, an argument puppeted in other works, such as Dupuy (1980). Club evolution to the sword aside, clearly, if adding an element to the club is an effort to increase the level of violence the club can deliver, then such actions must be in response to a need.

An example of a relevant escalation in armament can be seen with the Maya. Classic-period Maya used a weapons package that consisted of short spears, shields, flint knives, and wooden clubs (Gallenkamp 1987: 121). Gallenkamp (1987) notes an evolution in weapons in response to conflict: “When warfare assumed an increasingly

important role, a number of innovations entered the Maya arsenal” (1987: 121). These innovations included launched projectile weapons (slingshots, atlatls, and arrows) and “two-handed wooden swords edged with obsidian blades,” which were probably influenced by cultures in Mexico (Gallenkamp 1987: 121). Could the bladed version of the flared quadrilateral war club have been developed in response to increased inter-tribal violence? It is possible, but as yet conclusive evidence regarding the level of inter-tribal violence is lacking to make a definitive finding.



A Carib family (based on the work of John Stedman). Note the flared quadrilateral war club at right.

Aboriginal Names for Clubs

Many Amerindian names are associated with the war clubs of the Guianas and the flared quadrilateral club in particular. Saville (1921) refers to all clubs as *tiki*, which he attributes to the Carib (3), however it is unclear if he is using Carib to refer to a language group, mainland aborigines, or island-Caribs. Interestingly, others attribute completely different names to the Caribs for the club. This confusion is exacerbated by misapplication of the term Carib. Hulme and Whitehead (1992) note that the term has been used and misused for centuries. Whitehead (2009: 7-8) attributes the confusion to the fact that the terms Carib and Arawak were used by Europeans to denote non-peaceful and peaceful groups, respectively, and had nothing to do with cultural identities or affinities. The Arawak, however, were a cultural group, living in the Guianas and Trinidad (Boomert 1984). Whitehead (2009) notes that linguistic research is clarifying the actual distinctions and may help sort out the confusion encountered in the literature (see also Whitehead 2002).

There are many aboriginal names for flared quadrilateral clubs. Stone (1961: 420) borrows the term *macana*, which is the most common term, however, the term is rather generic and could be used to refer to objects from flared quadrilateral clubs to baseball bats. An interesting side note is that in the Taino language, if the terminal *a* in *macana* is accented, the word *macaná* is produced, which is the Taino verb “to kill” (Highfield 1997: 159). Whether this is clearly related to a club, much less the flared quadrilateral, is speculative. Roth (1924) notes that the Arawak called the flared quadrilateral club the *mossi* or *mushi* and the Carib called it the *potu*, *butu*, and *aputu* (173). Stedman (1796:

396) uses the Carib word *apootoo*. Versteeg and Rostain (1999) use *apatoe* to refer to the flared quadrilateral club and provide an illustration from Stedman's work.

Chapter 4

Use and Forensic Analysis of the Flared Quadrilateral Club

The flared quadrilateral clubs were well-engineered bludgeons. Given the sharp angles of the design, the weight and toughness of the wood, and the possible presence of a metal or stone blade, the flared club was a formidable weapon capable of inflicting serious wounds.

Use

Burton (1884) noted that clubs were designed to be used primarily to strike the head of an enemy, whether the club was swung or thrown (Burton 1884: 20). In the armory of the Amerindians, the war club, whether the flared quadrilateral or some other type, was most likely a secondary weapon to the lances, arrows, and darts employed from greater distances. Schomburgk described Amerindians engaged in warfare. After postures and gestures, battle began with arrows and then got closer. He noted, “The combat starts only from a distance with poisoned arrows, of which each warrior takes seven to battle. When these are shot the fight continues with war-clubs and indeed man against man” (Schomburgk 1922-23, Vol.2: 255-256).

