A Maya Burial in Cuba

A study on the origins of individual CM 72B buried at El Chorro de Maita, Cuba.

Michael Steenbakker

http://www.sanderusmaps.com

Klikspaanweg 38 K12

2324 LX Leiden

m.c.steenbakker@umail.leidenuniv.nl

+31615466605

A Maya Burial in Cuba

A study on the origins of individual CM 72B buried at El Chorro de Maita, Cuba.

Michael C. Steenbakker

S1173286

Bachelor thesis

Supervisor: Dr. M.L.P. Hoogland

Specialisation: Archeologie van Indiaans Amerika

Leiden University, Faculty of Archaeology

Leiden, 04-01-2014, final version

Table of Contents

Acknowledgements

I would like to thank Alexander Geurds, Anne van Duijvenbode, Araceli Rojas Martinez Gracida, Elizabeth Graham, Francine van der Kooij, Hayley Mickleburgh, Menno Hoogland and Roberto Valcárcel Rojas for all the help they gave me when writing this thesis. I was not always easy but you kept me going.

Thanks a lot, all of you.

Introduction

After the arrival of Christopher Columbus in the Americas in 1492, the Spanish rapidly began colonizing the New World. The islands in the Caribbean Sea were of importance to them, for their rich natural resources, including silver, which was mined in Hispaniola. At a later stage, plantations were developed. The workers for the mines and plantations were gathered from local populations, both from the islands and the Mesoamerican mainland, to be part of the so called *encomienda* system (Thomas 2003, 138).

The site of El Chorro de Maíta, Cuba, possibly was such a location that was part of an *encomienda*. The archaeological investigation of the site focused mainly on the cemetery area in which primarily people of insular Caribbean descent were buried. However, there were a few individuals who did not appear to be of this descent. One of these individuals is known under the name CM 72B. The skeletal modifications and burial position of this individual differ from methods observed in El Chorro de Maíta , and are more consistent with Mesoamerican modification types and burial practises (Valcárcel *et al.* 2011, 240).

This thesis will attempt to provide insight into the origins of CM 72B, and deals with the following main research question:

"What was the possible origin of individual CM 72B buried at the site of El Chorro de Maíta, Cuba?"

To answer this question, the historical context site and this individual will be discussed in the first chapter of this thesis. This chapter also presents the theoretical framework used in the interpretation of the data in this thesis.

After the introductory chapter, the following sub-questions will be discussed:

"What information can be derived from the intentional cranial modification of CM 72B regarding her origin?"

The cranial modification might give an indication as to the origin of this individual, as the cranial modification of CM 72B differs from the modification typically encountered in

both El Chorro de Maíta and the wider Caribbean archipelago (Duijvenbode, forthcoming PhD Dissertation 2015).

"What information can be derived from the intentional dental modification of CM 72B regarding her origin?"

Similar to cranial modification, dental modification could give an indication regarding the origin of CM 72B. Individual CM 72B presents the only case of dental modification of this kind found in the Caribbean islands to date (Mickleburgh 2013), but occurs on a large scale in mainland Mesoamerica (Tiesler 2011a, 197).

"What information can be derived from the isotopic values of the teeth and bones of CM 72B?"

Although this is not a conscious choice, dietary practices leave traces in the osteological record including isotopic values. These values have vary according to region and therefore it is possible to roughly trace the origin of an individual and to see whether an individual has a local origin or not.
The analysis of data related to both the first, second and third sub-questions will be presented in the second chapter of this thesis.

"Can the burial practices of CM 72B be led back to a certain time period in Middle-America?"

Burial practices show regional and cultural variation. The burial position of CM 72B is distinctive from other burials at El Chorro de Maíta, and is rare in precolonial sites in the Caribbean in general, and therefore the focus lies on similar burials outside the Caribbean region.

Chapter 1: Individual CM 72B

The first part of this chapter is an introduction that covers the Spanish arrival in the Americas and the treatment of people here including slavery and the introduction of the *encomienda* system. The second part introduces the site of El Chorro de Maíta, Cuba where individual CM 72B, that stands central in this thesis, was buried. The last part of this chapter covers the theoretical framework of this thesis.

1.1 Historical Background

When Christopher Columbus arrived in the Americas in 1492, the first people that he encountered lived on the islands of the modern Bahamas (Thomas 2003, 93). This encounter impacted people from all over the world (Crosby 1972). For the people of the Americas this would mean radical changes in their ways of life, and tremendous cultural changes. For the Spaniards and other Europeans this encounter was the beginning of the colonization of the "New World". At the start of these encounters with the indigenous people, the Spaniards received goods such as parrots, javelins, and balls of cotton in exchange for hats, balls, and glass beads. But Columbus was more interested in where he could find gold. Local Indians[1] told him that he could find gold on islands further to the south. Columbus thus went south and reached an island called Colba by the local Indians. Today this island is known as Cuba. After spending a few weeks here he seized a few Indians to take them back with him to Spain (Thomas 2003, 94). The fact that Columbus took these people to give them as a present to his queen clearly demonstrates the Spanish attitude toward the indigenous population of the region. From Cuba, the Spaniards went further east to an island the Indians called Haiti (Thomas 2003, 95). Columbus renamed the island to La Española, showing that they claimed it for the Spanish Crown. Here they found people that produced stonework such as stone collars, woodwork, ball courts, and pendants. He wrote in his diary that it would be easy to occupy these lands and that the people here would not resist and could easily be ordered to work in the fields and help the Spaniards build their towns (Thomas 2003, 97).

[1] Columbus used the term Indians for the indigenous people of the Caribbean for he thought that he arrived in the East-Indies.

The second voyage of Columbus was the start of the colonization process in the Caribbean. He brought with him 17 ships, between 1200 and 1500 men, and animals such as pigs, goats, sheep, and horses. They also took 3 indigenous Americans back who he used during the first voyage as interpreters. All the other abducted people died during their stay in Spain (Thomas 2003, 130). The main objective of Columbus was to establish Spanish control on the newly discovered islands and convert the indigenous people to Christianity. During this voyage, Columbus began to think about slave trade in the Caribbean region. He states that once the Indians were stripped of their savagery they would act as perfect slaves. They would be used to work in the goldmines, and be part of the *encomienda* system to cultivate crops as sugarcane, vines and wheat on La Espanõla (Thomas 2003, 134, 138). But other Spaniards as Fray Boil thought the Indians were potential Christian subjects of the Spanish crown and therefore should not be enslaved (Thomas 2003, 155).

In 1495 Columbus arranged with friendly *caciques*[2] that all adult Indians between the age of fourteen and seventy should provide regular tributes to the Spanish crown (Thomas 2003, 157). This could be seen as the beginning of the Spanish *encomienda* system. At first the Spanish crown backed Columbus' ideas about slave trade, but later reconsidered, probably under the influence of Fray Boil. The queen was not pleased with Columbus' decision that any Spaniard who wanted to return to Spain could bring an Indian slave with him. Thus she ordered the slaves to be released at once, for it was not yet decided if the people of the Caribbean could be kept as slaves. The use of Indians as slaves was officially banned in 1542 by the Spanish crown, 50 years after the arrival of Columbus (Yeager 1995, 845). Therefore, before 1542 the use of the indigenous people of the Americas as slaves was controversial but not completely illegal.

In 1498 most of the indigenous people in the colonies on the Greater Antilles were taken up in the *encomienda* system. In this system the Spanish Crown awarded Spanish colonists by asking a *cacique* and his people to serve the colonists on a so called *encomienda*. In return for the services provided by a *cacique* and his people the *encomenderos* would offer the Indian - who was considered a free vassal of the crown – food and protection. It was also expected from the *encomenderos* that they would

[2] *Cacique* is the Taino word for chief. Caciques were the leaders of indigenous groups in the Bahamas, Greater Antilles and the northern part of the Lesser Antilles (Rouse 1992, 9).

civilize the Indians, look after their physical being and teach them about Christianity, thus saving their souls. In theory the indigenous people of the Caribbean were subjects of the Spanish crown and would be paid for their work, but in fact they were treated like villains or slaves (Deagan 2004, 601; Thomas 2003, 180, 234).

There were three main differences between people kept as slaves and people that were part of the *encomienda* system called *encomendados*. The first and most important difference between slaves and *encomendados* is that *encomendados* were not owned by the *encomenderos*, thus they could not be bought or sold from/to other *encomenderos*. The second difference is that *encomiendas* could not be inherited over more than two generations. Only the first two generations of *encomenderos* had the right to be an *encomendero.* After two generations the *encomienda* became property of the Spanish Crown, slaves on the other hand could be inherited more than two generations.

The last difference between slavery and the *encomienda* system is that slaves could be relocated to wherever their owner wanted them to go. Indians who were part of the *encomienda* system however could not be relocated since they were not allocated to the land. But if *encomenderos* needed more people, they found these workforces in "useless" areas[3] as the Bahamas, the coastal areas and islands of Venezuela, Panama, Honduras and Yucatan where the Spaniards took the indigenous people during slave raids and put them to work as additional workforces on the *encomiendas* (Altman 2014, 546-547). According to Graham (2011, 223) the Spaniards to all probability enslaved Maya that lived along the coast of Belize in Maya towns or fishing outposts open to attack and slave raids. Enslavement of the indigenous people was officially illegal, since these people were servants of the Spanish crown, yet slavery flourished during the 16th century. The Spaniards justified their actions by falsely claiming that the people they enslaved were cannibals, and therefore could be enslaved. Also, natives who did not accept the rule of the Spanish crown could legally be enslaved (Burkhart and Gasco 1995, 159).

The site of El Chorro de Maíta was an indigenous village which was probably part of the *encomienda* system.

[3] In 1511 the Spaniards crown divided the Antilles in *Islas útiles* (usefull islands) and Islas inútiles (useless islands). The indigenous people from the *Islas útiles* could not be enslaved while the indigenous people from the *Islas inútiles* could be taken and be used as slaves (Jesse 1963, 27-29).

1.2 El Chorro de Maíta

The site of El Chorro de Maíta is located in the Northeast of Cuba in the province of Holguín and lies about 4.7 kilometres from the coast (fig. 1). During the Spanish colonisation of Cuba the site was probably incorporated in the Spanish *encomienda* system (Valcárcel personal communication 2014). Materials found at the site such as Mexico Pintado de Rojo and Azteca IV originating from the Mexican mainland could indicate that the site was part of a large scale trade route that connected the Antilles with the Mexican mainland. European pottery was discovered as well during the excavations (Valcárcel *et al.* 2011, 226; Valcárcel 2012, 449-450, 453).

Signs that indicate the use of the area as a domestic space were scarce. Some postholes were excavated in test units that could have belonged to house structures, but further research was not conducted. At the site remains of several species of local animals, both terrestrial and marine were collected. Also some bones belonging to a pig were found at a shallow depth. Shell pendants, stone beads, coral fragments, hammer stones ceramics, and flakes were commonly found at the site. Ceremonial objects and personal ornaments have been found at the site. (Valcárcel 2012, 96, 144, 228).

One of the most important aspects of the site was the cemetery area found during the

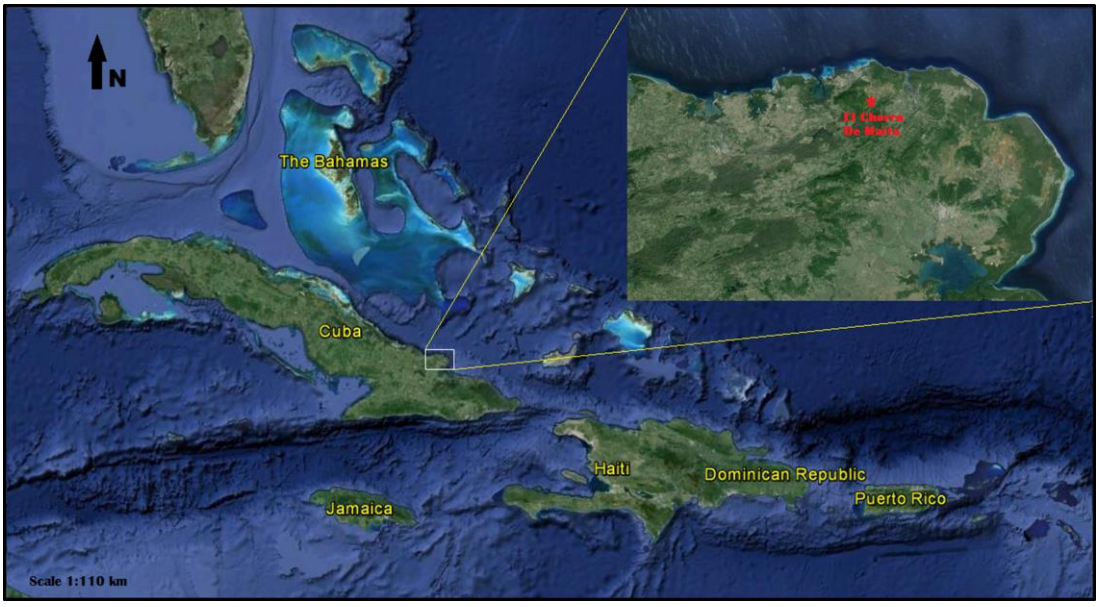

Figure 1 Map of the location of El Chorro de Maíta, Cuba (After Google Earth, 2014).

excavations. This cemetery was excavated by José Manuel Guarch Delmonte and his team of archaeologists of the Departamento de Arqueología in Holguín between 1986 and 1987 (Valcárcel *et al.* 2011, 86, 126).

