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Butchers and Shamans: Zooarchaeology at a Central Mexican Hacienda

ABSTRACT

Zooarchaeological analysis conducted on remains recovered during two seasons of excavations at the Hacienda San Miguel Acocotla illuminates patterns of consumption among indigenous workers during the 19th century. Ethnographic research among modern butchers and at markets in Puebla, Cholula, and Atlixco, Mexico informs and contextualizes the results. When compared with data drawn from faunal remains on plantations in the United States, the results suggest that class analysis is of central importance to understandings of social dynamics of multiethnic sites throughout the Americas. In spite of this, some remains hint at the maintenance of pre-Columbian religious practices on the hacienda in the 19th century, suggesting that ethnicity was also salient to the inhabitants of the workers' quarters at Acocotla.

Introduction

The hacienda has long been a focus of historical research in Mexico, leaving no doubt as to the importance of the institution in Mexican history, economy, and society (Chevalier 1963; Taylor 1972; Mörner 1973; Van Young 1983; Jarquín et al. 1990; Brannon and Joseph 1991; Chance 2003). As research has shown, the Mexican hacienda was more than simply a large agricultural estate. With the establishment of each hacienda came a social and physical reordering of an ancient landscape. The hacienda system brought European conquerors and indigenous conquered into daily contact and provided a locus for the generation and institutionalization of new class, ethnic, and racial identities. As such, the hacienda lends itself well to anthropological investigation, as evidenced by the growing number of archaeological projects in several regions of Mexico (Jones 1981; Benavides Castillo 1985; Charlton 1986; Fournier-Garcia 1997; Meyers 2001, 2005; Charlton 2003; Fournier-Garcia and Mondragon 2003; Juli 2003; Alexander 2004; Newman 2009).

With the emergence of recent anthropological interest in Mexican haciendas, the research agenda to date has focused on the lives of the workers who toiled on these estates for almost 400 years, from the 16th to the 20th centuries (Meyers and Carlson 2002; Juli 2003; Alexander 2004; Newman 2009). Research focusing on the lives of common people articulates with several current disciplinary agendas in historical archaeology, including studies of subaltern groups in Latin America (Rodríguez 2001), the emergence of plantation and slave archaeology in the southern United States and Caribbean (Singleton 1985), and studies of the archaeology of inequality as manifest in the historical archaeological and documentary records (McGuire and Paynter 1991). At the Hacienda San Miguel Acocotla, archaeological study of hacienda workers also contributes new information about the transitions from indigenous to mestizo identity as experienced by a community of rural people, which by the early 20th century had ceased speaking Nahuatl (the native language of the region), had adopted Roman Catholic beliefs, and had shifted their self-ascribed identities from indigenous to more mainstream national forms.

This article examines faunal remains recovered during excavations at the Hacienda San Miguel Acocotla during the winter of 2007. Analysis of the recovered remains illuminates patterns of class and ethnic identity among both the indigenous inhabitants of the hacienda's worker quarters, or *calpanería*, during the 19th century, as well as inhabitants of contemporary multiethnic agrarian institutions throughout the Americas. To achieve this, a comparative perspective is used. Drawing on the extensive body of research dealing with plantations in the American South, commonly identified markers of ethnicity (McKee 1987) are compared between the remains recovered at the Hacienda Acocotla and published analyses from plantation excavations (Crader 1984, 1989, 1990; Reitz et al. 1985; McKee 1987; Yentsch 1992; Klippel 2001). Results suggest that patterns identified in skeletal-part representation, butchery, and food-preparation patterns speak to social class and access to resources, while taxonomic composition may speak to either ethnicity or social autonomy.

Most often, faunal analyses conducted on sites in Latin America have utilized a cultural-historical approach, examining faunal remains in light of Spanish colonial practices. To many, a comparative analysis with plantations in the southeastern United States might appear irrational. In fact, research at the Hacienda San Miguel Acocotla has shown that influences from Confederate expatriates permeated hacienda management at Acocotla, and likely at haciendas throughout central Mexico during the second half of the 19th century (Newman 2009). During this period, Mexico was a cosmopolitan place, experiencing extensive and profound cultural influence from Europe and the United States. From 1862 to 1867, Mexico was ruled by the French-Hapsburg Emperor Maximilian and his wife Carlotta. This French rule created an inviting place for, initially, Louisiana French planters fleeing the U.S. Civil War and its aftermath, an invitation that ultimately extended to other members of the Confederacy. In 1865, and by Maximilian's authority, the Mexican government passed a decree intended to create a "New Virginia" that allowed "free passage 'for those who have lost their substance,' free transportation for goods, and ... provision for bringing former Negro slaves on an apprenticeship basis" (Hanna 1954:19). Working with Maximilian's government, former Confederate officers and their families established within the government a land office that employed Confederate engineers to conduct land surveys, hold positions as immigration agents, and create an English-language Confederate newspaper named the *Mexican Times* (Hanna 1954:19). Some optimists even predicted that 200,000 Southern families would establish plantations in Mexico (Hanna 1954:19). While immigration never reached these levels, Southern planters were a substantial presence in central Mexico during the 1860s. With such strong connections between the two regions, the comparative perspective used in this article is both valid and productive.

