MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

# ARCHAEOLOGICAL TESTING AT TWO SITES ALONG NM 50 BETWEEN GLORIETA AND PECOS, AND DATA RECOVERY PLAN FOR LA 99029, SANTA FE COUNTY, NEW MEXICO

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## ADMINISTRATIVE SUMMARY

Test excavations were conducted at two sites along NM 50 between Glorieta and Pecos by the Office of Archaeological Studies of the Museum of New Mexico. These investigations were conducted at the request of the New Mexico State Highway and Transportation Department and were completed in advance of the reconstruction of NM 50. LA 99028 is a scatter of American Territorial period trash dating ca. A.D. 1880 to 1930. The densest artifact concentration at this site is in an area that has been disturbed by rodent burrows and may represent a trash pit. Slightly more than 5 percent of LA 99029 is within project limits, and testing found no intact subsurface deposits in that area. LA 99029 contains probable Mexican Territorial period trash deposits dating ca. A.D. 1824 to 1846. Testing located a trash midden that covers 42 sq m and contains up to 58 cm of subsurface deposits. Nearly 95 percent of this site is within project limits, which includes all buried midden deposits.

Because no intact subsurface cultural deposits were found in the part of LA 99028 investigated, no further archaeological studies should be necessary in the portion of the site within project limits. The presence of intact subsurface midden deposits at LA 99029 suggests that it has the potential to provide information about early Spanish settlement on the Pecos Pueblo Grant. Thus, a data recovery plan was prepared and includes discussions of local prehistory and history, research orientation, and field strategies.

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# INTRODUCTION

At the request of the New Mexico State Highway and Transportation Department (NMSHTD), the Office of Archaeological Studies (OAS) of the Museum of New Mexico conducted test excavations at two sites along NM 50 between Glorieta and Pecos in Santa Fe County, New Mexico (Fig. 1). Field work was conducted between March 8 and 11, 1993. James L. Moore and Joan K. Gaunt supervised the project and were assisted by Deborah Johnson, Sonya Urban, and Guadalupé Martinez. The report was edited by Robin Gould, and figures were produced by Ann Noble. Timothy D. Maxwell acted as principal investigator. Both sites are on private land.

The sites--LA 99028 and LA 99029--were found during a survey of temporary construction permits (TCPs) and construction maintenance easements (CMEs) along a 9.7 km (6 mi) stretch of NM 50 that is scheduled for reconstruction (Moore 1992b). Both sites were initially recorded as surface scatters of historic artifacts. The only feature identified at either site was a possible trash pit at LA 99028. The area in which this feature occurs contains a high density of surface artifacts and was heavily disturbed by rodent activity, which appears to have brought cultural materials to the surface. Slightly more than 5 percent of LA 99028 extends into a CME (3-CME-5). While LA 99029 is adjacent to a CME (4-CME-3), about 95 percent of this site extends into the new highway right-of-way. Both sites were tested to determine whether subsurface cultural deposits or features were present within project limits.

LA 99028 contained one feature--the possible trash pit noted above. Since this feature was outside project limits it was not investigated. Examination of artifacts on the surface of the site suggested occupation between ca. A.D. 1880 and 1920. Testing within CME limits located no features or subsurface deposits of cultural materials. Testing at LA 99029 located a buried midden, and auger tests were used to define its limits. This was the only cultural feature defined at LA 99029, and it is completely within project limits. Examination of surface and subsurface artifacts suggests that this site was occupied during the Mexican Territorial period, ca. A.D. 1821 to 1846.

Testing showed that of the portions of these sites within project limits, only LA 99029 has the potential to provide information on local history. A plan for recovering these data was developed and is included in this report. The data recovery plan includes the research orientation and a strategy for implementing research goals through excavation and analysis. Specific site and assemblage attributes that may aid in addressing research orientations are discussed. Also included are descriptions of the sites and testing results, a discussion of regional prehistory and history, and information on the local environment. Site location information is included as Appendix 1.