The cemetery dates to the 13th century and was continually in use during the contact period until the mid-16th century. There were some modern disturbances at the cemetery, for example remains of a modern fireplace were found. There is evidence of modern disturbances of several burials as well (Valcárcel 2012, 102).

During the excavation the skeletal remains of a least 108 individuals have been discovered by Delmonte and his team. The determination of sex, age and condition of the individuals was conducted by Dr. Darlene Weston of Leiden University in 2010. The age of the discovered individuals has been categorized in age groups. The remains of 26 individuals were distinguished as sub-adults (0-20). From the sub-adults 13 were distinguished to be younger than 5 years. Eighty individuals were distinguished as adults (20+) of which 43 females, 36 males and one of undetermined sex. Of the 43 females, 20 were considered to be older than 50 years (Valcárcel 2012, 105).

Most of the graves were orientated to the North and the West, and there is large variation in the burial position. The majority of the individuals buried at El Chorro de Maíta were buried upon their backs (sixty individuals were buried in this position). Ten individuals were buried on their left side, eleven on their right side (Valcárcel 2012, 103-104). Four individuals were buried prone for example individual 72B, the woman that takes a central position in this thesis (Valcárcel *et al.* 2011, 227). The legs of the buried individuals were flexed in 54 cases. Sixteen individuals had their legs extended - the fact that the legs were extended in some cases could indicate Spanish influence on the burial practices of people of El Chorro de Maíta (Valcárcel 2012, 104).

Dr. Menno Hoogland and Dr. Roberto Valcárcel Rojas described the skeletons and burial context based on the drawings and photos of the burials and the skeletal remains. Some of the burials found at El Chorro de Maíta stood out from the others. In burial 22 the cranium of an individual was found. The cranium had facial and craniometrical features that could indicate that this individual is from European origin (Valcárcel 2012, 103). The person in burial 22 was also one of the few individuals that did not had any kind of

cranial modification along with an adult (burial 45[4]) and a few juveniles (Valcárcel 2012, 105). Thus except from CM 22 and 45 all the individuals were all identified as being Amerindian. This conclusion is initially based on cranial morphology and correlated by cranial and dental modification, and isotopic values (Valcárcel 2012, 104).

Some of the burials contained ornaments like ear spools, necklaces and bracelets. The richest burial was that of individual 57. This adult female was buried along with beads made of gold, quartzite, coral and pearl, and laminar pendants made from an alloy of gold, silver and copper. This kind of alloy is mainly associated with caciques. Other artefacts made from this alloy include a small bell and a bird's head ornament that has South American stylistic features (Valcárcel *et al.* 2011, 227).

Strontium isotope analyses at El Chorro de Maíta were conducted by Dr. Jason Laffoon. The strontium isotope value can give information about whether an individual is local to the area or if this person is not local to the site and thus originates from a different region. The strontium isotopes extracted from human remains were usually taken from dental enamel of the premolars if these were available. The local range of $^{87}Sr/^{86}Sr$ lies approximately between 0.70795 and 0.70880. This range is based on the strontium isotope values of the local fauna at El Chorro de Maíta. According to this range about 74% of the buried individuals are local to El Chorro de Maíta. The values of the other individuals fall outside of the local range and thus originated from outside El Chorro de Maíta (Laffoon *et al.* 2012, 10; Valcárcel *et al.* 2011, 238-239).

1.3 Individual CM 72B

An adult female buried at El Chorro de Maíta stands out from the other individuals buried at the cemetery (fig. 2). This woman, from burial CM 72B died at an age between 18 and 25 years somewhere between A.D. 1465 and 1685 and stands out due to characteristics that are clearly distinctive from other individuals buried at El Chorro de Maíta. These different characteristics are expressed in intentional cranial and dental modification, burial position and strontium isotope values (Mickleburgh 2013, 261; Valcárcel 2012, 213).

[4] This individual was probably from African origin, based on the craniometrical features and strontium isotopes.

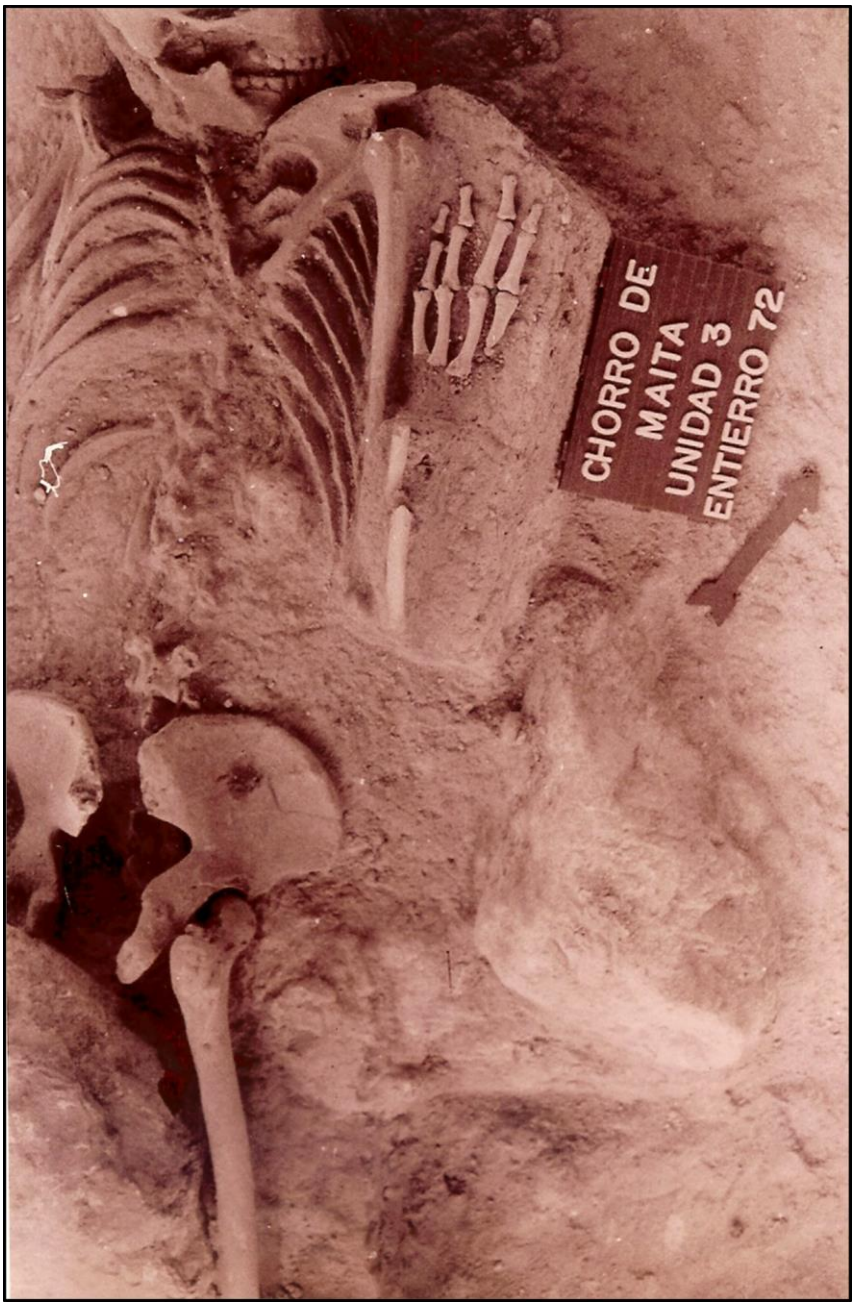

Figure 2 Photograph of Individual CM 72B taken during the excavations from 1986-87 (Photo courtesy of Valcárcel 2012, 260).

The cranial modification of CM 72B differs from the cranial modification seen in the other individuals inhumed at El Chorro de Maíta. The modification seen in the skull of CM 72B is of the fronto-occipital vertical type, while most of the other individuals had modifications of the Fronto-Occipital Parallel type (van Duijvenbode 2012, 84)

The teeth of CM 72B were intentionally modified as well. Modification as seen in the teeth of CM 72B does not occur anywhere else in the Caribbean region, therefore this is another argument that she is not local (Valcárcel *et al.* 2011, 236). The strontium isotope values extracted from the dental enamel of CM 72B (0.707546) falls outside the local range of El Chorro de Maíta (0.70795-0.70880) (Valcárcel *et al.* 2011, 240). The burial position also differs from the other burials found at the cemetery. As stated before CM 72B is buried with her face down with a rock placed upon her lower limbs.

These different characteristics clearly suggest she does not originate from El Chorro de Maíta. The question therefore remains what her place of origin exactly was. The next chapters of this thesis will offer suggestions for the origins of CM 72B. But before covering these questions it is necessary to gain a better understanding of the theory behind this research on the origin of CM 72B. Therefore the next part of this chapter covers the theoretical framework followed in this thesis.

1.4 Theoretical Framework

The focus of this thesis goes further than the basics of osteology where the age, sex, stature, and presence or absence of nutritional deficiencies, disease, and trauma are determined. The thesis focuses on the origin of CM 72B, and therefore on the identity behind the individual. The modification of the teeth and the cranium of CM 72B are ways to communicate and embody ideals of their societies and expression of identity (Joyce 2005, 149; Martin *et al.* 2013, 216).

1.4.1 Identity

The definition of the term identity is hard to determine, this is partly due to the vagueness of the word, up to now there is no set definition of identity. There are a lot of different ways to approach and define the concept of identity, it can refer to both the individual identity and to group identity according to Bernard and Spencer (1996, 292).

The *Collins English Dictionary* gives another description of identity; 'the individual state of having unique identifying characteristics held by no other person or thing'.

According to Richard Handler (in Barnard and Spencer 2010, 399) the use of the term identity by anthropologists can be criticised due to its ethnocentrism. Identity as a Western notion that describes identity as concepts of sameness and boundedness cannot be projected on other societies, because they can see identity as something different.

This thesis follows the definition of identity used by Díaz-Andreu and Lucy who state that; 'identity will be understood as individuals' identification with broader groups on the basis of differences socially sanctioned as significant'. In addition to this description they state 'through identity we perceive ourselves, and others see us, as belonging to certain groups and not to other groups' (2005, 1).

1.4.2 The body as material culture

By looking further than the basics of osteology and funerary anthropology and focusing more on the cultural structure of the modifications and the burial of individual CM 72B this thesis tries to reconstruct the origin and therefore the identity of this individual (Martin *et al.* 2013, 213).

Through intentional modifications, the body becomes a symbolic expression of identity (Boyd 2002, 146; Martin *et al.* 2013, 214). The two that stand central in this thesis are cranial and dental modification. Identity is not only expressed in body modifications but also in burial practices. For example Muslims are buried with their heads in the direction of Mecca (Peterson 2013, 243). This indicates that identity is not only expressed in bodily modification but also in the characteristics of the burial. These two different expressions of identity will be discussed separately in this thesis.

This thesis therefore focuses on the osteology and taphonomy of CM 72B as material culture as described in Joyce 2005 and in Martin *et al.* 2013, and how the characteristics of the osteology and burial position, that thus are an expression of identity, can be linked to a certain ethnic group that share these characteristics and therefore belong to the same group.

Chapter 2: Osteology

This chapter discusses the osteoarchaeological research conducted on CM 72B. The focus lies on those aspects which mark CM 72B as distinctive: the cranial and dental modification, as well the isotopic signature of CM 72B.
The modifications of CM 72B are compared with modification types in the Caribbean and the Post-Classic Yucatán Peninsula region to see where the modifications of CM 72B mainly occur. The area where these types of cranial and dental modification occur together is the most likely place of origin of CM 72B. The last part of this chapter covers the oxygen, strontium and carbon isotopic analysis preformed on CM 72B by Dr. Jason Laffoon.

2.1 Intentional Cranial Modification

Intentional cranial modification is the intentional alteration of the skull by distorting the normal growth of an infant's skull with the use of force. The main techniques are binding the head with tight ropes, and with boards that are bound tight to the head. This forces the skull to permanently form in an unusual shape (White and Folkens 2005, 85).
The earliest known evidence of probable intentional cranial modification was in the Shanidar Cave in Iraq. Two Neanderthal skulls that were discovered here show signs of alterations - the skulls date back to the first half of the last glacial, at least 45,000 years ago (Trinkaus 1982, 198). The first written evidence for cranial modification comes from the hand of Hippocrates who described the practice of intentional cranial modification among the Macrocephales around 400 B.C. (Tubbs *et al*. 2006, 372).
Altered head shapes have been found in different cultures throughout the world. In ancient Egypt an elongated skull and pointed chin were seen as the ideal. The ancient Greeks used a mould to modify the skulls of infants as a sign of aristocracy. In medieval France the nobility modify their heads to distinguish themselves from the common people just as the aristocrats in ancient Greece (Dingwall 1931, 46). The Huns reputedly modified their skulls to look more fearsome in battle (Tubbs *et al*. 2006, 372-274).