This description is supported by data from North America. Steadman (2008) conducted a study of skeletal trauma found in Native American remains. The study found a distinctive injury pattern: victims were usually shot by a projectile, clubbed to submission or death, and then scalped; the blunt force was always associated with the skull (Steadman 2008: 53 and 56). Given similar weapons, there is little doubt that the

flared quadrilateral club was used as a close combat weapon after the distance between warriors had been closed. Bray (2001: 259) quotes an early explorer, Alexandre Rodrigues Ferreira, as stating that war clubs “bruise and cut like sabres.” Stedman (1796: 396) notes that, “One blow with this club, in which is frequently fixed a sharp stone, scatters the brains.” The club type, at least from a construction standpoint, was capable of delivering the blows attributed to it by Stedman (1796) and Bray (2001). Stone (1961: 420) also notes that these clubs were sometimes used as throwing weapons. This is of interest since Stedman (1796), Saville (1921), Roth (1924), and Bray (2001) are all silent on this use. Stedman (1796: 396-397) notes that those killed in battle were often remembered by notches made on the clubs.

The Physics of Trauma

The club is a weapon of blunt force trauma. According to Roth (1924: 173) the flared quadrilateral clubs were made of “the hardest and heaviest woods procurable,” which included ironwood, purpleheart, snakewood, amara, brown ebony, bowwood, and black cinnamon. Each club had square corners and tight edges, making this type of club an ideal blunt force weapon. DiMaio and DiMaio (2001) note that the more energy that is transferred from the weapon to the person, the more serious the injury. “If a weapon deforms or breaks on impact, less energy is delivered to the body to produce injury, because some of the energy is used to deform or break it,” (DiMaio and DiMaio 2001: 91). Given that flared clubs were made of the hardest wood available, they lost little energy to deformation. Furthermore, as each corner and edge reduced the amount of surface area impacted, it also increased the amount of force exerted on that surface area,

which is a key element in wound severity (DiMaio and DiMaio 2001: 91). This is well demonstrated by the effect that contact with the blade would have had on a victim. As the blade impacted an opponent's skull, all of the force of that weapon would be focused at the end of the blade, producing a more severe wound than a corner or an edge; this force is increased when the cutting qualities of the blade are considered (DiMaio and DiMaio 2001: 91).

Impact on Soft Tissue

Impact with a flared quadrilateral club could produce a variety of injuries. Blunt force trauma causes four types of injuries: abrasions; contusions; lacerations; and fractures (DiMaio and DiMaio 2001: 91). An abrasion is not considered a serious battle wound, but the other injuries are serious. Contusions or a bruise/hemorrhage can be serious if/when they affect internal organs, especially areas of the abdomen and chest. DiMaio and DiMaio (2001: 101) state that while contusions are not always serious, extensive contusions can cause shock and even blood loss. Lacerations or tears in the tissue are caused by "shearing or a crushing force" (104). Internal organs can be lacerated, causing serious, life-threatening injuries. A severe blow at the right angle can partially or completely rip flesh away from underlying structures like bone (DiMaio and DiMaio 2001: 107).

Of special note, is the susceptibility of the heart. A blow to the chest can cause commotio cordis, or cardiac arrest due to blunt impact (DiMaio and DiMaio 2001: 119). Blunt trauma can also cause contusions and ruptures on the heart, but it is doubtful that a war club could transfer enough force to cause this type of injury.

Impact on Bones

Typically, blunt force impact injuries to bone are seen in the bones of the skull and in the extremities, especially to the arms. Impact to the skull can fracture the bones of the face, including the maxilla and mandible (DiMaio and DiMaio 2001: 109). Impact with the cranium can cause a variety of skull fractures, depending on the energy imparted by the weapon to the bone. It takes between 33.3 and 75 ft lb of energy to produce a simple linear fracture of the skull (DiMaio and DiMaio 2001: 149). Increased force results in circular fractures and stellate fractures (where bone is depressed at the impact site or sites) (DiMaio and DiMaio 2001: 150). The shape of the flared quadrilateral club is ideal for creating depressed skull fractures as contact with one of the square corners would impart a large amount of energy into a small area of skull, the required formula for such an injury (DiMaio and DiMaio 2001: 150).