The Hacienda San Miguel Acocotla

The Hacienda San Miguel Acocotla is in the valley of Atlixco, Puebla, about 10 km southwest of Atlixco's city center and at approximately 1800 m above sea level (Figure 1). The valley is composed of agricultural land located east of a line of hills running south from the summit

of the Popocatepetl volcano, which is clearly visible throughout the valley. When founded in 1577 by Lucas Pérez Maldonado, the Hacienda Acocotla represented a new social order in a landscape that had been occupied for millennia (Plunket 1990:3–4). It functioned as an institution for some 370 years until the end of the Mexican Revolution. During the 20 years following the revolution, agrarian reforms enabled members of the villages surrounding Acocotla to purchase the lands of the former hacienda. In 1946, the final parcels were bought by several dozen farmers from the village of La Soledad Morelos. The village is located 2 km to the south of Acocotla and is a community of descendants of the hacienda's day and resident workers. Members of the village now own most of the land to the south of the hacienda, as well as the hacienda ruins themselves. To the west of the hacienda is the village of Tejupa, to the east, La Trinidad Topango, and San Jerónimo Coyula is located to the north. Members of these villages own smaller parcels of land surrounding the ruined hacienda and were once workers on the hacienda themselves.

From its 16th-century origin to its final breakup in 1946, 22 different owners controlled commerce and life at Acocotla. Documentary research suggests that in the early 20th century as well as throughout the earlier centuries of occupation, Acocotla was a medium-sized hacienda within this region (Romano 2005; Newman 2009). The land's value in 1885 was the equivalent of \$42,500 in Mexican gold pesos, mid-range in value compared to other nearby haciendas (Romano 2005:43). Throughout its years in operation, Acocotla had an agriculturally based economy, growing primarily wheat, but also maize, beans, chiles, jicama, and peanuts. Fruit trees and small-scale stock raising, primarily cattle and goats, were also elements of the hacienda's economy.

The *Calpanería* of Acocotla

During the last four years, research based in archives in Puebla (Archivo General de Notarías del Estado de Puebla and Archivo del Registro Agrario del Estado de Puebla) and Mexico City (Archivo del Centro de Estudios de Historia de México) has resulted in an accumulated body of materials with which to document Acocotla's history, and allows for the examination of



FIGURE 1. Map showing the location of San Miguel Acocotla. (Map by author, 2008, using ESRI Data and Maps 2007—Mexico [Map]. 1:1,777,816.)

the visibility of worker life. The lives of the hacienda workers (or *peones*) typically come to light in documents such as an 1893 list of 56 individuals of indigenous identity, ranging from 1 to 61 years of age, who lived and worked at Acocotla. While it is clear that most records do not pertain to the daily life and working conditions of the *peones*, this population can be seen historically in these worker employment lists, which include information on their level of literacy, whether they spoke Nahuatl or Spanish, their marital status, age, education levels, and health (Romano 2005:154–155).

During this project's initial phase, Harold Juli of Connecticut College conducted an informal visual survey of 10 haciendas in the Puebla and Tlaxcala region to develop an understanding of the nature of regional settlement patterns, site preservation, and the potential for archaeological and ethnographic research. The more than 400-year-old Hacienda San Miguel Acocotla was

ultimately selected as the research site. While the main house, or *casco*, is in a poor state of preservation, the area of worker housing, called the *calpanería*, along the *casco*'s south wall, was sufficiently well preserved to suggest to Juli that a profitable archaeological study focused on the indigenous-worker population would be feasible. The *calpanería* is a parallel row of 37 small structures encompassing most of the hacienda's main outer wall and flanking the principal entrance (Figure 2). Documents from the archives in Atlixco indicate that the *calpanería* as it is seen today was built in 1860. The typical adobe room is 3.5 m wide, 3.5 m in depth, and 2.5 to 3.0 m in height from the floor to the location of roof rafters along the back wall. There is some variation in the preservation of these adobe structures. Most retain only side and back walls which sit on a stone or brick foundation. No roofs have survived (Figure 3). Two structures have surviving front



FIGURE 2. *Calpanería* and main entrance of the Hacienda San Miguel Acocotla. (Photo by author, 2005.)

adobe walls showing the location of the door opening (Figure 4).

Archaeological Investigations at the Hacienda Acocotla

Two seasons of archaeological research were conducted at the Hacienda San Miguel Acocotla. Excavations focused on the *calpanería* and the field fronting the structure. The initial study included detailed architectural recording, surface survey, and test excavations. The results of this field season led to eight weeks of excavations during the winter of 2007, directed by the author as part of dissertation research at Yale University. During this period, five randomly chosen rooms in the *calpanería* and an extensive midden were excavated, and excavations of a large, randomly chosen unit (Unit A) begun in 2005 were completed (Figure 5). All excavations were conducted in 10 cm arbitrary levels constrained by natural stratigraphic breaks, and all soil was screened using 6.35 mm mesh. The surface survey and excavations resulted in the recovery of more than 87,000 artifacts. Dates derived from these artifacts suggest that the majority of contexts date to the second half of the 19th century, though a few contexts may date as early as the end of the 18th century (Newman and Juli 2008; Newman 2009).

