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# A Coprological View of Ancestral Pueblo Cannibalism

*Debate over a single fecal fossil offers a cautionary tale of the interplay between science and culture*

Karl J. Reinhard

As the object of my scientific study, I've chosen coprolites. It's not a common choice, but to a paleonutritionist and archaeoparasitologist, a coprolite—a sample of ancient feces preserved by mineralization or simple drying—is a scientific bonanza. Analysis of coprolites can shed light on both the nutrition of and parasites found in prehistoric cultures. Dietary reconstructions from the analysis of coprolites can inform us about, for example, the origins of modern Native American diabetes. With regard to parasitology, coprolites hold information about the ancient emergence and spread of human infectious disease. Most sensational, however, is the recent role of coprolite analysis in debates about cannibalism.

Most Americans know the people who lived on the Colorado Plateau from 1200 B.C. onward as the Anasazi, a Navajo (or Dine) word. The modern Pueblo people in Arizona and New Mexico, who are their direct descendants, prefer the description Ancestral Pueblo or Old Ones. Because the image of this modern culture could be tainted by the characterization of their ancestors, it's especially important that archaeologists and physical anthropologists come to the correct conclusion about cannibalism. This is the story of my involvement in that effort.

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When a coprolite arrived in my laboratory for analysis in 1997, I didn't imagine that it would become one of the most contentious finds in archaeological history. Banks Leonard, the Soil Systems archaeologist who directed excavation of the site at Cowboy Wash, Utah, explained to me that there was evidence of unusual dietary activity by the prehistoric individual who deposited the coprolite. He or she was possibly a cannibal.

I had been aware of the cannibalism controversy for a number of years, and I was interested in evaluating evidence of such activity. But from my scientific perspective, it was simply another sample that would provide a few more data points in my reconstruction of ancient diet from a part of the Ancestral Pueblo region that was unknown to me.

The appearance of the coprolite was unremarkable—in fact, it was actually a little disappointing. It looked like a plain cylinder of tan dirt with no obvious microfossils or visible dietary inclusions. I have analyzed hundreds of Ancestral and pre-Ancestral Pueblo coprolites that were more interesting. Indeed, I have surveyed tens of thousands more that, to my experienced eye, held greater scientific promise. Yet this one coprolite, when news of it hit the media, undid 20 years of my research on the Ancestral Pueblo diet. On a broader scale, it caused the archaeological community to rethink our perception of the nature of this prehistoric culture and to question what is reasonable scientific proof.

## Cannibalism, Without Question

In the arid environment of the U.S. Southwest, feces dried in ancient times provide a 9,000-year record of gastronomic traditions. This record allows me and a few other thick-skinned research-

ers to trace dietary history in the deserts. (I say "thick-skinned," because analysts generally don't last long in this specialty. Many have done one coprolite study, only to move on to a more socially acceptable archaeological specialty.)

From the mid-1980s to the mid-'90s, I had characterized the Ancestral Pueblo lifestyle as a combination of hunting and gathering mixed with agriculture based on the analysis of about 500 coprolites from half a dozen sites. Before me, Gary Fry, then at Youngstown State University, had come to the same conclusion in work he published during the '70s and '80s, based on the analysis of a large number of Ancestral Pueblo coprolites from many sites. These people were finely attuned to the diverse and complicated habitats of the Colorado Plateau for plant gathering, as well as for plant cultivation. The Ancestral Pueblo certainly ate meat—many kinds of meat—but never had there been any indication of cannibalism in any coprolite analysis from any site.

The evidence for cannibalism at Cowboy Wash has been widely published. A

**Figure 1.** What was the nature of the people who occupied much of the Colorado Plateau for two and a half millennia up until about 1300 A.D.? Commonly known by the Navajo term Anasazi, the Ancestral Pueblo were considered the "peaceful people" until they were accused of cannibalism in 1990s. The answer is more than academic, as their descendants still occupy the southerly reaches of the Ancestral Pueblo domain. The author has studied hundreds of Ancestral Pueblo coprolites—dried or fossilized feces—and has found all but one to contain residues of a diverse mixture of plant matter, both domesticated and wild, and meat. Only one shows evidence of cannibalism. Should that single sample be used to condemn an entire culture? The human effigy shown here is from Pueblo III culture, circa 700–1100 A.D.