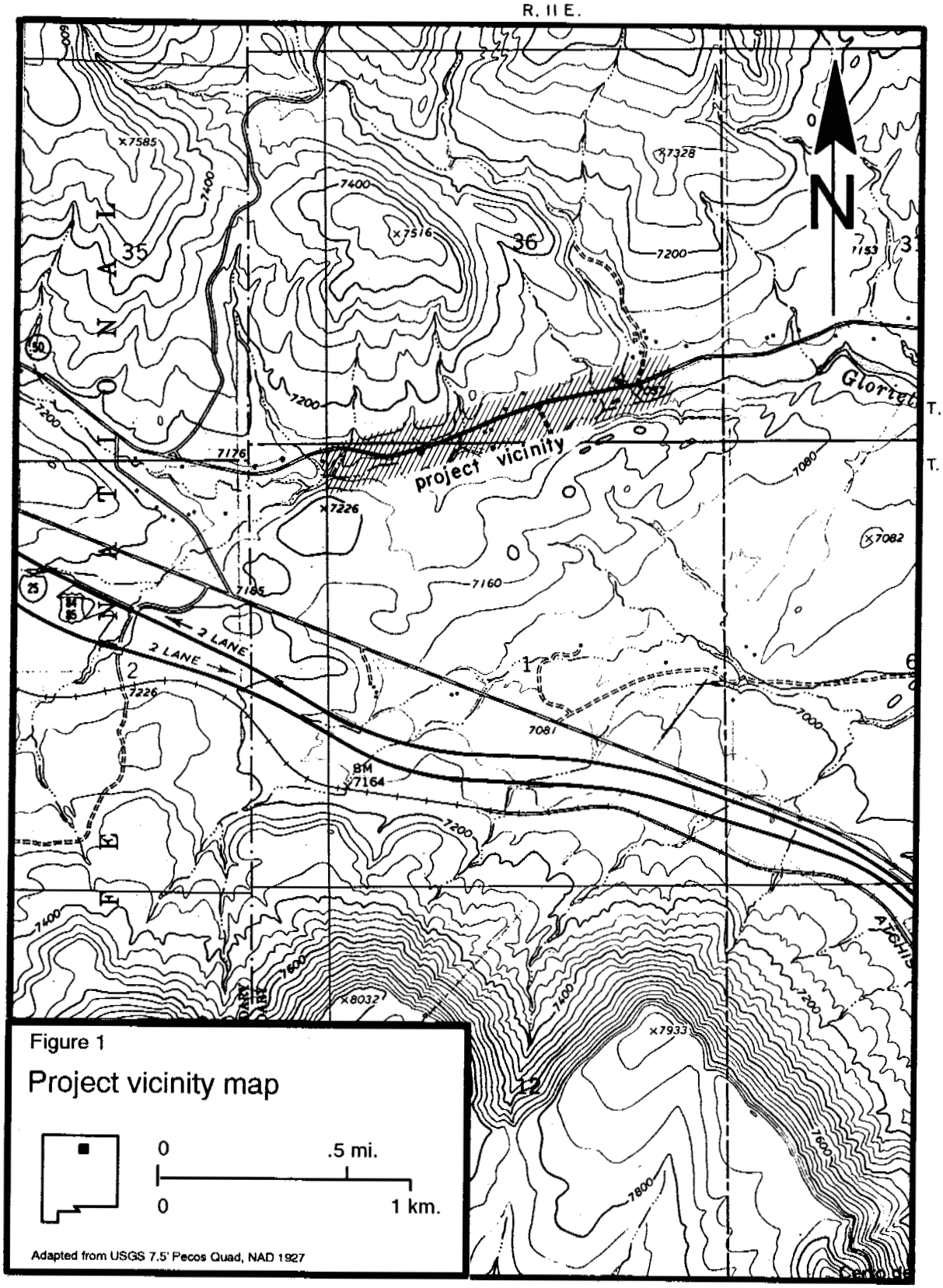


Figure 1

Project vicinity map

# CULTURAL HISTORY OVERVIEW

by Joan K. Gaunt, Macy Mensel, and James L. Moore

Few places in New Mexico have more prehistoric or historic events associated with them than the Glorieta/Pecos area. This region has been the home of numerous Indian groups (including those at the large pueblo of Pecos), it served as an exploratory route for the Spanish entradas, was divided into Mexican land grants, was crossed by the Santa Fe Trail, and was the scene of one of the few Civil War battles fought in New Mexico. Today, the area contains Hispanic and Anglo-Americans clustered in several communities along the Pecos River and Glorieta Creek.

## Prehistory

### *Paleoindian: 10,000-5500 B.C.*

The earliest occupation of the Southwest was during the Paleoindian period, which contains three broad temporal divisions: Clovis (10,000-9500 B.C. to 9000 B.C.), Folsom (9000-8500 B.C. to 8500-8000 B.C.), and Plano (8300-8000 B.C. to 5500-5000 B.C.). The latter of these combines several late traditions (Agogino 1968; Irwin-Williams 1965, 1973; Irwin-Williams and Haynes 1970; Neuman 1967).

Evidence of Paleoindian occupation in the Pecos area is sparse. Paleoindian points have been found in the Sangre de Cristo Mountains (Stuart and Gauthier 1981), on the Las Vegas Plateau, and in the Galisteo Basin highlands (Lang 1988). The scarcity of Paleoindian sites is not clearly understood. Nordby (1981:6) thinks it may be due to a lack of large game species, such as bison. Some evidence of Paleoindian occupation has been found along the Pecos River south of the study area. Jelinek's (1967) middle Pecos survey found five unfluted lanceolate points and a Folsom channel flake. A single possible Midland point fragment was found north of Santa Rosa along the Pecos (Levine and Mobley 1975).

### *Archaic: 5500 B.C.-A.D. 400*

At an early date, archaeologists realized that the Archaic occupation of northern New Mexico was distinct from that of its southern neighbor, the Cochise. Bryan and Toulouse (1943) were the first to separate the northern Archaic from the Cochise, basing their definition of the San Jose complex on materials found near Grants, New Mexico. Four Archaic traditions have been defined in the Southwest (Irwin-Williams 1979): western, southern, northern, and southeastern. The study area is within the zone occupied by the northern, or Oshara tradition.

The Oshara tradition is divided into five phases: Jay (5500-4800 B.C.), Bajada (4800-3200 B.C.), San Jose (3200-1800 B.C.), Armijo (1800-800 B.C.), and En Medio (800 B.C.-A.D. 400). Jay and Bajada sites are usually small base camps (Moore 1980; Vierra 1980). San Jose sites are larger and more common than those of the earlier phases, and corn horticulture was

probably adopted by the beginning of the Armijo phase (Irwin-Williams 1973). The En Medio phase corresponds to Basketmaker II, and represents the transition from a mobile hunter-gatherer pattern to a lifestyle combining hunting and gathering with dependence on corn horticulture.

Archaic sites in the Pecos area are mostly found on high benches above waterways (McCrary 1983), and occur in rock shelters and as lithic artifact scatters in the Pecos Valley near Santa Rosa (Levine and Mobley 1975). Other Archaic sites have been found at high elevations in the Santa Fe National Forest and in the Pecos Wilderness (Wendorf and Miller 1959; Stuart and Farwell 1983).

Privately owned projectile point collections from the Pecos Valley contain possible Bajada and San Jose points (Wait and Nordby 1979). Archaic points have recently been found on three sites near Pecos in association with Pueblo material (Lent et al. 1991). Obsidian hydration dates from predominantly Puebloan contexts near Rowe suggest material scavenging from Archaic sites, perhaps also located in the Pecos Valley (Morrison 1987).

*Anasazi/Pueblo: A.D. 400-1600*

Wendorf and Reed (1955) divide the Rio Grande Anasazi into four periods: Developmental (A.D. 600 to 1200), Coalition (A.D. 1200 to 1325), Classic (A.D. 1325 to 1600), and Historic (A.D. 1600 to present). The first half of the Developmental period (A.D. 600 to 900) corresponds to Basketmaker III and Pueblo I of the Pecos classification. Early Developmental sites are rare in the northern Rio Grande (Wendorf and Reed 1955). Sites usually contain one to three circular pithouses in association with surface storage structures (Stuart and Gauthier 1981). Three early Developmental period pithouses were found near the administration building at Pecos National Historical Park (L. Nordby, pers. comm. 1991). Subsistence items included small game, wild plants, and corn. Agricultural fields were probably along the lower terraces of the Pecos River and Glorieta Creek.

The second half of the Developmental period (A.D. 900 to 1200) corresponds to the Pueblo II and early Pueblo III phases. There was a large population increase in the northern Rio Grande during this period (Wendorf and Reed 1955), accompanied by major changes in settlement pattern, architecture, and site size (Anschuetz 1986). The number of sites and range of environmental zones being exploited increased, and areas of higher elevation began to be used (Stuart and Gauthier 1981:59). The shift from pithouses to above-ground structures began, and communities consisting of definable clusters of villages appeared. Mineral-painted wares, including Kwahe'e Black-on-white, were the most commonly produced decorated ceramics (Mera 1935).