Zooarchaeology at the Hacienda Acocotla

Zooarchaeological analysis on historic sites does more than provide a list of animals



FIGURE 3. Room 20 of the *calpanería*. (Photo by author, 2004.)

present, but instead may be used to explore complex social and economic relationships. An analysis of the faunal remains recovered at the Hacienda Acocotla engages with this tradition and helps build an understanding of the foodways of the workers at the hacienda. Scholars recognize foodways as stable markers of ethnicity and a vehicle for the generation and institutionalization of new identities (Mintz 1996; Pilcher 1998; Bauer 2001; Rodríguez-Alegría 2005; Smith 2006). Patterns in foodways are also linked to socioeconomic class (Schultz and Gust 1983; Peloso 1985; Wiessner 1996). Archaeological materials reflect this form of identity through indices such as wealth, social conditions, and health (Schultz and Gust 1983; Orser 1988; Paynter 1988; Reitz and Zierden 1991). This article draws on all of these intellectual threads to access both dimensions of group identity and processes of social change at the Hacienda Acocotla.



FIGURE 4. Room 1 of the *calpanería*, showing the entrance. (Photo by author, 2004.)

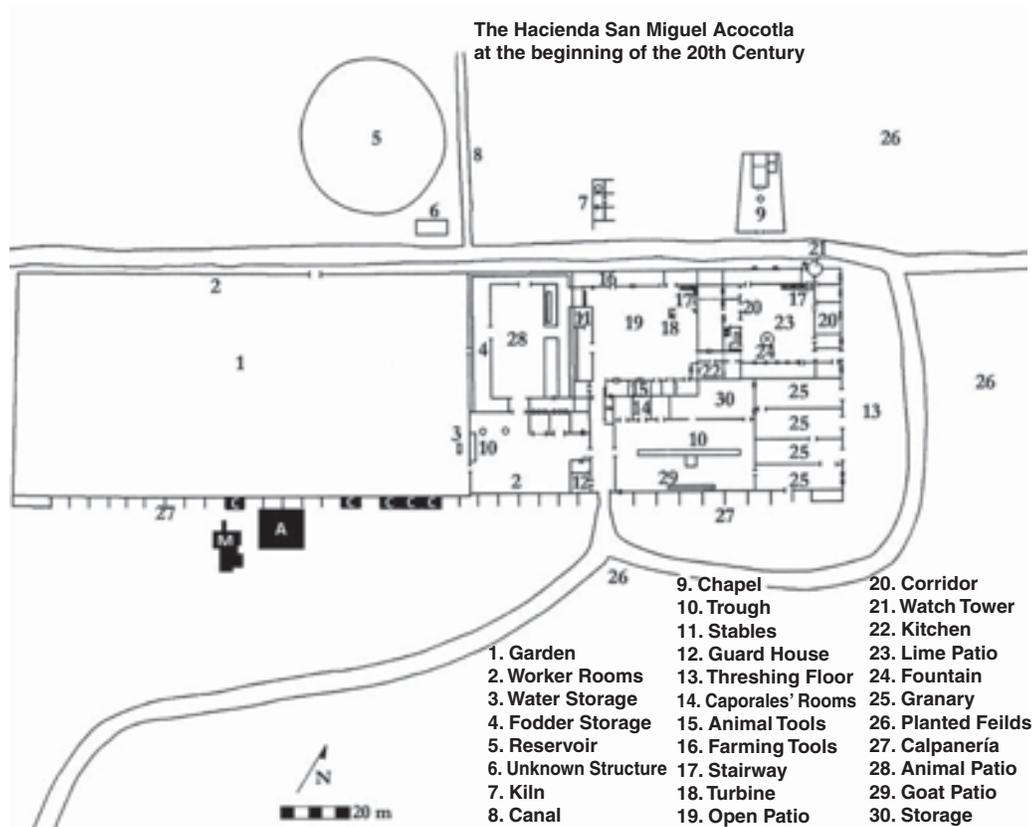


FIGURE 5. Hacienda San Miguel Acocotla, showing locations of excavations, Winter 2007. (A) Unit A, (C) *calpanería* room, (M) midden. (Drawing by author, 2008.)

Methodology

Faunal remains were collected at Acocotla during both field seasons in surface collections and excavations. The faunal remains discussed here are only those recovered during excavations in the winter of 2007 (Figure 5). The majority of these remains (2,268 bones and bone fragments) were recovered from the midden area. An additional 889 were recovered from excavation of the *calpaneria* rooms. Finally, only 12 bones and bone fragments were recovered from excavations in Unit A. Dates from artifact analysis indicate that all deposits considered here date to the second half of the 19th century (Newman 2009).

Analysis of the faunal materials was conducted in the archaeology laboratory at the University of the Americas, Puebla, Mexico. The faunal materials were separated from other artifacts in the field, then dry brushed clean, and labeled in the lab. The analysis was carried out following bagged provenience lot. Wherever possible, the material was identified to the level of species using comparative collections at the University of the Americas, Puebla, and reference books when necessary or appropriate. Mammal bones that could not be identified to specific taxa were grouped by the size categories small (a mammal that is smaller than a pig), medium (a mammal sized between a pig and a cow), and large (a mammal that is at least as large as a cow). All data were recorded by hand on an Excel spreadsheet and then entered into a database.

In addition to species information, the skeletal part was recorded using a system modified after Gifford and Crader (1977). Human modifications to the bones in the form of butchery and burning, and taphonomic modifications in the form of weathering (Behrensmeyer 1978) and rodent and carnivore damage were also recorded. Finally, the weight of each bone or lot of analysis was recorded. Measurements of individual elements were not collected because the bones in the collection were highly fragmented.

