Cannibalism in the Prehistoric American Southwest:
Occurrence, Taphonomy, Explanation,
and Suggestions for Standardized World Definition

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Abstract Intentionally-damaged human skeletal remains indicating cannibalism and/or violence have been found scattered on room floors and deposited in pits in more than 40 archeological sites in Arizona, Utah, Colorado, and New Mexico. Most of the bone assemblages were in Anasazi sites. Using five standardized taphonomic criteria (perimortem cut marks, intentional breakage, burning, anvil/hammerstone abrasions, and many missing vertebrae), 32 assemblages meet our minimal requirement for proposing cannibalism. In the 32 cannibalized series, the minimal number of individuals (MNI) ranges from 1 to 35. The average MNI is 9.2 per site. The total MNI is 295. All ages and both sexes are represented. The earliest grouping of sites with evidence of cannibalism date around A.D. 900; the latest single site, A.D. 1700. The average date for the 32 sites is ca. A.D. 1100. Two proximate explanations involve social pathology and/or Mesoamerican influence. Prehistoric Southwest cannibalism has been explained by starvation (3 sites), social pathology (several sites), and recently, as a violent form of institutionalized social control associated with the post-A.D. 900 rise of the highly complex Chacoan social and religious center in New Mexico, its regional road system, and the linked outlier multi-storied Great House communities that were built elsewhere in New Mexico and also in Colorado, Arizona, and Utah. There is no identifiable direct connection with cannibalism in Mexico. When considered with the sites evidencing extensive violence, Southwest cannibalism appears to be part of a socially-pathological and chaotic development that began in the Anasazi area, possibly triggered by Mesoamerican influences such as Mexican traders.

Key Words: cannibalism, taphonomy, SW U.S.A., bioarcheology

INTRODUCTION

The subject of human cannibalism has long fascinated laypersons and scholars alike, especially anthropologists, for both scientific and horrific reasons. In the past, calling a group of people cannibalistic was either an intentional means of debasing them, or it was heedless and based on incomplete evidence. However, recent careful research has shown without question that cannibalism occurs in wild non-human primates (Goodall, 1977; Nishida and Kankawa, 1985; Norikoshi, 1982), and many
other vertebrate species (Elgar and Crespi, 1993). Cannibalism has been legally proven with circumstantial evidence or confession by some socially pathological serial killers (McClain et al., 1986; Sloane, 1992). Cannibalism is now soundly recognized by modern worldwide ethnographic work or by careful re-analysis of older fieldwork (Barber, 1992; Brown and Tuzin, 1983; Freuchen and Salomonsen, 1958; Harris, 1987; Lumholtz, 1979; Sahlins, 1983; Sanday, 1986). Cannibalism has been identified through historical studies of various civilizations (Chang, 1990), accounts of contemporary events (Burton and Chiang 1993; Liu, 1993; Sanchez, 1970); and bioarcheological research on prehistoric human remains from all over the world (Brothwell, 1961; Suzuki, 1966; Villa, 1992a, 1992b; Villa et al., 1986, 1987, 1988; White, 1987; and many others). Despite an abundant literature on the topic of cannibalism, it has most often been treated or exemplified by isolated episodes. Regional treatment of the topic and standardized taphonomic tests for proposing cannibalism have so far been developed only in the American Southwest.

In the American Southwest prehistoric human skeletal remains have been found in four contextual settings: (1) as formal burials (Carle, 1941; Hagberg, 1939; Robinson and Sprague, 1965), (2) as results of accident or trauma (Brues, 1946; Martin, 1929; Ravesloot, 1988), (3) as disturbed burials and isolated bones, and (4) as episodic events suggesting violence and/or cannibalism (see Table 1 for references). The vast majority of the many thousands of prehistoric Indian skeletons recovered during the 100 years of archeological activity in the American Southwest represent formal and considerate (mindful of the dead) burials. Inhumation was the major burial type among the plateau Anasazi, cremation characterized the desert Hohokam, and both inhumation and cremation were practiced by the mountain Mogollon people. Throughout the Southwest the most common burial type was a single person interred in a flexed position with some form of grave offering (Stanislawski, 1963). Multiple and secondary burials were extremely rare. In no instances can the precise cause of death be determined. See Cordell (1984) for Southwest culture area maps.