The Coalition period (A.D. 1200 to 1325) corresponds to late Pueblo III. Carbon-painted wares replaced mineral-painted ceramics, and the appearance of Santa Fe Black-on-white marks the beginning of this period. Other changes included an influx of population and expansion into new environmental zones, including upland areas like the Pajarito Plateau (Anschuetz 1986; Wendorf and Reed 1955). Sites ranged in size from 13 to 30 rooms, and were usually arranged in linear or L-shaped room blocks (Stuart and Gauthier 1981). By A.D. 1300, large villages of 200 to 300 rooms were established in the study area at Pecos (LA 625), Rowe (LA 108), Forked Lightning (LA 672), Dick's Ruin (LA 672), and Loma Lothrop (LA 277). These villages were

heavily dependent on agriculture, and are thought to be ancestral to Pecos Pueblo.

The Classic, or Pueblo IV period (A.D. 1325 to 1600), is marked by the aggregation of smaller communities into large multistoried pueblos, often with several plazas. Regional populations reached their highest prehistoric levels, and village locations shifted from upland areas to major river valleys. Specialization in ceramic production split the northern Rio Grande into a northern biscuit ware area, and a southern glaze ware area.

Trade relations developed between Plains Indians and local pueblos during this period, particularly Pecos (Spielman 1982, 1983). Pecos originally imported most of its decorated pottery from the Rio Grande pueblos, but between A.D. 1500 and 1600 it began making and trading its own polychrome pottery (Peckham 1988). With the exception of Pecos, local villages were abandoned by A.D. 1450. It has been suggested that the local population aggregated at Pecos because of intensified raiding by Plains Indians (Hewett 1904; Holden 1955; Kidder 1958; Mera 1940). This idea has since been refuted (Ford et al. 1972; Gunnerson 1969; Nordby 1981). Nordby (1981) suggests that the smaller pueblos may have combined to increase the work force necessary for expanded irrigation systems, or that pressure on arable land created competition and war between pueblos. Fliedner (1981:73) believes that the population declined because the environment was overstressed.

## Historic Period

### *Exploration: 1539-1597*

Based on information gathered by Alvar Nuñez Cabeza de Vaca and his companions, New Spain turned its attention northward in the 1530s. Initial exploration by de Niza and Coronado occurred in 1539 and in 1540-1541. In 1540, Captain Hernando de Alvarado, commanding the vanguard of the Coronado expedition, became the first European to visit Pecos Pueblo (Sanchez 1988:46). Following the Coronado expedition, there were no formal contacts between New Spain and New Mexico until 1581 when Father Agustín Rodríguez and Captain Francisco Sánchez Chamuscado led an expedition up the Rio Grande to Pueblo country (Hammond and Rey 1966). Antonio de Espejo led a party of explorers into New Mexico in 1582, ostensibly to rescue two priests left by the Rodríguez-Chamuscado expedition.

In 1590-1591, Gaspar Castaño de Sosa entered the region, but was arrested for colonizing without a license and returned to Mexico (Simmons 1979). In 1593 a second attempt at colonization was made under the leadership of Francisco de Legua Bonilla and Antonio Gutiérrez de Humaña, but the party of explorers was nearly decimated by Indian attacks (Hammond and Rey 1953).

### *Colonization: 1598-1680*

Juan de Oñate established the first successful colony in New Mexico at San Juan Pueblo in 1598. By 1600 the Spanish had moved into San Gabriel del Yunque, sister village to San Juan, which had been abandoned by the Indians for Spanish use (F. Ellis 1987). Oñate was removed from the

governorship in 1607 and replaced by Pedro de Peralta, who founded Santa Fe and moved the capital there around 1610 (Simmons 1979).

The early period of Spanish occupation was predicated on Christianization of the Pueblos. The Crown almost abandoned New Mexico because of its poverty, but the many native inhabitants provided an opportunity for the church to win new souls. The colony was therefore allowed to continue, with its maintenance almost entirely underwritten by the royal treasury (Simmons 1979:181). Because seventeenth-century New Mexico was primarily a mission area, the church was extraordinarily powerful and influential, causing considerable conflict with the secular government (R. Ellis 1971:30-31). Beginning in the 1640s, this struggle weakened the Spanish hold on New Mexico (Simmons 1979).

In 1619, Franciscan priests built the first church northeast of the Pecos Pueblo complex; it is now known as the Lost Church (LA 4444). A second church was erected to the south of South Pueblo in 1620 (Hayes 1974). During this time, various Apache groups often camped outside the pueblo during the winter. This peaceful coexistence lasted until 1675 when raiding by Plains Indians became common.

*The Pueblo Revolt and Reconquest: 1680-1694*

A combination of religious intolerance, forced labor, the extortion of tribute, and Apache raids led the Pueblo Indians to revolt in 1680, driving the Spanish from New Mexico. The Pueblos resented Spanish attempts to supplant their traditional religion with Christianity, and numerous abuses of the *encomienda* and *repartimiento* systems fueled their unrest (Forbes 1960; Simmons 1979). These problems were further exacerbated by nomadic Indian attacks, either in retaliation for Spanish slave raids or because of drought-induced famine (R. Ellis 1971; Sando 1979a). The colonists who survived the revolt retreated to El Paso del Norte, accompanied by the few Pueblo Indians that remained loyal.

Attempts at reconquest were made by Antonio de Otermín in 1681 and Domingo Jironza Petriz de Cruzate in 1689, but both failed (R. Ellis 1971). In 1692 Don Diego de Vargas negotiated the Spanish return, exploiting the factionalism that had once again developed among the Pueblos (R. Ellis 1971; Simmons 1979). Vargas returned to Santa Fe in 1693, and reestablished the colony. Hostilities continued until around 1700, but by the early years of the eighteenth century the Spanish were again firmly in control.

*Spanish Colonial Period: 1694-1821*

Though failing in its attempt to throw off the Spanish yoke, the Pueblo Revolt caused many changes. The hated *encomienda* system of tribute was not reestablished, and the missionary system was scaled down (Simmons 1979). The new Spanish population grew rapidly and soon surpassed that of the Pueblos. Relations between Spanish and Pueblos became considerably more cordial. The post-Revolt Spanish colonists tended to be farmers and herdsmen, living in scattered communities that did not demand the amount of forced native labor that the pre-Revolt economy had. The royal government continued to subsidize New Mexico, but it now served as a buffer against the enemies of New Spain (Bannon 1963), not as a missionary effort.

By 1690, Apaches were again wintering at Pecos and were present until the mid-1700s when Comanche raiding all but eliminated trade with other Plains groups (Gunnerson 1988:42-43). Evidence for trade between Pecos and Plains Indians includes Alibates chert artifacts from the Texas Panhandle (recovered in stratified trash mounds at Pecos dating after A.D. 1500), and Pecos pottery found as far east as central Kansas, presumably traded to Plains Indians (Gunnerson 1988:42-43). Gunnerson (1988) describes tipi-ring sites containing Pecos pottery near Anton Chico and Las Vegas, and notes that a burned jacal structure excavated at Pecos contained Pueblo and Jicarilla Apache wares, including Ocate Micaceous and Perdido Plain.