Taxonomic Representation

Three methods for determining relative taxa representation are employed: Number of Identified Specimens (NISP), Minimum Number of Individuals (MNI), and weight. Each of these methods has its supporters and detractors, and each is subject

to a variety of taphonomic and statistical biases (Reitz and Wing 1999:202–224; Landon 2005:8–10). All three methods are presented to facilitate future comparisons regardless of the method preferred by other researchers. Further, a comparison of the data derived from each method allows for a measure of control over the final interpretations made here (Landon 2005:9). Unreasonable or heavily biased results are easily identified because they fall outside of the expected ranges set by the other methods of analysis.

The Number of Identified Specimens, or NISP, is simply a raw count of the bones and bone fragments in a collection (Reitz and Wing 1999:155–156). Minimum Number of Individuals, or MNI, is a calculation that represents the fewest number of individuals required to account for the skeletal elements in a collection (Reitz and Wing 1999:194). While there are many ways of performing these calculations, the MNIs presented in Table 1 are based on one of the most conservative methods because the calculations take into account body-part representation, symmetry, portion of the body part, and when available, fusion stage. The numbers of individuals listed in Table 1 is low because of the method used, but as with any MNI data, these numbers should not be taken as representative of the actual number of individual animals at the site. The numbers are the basis for understanding the relative representations of taxa present at Acocotla, and the measure that is significant is the percentage of individuals. Weight is represented by the total weight of the collected bones measured to the tenth of a gram.

Table 1 summarizes the results of the analysis. During the 2007 season, 3,263 individual bones and bone fragments were recovered through excavation. Of these, 142 bone fragments (4.4% of the total collection) were identified only to the level of vertebrate. The remaining 3,121 bones and bone fragments (95.7%) were assigned to the broad categories of mammal, bird, fish, and reptile. No amphibians were identified. As Table 1 indicates, mammals dominate the collection, contributing 90.5% of the NISP, 78.1% of the MNI, and 98.3% of the total weight. Birds are next most common, contributing 4.7% of the NISP, 17.1% of the MNI, and 1.1% of the total weight. Reptiles, largely in the form of turtles or tortoises, contributed 0.4% of the NISP, 2.4% of the MNI, and 0.1% of the total weight. Finally,

TABLE 1
NISP, MNI, AND WEIGHT OF BIRDS, FISH, MAMMALS, AND REPTILES

Birds	Species	NISP	% of Class	MNI	% of Class	Weight (g)	% of Class
Domestic chicken	<i>Gallus gallus</i>	5	3.3%	1	14.3%	54.0%	5.5%
Duck family	Anatidae	1	0.7%	1	14.3%	1.0%	0.1%
Turkeys, pheasants, etc.	<i>Galliforme</i>	3	2.0%	1	14.3%	20.0%	2.0%
Wild turkey	<i>Meleagris gallopavo</i>	46	30.3%	4	57.1%	509.0%	51.6%
Unidentified	Unidentified	97	63.8%		0.0%	402.0%	40.8%
Total Birds		152	100.0%	7	100.0%	986.0%	100.0%

Fish	Species	NISP	% of Class	MNI	% of Class	Weight (g)	% of Class
Unidentified		1	100.00%	1	100.00%	0.8	100.00%
Total Fish		1	100.00%	1	100.00%	0.8	100.00%

Mammals	Species	NISP	% of Class	MNI	% of Class	Weight (g)	% of Class
Armadillos	<i>Dasyus novemcinctus</i>	2	0.1%	1	3.1%	0.35	0.00%
Cattle	<i>Bos taurus</i>	205	6.9%	4	12.5%	2,762.1	31.2%
Domestic cats	<i>Felis domesticus</i>	3	0.1%	1	3.1%	1.8	0.0%
Domestic dogs	<i>Canis familiaris</i>	3	0.1%	1	3.1%	3.8	0.0%
Goats and/or sheep	<i>Caprine</i>	93	3.1%	10	31.3%	314.0	3.5%
Horses	<i>Equus sp.</i>	12	0.4%	1	3.1%	499.0	5.6%
Humans	<i>Homo sapiens</i>	1	0.0%	1	3.1%	1.7	0.0%
Large mammals		384	13.0%		0.0%	2,157.4	24.4%
Marmots	<i>Marmota sp.</i>	2	0.1%	1	3.1%	5.0	0.1%
Medium mammals		304	10.3%		0.0%	455.5	5.1%
Old World rats	<i>Rattus sp.</i>	2	0.1%	1	3.1%	7.3	0.1%
Opossums	<i>Didelphis marsupialis</i>	1	0.0%	1	3.1%	0.8	0.0%
Pigs	<i>Sus scrofa</i>	94	3.2%	3	9.4%	302.3	3.4%
Pocket gophers	<i>Cratogeomys sp.</i>	3	0.1%	1	3.1%	4.2	0.0%
Rabbits	<i>Sylvilagus Sp.</i>	7	0.2%	2	6.3%	7.4	0.1%
Ringtails (cacomistles)	<i>Bassariscus astutus</i>	1	0.0%	1	3.1%	0.2	0.0%
Rodents	<i>Rodentia</i>	2	0.1%	1	3.1%	0.3	0.0%
Sheep	<i>Capra hircus</i>	2	0.1%	1	3.1%	21.8	0.2%
Small mammals		30	1.0%		0.0%	15.1	0.2%
Unspecified deer	<i>Cervidae</i>	3	0.1%	1	3.1%	28.1	0.3%
Unidentified mammals		1,800	60.9%		0.0%	2,266.8	25.6%
Total Mammals		2,954	100.00%	32	100.0%	8,855.0	100.0%