Nowhere in the world is the practice of cranial modification as widespread as in the Americas. In pre-historic South America the people used head shapes to express their group identity. The Inca's thought that modifying the skulls of their children would make them obedient. The skulls of the nobles' children were shaped differently, again to express their elevated status (Tubbs *et al*. 2006, 373).

Although cranial modification was conducted for a variety of reasons, it is always an expression of identity (Martin *et al.* 2013, 215-16). Whether an individual wants to express its nobility or to look fearsome in battle, it always has to do with cultural practices, shaping their identity.

2.2 Intentional Cranial Modification in the Caribbean

As stated in the foregoing section intentional cranial modification occurred all over the world throughout time, as well in the in the Caribbean. Here the first intentional cranial modification appeared during the Early Ceramic Age (500 B.C. – A.D. 600). It was probably introduced into the Caribbean archipelago by Saladoid and Huecoid people, who migrated from the South-American mainland during the Early Ceramic Age (van Duijvenbode 2012, 81).

The practice of cranial modification continued during the colonial period. During the 17th century free Africans that lived on St. Vincent modified their skulls to distinguish themselves from runaway slaves. They adopted this practice from the indigenous people that lived on the island (van Duijvenbode 2012, 82). The indigenous people practiced different types of cranial modification.

The most common cranial modification type that occurs in the Caribbean is fronto-occipital modification of the parallel sub-type. This type of modification is formed by applying boards to the front and back of the skull. Variations of fronto-occipital modification as well as frontal flattening occur throughout the region (van Duijvenbode 2014, personal communication).

As previously stated cranial modification could have different reasons. In the case of the Caribbean cultural and social differences between the Greater and Lesser Antilles were reflected in cranial modification. In the Greater Antilles, cranial modification was applied on a large part of the population. Therefore it was probably used as an

expression of group identity. In the Lesser Antilles it was different; here the presence of cranial modification was less common and thus it is likely that cranial modification here was used to express differentiation within the society (van Duijvenbode 2012, 82). This also expresses differences in ranks of society and thus the elite expressed their elite identity by exclusively hold the right to modify their skulls and thus be able to visibly show their higher rank.

2.3 Intentional Cranial Modification in Mesoamerica

In Mesoamerica for the Maya the reason behind cranial modification was similar to the cranial modification in the Greater Antilles; an expression of group identity. By modifying their skulls they differentiate themselves from non-Maya and others within the Maya-community who did not modify their skulls (Martin *et al.* 2013, 214). Thus intentional cranial modification among the Maya was in important part of expressing themselves as Maya and therefore adding to their group identity and uniformity, similar to pre-Columbian groups in South-America (Tiesler and Arias 2010, 131; Tubbs *et al*. 2006, 373).

In addition to expressing identity, intentional cranial modification was part of an important religious process. According to the Maya the soul resides in the head. To keep the soul enclosed inside the head, the skulls of infants were modified. This practice prevents the soul from escaping, but also keeps evil winds from entering the head of the infants (Duncan 2009, 177; Duncan and Hofling 2011, 203).

Unlike expressing identity and a religion, cranial modification of the infant skulls was not applied as an expression of gender roles. Therefore there were no differences in cranial modifications between men and women. Gender roles came to be important later in childhood and are expressed in other ways (Tiesler 2011b, 128).

Intentional cranial modification was conducted in Mesoamerica since Pre-Classic times, with different types and styles of cranial modification occurring (fig. 3). In the Post-Classic period, the tabular oblique modification disappears and cranial modification became more homogeneous. Rather than abandoning intentional cranial modification, the amount of people with modified skulls grew to 90% of the population in the Post-Classic (Tiesler 1999, 3). The use of head splints or constriction wraps diminished in the first part of the Post-Classic period (A.D. 900-1200) and completely abandoned in the second part (A.D. 1200-1519), when cradleboards and cribs were exclusively used (Tiesler 2014, 241, 246).

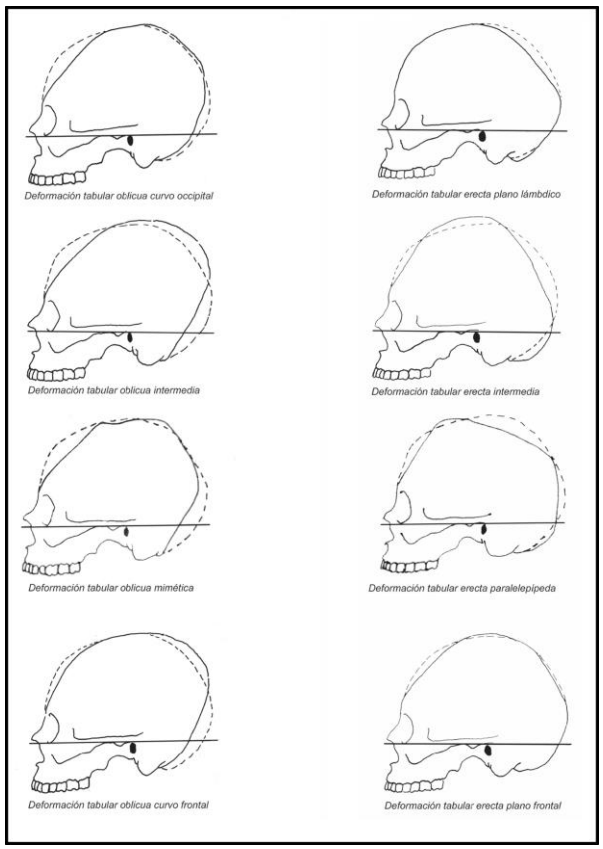

Figure 3 Different formal varieties of the (a) Tabular oblique modification type (b) and Tabular erect modification types (after Tiesler 2012, 10).

Diego de Landa was one of the first Europeans to describe cranial modification among the Maya. He writes that five or six days after a baby is born, it is placed face down on a bed. A board was placed on the back of its head and another board on the forehead. The boards were then compressed tightly and held on for several days[5]. After the boards were removed the head of the child remained flat and moulded (Landa 1982 in Tiesler 2014, 105).

[5] Landa states that the boards were tied on for several days. But in fact it could take up to months before the boards could be removed (van Duijvenbode 2014, personal communication).

2.4 Intentional Cranial Modification of CM 72B

In a recent study (van Duijvenbode 2011) a sample of 54 individuals from El Chorro de Maíta was studied. The vast majority of these individuals had altered head shapes. Of the 54 individuals, 33 had modification of the fronto-occipital parallel type (82.5%). Thus, the altered head shapes at El Chorro de Maíta are quite homogeneous. The fact that most individuals had modifications of the fronto-occipital parallel type corresponds with other parts of the Caribbean. The high prevalence of modifications at the site and the homogeneity in shape suggests that altered head shapes are an expression of group identity (van Duijvenbode 2011, 45; Valcárcel *et al.* 2011, 233-234).

Figure 4 Lateral view of 72B in Frankfurt plane (Photo by van Duijvenbode 2009).

One of the few exception to the homogenous pattern at El Chorro de Maíta is CM 72B.

> *"Individual 72B has undergone fronto-occipital modification accomplished by pressure exerted by boards placed at the front and back of the skull (fig. 4). The long occipital plane of flattening indicates a large board at the back, indicating the modification device may have been a cradleboard. The occipital plane of flattening is almost vertical and very different in orientation to the normal low and parallel occipital flattening typically encountered in both El Chorro de Maíta and the wider Caribbean archipelago. For this reason, the skull was classified as vertical modification in the 2009 study by Van Duijvenbode using a classification system based on the work by Hrdlicka. The orientation of the occipital plane is really on the edge between parallel and vertical and using the classification system recently published by Vera Tiesler (2010, 2012) in her excellent and extensive study on cranial modification practices among the Maya, this skull would fit slightly better within the group of fronto-occipital parallel modifications. For the sake of comparing the skull to modification types occurring in the Maya region in the same period, a classification as fronto-occipital parallel is perhaps more valid" (Duijvenbode, forthcoming PhD Dissertation 2015).*

2.5 Intentional Dental Modification

Similar to cranial modification, intentional dental modification was a common practice among many societies around the globe. Cultures such as the Mentawai (Sumatra) or the Dinka (Sudan) are known to file their teeth into sharp points. In some Balinese cultures teeth are filed for it is an important rite de passage in becoming an adult. Another reason for the filing of the teeth in Bali is that teeth symbolize negative emotions, and by filling the teeth these emotions can be controlled. The Polynesian people of Hawaii modified their teeth as to show that they were in mourning (DeMello 2007, 81; Olvera *et al.* 2010, 100). Dental modification is a highly visual way of expressing social identity and showing your association with a certain group, establishing group-identity as with cranial modification (Martin *et al.* 2013, 217).

Although intentional dental modification occurs around the world, it did not occur amongst the prehistoric people of the Caribbean. The few cases of intentional dental modification in the region were all found in the teeth of African slaves that were taken

to the Caribbean by the European slavers (Handler *et al.* 1981, 1; Mickleburgh 2013, 276). The modification seen in the teeth of the African slaves was done roughly and usually appeared as chipping the teeth into points.

2.6 Intentional Dental Modification in Mesoamerica

Dental modification was a widespread phenomenon in Mesoamerica among Maya that goes as back as far as the Early Pre-Classic (1400-600 B.C.). The filing of the teeth, usually the incisors and canines and sometimes the first premolar, was the main type of dental modification until the Early Classic (100 B.C. - A.D. 300) when the practice of dental inlays became the prominent type of dental modification Tiesler 2011a, 197. The earliest evidence for dental inlay we have from Uaxactún and Tikal, Guatemala. Sixty percent of the Maya population practised intentional dental modification during the Middle and Late-Classic period, both men and woman of all ranks in society (Tiesler 2011a, 197), stating clearly that this was not a practice associated with the elites. The inlays were made up of a variety of materials like jadeite, pyrite, turquoise, hematite and other materials of all kinds of colours (fig. 5) (Tiesler 1999, 5). During the Late Classic (A.D. 700 - 900) there was no clear preference for a type of modification and dental inlays and filing were used simultaneously, but according to Tiesler, filing of the teeth was mostly practised by woman while inlaying the teeth was a male activity (Tiesler 1999, 4; Tiesler 2011a, 198). In the Postclassic (A.D. 1000 - 1500) dental filling became the prominent modification type again (Havill *et al.* 1997, 90; Williams and White 2006, 139).

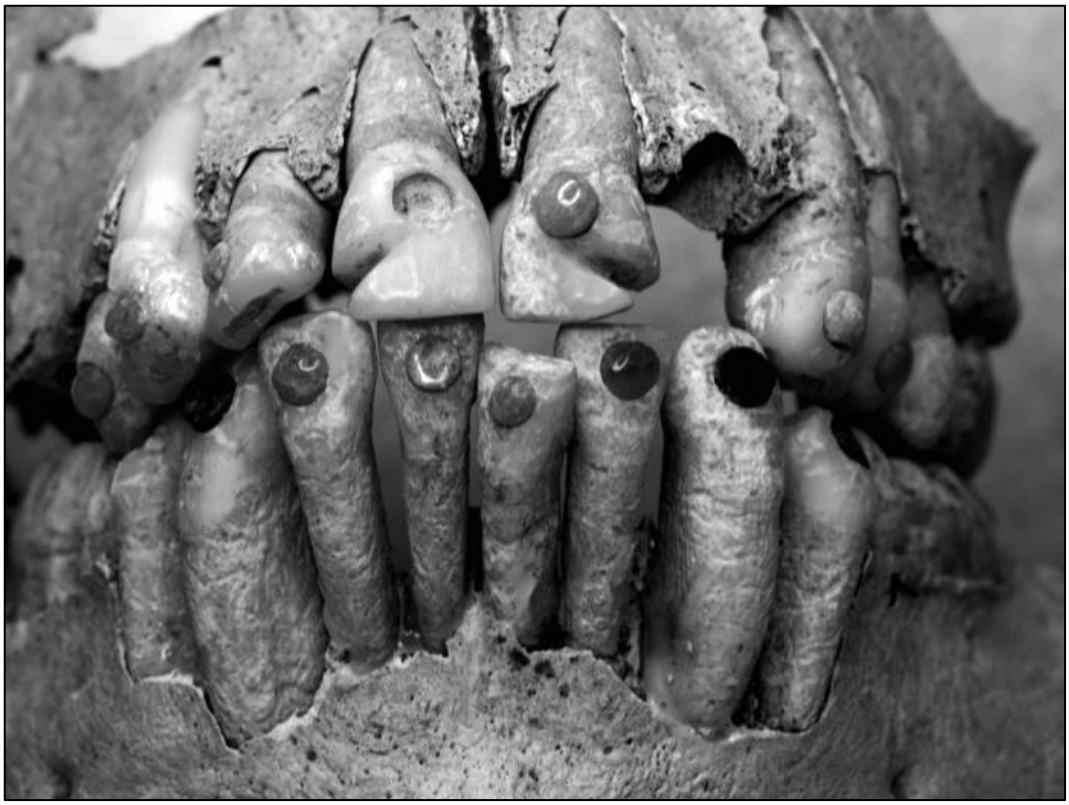

Figure 5 Dental inlays consisting of a combination of jadeite and pyrite, together with filing of both the first upper incisors (after Tiesler 2011a, 196).

