

The Cannibal's Signature

Clues on prehistoric bones may flesh out cannibalism

By BRUCE BOWER

Excavations at a nearly 900-year-old pueblo in Colorado's Mancos Canyon in 1973 uncovered a mass of human bones bearing stark signs of violent death. Investigators noted crushed skulls, broken leg and arm bones, burned patches on some bones, and deep incisions made by sharpened stones. One team member raised the hackles of some anthropologists and American Indian groups by reporting that the victims had probably been cannibalized.

A new analysis of the 2,106 pieces of bone retrieved from the Mancos site affirms that grisly conclusion. In the process, the author of the exhaustive study has reignited debate not only regarding whether prehistoric cannibalism existed, but whether scientists can, in essence, read the cannibal's "signature" in a pile of bones.

Someone—apparently Anasazi Indians who inhabited the Mancos Canyon and other parts of the southwestern United States from A.D. 400 to A.D. 1300—cut up the recently deceased bodies of at least 17 adults and 12 children, cooked the pieces, and ate them, asserts anthropologist Tim D. White of the University of California, Berkeley. Damage to the skulls and neck bones indicates that decapitated heads were roasted on coals before diners cracked open the crania and removed the brains, White contends. Boiling in pots produced polished edges along some bones, and limb bones were split apart to obtain marrow, he maintains.

The Mancos bones do not represent an isolated instance of prehistoric cannibalism in the southwest, White adds. A similar pattern of damage characterizes human bones found at 18 other Anasazi sites, White concludes in *Prehistoric Cannibalism at Mancos 5MTUMR-2346* (1992, Princeton University Press).

Perhaps most important, the findings demonstrate that physical anthropologists, who study and classify bones, and archaeologists, who study the material remnants of human groups, can begin to examine other prehistoric remains for evidence of cannibalism, according to White. In fact, White—best known as a co-discoverer in 1974 of "Lucy" and other fossils belonging to the earliest known spe-

cies in the human evolutionary family—plans to track the cannibal's signature throughout the human fossil record.

Some investigators maintain that Anasazi warfare or burial practices more likely produced the skeletal damage at Mancos and contend that cannibals, if they ever existed, did not leave a legible signature on the bones of their victims. But other scientists, including critics of previous claims of prehistoric cannibalism, accept White's argument for Anasazi cannibalism and laud his research technique.

Speculation about prehistoric cannibalism practiced by Neandertals and other ancient members of the human evolutionary family has circulated for several centuries, often meeting little scientific skepticism. Mark Twain—no scientist, but a confirmed skeptic—tartly rejected such claims in an 1871 essay in which he decried "the savage ways and atrocious appetites attributed to the dead and helpless Primeval Man."

Reports of cannibalism collected by ethnographers (who study daily life in existing groups), explorers, and historians have also accumulated for numerous societies around the world. In a pivotal 1979 book titled *The Man-Eating Myth* (Oxford University Press), anthropologist William Arens of the State University of New York at Stony Brook argued that no researcher had ever actually witnessed an instance of cannibalism, and the practice probably did not exist except as a last resort to stave off starvation. The infamous settlers in the stranded Donner Party, who ate their comrades in 1846, exemplify the "emergency" cannibalism Arens deemed genuine.

Two years after the publication of Arens' book, anthropologist Lewis R. Binford of Southern Methodist University (SMU) in Dallas asserted that researchers had created a myth of cannibalistic Neandertals out of inconclusive fossils and sloppy studies.

Widespread scientific doubt soon surrounded any reports of cannibalism in

the recent or distant past. White himself directed a study of a fossil skull that refuted the long-standing claim of Neandertal cannibalism in an Italian cave (SN: 6/1/91, p.341).

Still, attempts to find valid signs of cannibalism in human remains persisted. A research team directed by Paola Villa of the University of Colorado at Boulder reported evidence of cannibalism at a 6,000-year-old French cave that passed muster among many anthropologists (SN: 7/26/86, p.52). Human and animal bones at the site contained the same selectively butchered parts and sported similar cut marks produced by stone axes. Both sets of bones contained pieces that had been deliberately broken to get at marrow.

But Villa's group acknowledged that a drastic food shortage or some other emergency may have caused these prehistoric folks to eat others and discard the leftovers at the isolated cave. The



illus: Courtesy Dept. of Library Services, American Museum of Natural History

bones remained mute about whether ritualistic or systematic consumption of human flesh took place.