Parties of marauding Plains Indians sporadically raided Pecos in the 1700s. By the 1740s, Comanches became a serious threat to Pecos security. Many residents of the pueblo were killed, and by 1750 most of the adult male population of Pecos had been victims of Plains Indian attacks (Kidder 1962:86). The pueblo was further devastated by a smallpox epidemic in 1788, in which only 180 people survived. According to Pecos Indians, the local Spanish were poisoning their water holes between 1830 and 1840, making life increasingly intolerable (Hall 1984:60).

*The Mexican and American Territorial Periods: 1821-1912*

On August 24, 1821, under the Treaty of Cordova, Mexico gained independence from Spain, and New Mexico became part of the Republic of Mexico. Mexican independence brought two major changes to New Mexico--a more lenient land grant policy and expansion of the trade network (Levine et al. 1985). Mexican colonial law and custom, particularly concerning settlers' rights, was applied to New Mexico, resulting in conflict over ownership of lands held by the Pueblos. For the Indians at Pecos Pueblo, this confusion would prevail for the next 100 years as non-Indian settlers entered the area and exerted continuous pressure to acquire rights to Pueblo land and water. These events would eventually result in the abandonment of the Pueblo in 1838.

Before the eighteenth century, Pueblo Indians under Spanish law seemed to have been entitled to whatever lands they routinely used. Sometime after 1700, the custom of granting one square league to Pueblo Indians developed. The Pecos Pueblo Grant was delineated in 1689 and measured one league in each direction from the cross in the mission cemetery (Hall 1984:13; Kessell 1979:439). The Pecos Grant extended north past Alamitos Arroyo and south past the Arroyo de los Torreones, east over the Pecos River and west over Glorieta Mesa. Both LA 99028 and LA 99029 are within the original grant area. The grant was supposedly established by Governor Domingo Jironza Petriz de Cruzate in 1689, despite the fact that the Spanish had been expelled in 1680 and were based in El Paso (Sando 1979b). Though the Cruzate grants appear to have been nineteenth-century forgeries, they were initially respected by local administrators and citizens (Hall 1984).

In 1794, the governor of New Mexico, Fernando Chacon, authorized the first community land grant to settlers in the Pecos Valley (Hall 1984). The land was granted to genízaros from Analco, who established San Miguel del Vado at the edge of the Comanche frontier. A second settlement was established in 1803 at San Jose del Vado, 4.8 km north of San Miguel. Both settlements provided auxiliary troops to neighboring militias when needed. In the same year, the alcalde of Santa Fe granted 58 irrigated tracts to families in San Miguel del Vado, and 48 to families in San Jose del Vado (Hall 1984:5). Parts of these grants were within the southern edge of the Pecos Grant, and this represented the first of many intrusions onto Pueblo lands. The

distinct nature of pueblo grants was altered in 1812, when a law was passed authorizing local governments to allot unused Pueblo lands to individual Indians and non-Indians (Hall 1984:16). Although this law was repealed in 1814 before it could be applied to Pueblo land, it became a critical part of the Mexican law of New Mexico after 1821, and effectively opened the landscape to new Hispanic settlement (Hall 1984:17). By 1829, Hispanic settlers were farming and grazing in the center of the Pecos Grant.

While Hispanics were beginning to settle the Pecos area, numerous expeditions into the recently acquired Louisiana Purchase brought American explorers and traders west from the Missouri River, eventually establishing the Santa Fe Trail. After the two branches of the trail converged in the La Junta-Watrous area, it headed south to Las Vegas and west through Pecos. Trade over the Santa Fe Trail expanded geographically to Chihuahua and in the volume of consumer goods transported until 1828, when factors like Indian raids, military escorts, and Mexican trade regulations caused notable fluctuations in the flow of commerce (Pratt and Snow 1988:296). The economic impact of such an extensive trade network may be hard to detect in small areas like Pecos, but it is likely that a wide variety of material goods like nails, iron hardware, bricks, wallpaper, cotton muslin, and window glass that were previously impossible or too expensive to acquire became more generally available (Pratt and Snow 1988:302).

The village of San Miguel del Vado was the first settlement encountered by traders before the founding of Las Vegas in 1835 (Pratt and Snow 1988:287). Serving as the port of entry for New Mexico, San Miguel del Vado housed the Mexican customs operations for many years. Although virtually abandoned by 1838, Pecos Pueblo and its mission ruins served as a landmark and campsite for Santa Fe Trail travelers.

The years between 1830 and 1840 were characterized by continuing encroachments onto Pecos land and a gradual decline in population. In 1838, the last inhabitants of Pecos Pueblo moved to Jemez Pueblo, 128 km away. The local Hispanic settlers continued to expand and occupy the pueblo grant. New Mexico remained part of the Republic of Mexico until 1846 when war broke out with the United States. American troops led by Colonel Stephen W. Kearny took possession of New Mexico on August 15, 1846. Kearny established an interim government and the Kearny code, which was designed to protect the rights of native New Mexicans, property claims, and religious practices (Pratt and Snow 1988:308). In areas like Pecos, where Pueblo land claims had been reinterpreted by Mexican law, the record of land ownership became hopelessly complicated.

The early American Territorial period immediately followed acquisition from Mexico, and was characterized by a growing interest in commerce and a market economy that demanded more dependable means of transportation (Pratt and Snow 1988). Long-distance stagecoach routes were established to transport travelers as well as the U.S. mail by 1850. One stagecoach route that ran from Prescott, Arizona, to Las Vegas passed near Pecos.

In 1862, Pecos and the neighboring village of Glorieta were involved in the last battle of the Civil War in New Mexico when a force of Colorado volunteers met Confederate troops at Glorieta Pass. The next major event in the history of Pecos occurred in 1879 when the Atchison, Topeka, and Santa Fe Railroad reached Las Vegas. Although not considered a railroad center, Pecos was on the main line between Las Vegas and Lamy. For the villagers of Pecos, the railroad's arrival meant new jobs and improved access to commercial goods. Economic growth

associated with the railroad stimulated a period of development in New Mexico, primarily in the larger urban areas (Pratt and Snow 1988:441). In 1880, the Territorial Assembly passed an act requiring towns with a population of 2,000 or more to incorporate and establish a municipal government, but it was not until 1953 that Pecos was finally incorporated. In 1912, New Mexico became the 47th state, and the American Territorial period ended.