The bones of the chest, such as the ribs and the sternum are also susceptible to breakage due to blunt force trauma. However, in a martial setting, the bones of the forearms are the next most likely area to suffer injury as the arms are often used to shield a victim from the blows of an attacker. Focal fractures, a type of fracture caused by weapons like a pipe or a war club, result in transverse fractures of bones such as the ulna or radius and are almost always characterized as defensive wounds (DiMaio and DiMaio 2001: 111).

Chapter 5

Challenges to Dating the Flared Quadrilateral Club

The state of fieldwork and archaeological theory in the Guianas, along with the preservation environment, all present several challenges to finding a date and origin for the flared quadrilateral club form.

The Guianas have not received as thorough an archaeological examination as have other regions of the world despite the area's key role in the aboriginal peopling of the Caribbean. Williams (1996) notes, "At the time of its independence from Great Britain in 1966, Guyana had experienced 100 years of archaeological inquiry" but he also notes that, "[a]lthough the classificatory-historical (chronology) period began around 1914 in North America, it was not initiated in Guyana until 1946, with the investigations of Cornelius Osgood from Yale University. As in the Caribbean, archaeological research tended to lag behind events in North America by three to four decades" (1996:10-12). Others have challenged Williams' contention. Alfredo Figueredo notes that Caribbean archaeology actually led North American archaeology in such areas as the use of stratigraphy and paleogeography (Personal communication January 31, 2011). Regardless of methodology sophistication, the state of archaeology in the Guianas offers several challenges to dating the origin of the flared quadrilateral war club.

Fieldwork and Theory

Many archaeologists, like Im Thurn, made substantial contributions by discovering, recording, and examining their own finds, but their methods were primitive

and the geography was difficult. In the 20th century, investigators like Roth, Farabee, Gillen, Meyers. Butt, Fock, Yde, Meggers and Evans, Mentor, Forte, and Plew (Plew 2005: 4-5) conducted archaeological and anthropological research, greatly expanding our knowledge of the region. However, a vast majority of archaeological efforts were devoted to surveys that identified sites in need of further examination. Twentieth century studies were limited with regard to data. According to Williams (1996), French Guiana and Suriname had a much less developed archaeology than Guyana. He notes that, “archaeological inquiry goes back 100 years and more. The activity in these two countries over the past century has primarily focused on surface finds of stone tools and the recording of petroglyphs and grinding surfaces on riverbed or riverbank outcrops, often for the benefit of European museums” (1996:10-12).

However, archaeology in the Guianas (especially Guyana) is in a growth period that has seen advances in the last 15 years in technique and approaches to understanding the phases evidenced by the archaeological record. Plew (2005), in recounting the need for increased work in Guyana, noted that such work would possibly resolve issues like the “Williams-Roosevelt debate” (61).⁵ Exchanges such as that are an example of the larger, if still sporadic, tackling of issues of theory in the archaeology of the region and denotes advancement is interpreting the archaeological record. Plew (2009) suggested that, “Archaeological interpretations of the region reflect a continuing cultural-historical

⁵ Although I think using the term “debate” to characterize the exchange is generous, the back and forth between Roosevelt and Williams is important in understanding the state of archaeology in Guyana specifically and the Guianas generally. Roosevelt (1995) made a strong case that despite solid radiocarbon dates, ceramic finds in the Amazon were not receiving proper attention. Further, Roosevelt discussed sites in Guyana, which garnered Williams’ attention. What ensued was a confusing and poorly evidenced attack by Williams (1997) on Roosevelt (1995) involving the Alaka Phase and, tangentially, several other aspects of archaeology in the Guyana. Roosevelt (1997) addressed Williams’ (1997) points and in doing so provided a sound assessment of the Alaka Phase and the state of the archaeological chronology of Guyana as a whole.