Much less common are skeletons where the bone or archeological context indicates an accidental or violent death, such as an individual trapped in a burned room, or individuals with weapon wounds (Turner et al., 1993). Until recently, conflict and warfare were given little attention in the study of the evolution of Southwest cultures (Haas, 1990; Haas and Creamer, 1993; Hurst and Turner, 1993; Mackey and Green, 1979). There are no clear-cut examples of Southwest skeletal remains indicating human sacrifice, although decapitation and taking of trophy heads as well as scalping were practiced as early as Basketmaker II times (200 B.C. to A.D. 400), presumably associated with conflict (Kidder and Gurnsey, 1919; Wilcox and Haas, 1989). Disturbed burials and isolated human bones and teeth are found in many Southwest archeological sites. They are seldom studied from a taphonomic perspective.
Cannibalism

The fourth class of skeletons is very rare and has physical characteristics that differ completely from skeletons associated with natural or traumatic death. These characteristics are believed to have resulted from acts of cannibalism, the subject of this paper.

TAPHONOMIC IDENTIFICATION OF CANNIBALISM

Southwest cannibalism has been hypothesized by several workers when a minimum number of certain types of human-induced bone damage occur in a skeletal series (Figs. 1-6). These features are breakage, cutting, anvil or hammerstone abrasions, burning, missing vertebrae, and fragment polishing (Turner and Turner, 1992). Figure 1 shows the severely fragmented condition of a representative skeletal series (Polacca Wash) thought to have been cannibalized. The perimortem (at or around the time of death) bone breakage is intentional (Fig. 2), usually followed

![Fig. 1. Completed exposure of the Polacca Wash charnel deposit, northeastern Arizona. There is no indication of any articulation. The bone element distribution has a wholly random appearance. The basal sands beneath the bone bed show no signs of fire or previous human activity. This is one of the largest assemblages. (Museum of Northern Arizona Archive photograph by Roger Kelley, March, 1964).]
Fig. 2. Tibial fragments from the Leroux Wash charnel pit, northeastern Arizona. This is the characteristic appearance of perimortem bone damage in Southwest sites having the taphonomic signature of cannibalism. Note that the more easily crushed proximal and distal ends of these long bone fragments are missing. Width of figure is 63.5 cm. (CGT neg. 7-15-93:20).

Fig. 3. Polacca Wash child’s rib with perimortem cut marks. Length of rib fragment is 4.5 cm. (CGT neg. 7-16-93:35).
by butchering as indicated by cut marks in Fig. 3. Percussion breakage of animal and human bone in archeological sites can almost always be identified by spiral or non-stepped smooth fracture lines similar to those seen in broken glass or plastic. Lyman (1994, pp. 315–338) discusses bone breakage in great detail. Much breakage occurs after muscle and other tissues have been removed, otherwise, the anvil or hammerstone abrasions shown in Fig. 4 could not occur, especially on the bones of the heavily fleshed upper arms and legs, and of the back. Anvil abrasions were first recognized for Southwest human taphonomy in 1983.

Perimortem cut marks made with stone knives or sharp stone flakes have long been informally recognized on Southwest animal bones as indications of butchering. Turner and Morris (1970) are among the earliest published papers to illustrate cut human bone. Cut marks are usually v-shaped in cross-section, and within a cut mark, shelfing or irregularities can be recognized with a dissecting microscope.

Burned bone is another key feature of Southwest cannibalism. Some of the burning seems to represent roasting because overlying muscle prevented the burning of the rest of the bone. In some cases, bone fragments were discarded in a nearby fire, as the re-fitted pieces in Fig. 5 clearly show. Burning can be difficult to recognize in the intial phase, but with time and heat, charring, charcoaling, and eventually calcining occur and each is easy to identify by color changes alone.
Fig. 5. Detail of perimortem midshaft break of House of Tragedy, Burial 1, left femur, reassembled with burned shaft (lower) and unburned smaller fragment (upper) showing that breakage occurred before burning. Width of bone showing in photograph is 3.8 cm. House of Tragedy is a few km from Wupatki Ruin (CGT neg. 7-16-93:31).