The Art Archive/Southwest Museum/Pasadena/Laurie Pratt Winfrey

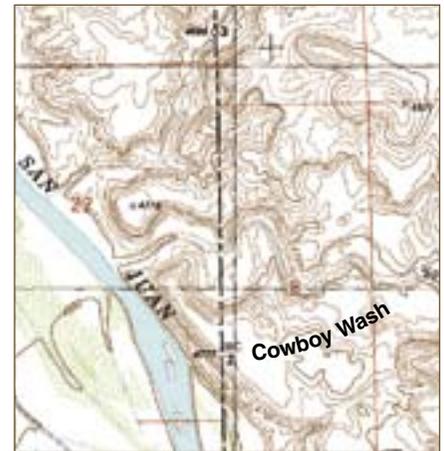


Figure 2. Cowboy Wash, Utah, near the San Juan River and Four Corners, is the only Ancestral Pueblo archaeological excavation to turn up coprological evidence of cannibalism. Evidence from other sites (red dots) confirms the people's diverse diet. (Topographic map courtesy of the U.S. Geological Survey.)

small number of people were undoubtedly killed, disarticulated and their flesh exposed to heat and boiling. This took place in a pit house typical of the Ancestral Pueblo circa 1200 A.D. At the time of the killings, the appearance of the pit house must have been appallingly gruesome. Human blood residue was found on stone tools, and I imagine that the disarticulation of the corpses must have left a horrifying splatter of blood around the room. But the most conclusive evidence of cannibalism did not come from the room where the corpses were dismembered. It came from a nearby room where someone had defecated on the hearth around the time that the killings took place. The feces was preserved as a coprolite and would turn out to be the conclusive evidence of cannibalism.

My analysis of the coprolite was not momentous. I could determine from its general morphology that it was indeed from a human being. However, the tiny fragment that I rehydrated and examined by several microscopic techniques contained none of the typical plant foods eaten by the Ancestral Pueblo. Background pollen of the sort that would have been inhaled or drunk was the only plant residue that I found. Thus, I concluded that the coprolite did not represent normal Ancestral Pueblo diet. It seemed to represent a purely meat meal, something that is unheard of from Ancestral Pueblo coprolite analyses.

After analyzing the Cowboy Wash coprolite, I took a half-year sabbatical as a Fulbright scholar in Brazil. When I returned, I learned that my analysis had

been superseded by a new technology. Richard Marlar from the University of Colorado School of Medicine and colleagues had taken over direct analysis of the coprolite using an enzyme-linked immunosorbent assay to detect human myoglobin, and their work had confirmed and expanded my analysis. The coprolite was from a human who had eaten another human. The technical paper appeared in *Nature* and was followed by articles in the *New Yorker*, *Discover*, *Southwestern Lore* and the *Smithsonian*, among many others. The articles became the focus of a veritable explosion of media pieces in the press, on radio and television, and on the Internet, amounting to an absolute attack on Ancestral Pueblo culture.

Initially, I sat and watched the media feeding frenzy and Internet chat debates with a sense of awe and post-sabbatical detachment. My original report suggesting the coprolite was not of Ancestral Pueblo origin went largely unnoticed. The few journalists who did call me for an opinion proved uninterested in publishing it. In some cases it was too far to fly to Nebraska to film; in others my opinion didn't fit into the context of the debate. Well, I have looked at more Ancestral Pueblo feces than any other human being, and I do have an opinion: The Ancestral Pueblo were not cannibalistic. Cannibalism just doesn't make sense as a pattern of diet for people so exquisitely adapted to droughts by centuries of hunting-gathering traditions and agricultural innovation.