Only three sites dating to the Mexican and American Territorial periods have been investigated near the study area--Pigeon's Ranch and the Glorieta Battlefield (Y. Oakes, pers. comm. 1991), and LA 76140. Excavation at the latter site, an American Territorial period jacal structure with associated features, have only recently been completed, and data recovery at LA 99029 will be a later stage of the same project.

# PHYSICAL ENVIRONMENT

by James L. Moore

The study area is in a long and rather narrow valley incised by Glorieta Creek, a tributary of the Pecos River. The valley separates Glorieta Mesa from the Santa Fe Mountains, and forms a natural highway through the north-central New Mexican highlands. This area is also a transitional zone between the southern Rocky Mountain Province and the Sacramento section of the Basin-and-Range Province (Fenneman 1931). The Sangre de Cristo Mountains represent the former and Glorieta Mesa is the northeastern boundary of the latter (Fenneman 1931).

## Geology

### *Structure*

As a transitional zone between physiographic provinces, the geology of the study area is complex. Though the region has a long history of faulting, uplift, and subsidence, only a few of the more pertinent events and structural features will be discussed. Pennsylvanian and early Permian rocks unconformably overlie Precambrian basement rocks in the region. These strata were deposited in the Rowe-Mora Basin in an area now occupied by the central Sangre de Cristo Mountains (Baltz and Bachman 1956). Considerable deformation occurred during the late Cretaceous and early Tertiary periods, when a block measuring 320 km long by up to 30 km wide was uplifted, forming the Sangre de Cristo Mountains (Woodward and Ingersoll 1979). At the same time, the Raton Basin formed along the eastern edge of the uplifted zone.

Uplift in the Sangre de Cristos resulted in deformation of areas directly south of that feature (Goolsby 1965). The zone separating the Sangre de Cristo uplift from the Glorieta Mesa uplift was severely deformed into a complexly faulted and folded grauben (Lisenbee et al. 1979:92-93). These orogenic forces were felt on the Glorieta uplift as well, and are represented by gentle folds. Glorieta Mesa is an uplifted arch trending slightly west of north (Griggs and Hendrickson 1951:34).

During the late Cenozoic period (and probably continuing to the present), movement along the Rio Grande Rift formed a series of northward trending grauben, including the Española Basin (Woodward and Ingersoll 1979). The Española Basin forms part of the western boundaries of the Glorieta Mesa and Sangre de Cristo uplifts, and is separated from the former by the Glorieta Mesa boundary fault. Movement along this fault system has been recurrent since the Precambrian.

### *Stratigraphy*

Unless otherwise noted, stratigraphic descriptions are summarized from Baltz and Bachman (1956), Goolsby (1965), and Griggs and Hendrickson (1951). Basement rocks include Precambrian granites, schists, gneisses, and quartzites. The most commonly outcropping

formations are Precambrian through Permian in age. In nearby areas, they are overlain by other formations including (in ascending order) Artesia sandstone and siltstone (Permian), Entrada sandstone (Jurassic), Todilto limestone (Jurassic), Morrison sandstone (upper Jurassic), Dakota sandstone (Cretaceous), Mancos shales, sandstones, and limestones (late Cretaceous), and Galisteo sandstone (Tertiary).

Outcrops along Glorieta Creek consist of occasional igneous and metamorphosed Precambrian rocks, the Magdalena group, and the Sangre de Cristo, Yeso, and San Andres formations. Precambrian rocks are occasionally exposed along the Pecos River and its tributaries. The Magdalena group outcrops in the lower part of the valley. The Sangre de Cristo Formation outcrops around the mountain edges and on the lower northern slope of Glorieta Mesa. Yeso formation exposures also occur along the northern mesa slope. The Glorieta sandstone member of the San Andres formation forms a resistant cap over the top of much of Glorieta Mesa, though in places it is overlain by younger rocks. A considerable portion of the mesa top is also covered by the middle member of the same formation, while the upper member outcrops along the east and west sides of the mesa.

## Soils

Both sites are located on the Capillo-Rock outcrop complex of soils (Folks 1975:18-19), which occur at elevations between 2,438 and 3,353 m above mean sea level. This complex has developed on moderate to steep slopes (10 to 50 percent) and includes 55 percent Capillo gravelly sandy loam and 25 percent rock outcrops. A variety of other soils make up the remaining 20 percent of the complex, and include Cueva, McVickers variant, and Fort Wingate variant soils, as well as some Mirabal, Supervisor, and Cundiyo soils (Folks 1975:19). Capillo gravelly sandy loams, which comprise the bulk of the association, are well drained and form on mountain sides in materials weathered from sandstones and shales. Permeability is slow, runoff speed is medium to rapid, and the potential for erosion is moderate to severe.

## Flora and Fauna

Vegetation in the study area is dominated by juniper, with some oak and piñon (Morain 1979). Vegetation, however, varies with soil type and elevation. The Capillo-Rock outcrop complex supports ponderosa pine, Douglas fir, and white fir, as well as various shrubs and grasses. A riparian plant community occurs along Glorieta Creek, and includes willow, cottonwood, tamarisk, cattail, and rushes. Grasses are common on the floodplain and adjacent valley slopes and include blue grama, sand dropseed, wheatgrass, and Indian ricegrass. Various shrubs and cacti grow on the slopes bordering the stream, including gooseberry, currant, yucca, mountain mahogany, tansy mustard, cholla, and prickly pear.

Some of the most common mammals found in the area are cottontail, jackrabbit, and rodents such as the Colorado chipmunk, pocket gopher, western harvest mouse, deer mouse, and Mexican woodrat. Larger rodents include porcupines and, formerly, beaver. Native artiodactyls include mule deer and, formerly, elk. A number of carnivores also occur. Among them are

coyotes, black bears, raccoons, long-tailed weasels, mountain lions, and bobcats. The gray wolf and grizzly bear formerly ranged through the area.

Relatively common raptors include the red-tailed hawk, great horned owl, and screech owl. Both the turkey vulture and raven are common scavengers. Other birds found in relative abundance include Gambel's quail, mourning dove, red-shafted flicker, piñon jay, robin, mountain bluebird, and house sparrow. The turkey probably once occurred in the area as well (Robbins et al. 1966).

## Climate

New Mexico is one of three areas in the United States that receives over 40 percent of its annual precipitation in the summer months (Tuan et al. 1973). The annual precipitation rate fluctuates greatly around the mean, and there is a higher frequency of dry years than wet years (Tuan et al. 1973). Though these fluctuations are less severe than those occurring in humid regions, they are of greater significance because of the overall aridity of the area. With less precipitation to begin with, any variation in the annual rate can seriously impact the biotic environment.