Fig. 6. Many missing and severely damaged vertebrae characterize the taphonomic signature of cannibalism, as shown by these examples from Polacca Wash (CGT neg. 3-68:29).
Figure 6 shows that missing or highly damaged vertebrae make up another part of the taphonomic signature of cannibalism. Missing vertebrae were a mystery from the very beginning of Southwest human taphonomy studies (Turner and Morris, 1970). As with the long bones, which seemingly had been cracked open to extract the marrow, so too were the vertebrae smashed to extract their oily content by boiling (Turner and Turner, 1992). Vertebrae crushing was finally identified when one human vertebra from Canyon Butte 3 was found with anvil abrasions. Since then, vertebrae crushing has been identified in several sites in Southwest Colorado and New Mexico.

Southwest skeletal series believed to have been cannibalized may have an additional taphonomic feature depending on the availability of cooking vessels. Bone boiling for fat or oil extraction, a common practice with game animals, can be further identified by minutely polished areas on the tips of bone fragments. White (1992) calls this pot-polishing. He has shown by experimentation that polishing does occur when bone fragments are stirred in pottery vessels.

These six minimal taphonomic features (perimortem breakage, cutting, anvil abrasions, burning, missing vertebrae, and polishing) also occur in game animal bone refuse, providing a powerful analogy for interpreting their occurrence in human skeletal remains as due to the processing of humans for food (Dice, 1993; Turner and Turner, 1990; Villa, 1992a; White, 1992). While it is obvious that the six minimal features could not have occurred naturally, and must have resulted from intentional human acts, there is no known Southwest ethnographic example of such extensive human body processing for any reason, be it mortuary, ritual, socially pathological, or cannibalistic. However, the ethnographic record should not be considered definitive because it also lacks any account of a mass burial, a phenomenon that has been discovered by archeological and physical anthropological research. As will be shown, the distributional and contextual evidence rules out the possibility that the perimortem damage resulted solely from an unknown form of prehistoric mortuary behavior that was never documented ethnographically.

**CAN THE APPARENT SOUTHWEST CANNIBALISM BE EXPLAINED?**

The distribution of the well-studied American Southwest skeletal series indicating cannibalism, and all of the less well- or unstudied skeletal series where cannibalism was claimed to have occurred are found in the classic Four Corners region of the American Southwest. This distribution reveals two important facts. First, sites with cannibalized remains are not randomly distributed. They occur only in, or very near, the Anasazi culture area. Second, there are too many of these cannibalized Anasazi series to be the result of famine or social pathology when there are none known for certain elsewhere in the prehistoric Southwest.

Table 1 provides some basic features for these sites. Thus, there are at least 32
<table>
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<tr>
<th>Site</th>
<th>Date (AD)</th>
<th>Context</th>
<th>Cannibal signature</th>
<th>MNI</th>
<th>Total pieces</th>
<th>Impact breakage</th>
<th>Anvil abrasion</th>
<th>Cut marks</th>
<th>Burning</th>
<th>Expect. verts.</th>
<th>Animal gnawing</th>
<th>Pot polish</th>
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<tbody>
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<td>Cave 7 (UT)</td>
<td>&lt;400</td>
<td>Bodies in cave</td>
<td>No</td>
<td>92</td>
<td>?</td>
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<td>Yes</td>
<td>Yes</td>
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<td>?</td>
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<td>Fragments in abandoned pithouse</td>
<td>Yes?</td>
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<td>100.0</td>
<td>0.0</td>
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<td>180</td>
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<td>0.0</td>
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<td>4</td>
<td>691</td>
<td>Yes</td>
<td>0.3</td>
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<td>Yes</td>
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<td>1543</td>
<td>Yes</td>
<td>?</td>
<td>21.1</td>
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<td>Bodies in rooms</td>
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<td>11</td>
<td>?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>?</td>
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<td>3390</td>
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<td>5</td>
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<td>1.3</td>
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Table 1. (cont’d)