Villa's study attracted White's attention, but the Berkeley researcher found more intriguing a series of discoveries in the Four Corners area of the Southwest (where Arizona, Colorado, New Mexico, and Utah meet), including the Mancos site, that pointed to multiple instances of Anasazi cannibalism. Anthropologist Christy G. Turner II of Arizona State University in Tempe had directed many of these excavations and bone studies, but not the dig at Mancos Canyon.

In 1983 Turner published a list of 14 characteristics of prehistoric human bones excavated in the Southwest that together make up a cannibalism signature. These include an array of stone-tool cut marks similar to those found on butchered animals, fractures produced by severe blows, skull abrasions gener-

ated by stones striking larger stone anvils placed atop the head, discoloration and cracking due to burning, limb-bone breaks that expose marrow, a predominance of cranial bones and scarcity of vertebrae, and few signs of bone weathering or animal gnawing (indicating that bone damage and the covering of remains occurred at or around the time of death).

White had long speculated that cut marks crisscrossing the skull of an approximately 400,000-year-old human ancestor in Africa might reflect an instance of cannibalism, but Turner's list convinced him that a thorough investigation of such behavior should begin in Anasazi country. He gained access to the Mancos bones in 1985 and studied them through 1990.

White and several co-workers first carefully fitted together as many of the

Many of the spongy ends of bones that form joints are missing from the Mancos skeletons, and as Turner has noted at other sites, only a few vertebrae remain. White suspects that whoever ate the bodies either crushed or boiled these pieces to obtain bone grease, an animal rendering practice observed among some modern American Indian groups.

Although 19 Anasazi sites provide evidence of cannibalism, elements of the cannibalism signature vary from one set of bones to another, White says. This suggests that the practice stemmed from nutritional needs rather than "deeply embedded ritual," he contends. In a similar vein, recent research indicates that the Anasazi, who grew maize as a staple food, suffered periods of drought accompanied by food shortages, warfare, and abandonment of large communities.

Anasazi living at Mancos may have killed and eaten their enemies, or they may have been eaten themselves by

Mancos and most other sites of Anasazi cannibalism date roughly to between A.D. 900 and A.D. 1050, he notes. Researchers should intensively explore the nature of Anasazi culture during that time period, Binford asserts.

Cannibalism, especially of war captives, may have occurred — and may still occur — fairly often in human groups that believe they can capture the power or other special qualities of various animals and people by eating them, Binford argues. Many hunting and foraging societies hold such beliefs, he contends.

"White's data imply that humans evolved as predators, and predators will eat their own if they're disadvantaged and not part of the breeding group," Binford says.

William Arens, who rejects ethnographic accounts of cannibalism, nevertheless accepts White's bone analysis. "But you can't cannibalize an entire time, place, and people on the basis of scattered remains," he contends.

"We have to keep an open mind on this issue."

Christy Turner sees White's study as a long-awaited confirmation of his investigations of skeletons from other Anasazi sites, the first of which was published in 1970. As early as 1902, an anthropologist reported signs of cannibalism on the fragmented skeletons of four individuals excavated at an Anasazi site in Arizona; Turner, who recently examined those bones, says they clearly display the cannibalism signature.

"There's no doubt prehistoric cannibalism occurred in the Southwest," he asserts. "Currently, there are more than 40 Anasazi sites containing the remains of almost

bone fragments as possible. He then analyzed the condition of all identifiable body parts.

The cannibalism signature shows up clearly in the Mancos specimens, White maintains. Cranial and limb bones make up much of the collection and display cut marks and other damage described by Turner. This proportion of body parts and the pattern of cut marks found at Mancos closely parallel those observed among butchered mule deer and bighorn sheep at a nearby Anasazi site, White points out.

He contributes a further clue to cannibalism at Mancos not mentioned on Turner's list: "pot polish," a beveling and buffing of bone edges — particularly splintered ends of limb bones and ribs — attributed to boiling in ceramic vessels. White reproduced the pot polish observed on Mancos remains by boiling pieces of mule deer bone in a replica of an Anasazi cooking vessel.

another warring tribe, White proposes. Alternatively, starving pueblo dwellers may have slowly consumed friends, relatives, and others who died of starvation.

A related explanation of cannibalism, proposed previously by several researchers, regards the scarcity of meat as a prime influence on cannibalism in prehistoric cultures. This theory holds, for example, that the Aztecs sacrificed and ate large numbers of war captives — as described in 16th century Spanish accounts — because of a shortage of domesticated animals and other sources of protein.