Reptiles	Species	NISP	% of Class	MNI	% of Class	Weight (g)	% of Class
Tortoises and turtles	<i>Testudines</i>	13	92.9%	1	100.0%	11.1	98.2%
Unidentified		1	7.1%		0.0%	0.2	1.8%
Total Reptiles		14	100.0%	1	100.0%	11.3	100.0%

Note: An additional 142 bone fragments were not assignable to any of these categories.

a single bone fragment was identified as fish. The near absence of fish may in part be due to the collection methods used in the field. Due to field conditions and the conditions inherent in an international research project, the only available screens were 6.35 mm mesh, which are known to bias collections against fish and other small-boned animals; given that there is only a single fish bone in the entire collection, even after flotation of soil samples, it seems reasonable to assume that fish were an unimportant resource at Acocotla. Today, fish is a negligible part of the diet among the descendant population. During interviews about food and food preferences conducted in June of 2005, fish was mentioned only once by one interviewee, who listed it as her least favorite food. Today, people occasionally fish in a reservoir stocked with trout, less than 3 km from the site, but naturally occurring species are rare, and the reservoir was constructed only during the 1950s. Historically, water in the Atlixco region has been a scarce and contested resource, a fact that is attested to by the frequent legal battles over water rights found in Acocotla's written records (Romano 2005), which suggests the absence of fish in the modern diet is probably not new.

When all of the methods for determining relative species representation are taken into account, certain patterns emerge. European-introduced domesticates seem to have been the most important meat resource, regardless of the measurement used. Eight hundred and eighty-seven bones and bone fragments were identified with enough specificity to allow for the determination of either wild or domestic. Of these, 95.8% (850 bones and bone fragments) were domestic taxa, and 4.2% (37 bones and bone fragments) were wild taxa. Wild animals included: *Bassariscus astutus* (ringtails), *Cratogeomys* sp. (pocket gophers), *Cervidae* (deer), *Dasyurus novemcinctus* (nine-banded armadillos), *Didelphis marsupialis* (opossums), *Marmota* sp. (marmots), *Rattus* sp. (rats), *Sylvilagus* sp. (rabbits), *Anatidae* (ducks), and *Testudines* (turtles and tortoises). Identified domestic species included: *Bos taurus* (cattle), *Canis familiaris* (dogs), *Capra hircus* (sheep), caprine (sheep or goats), *Equus* sp. (horses, donkeys, mules), *Felis domesticus* (domestic cats), *Sus scrofa* (domestic pigs), *Gallus gallus* (chickens), and *Meleagris gallopavo* (turkeys). Large animals are also included in this category because there are no indigenous wild species that fall into this size category.

While domestic animals dominate the collection, the exploitation of wild fauna presents some interesting patterns. A few of the animals may have been brought to the site for religious or ritual reasons. For example, modern-day stores and market stalls near the site sell ringtails (*Bassariscus astutus*) for ritual/shamanistic purposes. In Atlixco today, these animals, dried and inedible, are sold to shamans who place them on their altars when seeking specific aid in the spirit world (Timothy Knab 2008, pers. comm.). At first glance, it may seem inappropriate to ascribe the possibility of ritual behavior to inhabitants of the *calpaneria* based on a single tooth; modern practices are not temporally or culturally distant from the archaeological record, however. Interviews conducted in the descendant community were drawn exclusively from former hacienda workers and their children, and these individuals represent 5% of the total modern population of the town. This figure suggests that modern practices are strongly connected to past habits. Further, while faunal exploitation was certainly opportunistic, ringtails do not occur naturally in the region and would have been imported from lower altitudes. Such intent argues against opportunistic consumption and supports an analogy with modern practices.

Some of the bones in the collection speak to the use of traditional pre-Columbian food animals like deer, turkey, armadillo, turtle, and dog. Other animal remains, most notably those of domestic cat which exhibited butchering marks, suggest that strategies in food acquisition may have been opportunistic and driven by need. The faunal analysis suggests that the inhabitants of the *calpaneria* were provided with or acquired cuts of meat or whole animals from the owners of the hacienda or local markets, but needed to supplement these foods with a very limited supply of animals that were either hunted or scavenged.

Human Modifications to Bone— Butchering and Burning

Butchering marks were identified on 649 (19.9%) of the bones recovered at Acocotla. During analysis, each bone was examined for four categories of butchering marks: cuts, chops, shears, and saws. Cuts are fine lines across a bone, like the marks left by a knife. Chops are marks that remove a V-shaped piece of bone, like

the mark left by an ax or cleaver. Shears are cuts that extend through a bone, dividing the bone into multiple pieces. Finally, saws appear similar to shears, but exhibit small striations on the cut surface of the bone from the teeth of a saw.

The 649 butchered bones exhibited a total of 1,331 butchering marks of various types (or approximately 2.1 marks per butchered bone). Shears are the most common type of butchery mark. They were observed and recorded a total of 601 times (45.2%). Next most common were the cut marks, appearing 475 times (35.7%). Chop marks were recorded 249 times (18.7%). Finally, only 6 saw marks (0.5%) were identified in the entire collection. Evidence of burning was also recorded for each bone and bone fragment that appeared to be either partially burned or calcined. Burn marks appeared on 160 bones (4.9%).