Then a media quote knocked me out of my stupor. Arizona State University anthropologist (emeritus) Christy G. Turner II, commenting in an interview about a book he co-authored on Ancestral Pueblo cannibalism, said, "I'm the guy who brought down the Anasazi." Perhaps to temper Turner's broad generalization, Brian Billman (a coauthor of the Marlar *Nature* paper) of the University of North Carolina at Chapel Hill, suggested that a period of drought brought on emergency conditions that resulted in cannibalism. Beyond the scientific quibbling about who ate whom and why, I am amazed at the vortex of debate around the Cowboy Wash coprolite. The furor over that one coprolite represents a new way of thinking about the Ancestral Pueblo and archaeological evidence.

### What Did the Ancestral Pueblo Eat?

To me, a specialist in Ancestral Pueblo diet, neither Turner's nor Billman's explanation made sense. So, in the years since the *Nature* paper appeared in 2000, I have renewed my analyses of Ancestral Pueblo coprolites to understand just what they did eat in times of drought. And let me say emphatically that Ancestral Pueblo coprolites are not composed of the flesh of their human victims. Some of their dietary practices were, perhaps, peculiar. I still recall in wonderment the inch-diameter deer vertebral centrum that I found in one sample. It was swallowed whole. The consumption of insects, snakes and lizards brought the Ancestral Pueblo notice in the children's book *It Was Disgusting and I Ate It*. But

looking beyond such peculiarities, their diet was delightfully diverse and testifies to the human ability to survive in the most extreme environments. To me, diet is one of the most fundamental bases of civilization, and the Ancestral Pueblo possessed a complicated cuisine. They were gastronomically civilized.

Widespread analysis of coprolites by “paleoscatologists” began in the 1960s and culminated in the ‘70s and ‘80s when graduate students worked staunchly on their coprological theses and dissertations. From Washington State University to Northern Arizona University to Texas A & M and many more, Ancestral Pueblo coprolites were rehydrated, screened, centrifuged and analyzed. Richard Hevly, Glenna Williams-Dean, John Jones, Mark Stiger, Linda Scott-Cummings, Kate Aasen, Gary Fry, Karen Clary, Molly Toll and Vaughn Bryant, Jr., to name a few, joined me in puzzling over Ancestral Pueblo culinary habits. In their conscientious and rigorous research, the same general theme emerged. The Ancestral Pueblo were very well adapted to the environment, both in times of feast and in times of famine.

In general, the Ancestral Pueblo diet was the culmination of a long period of victual tradition that began around 9,000 years ago, when people on the Colorado Plateau gave up hunting big animals and started collecting plants and hunting smaller animals. Prickly pear cactus, yucca, grain from dropseed grass, seeds from goosefoot and foods from 15 other wild plants dominated pre-Ancestral Pueblo life. One of the truly interesting dietary patterns that emerged in the early time and continued through the Ancestral Pueblo culture was the consumption of pollen-rich foods. Cactus and yucca buds and other flowers were the sources of this pollen. Rabbit viscera probably provided a source of fungal spores of the genus *Endogone*, although I doubt that these people knew they were eating the spores when they ate the rabbits. The pre-Ancestral Pueblo people adapted to starvation from seasonal food shortages by eating yucca leaf bases and prickly pear pads and the few other plants that were available in such lean times.

Prey for the pre-Ancestral Pueblo people included small animals such as rabbits, lizards, mice and insects. In fact, most pre-Ancestral Pueblo coprolites contain the remains of small animals. My analysis of these remains shows that small animals, especially

rabbits and mice, were a major source of protein in summer and winter, good times and bad.

The Ancestral Pueblo *per se* descended from this hunter-gatherer tradition. Coprolite analysis shows that they were largely vegetarian, and plant foods of some sort are present in every Ancestral Pueblo coprolite I have analyzed. But these later people also expanded on their predecessors’ cuisine. They cultivated maize, squash and eventually beans. Yet they continued to collect a wide diversity of wild plants. They actually ate

more species of wild plants—more than 50—than their ancestors who were totally dependent on wild species.

