

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 1999)

Dr. Vera Tiesler
Autonomous University of Yucatan
Merida, Mexico

The presence, forms and techniques used in artificial cranial deformation and dental decoration were studied in 1,515 skeletons found in 94 mostly pre-Hispanic archeological sites (in Mexico, Guatemala and Honduras) dating from the Preclassical, Classic and Postclassic periods. Biographical and associated archeological information was analyzed, based on a theoretical model of biocultural interaction patterns. In the Classic period, evidence was found for the relevance of both practices as indicators of regional and local cultural diversity and as signs of distinction among the ancient Maya.

INTRODUCTION

The present investigation studies two biocultural attributes among the Maya people, both intentionally inflicted: dental decoration and head shaping, both widely practiced in pre-Hispanic times. Cultural information obtained from human remains found in the Maya area was combined with other indicators in the material record (Tiesler 1998, 1999). A series of theoretical, methodological and practical concepts drawn from the field of Social Archeology were developed in order to incorporate evaluation of osteological attributes into the interpretation of material culture. The concept of the “individual”, taken as a singular phenomenon constitutive of the system in which he or she participates, served as the basic unit of biocultural analysis. A set of concepts was demarcated to define an “archeological individual”, vestige of the “social individual” first subjected to mortuary treatments, later to become part of the material record and source of biocultural information. A regional model was developed to conceptualize the social role of the attributes under study and compare characteristics within the social frame of reference.

This proposition led to a series of both general and specific questions aimed at resolving problems central to the biocultural traits considered and interpreting their role throughout pre-Hispanic Maya social development. The information

producing process was conceived of in four phases, beginning with formal characterization of biocultural attributes and followed by a description of the practices they reflect. First, bone and tooth shapes were described and classified. Identifying modalities of the biocultural traits under study and characterizing them technically constituted the following step. In the third place, the customs were evaluated in terms of their general funerary and archeological context. The study concludes by drawing social inferences from the archeological information.

TECHNIQUES

The two practices (dental decoration and head shaping) were studied between 1992 and 1998. The total sample comprised 1,515 Maya individuals from 94 sites in the present day Mexican states of Campeche, Yucatán, Quintana Roo, Tabasco and Chiapas, as well as Guatemala and Honduras. It should be pointed out that the size of the sample was indispensable, given the regional focus of the investigation, its prospective nature, the poor condition in which most of the material has been preserved and the variety of traits evaluated. Each of these aspects required a distinct analytical approach. For example, only the largest skeletal series, comprising 478 individuals found at Copán, Honduras, allowed for more profound analysis of these attributes' internal distribution patterns.

The analytical techniques are based on osteometry and macroscopic observation, supported by microscopy. In determining sex, some common parameters were used, complemented by metric discrimination of unique and multiple variables. Age estimates for children were based on the degree of dental eruption and closure of the epiphyses. In assigning adult age, the following elements were taken into account: appearance of auricular, pubic and costo-sternal surfaces, dental wear, degenerative changes and degree of ectocranial suture obliteration. Central tendency and dispersion measurements, degrees of liberty and the student-t test were employed in statistical analysis.

HEAD SHAPING

To evaluate the presence, degree and type of cultural deformation, metric and non-metric parameters were employed. The tables developed by Dembo and Imbelloni (1938), Falkenburger (1938), Moss (1956) and Romano (1965) were used in classifying forms and techniques.

The results indicate that 88.65% of crania evaluated were artificially shaped. To effect these deformations, the Maya used cradleboards, cephalic apparatuses and related implements. These instruments were reconstructed based on five pre-Hispanic Maya representations and the formal characteristics displayed by the crania. It is interesting to note that post-coronary grooves seem unrelated to any particular technique, but rather appear as a physiological sideeffect of compression.

Individuals were submitted to shaping in early childhood. Both males and females were equally affected by the practice, since preferential modifications linked to one of the sexes were not observed.

Chronologically, head shaping was present since Preclassic times. The patterns and preferred techniques were kept in the cultural repertory until the beginning of the Postclassic. Afterward, the range of techniques was reduced when tabular oblique deformation disappeared from the record. Rather than diminishing, head shaping (which took place at a rate close to 90%) actually increased slightly in the last horizon.

The distribution of modalities was evaluated in reference to the Classic. The results show local and regional differences with marked dominance of oblique variants in the Lower Usumacinta region, for example, erect shapes in the Highlands and a marked preference for a mimetic technique at Copán. In contrast to current views however, the type of deformation, as stated for the oblique one, seemed not associated with elevated social status during the Classic (Romano 1994, Sotelo 1994). On the contrary, it is the erect deformation which appears more frequently at higher levels in the social structure.