Burn marks can speak to patterns of food preparation, though they are also indicative of post-depositional alterations to the bone. The roasting of whole animals or parts over an open fire is likely to result in burned bones. It appears as if this were not a method of food preparation used by the inhabitants of the *calpanería*. More likely, they were preparing soups and stews, or cooking meat in pit barbeques, none of which are processes that result in burned bones. This is further supported by the high number of sheared bones, suggesting that it was common practice to break large sections of an animal down into smaller parts for cooking. The cut marks may speak to removal of meat from the bone, either during preparation or consumption, or possibly to skinning the animals.

Utility and Meat Value

High- and low-utility percentages were calculated for all identifiable body parts following the method developed by Lyman (1994). Utility percentages are calculated by dividing the body into the low-utility parts, the head, tail, and the feet including the carpals and tarsals; and high-utility parts, the remaining parts of the body. This calculation of utility is useful in two ways. First, it provides clues to how food was obtained. If animals are raised, butchered, and consumed entirely on site, one would expect that the observed high- and low-utility percentages of the collection would be close to the expected

percentages for a single animal. If, on the other hand, the animal were market bought, one would expect that higher-utility parts (or lower-utility parts depending upon access to goods) would be overrepresented.

Second, the meat utility calculation provides insight into any potential differential distribution of the carcasses across the site and/or socio-economic access to purchased meat cuts. Many authors have identified high-utility cuts as being high in nutritional value and low-utility meat cuts as having less nutritional value (Binford 1978; Klippel 2001). Schultz and Gust (1983) took this observation, and using newspapers from the 19th century developed an economic correlation of body-part representation for Sacramento. The authors examined advertisements for meat prices, correlated those prices with the body part that would be represented in the archaeological record, and created a ranking (1–9) of the prices of cuts of meat and the part of the body from which they originated. Schultz and Gust applied this method to archaeological remains to determine socioeconomic status on four 19th-century sites in California.

Though the method Schultz and Gust developed was applicable to sites in 19th-century California, it was uncertain whether the method could be applied elsewhere. Different cuts of meat may be culturally dependent, with different groups of people applying greater (or less) value to the same cut. For this reason, an ethnographic study was designed to test the applicability of Schultz and Gust's method to the study of Mexican collections. Twenty butchers in Puebla, Cholula, and Atlixco in the state of Puebla, Mexico were interviewed about the types of meat cuts sold, the popularity of the various meat cuts and species, the prices of each cut of meat (per kilogram), and the tools used for butchering. The butchers worked in a variety of settings including city/town markets, neighborhood butcher shops, and chain supermarkets. While data dealing with all types of meat the butchers handled was collected, the discussion here is limited to beef cuts, as this is most comparable to existing studies.

The 20 interviewed butchers identified 32 cuts of beef, though not all 20 sold all 32 cuts. Prices varied widely among the different types of shop. At the chain supermarkets, prices for cuts of beef were as much as twice as high as the prices of the same cuts of beef at a neighborhood butcher

shop or city market. For example, rib eye was identified as the most expensive cut of beef. At the supermarkets, the price for rib eye ranged from 170 to 219 pesos per kilogram (U.S. \$15.48 to \$19.95 at current exchange rates). At a neighborhood market in a well-to-do section of Puebla, however, that same cut of meat was priced at 78 pesos per kilogram (U.S. \$7.10). The differences in prices, while dramatic, did not affect the rankings of meat cuts. While the price of rib eye varied wildly, it was, without exception, the most expensive cut of meat at all of the butcher shops that offered it for sale. Using all the collected data, average meat prices for each cut of beef were calculated, and the cuts were ranked by these averages. The prices at each butcher shop accurately reflected the rankings of the average prices. Some of these price differences may have been related to meat grades, although Mexico's system for grading meats is purely voluntary. Few Mexicans are even aware that the system exists, and for most of the population it makes little impact on shopping decisions.

The rankings were compared with those assigned by Schultz and Gust (1983:48) in their study of 19th-century beef cuts, as well as the high- and low-utility rankings proposed by Lyman (1994). There were a number of minor differences in monetary rankings. For example, cuts that Schultz and Gust identified as the second most expensive were first in Puebla, and the most expensive cuts identified by Schultz and Gust were second most expensive. When examined in terms of high and low utility, only one exception to this system was found. A cut of beef known in Mexico as *aguja*, was priced as the third most inexpensive cut of beef (at an average of 40.67 pesos per kilogram or U.S. \$3.70). *Aguja* is a cut that comes from the middle of the ribcage (the mid-portion of ribs 6 to 10—because Mexican butchers use more cuts than American butchers, not all terms can be exactly translated). It is comparable to the rib cut ranked as second in price by Schultz and Gust, and falls firmly into the category of “high utility” as ranked by Lyman and others, yet in modern-day Mexico it is one of the most inexpensive cuts available. These results emphasize how culturally contingent the value placed on food can be, and imply that, while a suggestion of value may be made impressionistically, it should be made and read with care.

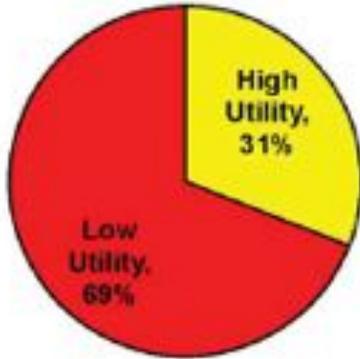
In spite of these cautions, high- and low-utility percentages at Acocotla are informative. Figure 6 shows the expected and actual high- and low-utility percentages for cattle, caprines (sheep and goats), and pigs. Expected utility percentages are based on the percentage of bones of a single animal that are categorized as either high or low utility. Because cattle and caprines have a similar number of skeletal elements, both may be compared to the “Expected Bovid Utility” chart (Figure 6). The actual utility percentages are based on a comparison of the total identified skeletal elements in each taxon that fit one or the other category. At Acocotla, both cattle and pigs are overrepresented by low-utility elements, while the caprines are overrepresented by high-utility elements.