Dental modification is rarely found in the skeletons of juveniles and is mostly preformed after the marriageable age of 15. The teeth were probably filled with the use of specialized tools made of flint, obsidian, jade, quartz, serpentine or hard wooden materials. Materials as leather strips or plant fibres covered with quartz materials could also have been used in combination with water to file the teeth (Tiesler 2011a, 188-90).

The filling of teeth altered the shape of the tooth, for example; shaping it as a point, inserting grooves and notches. Holes in the teeth for the inlays were probably drilled with small burins but it is still a matter of debate what kind of material was used for the drills. The drilling of holes without breaking the enamel or causing other injures is a difficult practise. If a tooth would be filled or drilled too comprehensive, cold and pressure could be transmitted to the pulp and fibres within, causing a lot of pain to the teeth (Williams and White 2006, 141). Due to the complexity of modifying the teeth, the inlay and drilling of teeth was presumably performed by specialists, like jewellers or goldsmiths, used to working with hard but breakable materials. The quality of work the

specialists provided is still evident today cause most of the excavated teeth with dental inlay still hold the inlay that exactly fitted in the teeth (Olvera *et al.* 2010, 101-102; Tiesler 1999, 4; Tiesler 2011b, 188-190).

Since dental modification took place on such a large scale it was probably part of the Maya identity, thus being Maya, within this identity there are local differences of dental modification, this could indicate that there are different ethnic groups within the Maya society. A possibly comparable practice occurs in modern day societies in Papua New Guinea, where Mackenzie (1991, 136-41) studied the use of *bilums (*String bags). *Bilums* were used in structuring social relations. The woman of one group showed their social bonds with other groups by agreeing to make one kind of *bilum*. However the groups expressed their own identity by adding distinctive stylistic features to express their belonging to their own group. In the case of the Maya the practice of dental modification could also be a way of showing Maya identity, where the local differences indicate belonging to the local smaller communities within the Maya cultural region.

2.7 Intentional Dental Modification on CM 72B

The research to the dental modification on the teeth of CM 72B was performed by Dr. Hayley Mickleburgh. Thus, the following part of this chapter is an overview of the information gathered by Hayley Mickleburgh on the dental modification of CM 72B (Mickleburgh 2013, 121-122, 261) with some additional research.

> "The dental modification affects the upper incisors and canines, with the central incisors most prominently modified. All upper incisors and both upper canines appear to have been filed extensively, considerably reducing the crown height and leaving the occlusal surfaces extremely smooth and flattened. The central incisors have a further modification of the occlusal surfaces at both the mesial and distal margins, in the form of bucco-lingual grooves which extend across the entire occlusal surface. The grooves are 1.50–2.00 mm wide and 1.5 mm deep. In frontal view, the grooves appear to be semi-circular in shape, however the pits of the grooves are in actual fact almost completely flat. The other teeth in the dentition are unmodified and only very slightly worn. There is no corresponding wear on the lower anterior teeth, most likely excluding a masticatory activity as the cause. Moreover, the striking symmetry and precision of the grooves and flattened occlusal

surfaces indicate that the modification must have been intentional as opposed to activity-induced" ([fig. 6 & 7] Mickleburgh 2013, 121-122).

Figure 6 Dental modification of CM 72B in Labial view (Mickleburgh 2013, 122).

Figure 7 Dental modification of CM 72B in Palatal view (Photo by Mickleburgh 2009).

Given that CM 72B is the only Amerindian found to date with non-African style dental modification in the Caribbean islands it is most likely she originates from a different region. Since the cranial modification of CM 72B already indicates a Mesoamerican origin and dental modification was a major practice in the Mesoamerican cultural area, the research of Mickleburgh focuses on comparing the modification of CM 72B with Mesoamerican cases of dental modification (see Mickleburgh 2013).

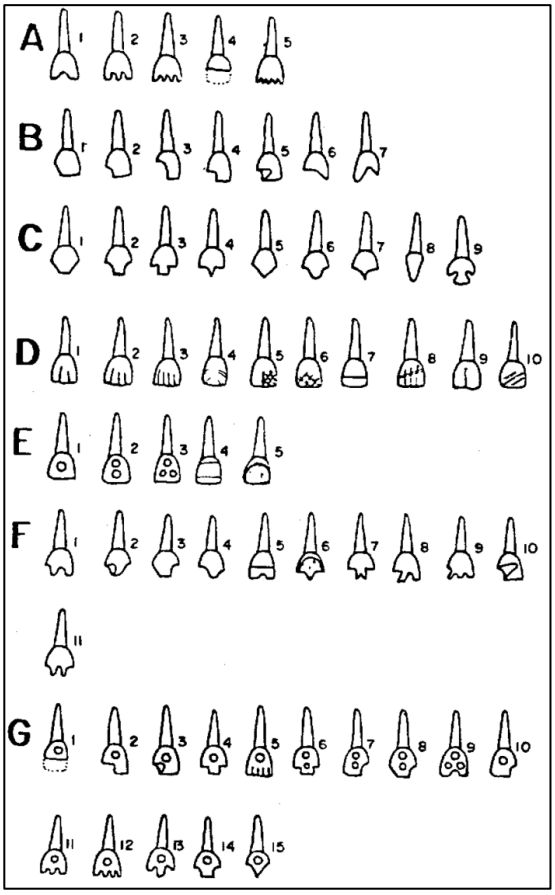

Figure 8 Molina's dental modification chart (Molina 1986, 350).

To make the comparison, she used the dental modification chart made by Romero Molina (see fig. 8). This chart categorizes Mesoamerican dental modification into a standard typology. According to Mickleburgh the modification to the two central upper-incisors of CM 72B can be categorised as C2 or C3 (Mickleburgh 2013, 261). The lateral incisors and canines can be categorized as modification type A4. The two central upper-incisors have also been filled as type A4, so it is looks like a combination of type C2 or C3 with A4.

2.8 Isotopic analysis on CM 72B

In addition to cranial and dental modification isotopic analysis as well could provide support on the theory that CM 72B does not originate from El Chorro de Maíta.

In 2012 Laffoon and associated researchers Roberto Valcárcel Rojas and Corinne Hofman sampled Oxygen, Carbon and Strontium isotopes from the teeth of 49

individuals associated with sites throughout the Caribbean, including CM 72B (See Laffoon *et al.* 2012).

Oxygen isotopes in the bones and teeth are influenced by consumption of drinking water and food consumed. Based on the idea that ancient populations obtained their drinking water locally, the local water oxygen values should be reflected in the oxygen isotope ratio in their skeletal and dental remains (Longinelli 1984, 385). The isotopes that are stored in the enamel of teeth of individuals reflect the isotopic intake during this individual's early childhood. Therefore it is possible to observe if someone originates from somewhere else based on the local isotopic range (Lee-Thorp 2008, 927).

The mean $\delta^{18}O_{ca}$ extracted from the teeth of the 49 individuals was -2.6‰ with values ranging from -5.4‰ to -1.1‰. This range is too large to represent a local range, indicating that at least a part of the sample is non-local. Two individuals from el Chorro de Maíta, CM 45 and CM 72B, had the most negative values. By removing these outliers the local range falls between -3.4‰ to -1.1‰. The $\delta^{18}O_{ca}$ value of CM 72B is -3.7‰. Since these values fall outside the local range this indicates that these individuals are not local to the Caribbean region (Laffoon *et al.* 2012, 8).

Carbon isotope values can be extracted from teeth and bone apatite and collagen. It reflects the isotope composition of dietary sources of carbon. Carbon is stored in plants through 3 different types of photosynthesis: C_3, C_4 and CAM. C_3 plants tend to have more negative $\delta^{13}C$ values than C_4 plants (Bender 1971, 1243).

The mean $\delta^{13}C_{ca}$ value in bones of the 49 individuals is -11.22‰ with a range of -14.2‰ to -3.7‰. When taking out CM 45 and CM 72B from this range - as done with the oxygen isotopes - the local range is -14.2‰ to -7.2‰. The carbon value of CM 72B is -3.7‰ and therefore falls outside the local range as well. This means that CM 72B must have consumed high amounts of C_4 plants, which is uncommon for individuals from the Caribbean region. In Mesoamerica though, c_4 plants, especially maize, form a major part of the diet (Laffoon *et al.* 2012, 9; Mickleburgh 2013, 261).

CM 72B falls within the $\delta^{13}C$ local range of the site San Pedro on Ambergris Caye, Belize. The mean carbon value of this site is -4.3‰ with a range between -5.4‰ and -3.2 ‰ (Williams *et al.* 2009, 49). This site will be discussed in the next chapter.

Strontium isotopes are found in the bedrock. The values are different based on the geology of an area. Plants extract the strontium from the bedrock and soil, animals that

eat the plants also share the same local strontium values. Since strontium is also stored in the enamel of the teeth it is also possible to see whether a person migrated or not based on the strontium values (Bataille *et al*. 2012, 2).

CM 72B has an $^{87}Sr/^{86}Sr$ value of 0.7076. This falls outside of the local range of El Chorro de Maíta, but does not exclude an origin from somewhere else within the Caribbean region (Laffoon *et al.* 2012, 10). But based on the cranial and dental modification that does not occur anywhere else in the Caribbean and the aberrant oxygen and carbon values a non-Caribbean origin of CM 72B is highly likely.

2.9 Comparison

The cranial modification of the fronto-occipital vertical type on the skull of CM 72B is not consistent with the other types of modification found at El Chorro de Maíta and is less common in the Caribbean region as a whole, but occurs frequently in the Maya lowland region, therefore this line of evidence points to the Yucatán Peninsula, but it is impossible to find the exact point of origin of CM 72B within the Yucatán Peninsula solely based on the cranial modification, due to the low local variety in modification types and the range of cranial modification.

The dental modification seen in CM 72B is similar to Romero's types C2/3 and A4. In Post-Classic sites, Romero's type C modification is the most common type of dental modification and it mostly occurs on the Yucatán coastal strip (Tiesler 2011a, 199). Combined with the research of Williams and White (2006, 148) who state that Romero's types A, B and C are the most common in Lamanai, this leads to the assumption that these types of dental modification are the most common in the coastal areas of the Yucatán peninsula and in Post-Classic Lamanai. There is not enough geographical diversity in dental modification types to reduce the area of origin even further based on dental modification.

The Oxygen, Carbon and Strontium isotopic analysis provides strong support for a non-local origin of CM 72B, especially the high level of consumption of C4 products, which is unusual in the Caribbean (Laffoon *et al.* 2012, 9; Mickleburgh 2013, 261). Although the isotopic value itself does not point to a non-Caribbean origin, together with the dental and cranial modification it provides strong evidence supporting a non-Caribbean origin.

Chapter 3: Burial position

This chapter focuses on burial practices and the comparison of the prone burial of CM 72B with prone burials in Belize. This chapter also focuses on the origin and the context of the Belizean burial practices.

3.1 Introduction

The oldest evidence of human burial practices dates to 100.000 thousand years ago when several people were buried completely flexed or at least partly flexed in the Qafzeh cave in Israel with grave goods such as the antlers of a deer, placed in the hands of a child. In another cave, Skhul V also located in Israel, a burial of a man dated to 100.000 years ago. The lower jaw of a boar was placed in the hand of the man (Lieberman 1991, 163).

The rituals surrounding the death of an individual form the final *rite de passage* of this person (van Gennep, 1965). This could be seen as the transition from the world of the living to the world of the dead. Every culture around the world expresses this ritual differently, and often is closely related to the religious practices of that culture. The following part is an example of a *rite de passage* of an Islamic burial practice.

The practice starts with the washing of the body of the deceased, which is then straightened out and wrapped in a white sheet. The washing of the body is done by people of the same sex as the deceased starting with the right hand and always in the same order as part of the ritual. The deceased then is carried on a bier or open coffin to the grave. This was usually done within 24 hours after death so that the deceased could be with Allah as fast as possible. The deceased was buried with its head facing towards Mecca because this is the most holy place for Muslims (Peterson 2013, 243-244).

These burial rites are associated with the Islamic culture and are therefore as well an expression of identity. In this case the relatives of the departed individual express that this individual was part of their culture and therefore the group-identity is expressed in the burial of the departed individual. Identity and association with a certain group can therefore be expressed as well in burials. Since each culture has its own rite de passage regarding the death of one of their members, it is sometimes possible to reconstruct

cultural practices based on the burial positions. Sometimes local varieties can be identified regarding burial rites. These varieties could indicate different group-identities.

3.2 Burial position of CM 72B

The description on the burial position of CM 72B is published by Roberto Valcárcel Rojas and Prof. dr. Menno Hoogland (Valcárcel 2012, 390).

According to the description CM 72B was buried in a shallow grave and lies on the left parietal. The skull is completely articulated with the mandible. The humerus articulates on the proximal end with the scapula both the left and right side of the body. The right humerus articulates with both the radius and ulna. Next to the left humerus lie the proximal, medial and distal phalanges of 4 fingers. But when studying the drawing and the photograph of CM 72B this appears to be the right arm and not the left. When studying the drawing the left arm lies stretched parallel with the axial skeleton. The individual is lying face down with her lower legs completely flexed. Unlike with some other burials at the site there were no grave goods that accompanied CM 72B in her grave.