### Adapting to the Environment

In 1992, I presented a series of hypotheses addressing why the Ancient Pueblo ate so many species of wild plants. Later, Mark Stiger of Western State College and I went to work on the problem using a statistical method that he devised. We determined that the Ancestral Pueblo encouraged the growth of edible weedy species in the disturbances caused by



Figure 3. Small seeds were an important part of the Ancestral Pueblo diet. Because they are typically quite small and are often fragmented from stone grinding, their identification in coprolites can be difficult. Shown here (clockwise, from upper left) are seeds of pigweed, goosefoot, purslane, dropseed grass, an unknown seed present in only one sample and hedgehog-cactus fruit. These are only a few examples of the seeds that the Ancestral Pueblo ate. (Vegetation photographs by the author.)

cultivation and village life. In doing so, they increased the spectrum of wild edible plants available to them, often using them to spice cultivated plants. Rocky Mountain beeweed, purslane and groundcherry were especially important in conjunction with maize. Corn smut was another important condiment. In fact, maize, purslane, beeweed and corn smut appear as the earliest components of a distinct cuisine in the earliest Ancestral Pueblo coprolites I have analyzed, from Turkey Pen Cave, Utah. These coprolites are about 1,500 years old. The maize-beeweed-corn smut-purslane association remained a central feature of Ancestral Pueblo cuisine at most sites to the latest periods of the culture. Importantly, they also ate wild plants to offset seasonal shortages, especially in winter when their stores of cultivated food were exhausted. Thus, retaining a diverse array of wild plants in the mix helped them adapt to food shortages.

Paul Minnis of the University of Oklahoma applied a different statistical test to address a different problem. He analyzed coprolite findings from Arizona, New Mexico, Utah and Colorado to see if people in different regions had distinct dietary traditions. Paul showed that the Ancient Pueblo adapted to the environmental variability of the Colorado Plateau by adjusting their agricultural, hunting and gathering habits to the natural resources available. Ancient Pueblo from Glen Canyon, Utah, had a slightly different dietary tradition from those of Inscription House, Arizona; those of Mesa Verde, Colorado; and those of Chaco Canyon, New Mexico. Later, in separate work, he identified how these people adapted to bad times. He found that the Ancestral Pueblo had “starvation foods,” such as yucca and prickly pear, to get through poor times. These were a legacy from their hunter-gatherer ancestors.

Sometimes Ancestral Pueblo groups developed dietary traditions that required trade or foraging in areas remote from their home. Sara LeRoy-Toren, with the Lincoln High School Science Focus Program, and I are analyzing coprolites from Salmon Ruin, which was built along the San Juan River between the modern towns of Farmington and Bloomfield, New Mexico. It was abandoned by its original occupants and reoccupied by people from the San Juan River Valley. Our analysis is from the San Juan occupation, which was generally a time of abundance for both agriculture and gathered foods.

These coprolites reflect the Ancestral Pueblo tradition and contain juniper berries and cactus buds from areas local to the site, but they also contain piñon nuts that must have been harvested some miles away. We also calculated the number of pollen grains per gram of Salmon Ruin coprolites and found both maize and beeweed pollen in quantities as large as millions of grains per gram. Importantly, the maize pollen is shredded in a manner consistent with pollen eaten in corn meal, so maize was eaten both fresh off the cob and in the form of stored flour, although most of the microscopic remains from Salmon Ruin are in the ground form.

One of my former graduate students, Dennis Danielson, now at the Central Identification Laboratory at the Joint POW/MIA Accounting Command, found phytoliths—microscopic crystals produced in plant cells—in the Salmon Ruin coprolites. More than half of the Salmon Ruin coprolites contain phytoliths from yucca-type plants and cactus, a legacy of pre-Ancestral Pueblo gathering adaptation to the desert. Denny eventually found phytoliths from these wild plants in coprolites from other Ancestral Pueblo sites. These gathered plants predominated in his analyses and reaffirmed that the Ancestral Pueblo could adapt to drought by turning to edible desert plants that were adapted to extremely dry conditions.