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<th>Site</th>
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<th>Cannibal signature*</th>
<th>MNI</th>
<th>Total pieces</th>
<th>Impact breakage</th>
<th>Anvil abrasion</th>
<th>Cut marks</th>
<th>Burning</th>
<th>Expect. verts.</th>
<th>Animal gnawing</th>
<th>Pot polish</th>
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<td>1000–1200</td>
<td>Fragments in pit in cemetery area (No 3, AZ)</td>
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<td>248</td>
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<td>5015</td>
<td>92.3</td>
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<td>3443</td>
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<td>1.7</td>
<td>(8.6)</td>
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<td>1100</td>
<td>Fragments on floors of pueblo (5MTUMR-2346, CO)</td>
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<td>29</td>
<td>2027</td>
<td>Yes</td>
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<td>1+</td>
<td>Work in progress</td>
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<td>Context</td>
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<td>Coombs 1100+ (42GA34, UT)</td>
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<td>Coyote Village 1100–1200</td>
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<td>Fragments in trash mound</td>
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<td>45   11.3 1.6 ? 1.6 ? 0.0 ?</td>
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<td>Tragedy House 1100–1200</td>
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<td>Fragments on room floor &amp; pit</td>
<td>Yes</td>
<td>4</td>
<td>62   11.3 1.6 1.6 ? 0.0 ?</td>
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<td>La Plata Hwy. 1100–1200</td>
<td></td>
<td>Fragments on pithouse floor &amp; fill</td>
<td>Yes</td>
<td>6</td>
<td>119  30.2 5.9 4.0 0.0 4.2 0.0 ?</td>
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<tr>
<td>Hansen Pueblo 1134+/–</td>
<td></td>
<td>Fragments on floor of kiva &amp; rooms</td>
<td>Yes</td>
<td>2</td>
<td>140  91.4 5.0 2.9 45.7 14.6 2.9 ?</td>
<td></td>
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<td>Marshview Ham. 1150</td>
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<td>Fragments on pithouse floor</td>
<td>Yes</td>
<td>6</td>
<td>528  99.9 Yes 2.6 30.7 (5.5) 7.0 Yes</td>
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<td>St. Chris. Mis. 1200</td>
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<td>Fragments on old ground surface</td>
<td>Yes?</td>
<td>4</td>
<td>172  67.4 4.1 5.8 0.0 10.4 1.2 ?</td>
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<tr>
<td>Salmon Ruin 1263+</td>
<td></td>
<td>Bodies &amp; fragments on kiva roof</td>
<td>Yes</td>
<td>35</td>
<td>?    Yes Yes Yes No ?</td>
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<td>San Juan River Late 1200</td>
<td></td>
<td>Fragments on boulder room floor</td>
<td>Yes</td>
<td>2</td>
<td>115  28.7 2.6 1.7 10.4 20.8 0.0 ?</td>
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<td>Monument Val. Pueblo?</td>
<td></td>
<td>Fragments in pit</td>
<td>Yes</td>
<td>7</td>
<td>644  80.1 ? 0.9 12.6 (2.4) ?</td>
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<tr>
<td>Site</td>
<td>Date (AD)</td>
<td>Context</td>
<td>Cannibal signature*</td>
<td>MNI</td>
<td>Total pieces</td>
<td>Impact breakage</td>
<td>Anvil abrasion</td>
<td>Cut marks</td>
<td>Burning</td>
<td>Expect. verts.</td>
<td>Animal gnawing</td>
<td>Pot polish</td>
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<td>Fence Lake (No #, NM) Pueblo</td>
<td></td>
<td>Fragments in firepit</td>
<td>Yes</td>
<td>5</td>
<td>1088</td>
<td>99.9</td>
<td>Yes</td>
<td>0.2</td>
<td>0.5</td>
<td>?</td>
<td>?</td>
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<td>Ash Creek 1350 (AZ U:3:49, AZ)</td>
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<td>Fragments on room floor</td>
<td>Yes</td>
<td>5</td>
<td>212</td>
<td>97.6</td>
<td>?</td>
<td>3.3</td>
<td>25.9</td>
<td>1.9</td>
<td>5.2</td>
<td>?</td>
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<td>Polacca Wash 1580+/-95 (NA8502, AZ)</td>
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<td>Fragments in isolated bone deposit</td>
<td>Yes</td>
<td>30</td>
<td>&gt;437</td>
<td>90.0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>6.8</td>
<td>Yes</td>
<td>Yes</td>
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</table>