Further, research of internal site distribution in head shaping helped to evaluate the custom's social role in residential and family ambits. The present investigation delved deeper into some local patterns of this practice at the Copán site, where internal distribution—constant throughout the Classic period—reveal a difference between techniques used on the periphery of the site, of the erect type, and those that prevailed in its center, which produced a mimetic curved occipital and intermediate shape. In particular, Patios A, B and C of Housing Complex 9N-8, considered a residential area belonging to apical members of Copán society, show an absence of the erect type and a marked preference for mimetic and oblique shapes. This distribution contrasts with that observed in Patio D, supposedly inhabited by outsiders. In Patio D, only one of 14 crania examined shows the variant common to the rest of the patios (Gerstle 1985a, 1985b; Diamanti 1991). These observations reveal head shaping to be an important indicator of Maya social

integration or differentiation, although they are not necessarily linked to one's position in society, as pointed out above.

The fact that skull modification was necessarily carried out in the very first stages of infancy and the deformation scenes represented, lead me to believe that those who performed it were exclusively females. Perhaps that is why both female and male samples appear to be affected in the same way by the techniques used—in contrast to dental work, where men probably decorated men, and women decorated women, leading to different patterns between the male and female populations.

The fact that not only the types but also the diversity in types may be noted in a similar manner in both the male and female samples, as for Copán, allows as well for inferences concerning residential organization. Parting from the idea that the custom was practiced by adult women after marriage, it may be analogously supposed that as tradition and art, the skills that formed part of the process were also transmitted within a female generational sequence, above all in a society where chores and occupations were strictly separated according to sex. Under this line of thought the parallel presence of different deformation techniques in many housing complexes would reflect patrilocal more than matrilocal residence.

In terms of the pre-Hispanic individual life cycle, head shaping appears as a customary practice carried out in childhood and perhaps performed by more than one person, as Maya iconography and historical sources point to. Socially, head shaping appears as a typical episode in the course of pre-Hispanic life, commemorated perhaps with ceremonies. The latter inference is suggested by artistic representations of deforming apparatuses, found on whistles and other musical instruments commonly used to accompany pre-Hispanic rites and ceremonies.

DENTAL DECORATION

In studying pre-Hispanic dental decoration, some aspects relevant to formal and technical classification were specified, complemented by review of information gleaned from other regional research. In particular, a new classification table for visual patterns was developed in the investigation, with which more than 80% of modified dentitions in the sample could be classified.

The present results suggest that the mutilations were inflicted on frontal teeth of persons more than 15 years old. In the case of incrustation, it is supposed here that this practice occurred at an age slightly above 15, while filing occurred

throughout adult life. Filing (particularly pattern A) was generally preferred among the female population, while incrustation prevailed among men, although no technique or pattern was exclusive of either sex. Dental decoration is slightly more common in the female population (with a 65.81% rate of incidence, as compared with 58.02% in the male population).

Chronologically, the practice of dental decoration arose in the Preclassic and remained a widespread custom until the beginning of the Postclassic, affecting 59.62% of the population evaluated. Its regional and local prevalence varied in terms of the techniques employed, types and formal patterns, as well as materials used for incrustation. Generally, jadeite, hematite, pyrite, turquoise and different organic substances were used as obturation material. Thirty-three formal types were described, in addition to three new types discovered here that have not been described previously in anthropological literature, which bears witness to the great creativity possessed by those who practiced the custom.

Throughout the post-Classic period, canons of this practice became homogenized as incrustation disappeared from the record. As an archeological indicator, dental decoration lost its connotation of social distinction, at least in the sample studied. Together with its variety, the popularity of this custom also diminished significantly among males.

The social role of decoration may be observed in its differentiated distribution. Differences were noted in presence and formal patterns between the housing complexes at Copán and its outskirts, as well as between individuals attributed to different social strata. In particular, patterns Ik and E are associated with elevated status. However, the incidence of decoration itself neither increases nor decreases with privilege, leading me to suppose that the simple presence or absence of the practice is not relevant as an indicator of social differentiation.