Summer rainfall in the Southwest follows a true monsoon pattern (Martin 1963). Moisture-laden winds flowing north from the Gulf of Mexico are the main source of summer moisture, and their movement is controlled by a high pressure system situated over the Atlantic Ocean. When this system is in a northward position, moist tropical air flows into the area and the summer is wet. When it is positioned southward, the summer can be dry, a condition that may be caused by abnormally cold years in the north temperate latitudes (Martin 1963).

Winter precipitation is derived from air masses originating in the extratropical regions of the Pacific Ocean or in Canada. While summer storms are generally short and intense, winter precipitation usually falls as snow, which melts slowly and soaks into the soil rather than running off as does most summer rain. Though all precipitation is beneficial to local biota, winter precipitation is more effective because it recharges soil moisture reserves.

Mean annual precipitation in the study area is 343 mm, of which nearly 40 percent falls during the summer. Table 1 illustrates seasonal precipitation patterns for the region. As can be seen, summer receives the most precipitation and winter the least. The valley bottom zone (1,890 to 2,012 m) has a 160 to 170 day frost-free period. The date of the first fall killing frost is usually around September 30 and the last in the spring is generally around May 20 (Folks 1975; Williams and Morgan 1979). Annual temperature ranges between 8.8 and 11.1 degrees C in this zone. Temperature, precipitation rate, and frost-free season length vary with altitude. Between 2,012 and 2,134 m, annual temperature ranges and precipitation rates remain much the same, but the number of frost-free days drops to 150 to 160. Between 2,134 and 2,438 m, annual temperature remains at 8.8 to 11.1 degrees C, while precipitation increases to 360 to 410 mm and the number of frost-free days falls to 120 to 130. Climatic changes are even more extreme between 2,438 and 3,353 m. Annual precipitation increases to 460 to 510 mm, the temperature ranges between 6.1 and 7.1 degrees C, and there are only 50 to 100 frost-free days (Folks 1975).

**Table 1. Average Seasonal Precipitation Rates for the Years 1925-1954**

| Season | Mean Precipitation (cm) | Percentage |
|---|---|---|
| Winter | 5.08 | 14.82 |
| Spring | 8.89 | 25.93 |
| Summer | 12.70 | 37.04 |
| Fall | 7.62 | 22.22 |
| Total | 34.29 | |

# SITE DESCRIPTIONS AND TESTING RESULTS

Joan K. Gaunt and James L. Moore

## Testing Methods

The first step in testing was to establish a datum to which all horizontal and vertical measurements were tied. The surface of each site was inspected to locate and mark diagnostic artifacts, site limits, artifact clusters, and features. Site plans were produced using a transit and stadia rod or tape, and include locations of all test pits, features, collected surface artifacts, artifact concentrations, and current topographic and cultural features. Artifacts within project limits were collected only when recovered from test pits. Topographic contours were plotted to provide an accurate depiction of site structure in relation to the immediate physical environment.

Horizontal test units were 1-by-1-m grids, and were excavated using hand tools. Grids were excavated in arbitrary 10-cm levels unless natural stratigraphic breaks were encountered. When natural strata were defined they became the vertical units of excavation. Soil removed from test grids was screened through ¼-inch mesh hardware cloth. Artifacts recovered by screening were bagged, assigned a field specimen number, and transported to the laboratory for analysis. A standard form describing the matrix encountered, and listing ending depths and field specimen numbers was completed for each excavation unit. Test pits ended when sterile strata or bedrock were encountered, and were then backfilled. Auger tests were bored into the bottoms of some pits to verify that sterile strata had been reached. Auger tests were also used to define the limits of a buried feature at LA 99029.

Profiles were drawn where more than one cultural stratum was encountered. Soil colors were determined using a *Munsell Soil Color Chart*. Each site was photographed. Cultural materials recovered during these investigations are curated at the Laboratory of Anthropology, Museum of New Mexico. Field and analysis records are on file at the Archeological Records Management System of the New Mexico Historic Preservation Division.

## LA 99028

During survey, LA 99028 was identified as a scatter of historic artifacts containing a possible trash pit dating between the 1880s and the 1920s. As originally defined, the site covered 625 sq m and is in a pasture on the [redacted]. Within the artifact scatter was an area containing a heavy concentration of surface artifacts and charcoal. It appeared that rodent activity had churned this area and brought cultural materials to the surface, suggesting the presence of a trash-filled pit (Feature 1). No evidence of a structure was noted at LA 99028. The site is partially located within a construction maintenance easement (3-CME-5), which extends 18 m south of the [redacted]. A 10-by-13-m portion of the site extends into the CME and contains a light surface artifact scatter; the heaviest concentration of artifacts is 4 to 5 m northeast of the CME.

Site boundaries were redefined and surface artifacts were re-examined during testing. The current north boundary of the site is the edge of the existing NM 50 right-of-way, the east and south boundaries are the limits of the artifact scatter, and the west boundary is an intermittent tributary of Glorieta Creek. LA 99028 is oriented northeast to southwest and is larger than originally defined, covering 2,400 sq m. Two features were noted, a probable trash pit (Feature 1) and a possible road segment (Feature 2). Two 1-by-1-m test pits were used to examine subsurface deposits within CME limits (Fig. 2). The test pits are described below.

*Feature 1*

Feature 1 is a probable trash pit situated just outside the northeast boundary of the CME. It measures 6 m east to west and 3 m north to south, and covers an area of about 18 sq m. This area contains the densest concentration of artifacts on the site, and exhibited extensive evidence of rodent disturbance. Cultural materials noted on the surface of this area included charcoal, local earthenwares such as Tewa Red, Tewa Gray, and a Tewa Polychrome (probably Powhoge Polychrome), and Euroamerican glass, metal, and ceramics. It is likely that most of these materials were brought to the surface by bioturbation. The density of materials suggests the presence of a trash pit.

*Feature 2*

Feature 2 consists of a break in slope that runs northeast across the south part of the site, and may represent a section of a wagon road. The segment contained within site boundaries was 60 m long, and appeared to be 3 to 4 m wide. In places, the north side of the feature was slightly depressed, and there was a low mound paralleling the depression along its southern edge. No artifacts were in direct association with this feature.

*Test Pit 1*

Test Pit 1 was placed south of the edge of the current NM 50 right of way, just east of the intermittent drainage that defines the west boundary of the site. Artifacts were sparsely scattered across the area. This grid was excavated to a depth of 47 cm, and encountered two soil units. Stratum 1 was a medium brown, sterile sandy clay alluvium; it contained very few artifacts, and was 40 cm thick. Below this depth the fill graded into a very sandy clay, which was designated Stratum 2. This unit contained no cultural materials. One bone, one metal, and one glass artifact were recovered from Stratum 1, and were likely introduced by the extensive rodent activity that is evident through this part of the site; artifacts were evenly scattered through the stratum. An auger test bored into the center of the grid extended an additional 60 cm below the last excavated level, and encountered alluvium that contained no cultural material and represented a continuation of Stratum 2.