Based on these data, it is likely that all these species of animals were butchered and consumed as whole animals onsite by the inhabitants of the *calpanería*, but also that the workers either did not always have access to whole pigs and cattle, or supplemented their diet with purchased cuts of meat brought to the site. Regardless, the supplemental meat cuts were the most inexpensive and least nutritious, indicating an economic disparity in access to food. In contrast, sheep and goat meat is overrepresented by the high-utility cuts. This may speak to a preference for sheep and goat over other species by the workers, or conversely, the hacienda owner's distaste for these species. Faunal analyses in other parts of the Spanish colonies indicate that Spaniards had a clear preference for beef and pork over sheep and goat (Reitz 1989:88–89), though this does not seem to be the case in southern Peru (DeFrance 1996:43–45).

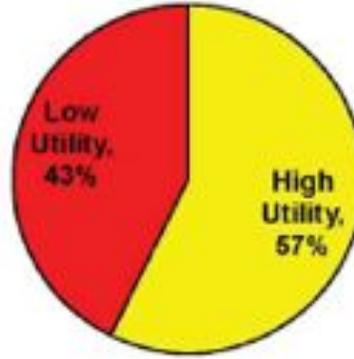
Documentary evidence indicates that both cattle and goats were raised at Acocotla (Romano 2005:33), but ethnohistoric and archaeological data from other parts of Mexico suggest that cattle ranching and access to beef products was largely restricted to Spaniards, while natives controlled sheep and goat ranching (Zeitlin 2005). In fact, in the 17th century the price of sheep was so low in some parts of Oaxaca it was not even considered worth sending sheep to market for sale (Zeitlin and Newman 2005). The overabundance of high-utility body parts belonging to sheep and goat at Acocotla may reflect a greater control over these resources by the indigenous inhabitants of the *calpanería*, the hacienda own-



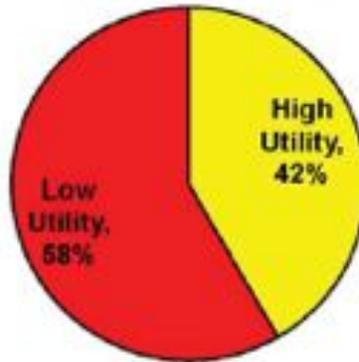
Actual *Bos taurus* Utility



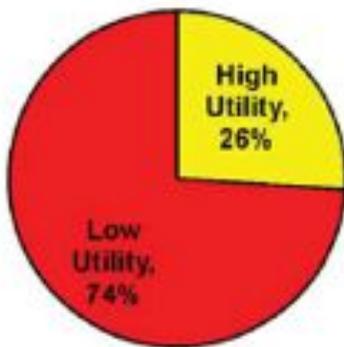
Actual Caprine Utility



Expected Bovid Utility



Actual *Sus scrofa* Utility



Expected *Sus scrofa* Utility

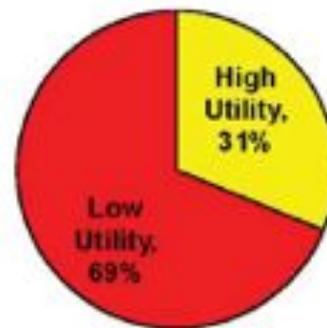


FIGURE 6. Expected and actual utility percentages for *Bos taurus*, caprines, and *Sus scrofa*. (Graphs by author, 2008.)



er's preference for beef (and thus willingness to feed sheep and goats to the workers), or simply the caprine's lack of market value and attendant low-status association.

Oral history collected in the nearby descendant community of La Soledad Morelos suggests that indigenous inhabitants of the hacienda had greater access to caprines. In interviews conducted at Acocotla during the summers of 2004 and 2005, multiple informants who had lived on the hacienda as children identified one architectural area as the *Patio de los Chivos* (Patio of the Goats). When asked why this area was so identified, the informants explained that the higher status *peones*, the ones who worked for the hacienda manager directly, had lived in this area, and because of their status had controlled the goat herds. Archaeological data suggest that access to the resources produced by these herds extended to the lower-status workers in the *calpanería*, but it is likely, based on the oral history, that distribution of these resources was controlled by the inhabitants of the *Patio de los Chivos*. Interestingly, these data suggest that ethnic patterns of pastoralism identified in 17th-century Oaxaca may very well have been maintained as far away as Puebla until the period leading up to the Mexican Revolution.

Discussion

Faunal remains recovered in excavations at the Hacienda San Miguel Acocotla show patterns of animal use and exploitation that contribute to understanding the foodways of the *calpanería's* inhabitants. Regardless of whether the relative representation of species is judged via NISP, MNI, or weight, it is clear that the workers were relying largely on European domesticates for their meals, but were also consuming, in smaller quantities, pre-Columbian animals such as turkey and deer. It is common today among the descendant population to hunt for small game, but oral histories collected from the descendant population suggest that the inhabitants of the *calpanería* would have had little leisure time to engage in such activities. Further, the butchered remains of domestic cats suggest that food acquisition may have been opportunistic and need based. The presence of a single tooth from a ringtail hints at shamanistic practices, suggests that not all faunal remains were from food waste, and argues for

the maintenance of pre-Columbian ritual beliefs on the hacienda as late as the second half of the 19th century.