*If any of the following perimortem damage features are not present — breakage, cut marks, missing vertebrae, burning, or anvil abrasions — the assemblage is defined as lacking the cannibal signature.

sites evidencing cannibalism, and more when claims for violence are included. The
damaged bones have been found as deposits on room or kiva floors or buried in
charnel pits within rooms, outside of rooms, and away from habitation sites
altogether. In the 32 sites with probable cannibalism, the minimal number of
recognizable individuals ranges from 1 to 35, with the mean number of individuals
in these 32 sites being 9.2 per site. The total number of seemingly cannibalized
individuals is 295. All ages and both sexes are represented. The earliest grouping
of sites with the taphonomic signature of cannibalism date around A.D. 900; the latest,
A.D. 1700. The average date for the 32 sites is around A.D. 1100.

Most of the sites with apparent cannibalism are small, isolated and defenseless.
Many are within a day’s walk of large post-A.D. 900 Anasazi pueblos called Chaco
outliers, or are within Chaco Canyon itself, even in at least one of the Great Houses.
Thus, the distributional data indicate that what appears to be episodes of prehistoric
cannibalism were not randomly distributed in the Southwest as would be expected
for naturally-caused events such as famine or drought.

A few of these prehistoric episodes could be viewed as consequences of special
mortuary or ritual behavior since some skeletal series have been found in kivas,
those distinctive underground rooms presumably constructed for religious activities
like the kivas of contemporary Pueblo Indians. However, we doubt if the skeletal
remains represent any sort of mortuary or ritual behavior because the bones are
scattered on the kiva floors, there are many missing skeletal elements, cooking is
evident, and there are no associated offerings or other artifacts. These taphonomic
and contextual conditions are more suggestive that the kivas served as dumps for
the residue of body processing that occurred within or outside but nearby, instead
of as places for the ritual destruction of one or more individuals as in Mexico where
processed human remains are associated with skull racks or temples (Kelley, 1978;
Martinez and Gonzalez, 1991; Pijoan and Pastrana, 1985; Pijoan and Mansilla,

If the taphonomic evidence for cannibalism is not enough to distinguish these
charnel deposits from ritualized mortuary practices, then certainly the context and
location are decisively in favor of cannibalism over ritual mortuary behavior. Rural
rather than urban is the feeling we get for the provenience of most of the
cannibalized series.

What might have caused these apparent acts of violence and cannibalism? Three
possibilities are most likely — famine, social pathology, and institutionalized violent
social control. Since there is at present no sure signs of ceremonial treatment in the
Southwest skeletal remains, we are not able to propose ritual cannibalism, as was
practiced in the Valley of Mexico by the Toltecs and Aztecs (Broda and Matos,
1987; Brown, 1984; Demarest, 1984; Duran, 1964; Matos, 1984; Romain and
Alberto, 1987; Storey, 1992; Weaver, 1993; Wilkerson, 1984).
Because no cannibalized human remains have been identified for the Mogollon and Hohokam areas, we doubt that famine or drought was the sole cause of the Southwest cannibalism. Likewise, social pathology loses some of its explanatory appeal given the Chacoan linkage. Violent social control, possibly initiated by socially pathological individuals, is an increasingly attractive idea, especially as additional cases of Chaco-linked cannibalism claims are confirmed by taphonomic analysis. For instance, Pepper (1920) suggested that burned and broken bones found at the Chaco Canyon Great House called Peñasco Blanco resulted from cannibalism. We have recently located these bones excavated in the 1890s, studied them, and agree with Pepper’s cannibalism proposal.