A large stone was placed upon both the femura and tibiae. The large size and the location of the stone indicate that it was placed on the legs intentionally. The bones of the legs were not damaged so this indicates that there probably was a layer of earth between the stone and the legs. In the grave left of CM 72B another grave (CM 73) is located were an individual has stones placed upon the body. But other than CM 72B this individual, CM 73 lays on its back on a bed of stones with flexed legs and has most likely a local origin. It might be so that this individual's descant is from a similar cultural region as CM 72B but was locally raised.

3.3 Prone burials in El Chorro De Maíta

Apart from CM 72B, three other individuals were interred in a prone position; CM 75A, 77 and 93 (fig. 9). All three individuals have local isotopic signatures (Valcárcel 2012, 290-291).

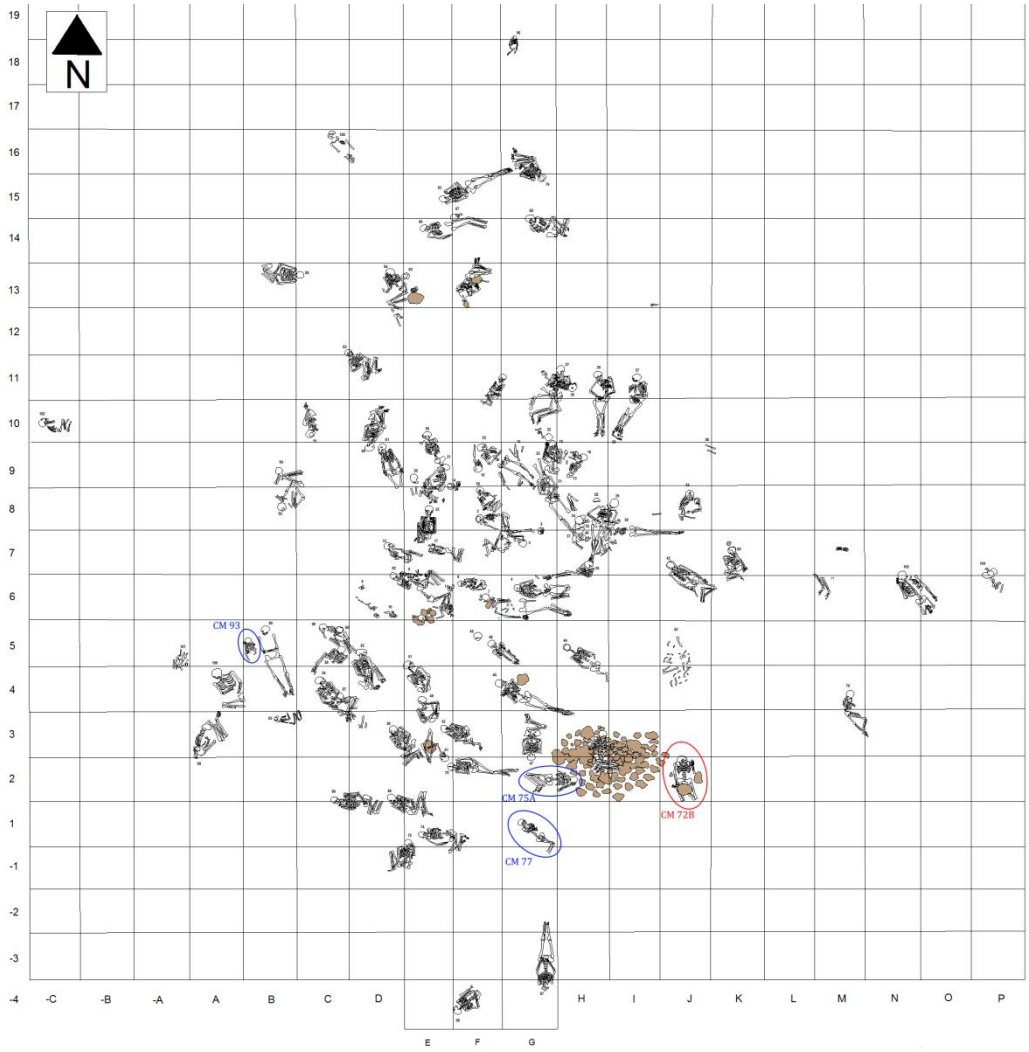

Figure 9 Planview of the burials at El Chorro de Maita. CM 72B is encircled in red. The other facedown burials are encircled in blue (After Rodríguez in Valcárcel 2012, 218).

CM 75A was a 14 to 16 years old female that was just as CM 72B buried prone with flexed lower limbs. This individual also had a modified cranium. Fragments of a cooking plate were placed upon the individual's back. The burial was slightly disturbed (Valcárcel 2012, 290, 391).

CM 77 was a 6 to 7 years old juvenile that was buried prone. The individual was buried in a grave with an irregular bottom. The lower limbs were extended, so this burial was not similar to CM 72B. It could not be assured whether the cranial was modified. The burial was disturbed (Valcárcel 2012, 291, 391).

CM 93 was a female of at least 46 years old that was buried prone. The individual had a modified skull. The burial was disturbed. In the drawing the legs appear to be missing, but this is probably due to a lack of details in the drawing, therefore analysis proved to be difficult (Valcárcel 2012, 291, 394). Individuals CM 77 and 93 were buried prone but the flexing of the legs is not similar.

Since the dental and cranial modifications have already indicated a possible coastal Belizean origin, the burial practices of CM 72B will be compared with similar burials in the Belizean coastal area.

3.4 Prone burials in Belize

3.4.1 The Coastal Traders

The Maya communities that lived in the Yucatán coastal area were part of a trade network that connected the islands with the mainland (Dunn and Mazzullo 1993, 121). Important trading centres along the Caribbean coast as Chetumal, Nito, and Naco formed these connections between inland and coastal communities. The trading centres were located along rivers so their trade could reach far inland (See fig. 10). The centres were also located in cacao producing areas thus making this an important export product (Carmack 2006, 138).

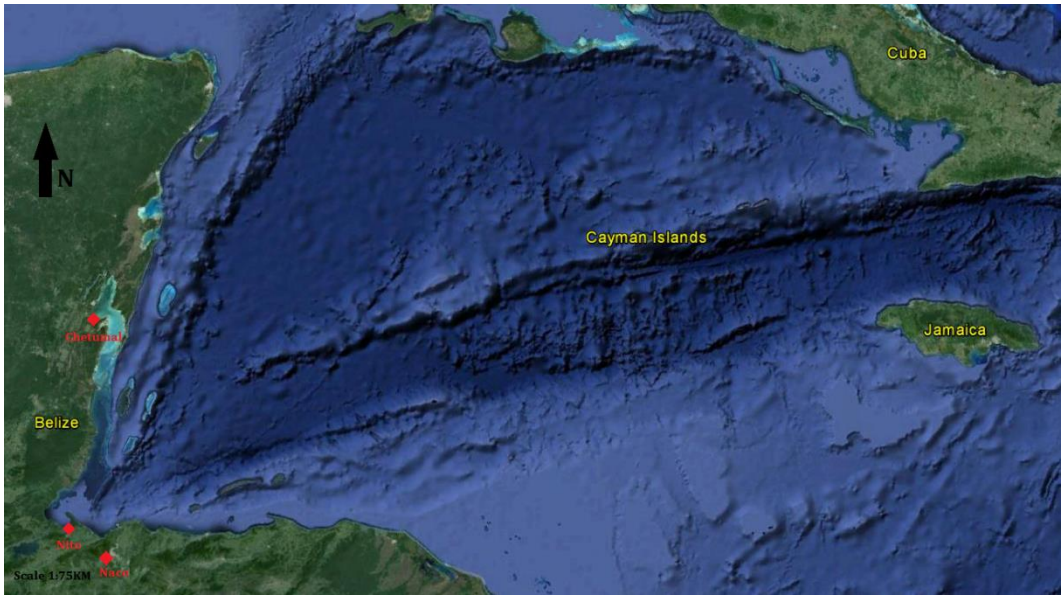

Figure 10 Map including the important trading centres Chetumal, Nito, and Naco (After Google Earth, 2014).

The Maya traders had contacts with a lot of different people during the late Post-Classic including Nahuatl speaking traders that reside in the trading centre of Naco what was located in the Chamelecon valley south of the in Northern Honduras. Traders from central Mexico brought green obsidian, from Yucatán came cotton, textiles, henequen and salt. Traders from Guatemala provided jade, grey obsidian and basalt. To the south they had trading partners as far as where now the modern Panama channel flows in the Caribbean Sea (Carmack 2006, 138). In the trading centres gold and other valuables as jade, obsidian and beautiful bird feathers were exchanged but also granites, schists, basalt, chert, marine shells, pottery, fish, salt, dyes, cacao, cotton, textiles, honey and wax were being exchanged in this vast trade network (Graham 2011, 118; Guderjan and Garber 1995, 4).

These trading centres and other settlements along the coastal area of Yucatán were vulnerable to the probable Spanish slave raids that took place during the end of the 15th century and the beginning of the 16th century. The canoes used for trading, people and carrying valuable supplies were also easy and alluring targets for the slave traders and buccaneers (Graham 2011, 123-24).

3.4.2 Sites on Ambergris Caye and Lamanai

In front of the Belizean coast is a chain of islands, called Cayes, inhabited by Maya groups that traded with the previous referred to trading centres (Fig. 11).

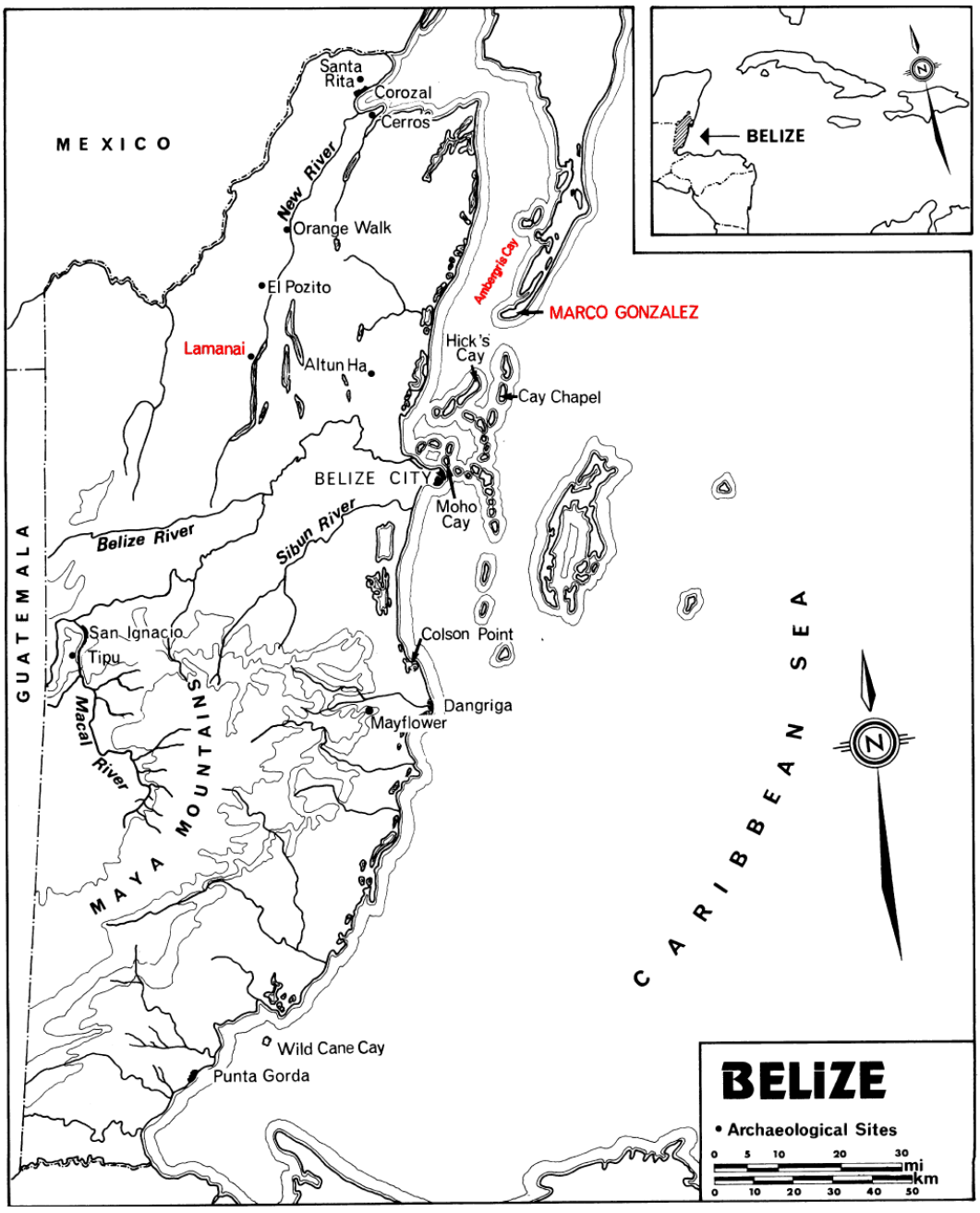

Figure 11 Map of Archaeological sites in Belize, including Marco Gonzalez and Lamanai highlighted in red (after Graham and Pendergast 1989, 2).