*Test Pit 2*

Test Pit 2 was placed 4 m northeast of Test Pit 1, and was excavated to a depth of 41 cm. Two strata were defined. Similar to Test Pit 1, Stratum 1 was a 30 cm thick layer of medium brown

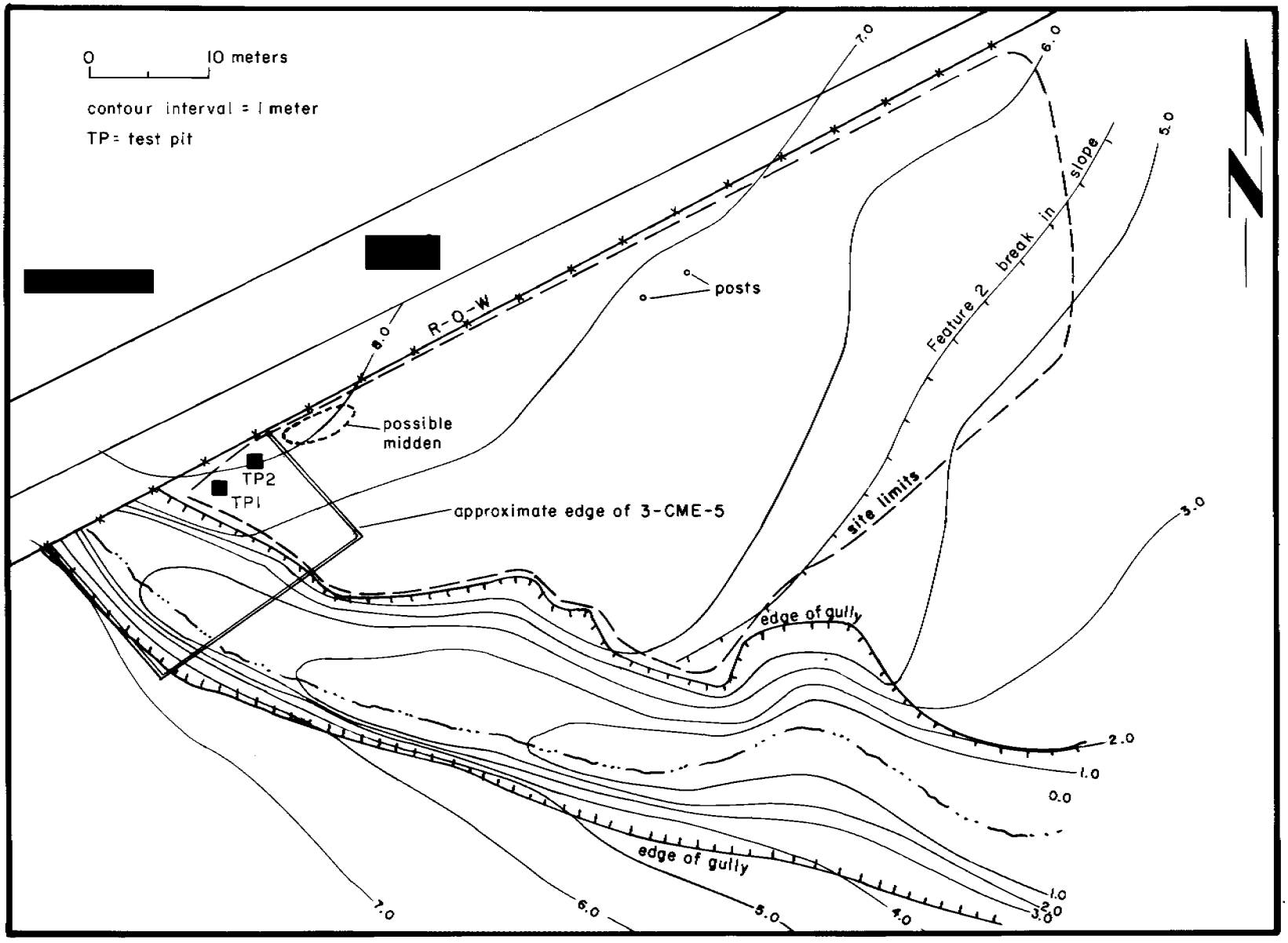


*Figure 2. Plan of LA 99028.*

sandy clay that contained very few artifacts. Below this unit, the fill graded into a sterile very sandy clay (Stratum 2). About 10 cm of Stratum 2 was dug before excavation was halted. Five glass, one metal, one bone, and one ceramic artifact were recovered from this test pit. These materials were probably introduced by rodent activity, which was apparent throughout the grid. An auger test was bored into the center of the grid, and Stratum 2 continued downward for at least another 70 cm. No cultural deposits were encountered in the auger test.

*Summary of Testing Results*

Testing at LA 99028 demonstrated there are no buried cultural deposits in the portion of this site within project limits, and that area is not likely to yield further information on the history of the Pecos area. The few subsurface artifacts found in test pits were probably introduced by rodent activity. Field analysis of surface artifacts places the occupation of this site between the 1880s and 1920s. The array of cultural materials included various colors of glass (aqua, amethyst, brown, green, and white), Euroamerican ceramics, fragments of metal, charcoal, and leather. A few local ceramics were also noted including Tewa Red, Tewa Gray, and a Tewa Polychrome (probably Powhoge Polychrome). Artifacts that could be more accurately dated were a possible air hose coupling for brakes on a train with a patent date of 1886, and a Colorado license plate dated 1923. A branch of the Santa Fe Trail that does not appear on maps until the 1880s passed through this area. A break in slope that crosses the south part of the site (Feature 2) may represent that wagon road. No evidence of structural remains was found.

## LA 99029

During survey, LA 99029 was defined as a scatter of historic trash covering 135 sq m. Site boundaries were the edge of the artifact scatter to the north and south, a sandstone outcrop to the east, and a modern residence on private land to the west. About 95 percent of the site is within the right of way, and a CME (4-CME-3) is just northeast of the site. The surface scatter contains an estimated 200 to 300 artifacts, and represents the surface expression of a buried midden (Feature 1). LA 99029 is on a rocky slope along the west bank of La Cueva Creek, near its confluence with Glorieta Creek. Testing confirmed site extent and boundaries as described during survey. The size and depth of the midden suggests that occupation of this site was more than temporary. An associated structure may have been located on a level surface to the northeast of the midden. That area is now occupied by a modern house and yard, and no evidence of an earlier structure was visible.