But were these plants actually what the Ancestral Pueblo ate in times of drought, rather than just a routine part of their diet? Denny and I analyzed coprolites from the last occupation of Antelope House in Canyon de Chelly, Arizona. All archaeological, climatological and biological analyses indicate that the last occupation was a time of ecological collapse. The level of anemia in skeletons from this time and region is the highest known among the Ancestral Pueblo. Archaeological surveys show that the mesas around the canyon were abandoned as people moved into the canyon to have access to water. The levels of parasitism, especially with crowd diseases, elevated; parasites were present in one-quarter of the 180 Antelope House coprolites I studied.

The coprolites at Antelope House record the adaptation to this environmental collapse and drought. Phytoliths from prickly pear and yucca leaf bases were present in 92 percent of the coprolites. The Ancestral Pueblo at Antelope House had clearly resorted to reliance

on desert starvation foods. Yet their diet still lacked desperate monotony, as they ate wild plants from moist areas. Pollen occurs at concentrations in the hundreds of thousands to tens of millions of pollen grains per gram in the Antelope House coprolites. The main sources of pollen and spores were cattail, horsetail, beeweed and maize, but the diet at Antelope House included the greatest diversity of wild plants—27 species—ever recorded in Ancestral Pueblo coprolite studies. By contrast, only 16 wild species were identified in Salmon Ruin coprolites.

As for meat, my colleagues Mark Sutton, with California State University, Bakersfield, and Richard Marlar have found chemical signals in Ancestral Pueblo coprolites of bighorn sheep, rabbits, dogs and rodents. But as for cannibalism, Richard looked for human muscle indicators in the Salmon Ruin coprolites and found none. At Antelope House, Mark found protein residue of rabbit, rodents, dog, big horn sheep and pronghorn. There were also human protein residues present, but they were from intestinal cells shed by the body. The Ancestral Pueblo at Antelope House suffered parasitism from hookworms and hookworm-like organisms that would have resulted in excess shedding of intestinal cells. In fact, one Antelope House coprolite I analyzed was a mass of excreted parasitic worms mixed with seeds. Stable carbon and stable-nitrogen isotope analyses of the bones of these people from many sites indicate that, although they did eat meat, they were 70 percent herbivorous.

Every coprolite researcher who has worked with Ancestral Pueblo material has found animal bone. Kristin Sobolik of the University of Maine has shown that these people ate a particularly large number of lizard- and mouse-sized animals. This reliance on small animals was a remarkable adaptation to the Southwestern deserts, where small animals are most numerous and therefore a reliable source of protein—something the Ancestral Pueblo relied on feast or famine, just as their predecessors had.

### Life on the Edge

Compared with other agricultural traditions I have studied in other parts of the world, the Ancestral Pueblo were rarely far from agricultural failure. My students and I have examined coprolites from the most primitive and advanced cultures in the Andes, from the earliest Chinchorros to the latest Incas. In the Andes, too, there is a long history of hunting and

gathering that preceded agriculture. Once agriculture was established, however, 90 percent of the food species of Andean peoples were cultivated. This stands in meaningful contrast to the Ancestral Pueblo, whose food species remained predominantly wild. I think this is because they were on the very northern fringe of the region conducive to agriculture and couldn't rely on consistent productivity of their cultivated plots from year to year. Therefore, they maintained the hunter-gatherer dietary traditions to supplement, or replace if necessary, cultivated plants. Complete caloric dependence on cultivated plants, as took place in the Andes, was simply impossible for the Ancestral Pueblo.

Furthermore, these people often survived times of drought without cultural perturbations such as cannibalism. In my experience, the most poignant example of drought adaptation was seen in the analysis of a partially mummified child from Glen Canyon, Arizona. The child was buried during a long drought period, from 1210 to 1260 A.D. Archaeologist Steve Dominguez of the Midwest Archaeological Center directed the analysis of many specialists including myself and my students, Danielson and Kari Sandness. Burial offerings included a wide variety of ceramic, gourd and basketry artifacts. Compared with burial goods of other Ancestral Pueblo, these were consistent with those of average-status individuals. The drought did not disrupt the standard burial traditions for this three-to-four-year-old, yet x rays showed that this child survived seven episodes of starvation. The cause of death is unknown for this otherwise healthy child.