bias toward the view that broad regional environmental change is accompanied by uniform cultural responses” (34). I find his contention interesting, but also somewhat confusing. Given the limits of archaeological fieldwork in the Guianas, and Plew’s own statement that “sampling remains a troubling problem in the region” (Plew 2009: 29), the idea that responses to environmental change have been seen as uniform in the Guianas and that a cultural-historical bias has fueled this conception does not seem supportable. Further, Plew advocates using an understanding of environmental change instead of items like ceramics to develop an understanding of the emergence of certain practices (Plew 2009: 34).⁶ First, if anything, consideration of environmental factors is more functionalist than culture-historical. In addition, how does this solve the issue of lacking data and the uniform response critique? Plew’s suggestion that archaeology in the Guianas needs to incorporate an approach that considers environmental changes in an effort to explain the human activity is progressive and interesting. Perhaps an approach that considers landscape, such as those denoted in Rossignol and Wandsnider (1992), could aid the next efforts in archaeological investigation. Regardless, a more careful plan needs to be developed to survey areas of the Guianas and make the best use of the limited investigational resources at the disposal of those in the field.

⁶ Plew (2009), in support of an environment-focused understanding of trait emergence, discounts the use of ceramics in phase establishment when he says, “Instead of debating the presence of ‘incipient ceramics’ as a benchmark denoting the emergence of horticulture in specific areas, it may prove more productive to document the full range of environmental events affecting the region ...” (34). Interestingly, the so-called (by Plew 2005) Williams-Roosevelt Debate focused on the Alaka Incipient Ceramic phase (see Evans and Meggers 1960: 25-64) and Roosevelt’s response dealt heavily with the ceramic data. Plew (2005) also considered the “debate” unresolved.

Issues of Preservation

The tropical environment and its impact on preservation of natural materials plays havoc with the archaeological record in the Guianas, making it difficult to determine a time frame for these clubs. The club has two components—the wooden club and the stone or metal blade. The wet, warm environment of the Guianas destroys wood, making it a very rare component of the archaeological record. Nevertheless, wooden objects have been preserved in the rivers of Guianas. Bray (2001) records that a number of wooden clubs have been recovered in the rivers of the Guianas, but these, sadly, lack context and are all but impossible to date. Versteeg and Rostain (1999) note axes recovered in the Guianas (especially Suriname) that had intact wooden hafts. Again, dating these specimens is almost impossible, but they do shed light on hafting techniques for the varied ax heads of the Guianas.

Given the poor, non-riverine preservation of wood in the archaeological record of the Guianas, it is not surprising there is little archaeological data (with context) for the predominately wooden clubs. What is represented in the record are the stone or metal blades used in some of the clubs. This source of data is problematic. Although not scientifically representative of the occurrence of the bladed club in the Guianas, only a small percentage of the NMAI collection contains either a socket or a blade. Im Thurn (1883) implies that war club manufacture in general, was more common before European exploration of the Guianas when inter-tribal Amerindian violence was more prevalent. It seems likely that encountering the blades would be rare. Im Thurn (1883) noted that many blades from the clubs were broken. However, these broken blades could have been

re-purposed and used for other tasks, thus masking their previous identity, or even presence, from the archaeological record.

Phases

The archaeological sequence developed by Evans and Meggers (1960) is widely cited and lays out several phases to explain the archaeological record of the area. It is important to note that Evans and Meggers (1960) phases and dates were done without the aid of radiocarbon dating techniques (Roosevelt 1997). On the coast, the Alaka lasted until around 500 A.D. and gave way to the Mabaruma, which was overlapped by both the Koriabo and the Abary lasting until about 1600 A.D. In the interior, the phases are much younger. The Taruma and Rupununi phases overlap and began around 1700, giving way to the Wai Wai phase shortly before 1900 (334). Examining these phases finds some styles of blade close to those hafted into the war clubs in the Mabaruma, Koriabo, and Abary phases. Plew (2005) notes polished celts or blades, much like those in clubs, are being recorded late in the Alaka phase and in the Mabaruma phase (61).