Whatever accounts for people consuming human flesh at Mancos and nearby sites, the results in no way characterize all Anasazi as cannibals, White cautions.

Still, the Berkeley scientist has produced "the best piece of research yet" with which to infer prehistoric behavior from bones, remarks SMU's Binford.

500 individuals with the cannibalism signature."

Turner suspects Anasazi cannibalism flared up during warfare or periods of social chaos. However, spear points and other weapons have yet to turn up at any of the proposed cannibalism sites, he acknowledges.

Considering the disputes surrounding previous reports of prehistoric cannibalism, criticism of White's study comes as no surprise. Paul Bahn, an independent archaeologist who lives in England, challenged the evidence of cannibalism at Mancos in a book review published in the April 11, 1992, NEW SCIENTIST.

The Anasazi remains, as well as those at the French site studied by Villa's group, exhibit skeletal damage closely resembling that produced by the mortuary



Spanish depictions of Aztec ritual show a priest dressed in the skin of a sacrificed person (far left), ritual sacrifice (left), and consumption of the victim. No comparable cannibalism portrayals exist for the Anasazi.



practices of some Australian Aborigines, Bahn argues. The Aborigines leave the bodies of the dead exposed to decompose or dry, remove the flesh, and smash bones with hammers or rocks before burial. Some body parts are left behind or lost when mourners gather up the bones. Marrow is removed and discarded. Several bodies often end up in one grave.

An intricate web of spiritual and religious beliefs underlies these Aborigine practices, Bahn asserts.

White skews his analysis in favor of cannibalism by comparing the Mancos specimens only to butchered animal bones and not to human remains from such mortuary practices, he contends.

White also cannot exclude the possibility that mortuary practices in the Southwest included the cooking of body parts in pots, according to Bahn.

"Despite Tim White's painstaking analysis, it comes down to a simple choice," Bahn concludes. "Do you prefer to imagine your ancestors as people with complex funerary rituals or as bloodthirsty cannibals?"

Bahn's nomination of mortuary practices rather than cannibalism at Mancos proves difficult to counter, remarks Colorado's Paola Villa, since investigators know little about American Indian burial practices.

But White maintains that the abundance of heads and limbs, breaking of

long bones, absence of vertebrae, and pot polish found at Mancos do not coincide with the mortuary practices of Aborigines or anyone else. Only a few prehistoric Southwest burials exist in which bodies apparently were stripped of flesh well after death in a manner similar to that of Aborigines, Turner adds. But these skeletons exhibit no signs of damage at or around the time of death and include none of the other components of the cannibalism signature, he notes.

Peter Y. Bullock, an archaeologist at the Museum of New Mexico in Santa Fe, agrees with Bahn that a comparison of human remains to those of butchered animals biases White's study, as well as Turner's investigations, toward a conclusion of cannibalism.

Dismembered human remains found at many Anasazi sites probably reflect death by battering during warfare and subsequent corpse mutilation, although mortuary practices may have contributed to the condition of some individuals, Bullock contends in the Fall 1991 *Kiva*, a journal that focuses on archaeological research in the Southwest.

Plains Indians battered and mutilated corpses during battle, including crushing skulls, dismembering bodies, and burning the remains, Bullock points out. Historical accounts and studies of soldiers' remains have documented this behavior at the 1876 Battle of Little Big Horn, as has

skeletal evidence from a nearly 700-year-old site in South Dakota.

Researchers have recently begun to revise traditional views of the "peaceful" Anasazi and other Southwest Indian groups, Bullock adds. Warfare between tribes apparently was not uncommon and included beating rival warriors to death and taking their heads as trophies.

"Cannibalism may have occurred among the Anasazi, but there is no scientifically valid way to test for it," Bullock argues.

Villa, however, asserts that White's study provides enough evidence to demonstrate that the Mancos individuals did not simply succumb to beating and mutilation. Cut marks on the bones indicate that bone breakage followed dismemberment, stripping of flesh from bones, and burning, instead of preceding them, as would occur with battering and mutilation, Villa argues.

Debate over the meaning of the proposed cannibalism signature in human remains will undoubtedly persist, Turner remarks. Nearly all modern societies view the eating of human flesh with some degree of repugnance, and the topic of cannibalism stirs up intense emotions, he asserts.

"But I'm convinced cannibalism occurred in the Anasazi area," Turner says. "The challenge now is to understand why it occurred." □



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