The largest Caye with 64 km^2 is Ambergris Caye that lies about 20 km from the Belizean mainland. It forms a barrier between the Caribbean Sea and the Chetumal Bay. It is about 30 km long and not wider than 4 km at any point. This island has a ring of white sandy beaches surrounding a swampy mangrove region. Ambergris Caye is separated from the Xkalak Peninsula by a small channel that might have been constructed in A.D. 600 by the Maya (Guderjan and Garber 1995, 2).

The island has been continuously occupied since at least 300 B.C. (Guderjan and Garber 1995, 185). The island contains 22 sites and 2 channel complexes dating from the Late Pre-Classic into Historic Period (ca. 300 B.C. - A.D. 1650) (see fig. 11). Six of the archaeological sites have been excavated between 1986 and 1991. Of the 22 sites only two sites were still occupied during the Post-Classic; San Pedro and Marco Gonzalez (Guderjan and Garber 1995, 187). San Pedro was as well one of the two places (together with the site Santa Rita near modern city of Corozal) along the Belizean coast that was still occupied during the arrival of the Spaniards (Graham 2011, 118). This is quite interesting since CM 72B falls within the $\delta^{13}C$ range of San Pedro, as stated in the previous chapter.

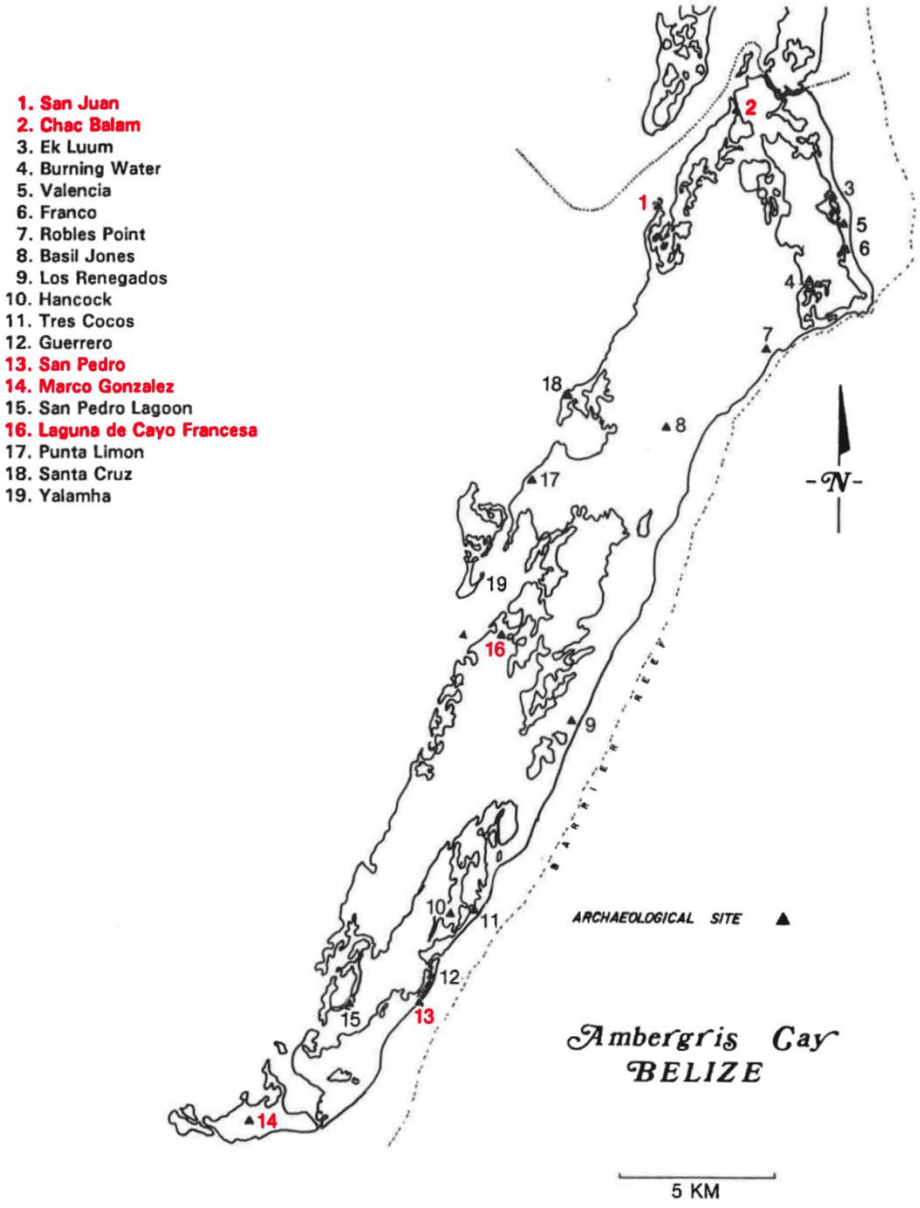

Figure 12 Map of Ambergris Caye with mentioned sites highlighted in red (after Guderjan and Garber 1995, 12).

San Pedro

Archaeological excavations indicate that San Pedro was a small fishing village with no formal architecture such as public buildings and/or monument, which was occupied from the Terminal Post- classic to the Historic period (A.D. 1400-1650 [Pendergast and Graham 1991, 1]). - The site is located on the south-eastern coast of the island (fig. 12).

At the site the burials of 48 individuals have been discovered during a rescue excavation. The burials at San Pedro cannot be securely dated, but most of the ceramics found at the site date back to the late Post-Classic. Most of the individuals at San Pedro were buried prone with the legs bend. The feet rested upon the pelvis, therefore it is thought that here the legs were also tied back (Graham et al. 2013, 15).

Marco Gonzalez

Marco Gonzalez, excavated in 1986 by David Pendergast and Elizabeth Graham, is located on the most southern part of Ambergris Caye. For an island community the site of Marco Gonzalez was quite large (6.6 Ha). It was continuously occupied from around 300 B.C. until the 16th century (Dunn and Mazzullo 1993, 121). The site harbours at least 49 structures that are generally located around plazas. Exotic goods as jade and green obsidian were found during the excavation (Guderjan and Garber 1995, 23). This indicates that the people of Marco Gonzalez took part in the large trading network. During the Post-Classic, Marco Gonzalez had a strong trading bond with Lamanai, a major city centre located in inland Belize. This bond probably went over water crossing the Chetumal Bay and upstream the New River. A route crossing the land seems unlikely because it was quite difficult to travel over land considering the mangrove swamp areas on Ambergris Caye and the dense vegetation in this region (Graham and Pendergast 1989, 7). Another factor shows a connection between Lamanai and Ambergris Caye is the similarity in burial practises.

Figure 13 Prone burial with crossed legs at Marco Gonzalez (Photo by Graham, 1996).

At Marco Gonzalez burials of at least 38 people were excavated where 32 of the individuals were buried prone with the legs crossed (Fig. 13) (Graham personal communication). - The burials at Marco Gonzalez date back to the terminal classic (Graham *et al*. 2013, 14).

Lamanai

At the city of Lamanai 51 burials were discovered where the individuals laid prone with their legs bent back at the knees. The legs of these individuals were probably tied back to the pelvis to keep them in place. (fig. 14). This is thus different than at Marco Gonzalez, where the legs of the individuals were crossed and probably not tied to the back, but is consistent with the burials at San Pedro, where the legs presumably were also tied to the back. The oldest burials here date to the late 10th century but still occurred during the middle Post-Classic and probably even during the Late Post-Classic based on 3 of the burials discovered in the area around Lamanai. The burials at Marco Gonzalez are therefore older. From the total skeletal assemblage around one-third of the population seemed to be buried prone and the legs flexed (Donis 2014, 112; Graham *et al*. 2013, 14).

Figure 14 Prone burial with the legs tied to the back at Lamanai (after Graham *et al*. 2013, 15).

Other sites with burial assemblages on Ambergris Caye dating to the Late or Terminal Classic provide fewer prone burials (Guderjan and Garber 1995, 73).

San Juan

At the site of San Juan located in the north-west of Ambergris Caye nine burials were excavated with only one individual, SJ-B4, buried prone with semi-flexed legs (fig. 15). This individual, a female between 23 and 35 years old, had a flattened occipital. Grave goods associated with SJ-B4 include two ceramic jars, a metate fragment, four net weights and the spine of a catfish, these grave goods suggest that she had a middle-class status (Guderjan and Garber 1995, 80).

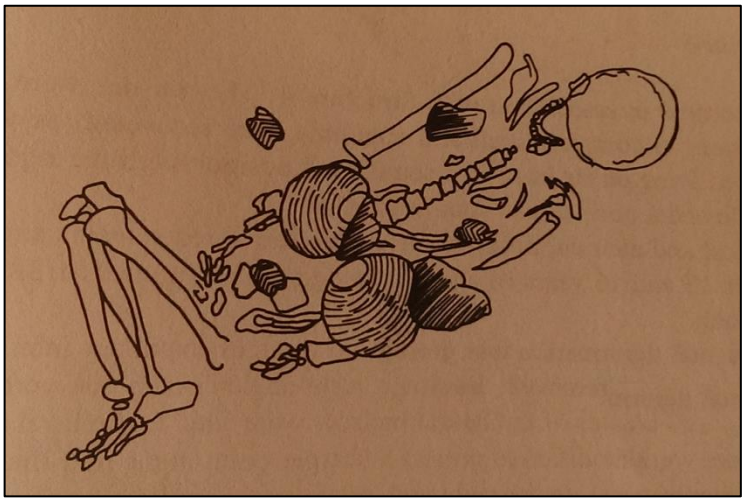

Figure 15 Individual SJ-B4 buried prone with the legs flexed at the site San Juan (from Guderjan and Garber 1995, 81).

Chac Balam

At the site of Chac Balam located in the most northern point of Ambergris Caye the skeletal remains of at least 34 individuals were discovered. Only two of the 34 individuals were buried upon the stomach, individual (CB-B2b and CB-B27). Individual CB-B2b, a possible adult male, was thus buried prone but unlike the other burials in an extended position. There were two other individuals buried with CB-B2b, a possible adult female and another individual where age and gender could not be determined. Associated grave goods with CB-B2b were a stemmed macro blade, an obsidian blade, an axe, a stingray spine and a polychrome vessel. These grave goods suggest that CB-B2b was a person with a high-class status (Guderjan and Garber 1995, 82, 83).

The other prone burial CB-B27 is possibly associated with CB-B25, which is buried above CB-B27, but they could have been separate burials. CB-B27 is buried on the stomach with the legs in a semi-flexed position, with the head facing the ground. This individual is thought to be a male between the age of 25 and 45. The skull was greatly deformed due to ground pressure, but part of the deformation seems to have been intentional occipital flattening. An incised bichrome vessel is associated with CB-B27, this suggests a middle-class status (Guderjan and Garber 1995, 90).

Languna de Cayo Francesa

The site of Languna de Cayo Francesa is located in the middle of Ambergris Caye. Here a single burial that contained one individual was excavated (ZP-B1). This individual was buried on the stomach in a flexed position with the arms placed along the sides of the torso. The morphology of the bones suggests this individual is an adult male. Cranial modification is present in the form of frontal flattening. Burial goods associated with ZP-B1 were limited to a plainware vessel at top of the right shoulder, this suggest that this individual had a low status (Guderjan and Garber 1995, 92).

3.4.3 The prone burial practice

Although the idea of determining the status of an individual based on the associated grave goods seems reasonable, it is somewhat disputed since there is always a possibility that the people who buried the deceased individual projected a different social status by placing grave goods, that may not mirror the social status of the buried individual (Ucko 1969, 266). But based on the research of Guderjan and Garber, it shows that the prone burial is not associated with a certain status, sex and age.

In this research by Guderjan and Garber a total of 48 burials were described. The burial position from 25 individuals could be determined. Since five of those were buried prone this means that 20% of this assemblage is buried prone. Compared to Marco Gonzalez for example these numbers are quite low. At Marco Gonzalez 84.2% of the burials were prone. This could indicate that even locally at Ambergris Caye there is a strong local variety in the amount of prone burials.

There are also different manners of flexing of the legs. Where the individuals buried at Marco Gonzalez had their legs crossed, the people of Lamanai had their legs tied behind their backs. Due to this difference it is not sure whether the people of Lamanai adapted the prone burial tradition from the people of Marco Gonzalez or if this was a separate development (Graham *et al*. 2013, 15).

But in the case that the two developments are related the tradition was probably introduced into Lamanai through the strong connections between Lamanai and Marco Gonzalez.

An isotopic comparison research between an assemblage of individuals buried prone (N=25) and individuals who were not buried prone (N=13) at Lamanai did not show the individuals buried prone to originate from somewhere else that the people who were not buried prone. Both groups fell within the Oxygen isotopic range of Lamanai or at least an area within the same oxygen isotopic range of Lamanai. The 25 individuals buried prone had a mean $\delta^{18}O$ of +18.0 ± 0.9 ‰ and the 13 individuals buried in other positions had a mean $\delta^{18}O$ of +17.9 ± 0.9 ‰ (Donis 2014, 114).