One must exercise caution with this information as, at first glance, it does not seem to comport with the prominence of the Makusi and the Carib in European recordings of the club and in these groups' representation within the NMAI collection. There seems to be a bias toward these groups because these groups were the individuals that Europeans saw armed with the clubs—not because they were its originators. Indeed, unless buried with a warrior at death as noted by Stedman (1796), a club's fate was most likely to be a spoil of combat, thus styles became mixed and ties to stylistic identity were often lost. This is further supported by Im Thurn's (1883: 298-299) observation that,

“Originally, apparently, they differed in shape according to the tribe which made them; but these differences, as in so many other cases, seem now to be somewhat lost and most of the various forms of tiki may be seen in the possession of any one of the tribes.”

Examining stone tools of the Makusi eliminates them as a possible source of the club style. The blades found hafted in some of their clubs bear no resemblance to the larger, grooved axes or other blades associated with the Rupununi phase that marked Makusi entrance into southern Guyana. The Makusi advanced farther north, while the Wapishana remained in the southern Rupununi and neighboring Brazil. Evans and Meggers (1960: 326-327) note that this incursion was probably motivated by a desire to trade with European colonists and they date it rather specifically to 1748 to 1835. Plew (2007) provides data to support at least part of this chronology. He had residue from a Kanuku vessel collected by Evans and Meggers tested, resulting in a date span that fit within the second half of the 19th century. This seems perhaps a few decades late, but given the range noted by Plew of a “conventional radiocarbon date of 60+/-40 BP” and “2 sigma calendar calibrated results (at 95% probability) of between 240 BP and 20 BP.” All of this is too late for the origin of a club type that was already present, according to Bray (2001), on the coasts by the time of European arrival.

Origins of the Flared Club

So, where did the flared club come from? Mostly, the club style came from northern Brazil and followed the migration of people into the Guianas. Polished blades like the ones hafted in the clubs have been found in northern Brazil, including one forming an ax from the Upper Rio Negro (NMAI 146394.000). Wilson (2007: 39) notes that by 6,000 B.C., aboriginals from mainland South America were already living in

Trinidad. In reality, there was a pulsing highway of migration. Sometime before 1500 B.C., the people who would eventually become the Taino, moved out of the central Amazon, with migrant branches making their way into the Guianas (Wilson, 2007: 65). Finding a more exact date is problematic. Rouse (1992) details that finding the ancestors of the Tainos is the more difficult as you move from the coast inland. Rouse (1992: 34) notes that, “[l]ess progress has been made in tracing the Tainos’ cultural ancestry further back, from the coast to the interior of South America, because chronological research has lagged behind”. Tracing ceramics, the most encountered artifact of the various groups moving north out of South America, is the mechanism for developing our understanding of the migrations. Roosevelt (1989) has ceramic dates in the Amazon back to between 5140 to 4250 B.C. The relationship of this group to the others that moved north is unclear given stylistic difference, but what is known is that sometime around 2,000 B.C.E., the Ronquinan Saladoid people were in the Middle Orinoco (Rouse 1992). By 1,000 B.C.E., their descendants, the Cedrosan Saladoid, were in the Guianas; the Cedrosans pushed on to Trinidad and Tobago from the Guianas (Rouse 1992: 37 and 83).

Wave after wave of migrants moved north, ultimately ending with the Makusi and Wapishana incursion before the mid-1850s. Eventually almost every Amerindian group in the Guianas utilized the flared quadrilateral club: Carib, Makusi, Taruma, Waica, Wapishana, Akawai, and Arawak. Based on the style of blade used and that blade’s presence beginning in some form by the late Alaka and its regular establishment by the Mabaruma, it seems reasonable that the flared club took shape sometime between roughly 400 A.D. and 600 A.D. The club persisted even after political changes reduced Amerindian warfare and made the bladed variety of club obsolete. However, this

persistence has been documented by Bray (2001) who notes that at the end, the flared club was little more than a cheap souvenir produced for Europeans and was no longer used for warfare.