Furthermore, the potential importance of decoration as an indicator of family organization was evaluated. Its local role was again illustrated in the case of Classic Copán. In the Copán sample, decorations were differentiated as to prevalence and visual patterns. Pattern C was preferred in outlying areas, while in the central residencial area Pattern C was relatively infrequent and Patterns Ik and E were highly preferred. These discrepancies manifest according to the model distinct conditions in everyday social reproduction, associated with places of residence and, therefore, with spheres of family and inter-family interaction. The results were compared within the Multi-Family Complex 9N-8 of Las Sepulturas in the central part of the site. There, dental mutilation observed in Patio D was distinct from that

in other patios, reflecting preferences held on the periphery of the site (although more cases are required to corroborate this tendency). The present observations coincide again with those noted by other authors (Gerstle 1985a, 1985b; Diamanti 1991) who conclude that a foreign populace, perhaps related to the Lenca, may have inhabited Patio D of the Complex during the Classic period.

Finally, regional, local and family particularities of the dental handiwork, at least in the Classic, manifest everyday uses that reflect beliefs and customs. There is a tendency provided by the visual patterns for position within a social organization is, at best, tendentious, while the fact that differentiation of this practice isn't manifested in terms of exclusiveness—that is application of the practice to some people but not others—but rather preference for one of its variants, leads me to suppose that the custom wasn't regulated by law or norm.

DISCUSSION

In conclusion, the biocultural information provided by human remains, as a manifestation and vestige of the many activities and conditions of sociocultural interaction, may make important contributions not only to biological and demographic studies, but also social research. The experience acquired in the course of this investigation suggests that several methodological and practical parameters may be extrapolated to other cultural areas.

As with all research projects, only some of the problems defined at the outset could be resolved. In the meantime, new questions arose that, in turn, demand further research and rethinking the aspects touched upon here. In this sense, I have also attempted to lay the groundwork for future projects along the same lines, applicable to both Maya research and other areas. I hope that the present investigation will inspire new studies in this fascinating line of research, thus adding other facets to reconstructing and interpreting Maya material culture, of what I call an ARCHEOLOGY OF PEOPLE.

Bibliography

Dembo, Adolfo, y José Imbelloni

1938 *Deformaciones intencionales del cuerpo humano de carácter étnico*. Biblioteca Humanior, Buenos Aires.

Diamanti, Melissa

1991 *Domestic Organization at Copán: Reconstruction of Elite Maya Household through Ethnographic Models*. Tesis de doctorado en Antropología, Penn State University.

Falkenburger, F.

1938 Recherches anthropologiques sur la déformation artificielle du crâne. *Revista de Antropología de la Universidad de Tucumán* 1:1-70.

Gerstle, Andrea I.

1985a La arquitectura ceremonial de las Sepulturas, Copán, *Yaxkin*, vol. VII, núm. 1 y 2, pp. 99-110. Órgano de Divulgación del Instituto Hondureño de Antropología e Historia, Tegucigalpa.

Gerstle, Andrea I.

1985b *Ethnic Diversity in Late Classic Copan, Honduras*, ponencia de la 5ta. reunión de la Sociedad de Antropología Americana, Denver.

Moss, Melvin

1958 The Pathogenesis of Artificial Cranial Deformation. *American Journal of Physical Anthropology* 16(3):269-286.

Romano Pacheco, Arturo

1965 *Estudio morfológico de la deformación craneana en Tamuín, S.L.P., y en la Isla del Idolo, Veracruz*. Serie de Investigaciones 10, Instituto Nacional de Antropología e Historia, México, D.F.

1987 Iconografía cefálica maya. En *Memorias del Primer Coloquio Internacional de Mayistas*, Universidad Nacional Autónoma de México, México, D.F.:1413-1474.

Romero Molina, Javier

1952 Los patrones de la mutilación dentaria prehispánica. *Anales INAH* 4(32):177-221.

1986 *Catálogo de la colección de dientes mutilados prehispánicos IV parte*. Colección Fuentes, Instituto Nacional de Antropología e Historia, México, D.F.

Sotelo, Laura, y Carmen Valverde.

1994 Los señores de Yaxchilán: un ejemplo de feñinización de los gobernantes mayas. En *Estudios Mayas*. Centro de Estudios Mayas, Universidad Nacional Autónoma de México, México, D.F.

Tiesler, Vera

1998 *La costumbre de la deformación cefálica entre los antiguos mayas: aspectos morfológicos y culturales*. Colección Científica/Instituto Nacional de Antropología e Historia, México, D.F.

1999 *Rasgos bioculturales entre los antiguos mayas: aspectos arqueológicos y sociales*. Tesis doctoral en antropología, Facultad de Filosofía y Letras, Universidad Nacional Autónoma de México, México, D.F.