Analysis of the intestinal contents of the child provided insights into adaptation to drought. About 20 coprolites were excavated, and all of them were composed of a wild grass known as "rice grass." In the absence of cultivated foods, the child was provided with an alternative, and equally nutritious, wild food. Dominguez summarized the findings from the research succinctly:

Investigations in nearby areas indicate that this was a period of environmental degradation and that Anasazi populations may have experienced nutritional stress or other consequent forms of physiological stress. Studies of both prehistoric populations and living populations suggest that a number of methods were employed



Figure 4. The author has done extensive archaeological work at Antelope House in Canyon de Chelly, Arizona. Although there is evidence of nutritional stress, including high levels of parasitism, in the coprolites from Antelope House, the people there still maintained a diverse diet, including 26 species of wild plants. These, the author argues, constitute a starvation diet similar to what was eaten by the pre-Ancestral Pueblos. (Photograph courtesy of Philip Greenspun, <http://philip.greenspun.com>)

to support individuals through periods of stress, and to promote the well-being of the group.

#### Was the Cannibal Ancestral Pueblo?

Work by numerous investigators thus shows that the Ancestral Pueblo possessed remarkable ecological adaptability; if they resorted to cannibalism because of environmental stress, it was a highly atypical response. Further, burial excavations demonstrate that they maintained their traditions even in times of drought. Besides, beyond a single sample, hundreds of coprolite analyses find not even a hint of cannibalism. Overwhelmingly, the Ancestral Pueblo were primarily herbivorous. Why, then, does one coprolite from the northern reaches of the Ancestral Pueblo domain come to characterize an entire culture? A number of researchers were incredulous at the hysteria created by the Cowboy Wash cannibal coprolite. Vaughn Bryant, Jr., at Texas A & M, e-mailed his disbelief to our small specialist community. From his experience in the study of Western diets, cannibalism was simply not plausible. Karen Clary, with the University of Texas at Austin, also e-mailed her concerns with the findings as well as with the unbridled sensationalism.

Both coprolite and skeletal evidence examined by Utah State University bioarchaeologist Patricia Lambert do show that Ancestral Pueblo of Cowboy Wash were victims of violence and cannibalism—there's little question about it. But that doesn't mean that the cannibal(s) were Ancestral Pueblo. Mark Sutton and I found that these people invariably ate plant foods when they ate meat; it was a feature of their cuisine. The complete lack of plant matter in the Cowboy Wash coprolite tells me that it was not from an individual who observed the Ancestral Pueblo dietary tradition. To date, none of the principal investigators involved in the Cowboy Wash analysis have implicated residents or even Ancestral Pueblo from another location as the perpetrators of the violence. In short, I don't know who killed and ate the residents of Cowboy Wash, but I am sure the cannibal wasn't an Ancestral Pueblo.

#### The Peaceful People Concept

Christy Turner's quote in the popular media puzzled me. Why would anyone want to bring down an ancient culture, especially Turner, whose work is characterized by attention to detail, meticulous analytical procedures and, most of all, accumulation of mountains of data

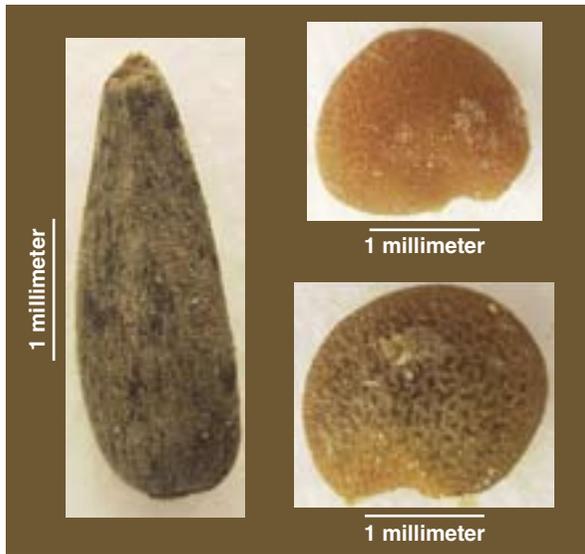


Figure 5. Wild sunflower achenes (left) were commonly eaten by the Ancestral Pueblo. Wolfberry (top right), however, turns up only rarely in coprolites. It contains bitter-tasting compounds that must be removed during preparation and is considered a starvation food. Groundcherry (bottom right) is much more common. Both wolfberry and groundcherry are in the tomato family.