Chapter 6

Conclusion and Suggestions for Future Research

This thesis examined the club types of the Guianas. Further, this thesis analyzed the differences between the unbladed and bladed block clubs, discussed hafting techniques, and sought to develop a better nomenclature for describing the club-form. The efficacy of the flared quadrilateral club as a weapon of war was examined from a forensic perspective. This thesis also attempted to explain the geographic and temporal origins of the club type with respect to the state of archaeological investigation in the Guianas and issues of preservation related to the environment. This thesis advanced the creation of two new types to add to Roth's (1924) typology, renamed the block clubs the flared quadrilateral clubs and clearly describing the hafting techniques used for the bladed version. This thesis also addressed issues and developments in archaeological investigation in the Guianas in an effort to explain the limitations of data and the somewhat tenuous date given to the origin of the flared quadrilateral club-form.

Fieldwork and Typology

One possible avenue for future research into the flared quadrilateral war clubs of the Guianas would be archaeological fieldwork. Much excavation is needed in the Guianas to establish a more complete archaeological record. A more detailed typology of stone tools, especially celts, and the flow of designs would help not only trace the sources of these technologies, but determine whether the clubs were the instigators of a new design concept for celts or the celts utilized were simply available and functional.

Further, some strategy to sampling the vast explored areas needs to be devised. Archaeology in the Guianas is ripe as a data set for the exploration of theoretical approaches given the relatively modest amount of investigation in the area and the number of groups that occupied and occupy the area. Once this fieldwork begins to produce data, more comparative and ethnohistorical work can be conducted.

Further Cement/Resin Analysis

As noted in Chapter 3, a major component to the success of hafting the stone blade into the flared quadrilateral club is the cement used to bond the blade into the socket. Roth (1924: 173) identified the cement used as *karaman*, which is probably the same substance known as *karamanni*. Roth (1924: 72) notes also that *Many* was found by Barrère in Cayenne and that it was used there to compensate for a shallow socket found on Amerindian axes in the area. This principle is illustrated by the ax analyzed by Versteeg and Rostain (1999). This substance was known to most Amerindian groups in the area and had several names, including *karamanni* among the Arawak and *abiyeweri* among the Warrau (Roth 1924: 83). What confuses the matter a bit more is the presence of a substance known as *karimen* to the Wapishana and *arakú* to the Waiwai, which Roth (1929) notes “has, of course, nothing whatever to do with the well-known *karamanni*” (Roth 1929: 3).

The origin of *karamanni* is uncertain. Roth (1924: 82) notes that the source of the gum is the tree *Moronobea coccinea*, which he interprets as a synonym for both *Symphonia bacculifera* and *Symphonia coccinea*. Versteeg and Rostain (1999) identify the origin of the resin as the tree *Symphonia globulifera*. William Milliken of Kew

Gardens in London (E-mail communication 25 June 2010) suggested that *Moronobea coccinea* and *Symphonia globulifera* are different trees and that *Symphonia bacculifera* does not exist, although a *Symphonia globulifera* was probably the intended identification.

An analysis of the resin and other material elements of the cement (charcoal and beeswax) would source karamanni to a single species or source it to several different species, all capable of producing the requisite gum. Palynological analysis of the resin might also yield data, not only about the resin, but also about the source of the beeswax. The charcoal residue may also yield data, but given that it was often pulverized to form the cement, little would be expected from such an effort.

Once the cement has been analyzed and compared to the origin data for the club from which each sample was taken, another level of comparison might prove interesting. Versteeg and Rostain (1999) offered many examples of axes recovered in the Guianas in which the cement was still attached to the shaft and blade. An analysis of cement and comparison to the cement from the flared quadrilateral clubs could establish the origin of the cement technology, the development of deeper sockets, and patterns of movement, if any, for the technology. Given such a restricted area, it is tempting to attribute the prevalence of the cement to diffusion, but an analysis of the material may prove otherwise. At the very least, an analysis would yield data on human interaction with the environment and the uses of botanicals in technological development.

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