Looking at differences in diet based on carbon isotope intake neither shows a significant difference in $\delta^{13}C$ values between individuals buried prone (–8.8 ± 0.6 ‰, n=24) and individuals who are not buried prone (–9.2 ± 1.1 ‰, n = 13) (Donis 2014, 115).

It is not possible to draw a conclusion on how and why the prone burial practice started to develop in Belizean coastal sites and Lamanai. It is also not known if the practice of prone burials occurred in more locations than Lamanai and Ambergris Caye on a large scale. When studying other literature about burials in other parts of the Maya cultural area, prone burials are almost never mentioned (Whittington and Reed 1997), there are a few cases that one or two individuals were buried prone, for example a female buried in Caracol. But this individual did not have flexed legs (Chase and Chase 2002, 12). Another prone burial in a cave in the Belizean mountains was thus buried prone but here the legs were flexed to the chest (Haglund and Sorg, 2002, 73). This could mean that prone burials with the legs flexed on the back or crossed do not appear anywhere else outside Lamanai and the Belizean coastal region. The local differences within the practice, differences in the amount of individuals buried prone and the absence of connections with age, sex, status and local/non-local complicate this matter even more. To be able to understand the prone burials better more research should be conducted.

Since there is not yet any evidence that this practice existed outside the Belizean coastal region and Lamanai, and the burial position of CM 72B seems to be the same as the prone burial practice on the Belizean Cayes or Lamanai, it is probable that CM 72B originated this area.

Chapter 4: Where does CM 72B originate from?

This first part of this chapter focuses on certain limitations within this thesis. The second part focuses on answering the sub-questions and the research question on the origin of CM 72B. In the sub-questions the theory of the Mesoamerican origin of CM 72B is discussed. This discussion leads to the conclusion and thus an answer on the research question.

4.1 Limitations

The burial practices reflected in the grave of CM 72B refers to the cultural affiliation of this individual, and more importantly on that of the people who buried her. It is not possible to find out how they were related to CM 72B, but their beliefs are reflected in the burial process. They could have been people that were raised in the same region as CM 72B, but they could also have been locally born people that were familiar with the Belizean burial practices and have acted according the wishes of individual CM 72B. They were the persons that expressed the identity of CM 72B and/or their own identity in the burial. By burying her face down they expressed their identity and could have associated CM 72B with the people practicing the face down burials in Belize. This factor remains a point of discussion because it is not possible to determine who buried CM 72B.

Another important point is that we need to consider other reasons for the prone burial of CM72, than a connection with this practice as observed in the Belizean examples. The burial position may have been coincidental prone, as the other prone burials probably are not related to the prone burial practice in Belize, but considering the cranial and dental modification it is almost certain she at least originated from the Maya lowlands.

Individuals CM 77 and 93 were buried prone but the flexing of the legs is not similar. Therefore these are not completely similar to CM 72B, but this position falls in the range of the burials from Ambergris Caye, thus they could have be people local to El Chorro de Maíta but shared their cultural roots with people from Belize. It could be that individual CM 75A shared the same burial practice as CM 72B. The legs appear to be flexed the same way, and they are buried quite close to each other. But this individual's strontium values fall within the local range, and there are no known other traits that point to a

Mesoamerican origin. This doesn't mean that this individual could not have originated from somewhere else, but following the $^{87}Sr/^{86}Sr$ values of CM 75A, this individual could have been local. This doesn't mean the individual is local and could also have a Mesoamerican origin, but, unlike CM 72B, there is not yet any archaeological evidence that could indicate a Mesoamerican origin for individual CM 75A except for the similar burial practice.

One of the main problems with the markers for identity, and therefore thus in the theoretical framework, is the difference in scale on which identity can be observed. Cranial modification is a characteristic which can be observed almost everywhere in the Maya region and thus is part of being Maya and is always more or less practised in the same way throughout this area. Dental modification on the other hand has many local varieties (due to the fact that there are a lot more possibilities with dental modifications) and may therefore represent local differences within the broader Maya culture. Thus it is necessary to focus on identity on different scales for this matter.

Another factor considering the identity of CM 72B is that the modifications all happened in a different time period during the life of this individual. The cranial modification for example was applied while CM 72B was still an infant, thus she didn´t have had influence on this characteristic that forms a part of her identity. The dental modification was applied during a later stage in her life, probably around the age of 15, as was usual for the Maya. Since she was probably 15 around this time she could have had influence on how her teeth were modified. It is more likely though that the modification was applied according to the will of her community and therefore fit within their group-identity. The expression of identity in the burial could have been influenced by CM 72B but in the end the people who interred her were the ones who decided how she would be buried, and therefore decided which identity was expressed. Since identity can change during the life of an individual, this point of discussion needs to be addressed when focussing on problems regarding the conclusion.

4.2 Discussion and Conclusion

To answer the main question; *"What was the possible origin of individual CM 72B buried at the site of El Chorro de Maíta, Cuba?"* The sub-questions need to be answered first to form a conclusion. It is impossible to tell where CM 72B originates from when focusing on the modification and burial practice separately. But when combining the dental and cranial modification, the isotopic analysis and the burial position it is possible to find overlap and therefore reduce the size of the area the individual might have originated from.

What information can be derived from the intentional cranial modification of CM 72B regarding her origin?

The cranial modification on CM 72B is of the fronto-occipital vertical type. This type of modification has not been observed anywhere else within the Caribbean region. But it is consistent with types of cranial deformation in the Maya lowland region, where it is the predominant type. There is not a clear regional variety in cranial modification types in Mesoamerica thus it is not possible to find the origin of CM 72B based exclusively on cranial modification. But it forms a good foundation to support the theory that the origin of CM 72B lies in the Maya lowland region and that she was part of the Mayan culture as she shares the characteristic cranial modification that expresses the Maya identity.

What information can be derived from the intentional dental modification of CM 72B regarding her origin?

The dental modification seen in the teeth of CM 72B is consistent with Romero's types A4 and C2 or C3. With modification types in the A category, the modifications the occlusal surface of the crown is modified. With modification type A4 the crown of the teeth is filled down. This type of modification can be observed in the upper incisors and upper canines of CM 72B. Modification types in the C category, the crown of a tooth is

symmetrical mutilated on both sides. With both the central upper incisors of CM 72B bucco-lingual grooves were cut out of the mesial and distal margins of the crown. This type of modification is consistent with Romero's C2 or C3 type modification. Modification types A and C are the most common types of modification in the coastal areas of the Yucatán Peninsula and Post-Classic Lamanai. By considering the dental modification as an expression of identity, the people who share the same type of dental modification form a group-identity. Therefore, for the dental modification CM 72B shares her identity with mainly the people that lived in coastal areas of the Yucatán Peninsula and Post-Classic Lamanai.

Another interesting factor that might be derived from the dental modification is that since dental modification did not occur in the Caribbean and that it was custom for the Maya to apply dental modification after the age of 15, it could indicate that CM 72B left for Cuba at least after she was around the age of 15, and thus spent a large part of her life in the Maya region.

What information can be derived from the isotopic values of the teeth and bones of CM 72B?

The isotopic analysis preformed on CM 72B and other individuals buried at El Chorro de Maíta shows that the oxygen, carbon and strontium isotopic values extracted from the bones and teeth of CM 72B clearly fall outside the local range of El Chorro de Maíta. This is a significant marker that CM 72B does not origin from El Chorro de Maíta. In addition to this data CM 72B's carbon values indicates that the intake of carbon mostly came from C4 plants during an early period of her life. This is uncommon for people that live in the Caribbean region, but for people from Mesoamerica C4 plants as maize form a major part of the diet. Therefore this is another indicator that points to a Mesoamerican origin. The $\delta^{13}C$ value of CM 72B lies within the isotopic range of San Pedro. It is not consistent though with the $\delta^{13}C$ range of Lamanai and Marco Gonzalez, which could indicate that she is from San Pedro.

In addition to this, osteological data that points to the Yucatán coastal area as the origin of CM 72B, there is also the unusual burial position of CM 72B that indicates that she came from this region.

Can the burial practices of CM 72B be led back to a certain time period in Middle-America?

CM 72B is buried on her stomach with the legs flexed onto her back. This unusual burial position is rarely observed in the Caribbean region therefore this burial practice probably originates from somewhere in the Maya lowland region. The burial position can indeed be observed here. It occurs on the Belizean coastal areas, especially on the Cayes and in the major Maya city Lamanai. The burial practice was probably introduced in this region through the vast trading network that stretched from modern Panama all the way north to the central Mexican coast. As explained chapter 3 this cultural practice can as well be linked to identity because burials can as well act as an expression of identity. Research shows that the practice is the most common on Ambergris Caye (Belize) where it was probably still in practice during the late Post-Classic period and maybe even during the colonial period in San Pedro.

By combining the information gathered from the dental and cranial modification, the isotopic analysis and the burial position it is possible to find overlap and therefore find the area were the individual might have originated from.

What was the possible origin of individual CM 72B buried at the site of El Chorro de Maíta, Cuba?

By looking at all the different characteristics as dental and cranial modification, the isotopic analysis and the burial position it indicates that CM 72B probably originates from the Belizean cayes or the city Lamanai. If she originates from the Cayes it is most could be that she come from Ambergris Caye, because it is the only location on the Cayes thus far were this practice is known to occur. The $\delta^{13}C$ value of CM 72B is consistent with the site San Pedro on Ambergris Caye. Together with the fact that this is the only known place on the Cayes that was still occupied during the Spanish arrival and the similarities in the burial postion of CM 72B it is possible that CM 72B originated from

San Pedro, but it is impossible to be certain whether she originated from here. Thus by focusing on cultural characteristics it is possible to reveal the identity of an individual and it can tell archaeologists about migration of single individuals.

Another question regarding the life of CM 72B could be asked; *How did CM 72B come to be buried at El Chrorro de Maíta?* This question is difficult to answer because there is no evidence on how she came to the Cuba. But it is highly likely that she was taken as a slave by the Spaniards during the slave raids that occurred in the coastal areas of Belize. These slave raids took place to gather slaves that could be put to work as additional workforce to the indigenous people that were forced to work as part of the Spanish *encomienda* systems that existed on the Spanish Caribbean islands. The individual was probably taken when she was at least around 15 years old based on the dental modification which probably was applied before she was taken. It will not be possible to find a definitive answer to the question of how CM 72B came to Cuba, but the theory that CM 72B was taken during a Spanish slave raid and brought to Cuba is the most likely scenario. Again the fact that San Pedro is located on the Caribbean side of Ambergris Caye made it an easy target for Spanish Slave raiders, but this is impossible to proof as well.

4.3 Future Research Directions

It is necessary that more research is conducted to understand the early colonial Spanish slave raids in the coastal area of Mesoamerica better and on the scale it took place. Factors as how many people were relocated and where they were taken from and brought to should then be taken in account. Also more research on how the *encomienda* system worked in practice is needed to get a better understanding on the contextual situation around CM 72B.

As written before, too little research is conducted on the prone burial practice and its extension on the Yucatán Peninsula. It is not known if the practice existed outside the Belizean coastal region or even outside Ambergris Caye and Lamanai and how long it was still in practice after the arrival of the Spaniards, but with the existing information we already can tell a lot about the origin of CM 72B.

Summary

The aim of this thesis is to determine where individual CM 72B, buried at El Chorro de Maíta, Cuba, originates from. Characteristics as intentional cranial and dental modification, isotopic levels, and burial position indicate a non-local origin. This thesis focuses on cultural characteristics of the osteological remains and the burial of CM 72B. These cultural characteristics are part of the identity of an individual. Thus based on these markers it is possible to find a certain group of people that share these characteristics with CM 72B, and therefore share the same group-identity as this individual.

The cranial modification of CM 72B (fronto-occipital parallel modification) occurs on a large scale in Mesoamerica, mainly the Maya lowland region. The dental modification of CM 72B is consistent with types A4 and C2 or C3 of a modification chart made by Romero Molina, that categorizes Mesoamerican dental modification into a standard typology. This type of modification mainly occurs in the coastal areas of the Yucatán peninsula and in Post-Classic Lamanai. The oxygen, carbon, and strontium isotopic values of individual CM 72B fall outside the local range of El Chorro de Maíta. This indicates a non-locale origin. CM 72B is buried prone with flexed legs to the back. This type of burial occurs on a large scale in Lamanai and Ambergris Caye (Both in Belize).

By combining the areas where these characteristics occur altogether the possible origin of CM 72B could be Lamanai or on Ambergris Caye. CM 72B was probably taken during Spanish slave raids that occurred along the Belizean coast. The site San Pedro (Ambergris Caye) is the only known place along the Belizean coast where the prone burial practice still occurred during the contact period. San Pedro is located on the Caribbean sea side of Ambergris Caye it would have been an easy target for the Spanish Slave raiders. Therefore it could be that CM 72B was taken from San Pedro by the Spaniards and then taken to Cuba and forced to be part of the *encomienda* system.

Samenvatting

Het doel van deze scriptie is de herkomst bepalen waar individu CM 72B, begraven te El Chorro de Maíta, Cuba. Karakteristieken zoals intentionele schedel- en dentale modificatie, isotopische waarden en de begravingspositie wijzen op een niet-lokale afkomst. Deze scriptie richt zich op op culturele karakteristieken van menselijke botresten en het graf van CM 72B. Deze culturele karakteristieken zijn onderdeel van de identiteit van het individu. Gebaseerd op deze kenmerken is het mogelijk een specifieke groep mensen te vinden die deze kenmerken delen met CM 72B en daarom dezelfde groepsidentiteit delen met dit individu.