Despite the lack of evidence for ritual in the Anasazi cannibalized remains, might there still have been a Mesoamerican connection? Answering this depends on how well the Chaco-cannibalism link holds up in future studies, and on whether it can be demonstrated that the rapid growth of the Chaco system of Great Houses and roads was triggered by Mesoamerican influences if not Mesoamerican colonists (Cordell, 1984; Kelley and Kelley, 1975; Lekson, 1986; Mathien, 1986; Riley, 1987, 1989; Vivian, 1990; Washburn, 1980; Wilcox, 1986; Windes, 1984; Woodbury, 1979). Few Southwesternists doubt that there was Mexican influence on the cultural development in the Southwest. Maize was introduced early, and later there was trade in turquoise, macaws, shell, copper bells, and probably slaves, cotton cloth, and other valuables (Cordell, 1984; Harbottle and Weigand, 1992; Matson, 1991). With these physical items must also have come a torrent of Mesoamerican ideas and concepts. The Aztecs certainly used public displays of human sacrifice and cannibalism to intimidate neighboring tribes (Hassig, 1988; Ortiz, 1978; Weaver, 1993), so what worked in the Valley of Mexico could just as well have enhanced the amount and regularity of tribute in the Chacoan sphere of influence. There are at least two sites between the Valley of Mexico and the U.S.-Mexico border that have produced skeletal remains that may have been cannibalized — Alta Vista in Zacatecas (Pickering, 1985), and the Villa de Reyes, San Luis Potosi (Pijoan and Mansilla, 1990).

MESOAMERICAN INFLUENCE

One of the most interesting models for suggesting Mesoamerican influence on the development of Southwest culture has been the pochteca trader idea, advocated by the late Charles C. Di Peso (1974). The idea has been difficult to demonstrate, and while archeologists have searched for pochteca burials, until recently none has been convincingly identified (Akins and Schelberg, 1984; Frisbie, 1978; Kelley, 1986; Nelson, 1986; Pepper, 1909; Reyman, 1978). Although the term pochteca is strictly-speaking inappropriate because it refers to a specialized class within Aztec society that traded exclusively to the south of the Valley of Mexico (P. Weigand,
personal communication, Oct. 29, 1993), nevertheless, there must have been prehistoric central Mexican traders, religious and military entrepreneurs, miners, pilgrims, and other sorts of explorers and adventurers in and out of the religious-military government circles who traveled and explored northward from central Mexico. We propose that at least two such travelers have been found and unearthed in prehistoric Arizona archeological sites. We identify these Mesoamericans on the basis of their notched teeth (Fig. 7). Tooth modification is a well known Mesoamerican culture element, but not a feature of prehistoric Southwest Indians. The prehistoric Mexican cemetery at Guasave, Sinaloa, excavated by Gordon Ekholm (1942), is the most northerly site in Mexico where crania regularly have dental modifications. The oldest (1750 B.P.) known example of dental modification north of the Valley of Mexico was found in Nuevo León (Powell and Powell, 1992). Modified teeth have not been reported for crania of the large and Mesoamerican-like Chihuahua site of Casas Grandes (Benfer, 1968), nor have they been reported in neighboring Sonora (Pickering and Foster, 1994).

Moreover, tooth notching is absent in the U.S. culture areas adjacent to the Southwest — California, Great Basin, and Plains. Hence, the two examples of

![Fig. 7. Notched upper anterior teeth of an adult male buried at the Grand Canal Hohokam site, Phoenix, central Arizona. Dental modification is not a characteristic of prehistoric Southwest Indians, suggesting this man originated in Mexico where tooth modification was practiced. Cause of death could not be determined here or for any of the human remains in this report. Courtesy of Soil Systems, Inc., Phoenix (CGT neg. 4-89:28).](image-url)
Southwest tooth notching can only represent individuals who were either from Mesoamerica, or had been there during part of their lives and underwent the operation for notching. Unfortunately, it is not possible to identify the exact morphogenetic affinity of these individuals because of their incompleteness.