to support his conclusions? One of my most striking memories of any scientist was an afternoon chat I had with Turner regarding his work with dental traits to trace migrations to the New World. His office was packed with neat columns of computer printouts from data collected from thousands of skulls. That same afternoon, the conversation turned to his study of cannibalism. I asked him specifics about his methods and found that he approached this area of research with the same exhaustive thoroughness he applied to his dental work. At no time did he indicate that he intended to “bring down the Anasazi.”

Then I read the book that Turner cowrote, *Man Corn*, and I realized that it was not the Ancestral Pueblo culture that he brought down. He was after our archaeological biases in how we reconstruct the nature of Ancestral Pueblo culture. To understand how that one coprolite came to be considered ironclad evidence of cannibalism among the Ancestral Pueblo, it's necessary to understand how these people have been characterized by anthropologists and archaeologists at various times over the past 50 or so years.

The view of the Ancestral Pueblo as peaceful people took root in the 1960s and '70s. Earlier work had shown that violence, and perhaps even cannibalism, had taken place among the Ancestral Pueblo. But in the '60s and '70s—a time of social volatility, seemingly suf-

fused in the violence of combat and revolt—modern American culture was searching for examples of nonviolent social systems. Academia sought out paradigms of peacefulness from other regions, other times and even other species. The Ancestral Pueblo became one of those “paragons of peace,” as did the San Bushmen and wild chimpanzees. Elizabeth Marshall Thomas published her book about the bushmen, *The Harmless People*, in 1959, and anthropologists took to highlighting the nonviolence of hunter-gatherers. This was when the “New Archaeology” emerged as a replacement for previous approaches. Students were discouraged from reading archaeological research that dated from before 1960; thus the earlier work that described evidence of violence was ignored.

Excavations during the 1970s were very counter-cultural in appearance and philosophy. Scholarly excavation camps often had the flavor of hippie communes. In that atmosphere, evidence of violence was largely dismissed both in the field and during the analysis phase. I recall participating in three excavations in which houses had burned and people perished within them. This seemed like pretty good evidence that all was not tranquil with the peaceful people, but such fires were explained as accidental. Once, when we discovered arrow points in a skeleton in a burned house, the evidence of violence was not



Figure 6. Horsetail sections from Antelope House (top) often show cut marks from stone knives. The same coprolites that contained horsetail also contained hundreds of thousands of horsetail spores. This has only been seen at Antelope House and is thus evidence for dietary stress. A hackberry seed and a partial fruit (lower left) clearly cannot have offered much nutrition and may have been a starvation food. Prickly pear seeds (lower right) were from fruits eaten when they became available in the fall.

deemed conclusive because the arrow points had not penetrated bone. At the time, I wondered whether we were being a little too quick to dismiss the possibility of violence; the alternative was that these people were remarkably negligent with their hearths and weapons. I began to think of the Ancestral Pueblo as peaceful but fatally accident prone.

Those claiming evidence of cannibalism among ancient American cultures were excluded from presenting their findings at the Pecos Conference, the regional meeting for Southwestern archaeologists. This caused quite a furor. A symposium on the subject of violence and cannibalism had been scheduled for the meeting, and the participants arrived, but the symposium was canceled at the last minute. In 20 years of participating in scientific meetings, this is the only instance I can recall of a scheduled event being canceled for purely political reasons.