De schedel modificatie van CM 72B (Frontale-occipitale parallelle modificatie) komt op grote schaal voor in Meso-Amerika waar voornamelijk in het Maya laagland. De dentale modificatie van CM 72B komt overeen met de types A4 en C2 of C3 uit de modificatie tabel gemaakt door Romero Molina, waarin de dentale modificatie in Meso-Amerika indeelt volgens een standaard typologie. Dit type modificatie komt voornamelijk voor in de kustgebieden van Yucatán en in het Post-Klassieke Lamanai. De Oxide, koolstof en strontium isotoopwaarden van CM 72B vallen buiten de lokale scala van El Chorro de Maíta. Dus dit wijst op een non-lokale afkomst. CM 72B is begraven met het gezicht naar beneden en de benen naar achteren gebogen. Dit type begraving komt op grote schaal voor in Lamanai en Ambergris Caye (Beide in Belize).

Door te kijken waar deze karakteristieke kenmerken samen voorkomen is de herkomst van CM 72B mogelijk in Lamanai of op Ambergris Caye. CM 72B was waarschijnlijk meegenomen tijdens de Spaanse tochten om slaven vergaren langs de kust van Belize. De site San Pedro (Ambergris Caye) is de enige plaats zover bekend aan de Caribische kust waar begravingen met het gezicht naar beneden nog steeds voorkwamen tijdens de contactperiode. San Pedro is gelegen aan de Caribische Zee moet het een makkelijk doelwit voor de Spaanse slavenhandelaren zijn geweest. Het is dus mogelijk dat CM 72B is meegenomen door de Spanjaarden vanuit San Pedro om vervolgens naar Cuba te zijn vervoerd om gedwongen te werken in het Spaanse *encomienda* systeem.

Literature

Websites

http://www.sanderusmaps.com/en/our-catalogue/detail/165151/%20antique-map-of-the-caribbean-sea-by-van-keulen/ consoled on 14-12-14.

Articles and Books

Altman I., 2014. Migration and Mobility in the Sixteenth-Century Hispanic World. *Renaissance Quarterly* 67 (2), 544-52.

Barnard, A. and J. Spencer, 2010. *The Routledge Encyclopedia of Social and Cultural Anthropology*. New York: Routledge.

Bataille, C.P., J. Laffoon and G. Bowen, 2012. Mapping multiple source effects on the strontium isotopic signatures of ecosystems from the circum-Caribbean region. *Ecosphere* 3(12), 1-24.

Bender, M. M., 1971. Variations in the $^{13}C/^{12}C$ ratios of plants in relation to the pathway of photosynthetic carbon dioxide. *Phytochemistry* 10, 1239–44.

Boyd. B., 2002. Ways of Eating/Ways of Being in the Later Epipalaeolithic (Natufian) Levant, in Y. Hamilakis, M. Pluciennik,S. Tarlow (eds), *Thinking through the Body Archaeologies of Corporeality*. Dordrecht (NL): Plenum Publishers, 137-53.

Burkhart, L.M. and J. Gasco, 2006. Mesoamerica and Spain: The Conquest, in R.M. Carmack, J. Gasco and G. Gossen (eds), *The Legacy of Mesoamerica: History and Culture of a Native American Civilization*. Upper Saddle River (NJ): Pearson Education, 151-81.

Carmack, R.M., 2006. The Mesoamerican World at Spanish Contact, in R.M. Carmack, J. Gasco and G. Gossen (eds), *The Legacy of Mesoamerica: History and Culture of a Native American Civilization*. Upper Saddle River (NJ): Pearson Education, 121-50.

Chase, D.Z. and A. Chase, 2002. Paterns of Burial and Residential Cycles at Caracol, Belize. *Paper for the fourth Mesa Redonda de Palenque*.

Crosby, A.W., 1972. *The Columbian exchange: biological and cultural consequences of 1492*. Westport (CT): Greenwood Press.

Deagan, K., 2004. Reconsidering Taíno Social Dynamics after Spanish Conquest: Gender and Class in Culture Contact Studies. *American Antiquity* 69 (4), 597-626.

DeMello. M., 2007. *Encyclopedia of Body Adornment*. Santa Barbara (CA): Greenwood Publishing Group.

Díaz-Andreu, M. and S. Lucy, 2005. Introduction, in M. Díaz-Andreu, S. Lucy and D. Edwards (eds), *The Archaeology of Identity: Approaches to Gender, Age, Status, Ethnicity and Religion*. New York (NY): Routledge, 1-13.

Dingwall, E. J., 1931. *Artificial cranial deformation: A contribution to the study of ethnic mutilations*. London: John Bale, Sons and Danielsson.

Donis, A.E., 2014. *Exploring the Movement of People in Postclassic and Historic Period Lamanai Using Stable Isotopes*. Master Thesis. The School of Graduate and Postdoctoral Studies, The University of Western Ontario, London (ON).

Duijvenbode A. van, 2011. Forming Identities: An Overview of Intentional Cranial Modification in the Caribbean. In Proceedings of the 24th Congress of the International Association for Caribbean Archaeology, Martinique, 39-51.

Duijvenbode, A. van, 2012. Heads Up: Displaying Identity through altered head shapes at the site of El Chorro de Maíta, Cuba. *SOJA E-Bundel* 2011, 80-89.

Duijvenbode, A. van, 2015 (forthcoming). Facing Society, PhD Dissertation, Faculty of Archaeology, Leiden University, 2015.

Duncan, W. N., 2009. Cranial modification among the Maya: Absence of evidence or evidence of absence?, in K. Knudson and C. Stojanowski (eds), *Bioarchaeology and Identity in the Americas*. Gainesville (FL): University Press of Florida, 177-93.

Duncan, W.N. and C. Hofling, 2011. Why the head? Cranial modification as protection and ensoulment among the Maya. *Ancient Mesoamerica* 22, 199-210.

Dunn, R.K. and S. Mazzullo, 1993. Holocene Paleocoastal Reconstruction and Its Relationship to Marco Gonzalez, Ambergris Caye Belize. *Journal of Field Archaeology* 20 (2), 121-31.

Gennep, A. van, 1965. *The Rites of Passage*. London: Routledge.

Graham, E., 2011. *Maya Christians and their churches in sixteenth-century Belize.* Gainesville (FL): University Press of Florida.

Graham, E. and D. Pendergast, 1989. Excavations at the Marco Gonzalez Site, Ambergris Cay, Belize, 1986. *Journal of Field Archaeology*, 16(1), 1-16.

Graham, E., S. Simmons and C. White, 2013. The Spanish Conquest and the Maya Collapse: How 'Religious' is Change? *World Archaeology* 45, 161-185.

Guderjan, T.H. and J. Garber, 1995. *Maya Maritime Trade, Settlement, and Populations on Ambergris Caye, Belize*. Lancaster (CA): Labyrinthos.

Haglund, W.D. and M. Sorg, 2001. Advances in Forensic Taphonomy: Method, Theory, and Archaeological Perspectives. Boca Raton (FL): CRC Press.

Handler, J.S., R. Corruccini and R. Mutaw, 1981. Tooth Mutilation in the Caribbean: Evidence from a Slave Burial Population in Barbados. *Human Evolution* 11: 297-313.

Havill, L.M., D. Warren, K. Jacobi, K. Gettelman, D. Cook and K. Pyburn, 1997. Late PostClassic Tooth Filing at Chau Hiix and Tipu, Belize, in S.L. Whittington, D. Reed, K. Wright and J. Gerry (eds), Bones of the Maya: Studies of Ancient Skeletons, Tuscaloosa (AL): University of Alabama press, 89-104.

Jesse, C., 1963. The Spanísh Cedula Of December 23, 1511, On The Subject Of The Caríbs. *Caribbean Quarterly* 9 (3), 22-32.

Joyce, R.A., 2005. Archaeology of the Body. *Annual Review of Anthropology* 34, 139-58.

Laffoon, J.E., R. Rojas and C. Hofman, 2012. Oxygen and Carbon Isotope Analysis of Human Dental Enamel from the Caribbean: implications for investigating individual origins. *Archaeometry* 55(4), 742-65.

Lee-Thorp, J.A., 2008. On Isotopes and Old Bones. *Archaeometry* 50, 925–50.

Lieberman, P., 1991. *Uniquely human: The evolution of speech, thought and selfless behaviour*. Cambridge: Harvard University Press.

Longinelli, A., 1984. Oxygen isotopes in mammal bone phosphate: a new tool for paleohydrological and paleoclimatological research? *Geochimica et Cosmochimica Acta* 48, 385–90.

MacKenzie, M.A., 1991. *Androgynous objects: string bags and gender in central New Guinea. Newark* (NJ): Harwood Academic Publishers, 136-41.

Martin, D.L., R. Harrod and V. Pérez (eds), 2013. *Bioarchaeology: An Integrated Approach to Working with Human Remains*. New York (NY): Springer, 213-34.

Mickleburgh, H.L., 2013. *Reading the Dental Record. A dental anthropological approach to foodways, health and disease, and crafting in the pre-Columbian Caribbean*. Ph.D. thesis, Faculty of Archaeology, Leiden University, Leiden.

Olvera, S.D., L.O García, J Hernández, R. Sánchez, C. Torres and J. López, 2010. Decorados dentales prehispánicos. *Revista Odontológica Mexicana* 14 (2), 99-106.

Pendergast, D.M. and E. Graham, 1991. The Town Beneath the Town: 1991 Excavations at San Pedro, Ambergris Caye, Belize. *Royal Ontario Archaeological Newsletter* 45, 1-4.

Peterson, A., 2013. Death and Burial in the Islamic world, in L. Nilsson Stutz and S. Tarlow (eds), in *Oxford Handbook of the Archaeology of Death and Burial*, Oxford (UK): Oxford University Press, 241-258.

Romero, M.J., 1986. Nuevos datos sobre mutilación dentaria en Mesoamérica. *Anales de Antropología* 48 (2), 349-65.

Rouse, I., 1992. *The Tainos: Rise & Decline of the People who Greeted Columbus*. London: Yale University Press.

Thomas, H., 2003. *Rivers of Gold: The rise of the Spanish Empire, from Columbus to Magellan*. New York: Random House.

Tiesler, V., 1999. Head Shaping and Dental Decoration Among the Ancient Maya: Archeological and Cultural Aspects. Paper presented at the 64 Meeting of the Society of American Archaeology, Chicago.

Tiesler, V., 2011a. Decoraciones Dentales, in A. Cucina A. (eds), *Manual de Antropología Dental*, Mérida (MX): Universidad Autónoma de Yucatán, 183-206.

Tiesler, V., 2011b. Becoming Maya: Infancy and Upbringing Through the Lens of Pre-Hispanic Head Shaping. *Childhood in the Past* 5 (4), 117-32.

Tiesler,V., 2014. *The Bioarchaeology of Artificial Cranial Modifications New Approaches to Head Shaping and its Meanings in Pre-Columbian Mesoamerica and Beyond*. New York: Springer Press.

Trinkaus, E., 1982. Artificial Cranial Deformation in the Shanidar 1 and 5 Neandertals. *Current Anthropology* 23 (2), 198–199.

Tubbs, R. S., E. Salter and W. Oakes, 2006. Artificial Deformation of the Human Skull: A Review. *Clinical Anatomy* 19, 372-377.

Ucko, P.j., 1969. Ethnography and Archaeological Interpretation of Funerary Remains. *World Archaeology* 1 (2), 262-80.

Valcarcel Rojas R., J. Laffoon, D. Weston, H. Mickleburgh and A. Duijvenbode van, 2011. El Chorro de Maíta. A diverse approach to a context of diversity, in C.L Hofman and A. Duijvenbode van (eds), Communities in Contact: Essays in Archaeology, Ethnohistory and Ethnography of the Amerindian circum-Caribbean, Leiden (NL): Sidestone Press, 225-51.

Valcarcel Rojas, R., 2012. *Interacción colonial en un pueblo de indios encomendados : El Chorro de Maíta, Cuba*. Doctoral thesis, Faculty of Archaeology, Leiden University, Leiden.

White, T.D. and Folkens, 2005. The Human Bone Manual. Burlington, Elsevier Acadamic Press.

Whittington, S.L. and D. Reed (eds), 1997. *Bones of the Maya: Studies of Ancient Skeletons.* Washington: Smithsonian Institution Press.

Williams, J.S. and C. White, 2006. Dental Modification in the Postclassic Population from Lamanai, Belize. *Ancient Mesoamerica* 17 (1), 139-51.

Williams, J.S., C. White and F. Longstaffe, 2009. Maya Marine Subsistence: Isotopic Evidence from Marco Gonzalez and San pedro, Belize. *Latin American Antiquity* 20 (1), 37-56.

Yeager, T.J., 1995. Encomienda or Slavery? The Spanish Crown's Choice of Labor Organization in Sixteenth-Century Spanish America. *The Journal of Economic History* 55 (4), 842-859.

List of Figures