There are many other cultural features found in the Southwest that have been attributed to Mesoamerican influences, pottery being the most obvious early trait. Trade in marine shells from the Gulf of California was well developed between northwestern Mexico and the Southwest, but shell, as with other trade items could simply pass from community to community without necessarily requiring a long-distance carrier or trader. The occurrence of two individuals with notched teeth suggests that long-distance traders or travelers on some sort of mission, were making the journey from at least that region of the northern frontier of Mesoamerica where dental modification was practiced. For the moment, that would appear to be in west Mexico where prehistoric human sacrifice, cannibalism, and dental modification have been identified (Pickering and Foster, 1994).

CONCLUSION

In conclusion, we believe that the minimal six taphonomic features used to identify Southwest cannibalism herein are as definitive as circumstantial evidence can ever be. We emphasize that there are other qualities associated with the cannibal signature, especially good preservation, but the key six must be present before cannibalism can even be suggested. The relatively large number of Southwest sites evidencing probable cannibalism, and the concentration of these sites in and relatively near Chaco Great Houses and outliers, leads to the hypothesis that part of the explanation for Anasazi cannibalism is tied to whatever explanation is finally worked out for the development of the Chaco Great House, road, and outlier sociopolitical system. Our identification of possible west Mexican travelers in prehistoric Arizona burials leads us to agree with those scholars who favor a measurable Mexican influence on the development of the Chacoan phenomena. The Aztec and earlier Toltec use of ritual human sacrifice and cannibalism for social control, as well as for religious and ideological functions, could have worked just as well for the same duel purposes in the Anasazi area as they did in Mesoamerica. To show that the Anasazi had been influenced by Mexican cannibalism practices, more sets of perimortem-damaged human skeletal remains from prehistoric sites between the Anasazi area and the Valley of Mexico need to be located, described, compared and discussed.

In sum, minimal taphonomic criteria are herein identified that we feel must be met before cannibalism can be proposed. These criteria are based on both inductive and deductive considerations. In actuality, the taphonomic signature of human cannibalism matches that of game animal food remains. Our approach emphasizes
the need for contextual evaluation, not only within a site but within a region. This regional approach is an attempt to recognize temporal and spatial patterning that may help penetrate the barrier of proximate explanation. Ultimate explanations are not presently on the theoretical horizon.

ACKNOWLEDGEMENTS

We thank Carmen Pijoan Aguadé for inviting us to participate in the session *Un Enfoque Interdisciplinario de los Sacrificios Humanos y el Canibalismo*, which she excellently organized for the XIII International Congress of Anthropological and Ethnological Sciences, Mexico City, July 29 to August 5, 1993. Data for this study were collected over many years, most recently with aid from the Department of Anthropology, Arizona State University; and the National Geographic Society. Permission for our taphonomic examinations was granted by Ian Tattersall, Jaymie L. Brauer, American Museum of Natural History; Donald Ortner and Dennis Stanford, U.S. National Museum of Natural History, Smithsonian Institution; Alexander J. Lindsay, Jr., David Wilcox, Dana Hartman, Philip Thompson, Michael J. Fox, Museum of Northern Arizona; David A. Breternitz, University of Colorado (Dolores Project); Stanley Rhine, Maxwell Museum, University of New Mexico; H. Walcott Toll, Museum of New Mexico; Jack Smith, Mesa Verde National Park; San Juan County Museum Organization, New Mexico; Rose Tyson, San Diego Museum of Man; and Laurence Hammock, CASAS, Cortez, Colorado. The illustrated notched teeth were found by Gerald A. Bair in excavations directed by Cory D. Breternitz, Soil Systems, Inc., Phoenix, Arizona.

REFERENCES


Cannibalism

Special Pub., Washington, D.C.


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