In the '80s and '90s, the paragons of peaceful society began to fall—and fall in a big way. First, violence was acknowledged among the Maya, held as the Mesoamerican counterweight to the undoubtedly violent and cannibalistic Aztec prior to ascendance of the peaceful people. Violence and cannibalism were then documented among wild chimpanzees, the behavioral analogues to ancestral human beings. The evidence of conflict among the Ancestral Pueblo became so overwhelming that it was the focus of a

1995 Society of American Archaeology symposium, the proceedings of which were published in the book, *Deciphering Anasazi Violence*. The Ancestral Pueblo cannibalism argument was formalized in University of California, Berkeley anthropologist Tim White's 1992 book *Prehistoric Cannibalism at Mancos 5MTumr-2346*. In each case, physical anthropology alone, or in combination with scientific archaeology, brought down the peaceful paradigm with the weight of scientific evidence. Turner produced much of that evidence.

### Cannibalism at Other Sites?

In *Man Corn*, Turner carefully stated that he thought the Ancestral Pueblo were victims of terrorism imposed on them by a more violent and cannibalistic culture. The book reviews skeletal evidence of violence at more than 76 sites in the Ancestral Pueblo region. He believes that violence and cannibalism were introduced by migrants from central Mexico, where there is a long tradition of violence, human sacrifice and cannibalism.

Of the sites Turner discusses, I have first-hand experience with one, Salmon Ruin, where I spent three seasons excavating and later reconstructing the parasite ecology and diet of this large pueblo's occupants as part of my thesis and dissertation research. He focuses on a high structure called a kiva at the center of the three-story pueblo. Initially it was thought that the bodies of two adults and 35 children were burned in the tower kiva. His analysis indicates that these bodies were disarticulated and cannibalized. However, there are other interpretations.

In 1977, I discussed the tower kiva finds with the excavation director, the late Cynthia Irwin-Williams, who was then with Eastern New Mexico State University. She believed that the children were sent to the highest place in the pueblo with two adults when the structure caught fire. As the fire went out of control, they were trapped there.

Another explanation was offered to me by Larry Baker, director of the Salmon Ruin Museum. He told me that a new analysis of the bones showed that the people in the tower kiva were long dead when their bodies burned. Furthermore, there is evidence in the burned bones that the bodies had at least partly decomposed. It may be that the bodies were placed in the tower as part of a mortuary custom after

the pueblo was abandoned. When the pueblo burned, so did the bodies.

More recently, Nancy Akins, with the Museum of New Mexico, reanalyzed the human remains and stratigraphy of the tower kiva. She found that only 20 children and 4 adults were represented. Some of the bodies were deliberately cremated and others partially burned. Some remains showed that the bodies were dry before they were burned. This analysis suggests a complex series of mortuary events preceding the burning of the tower kiva and surrounding rooms. Analysis of the stratigraphy shows that they were not burned simultaneously but were deposited in different episodes. In this view, the evidence suggests a previously unknown mortuary practice rather than trauma and cannibalism.

I conclude that when analyzing the remains of the Ancestral Pueblo, it is important to consider that recent work shows that their mortuary practices were more complicated than we previously thought—and that complex mortuary practices should come as no surprise and constitute ambiguous evidence. Prehistoric people in Chile, the Chinchorros, not only disarticulated the dead, but also rearticulated the cleaned bones in vegetation and clay "statues." In Nebraska, disarticulation and burning of bones was done as a part of mortuary ritual. Closer to the Ancestral Pueblo, the Sinagua culture of central Arizona cremated their dead. Thus disarticulated skeletal remains and burning fall short of proving cannibalism.

### What We Can Learn

Because the members of extinct cultures cannot speak for themselves, the nature of cultural reconstruction easily becomes colored by the projections of the archaeological community and the inclination of the media to oversimplify or even sensationalize. The Ancestral Pueblo, once thought to be peaceful, have now become, especially in the lay mind, violent cannibals. Neither depiction is fair. They had a level of violence typical of most human populations—present but not excessive. Is that really so surprising?

Perhaps more astonishing is how unquestioning our culture can be in tearing down its icons. Much as we scientists may prefer to stick to the field or the laboratory, shunning the bright lights, we bear a responsibility to present our data in a way that

reduces the opportunity for exaggeration. Our findings must be qualified in the context of alternative explanations. As such, the Cowboy Wash coprolite offers us a cautionary tale.

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