Osteological and contextual information came from the following Projects and Institutions:

- Tulane University (Middle American Research Institute), New Orleans.
- Université de Bourdeaux I (Laboratoire d' Anthropologie).
Chantille de Fouille La Boucle, Corconne (dirigido por el Dr. Henry Duday), Corconne.
- Georg August Universität Göttingen, Zentrum Anatomie (Arbeitsgruppe Paläopathologie), Göttingen.
- Centro INAH Chiapas (dirigido por la arquitecta Yolanda Cano), Tuxtla Gutierrez.
- Proyecto Arqueológico Palenque (a cargo del arqueólogo Arnoldo González Cruz), Palenque, Chiapas.
- Museo Nacional de Arqueología y Etnología de Guatemala, Instituto de Antropología e Historia, Guatemala.
- UCLA RAINPEG Project (dirigido por el Dr. Richard Hansen), Los Angeles.
- Proyecto Miraflores, Kaminajuyu (dirigido por el Dr. Juan Antonio Valdés), Instituto de Antropología e Historia, Guatemala.
- CEMCA Guatemala (dirigido por el Dr. Alain Breton), Guatemala.
- Centro INAH Quintana Roo (Cancún y Chetumal) (dirigido por la arqueóloga Adriana Velázquez Morlet), Chetumal.
- Proyecto Arqueológico Punta Pájaros (dirigido por el arqueólogo Enrique Terrones), Centro INAH Quintana Roo, Cancún.
- Proyecto Arqueológico Kohunlich (encabezado por la arqueóloga Adriana Velázquez Morlet) y Dzibanché (encabezado por la arqueóloga Luz Evelia Campaña), del Proyecto Arqueológico Sur de Quintana Roo (dirigido por el Dr. Enrique Nalda Hernández), INAH; México, D.F. y Chetumal.
- Centro INAH Yucatán (dirigido por el Dr. Alfredo Barrera), Mérida.
- Centro INAH Oaxaca, Oaxaca.
- Museo Popol Vuh, Universidad "Francisco Marroquín", Guatemala.
- Proyecto SE de El Petén, Atlas Arqueológico de Guatemala, Instituto de Antropología e Historia (dirigido por el Dr. Juan Pedro Laporte), Guatemala.
- Proyecto Arqueológico de la Biósfera de Calakmul (dirigido por el arqueólogo Ramón Carrasco), Centro INAH Campeche (dirigido por el licenciado Carlos Vidal Angles), Campeche.
- Proyecto Arqueológico Calakmul (dirigido por el Dr. William Folan), Universidad de Campeche, Campeche.
- Proyecto Arqueológico Copán, (dirigido por el Dr. Ricardo Agurcia, engargados: Prof. Oscar Cruz, Dr. William Sanders y Dr. Rebecca Storey), Instituto Hondureño de Antropología e Historia, Copán Ruinas.

- Dirección de Antropología Física (dirigida por el antropólogo físico Enrique Serrano), INAH, México, D.F.
- Laboratorio de Antropología Física del Claustro de Sor Juana (Prof. Arturo Romano y Mtra. Teresina Jaén Esquivel), México, D.F.
- Proyecto Arqueológico Oxtankah, Centro INAH Quintana Roo, Chetumal.
- Proyecto Arqueológico Xcaret (dirigido por la arqueóloga María José Con), Centro INAH, Quintana Roo, Cancún.

FIGURES

At URL <http://www.mesoweb.com/features/tiesler>

(Click underlined number for illustration on Web)

FIGURE 1. Tabular erect cranial deformation, achieved by the use of a cradleboard; Xcaret, Quintana Roo, Mexico; Classic Period.

FIGURE 2. Tabular oblique shape, achieved by the use of a head-compression apparatus; Xcan, Yucatán, Mexico; Classic Period.

FIGURE 3. Head-shaping instrument used by the Chama (after Dávalos 1951).

FIGURE 4. Head-shaping instrument in pre-Hispanic figurine (courtesy of the Popul Vuh Museum, City of Guatemala).

FIGURE 5. Dental decoration by filing and incrustation methods; Ixtonton, Guatemala; Classic Period.

FIGURE 6. Dental decoration by filing; Dzibilchaltun, Yucatán, Mexico; Postclassic Period.

STEPS OF ANALYTICAL INFERENCE

1. Individual attributes

- Antiquity, duration and techniques employed in Maya biocultural practices, that is, skull deformation, dental mutilation and trepanation.
- Age of individuals subjected to these practices.

2. Collective attributes

- Distribution patterns of biocultural attributes in the Maya area. Distribution of different techniques for certain shapes at different times. Regional and local patterns of distribution. Relationship between marks inflicted and characteristics of the archeological context.

3. Social inferences

- Biocultural practices reflect homogenous or distinct sociocultural contexts
- Interpretation of biocultural practices in the context of regional Maya history.