Butchering and burning data from the faunal remains at Acocotla argue for a food preparation pattern that was heavily dependent on soups and stews. Large cuts of meat were divided into smaller pieces, most likely by machetes if modern practices are taken as indicative. Cut marks indicate that some meat may have been removed from the bones either during food preparation or consumption, but many of the bones were likely cooked in the stew along with the meat. The low percentage of burned bones (only 4.90%) in the collection argues against roasting as a common strategy in food preparation, as well as any post-consumption burning.

A comparison of high- and low-utility parts of the domestic animals at the hacienda suggests that access to cuts of meat that were higher in nutritional value and (arguably) status, was limited in certain taxa and not in others. High-utility skeletal elements from caprines argue that the workers may have had greater access to sheep and goats than to cattle and pigs, a pattern that is supported by some ethnohistoric data from other regions of Mexico (Zeitlin 2005). That said, there is ample evidence that the inhabitants of the *calpanería* had limited access to all domestic species and had to rely on opportunistically obtained fauna to supplement their regular diet.

Zooarchaeological analysis and foodways play central roles in the study of ethnicity, class, health, and identity on multiethnic historic sites throughout the New World (McKee 1987; Reitz 1989; DeFrance 1996; Scott 1996; Trigg et al. 2003; Silliman 2004; Jamieson 2008; Peres 2008), though virtually no data exist for historic sites in Mexico. Published studies range widely in region and site type, from French Canadian military forts (Scott 1996) to Peruvian wineries (DeFrance 1996), but the most extensive and substantial studies are arguably from plantation sites in the eastern United States (Crader 1984, 1989, 1990; Reitz et al. 1985; McKee 1987; Yentsch 1992; Klippel 2001). While the ideological conditions of debt peonage and slavery were different, the material conditions and social structure of the hacienda and plantation are analogous, rendering the use of research paradigms from plantation archaeology productive (Meyers and Carlson 2002; Juli 2003).

At plantation sites, many authors argue that the zooarchaeological remains provide examples of the maintenance of West African foodways (McKee 1987; Yentsch 1992), but without exception they also acknowledge the possibility that these ethnic traditions might be indicators of class difference. Food remains are distinct from those seen in European contexts, but it is uncertain if this is due to preferences derived from West African ethnicity or to “making do” because of low status. Three commonly recognized markers of ethnicity, as identified through faunal analysis are (1) taxonomic composition, often identified at sites inhabited by African slaves as being extremely diverse, with many non-European and non-domesticated animals represented; (2) skeletal-part representation, frequently identified as being “low-utility” parts; and (3) butchery patterns and cooking techniques, which generally involve breaking down sections of meat cuts and preparing soups and stews (McKee 1987:32).

When these data are compared with the results of the faunal analysis from the Hacienda Acocotla, some interesting points of convergence and divergence emerge. First, taxonomic representation at Acocotla is dissimilar from that seen on U.S. and Caribbean plantations. Unlike African slaves who frequently seem to have been able to hunt and gather wild foods (Yentsch 1994:247–255), the *peones* at Acocotla must have lived under extensive systems of control that either did not allow for sufficient personal time to engage in hunting activities, or did not grant them permission. While some wild taxa appear in the record, more than 95% of identified taxa is domestic animals.

In direct contrast, skeletal representation and cooking techniques appear to be very similar to those identified at U.S. and Caribbean plantations. Like the faunal remains found in contexts associated with African slaves, the faunal remains at Acocotla suggest that low-utility portions made a more substantial contribution to diet than high-utility ones. Further, butchering and burning patterns argue for a dependence on soups and stews, much like the patterns seen in the remains recovered from slave quarters on plantations. It is possible that both cases argue for the presence of non-European strategies in food preparation, but the cross-cultural similarities suggest that class status and access to resources played a central role in the formation of the patterns seen in the

archaeological record today. While ethnic identity was most certainly salient to both groups in the past, failing to factor class analysis into the interpretation of the archaeological remains from the *calpanería* at the Hacienda San Miguel Acocotla would result in an incomplete understanding of past social dynamics.

Conclusions

Research at the Hacienda San Miguel Acocotla engages with recent work in historical archaeology that has sought to define the material contributions and correlates of ethnic and class identity among peoples of post-contact periods (McGuire and Paynter 1991; Singleton 1995; Jones 1997). Archaeologists working on related contexts have suggested models of these changes focusing on acculturation (Wheaton and Garrow 1985), creolization (Ferguson 1992), and domination/resistance (McKee 1992; Meyers and Carlson 2002). These processes are still being debated as explanations for the emergence of modern identities among formerly enslaved and indigenous people in a variety of social contexts (Baumann 2004).

By combining documentary, ethnographic, and archaeological research to study colonial- and republican-era indigenous patterns at the Hacienda San Miguel Acocotla, the zooarchaeological perspective offers a baseline of information from which to understand both the material and sociocultural processes that 16th- to 19th-century rural workers experienced as they followed pathways leading to current ideas about community, self, and the past. Though ethnic identity was likely salient, results from research at Hacienda San Miguel Acocotla argue that social class and access to resources were of substantial import in the formation of patterns identified in the archaeological record.

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