Two test pits were excavated to investigate the vertical extent and content of Feature 1, and a series of auger tests was used to determine the horizontal extent of midden deposits. Table 2 lists the results of the auger tests, and Figure 3 shows test pit and auger test locations. Test pits are described below.

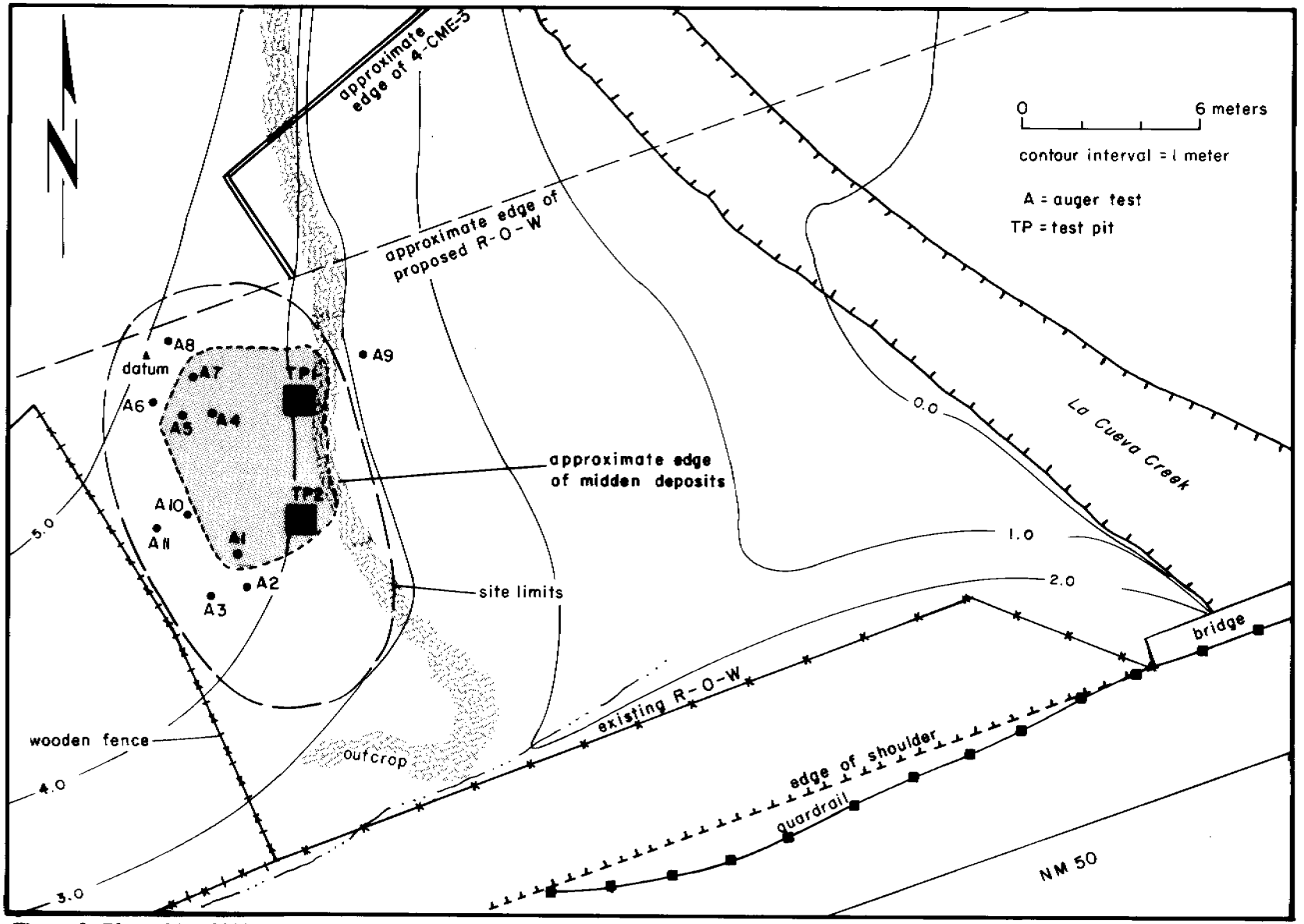


*Figure 3. Plan of LA 99029.*

**Table 2. Results of Auger Tests at LA 99029**

| Auger Test | Depth | Artifacts |
|---|---|---|
| 1 | 30 cm | burned bone, charcoal |
| 2 | 32 cm | charcoal |
| 3 | 10 cm | none |
| 4 | 46 cm | burned adobe, charcoal, ceramics, burned bone |
| 5 | 42 cm | charcoal, bone, burned adobe, lithics |
| 6 | 20 cm | charcoal |
| 7 | 43 cm | charcoal, Euroamerican ceramics, lithic, bone |
| 8 | 15 cm | charcoal |
| 9 | 26 cm | charcoal |
| 10 | 43 cm | charcoal, burned adobe |
| 11 | 30 cm | charcoal |

*Feature 1*

Feature 1 is a buried midden measuring 7 m north-south by 6 m east-west, and covers an area of 42 sq m. Two test pits were excavated along the east side of the midden, in an area that contained the heaviest concentration of surface artifacts. They were both just west of a sandstone outcrop, which borders the west edge of La Cueva Canyon.

Test Pit 1 was placed in the north part of the midden. One soil unit was identified during excavation. Stratum 1 was a black clayey loam that contained numerous artifacts. A total of 305 bone, 110 local ceramic, 2 lithic, 3 Euroamerican ceramic, 9 metal, and 2 glass artifacts were recovered from this grid. Artifacts were scattered relatively evenly through Stratum 1. Excavation ended when bedrock was encountered at a depth of 36 cm below ground surface.

Test Pit 2 was placed in the south part of the midden. Two soil strata were defined at this end of the feature. Stratum 1 was the same rich midden fill encountered in Test Pit 1. It was 58 cm thick in this area, and contained numerous artifacts including 358 bone, 52 local ceramic, 6 lithic, 3 Euroamerican ceramic, 7 metal, and 4 glass artifacts. Stratum 2 was a sterile, dark reddish brown, sandy and clayey loam. Excavation ended when it became apparent that this stratum contained no cultural materials and represented preoccupational deposits.

*Summary of Testing Results*

Testing at LA 99029 demonstrated the presence of cultural deposits that have the potential to provide information on the history of the Pecos area. One cultural feature was defined during testing. Feature 1 is an extensive buried midden containing numerous artifacts, predominantly domestic animal bones. Testing showed there is up to 58 cm of cultural deposits in this feature.

The water-rich cienega near the present-day village of Pecos was parceled out to 41 non-Indian and the 10 remaining Pecos Pueblo families in 1824-1825 (Hall 1984:64). This represents the first documented occupation of the central part of the grant by non-Indians. In the early to mid 1800s, a portion of the Santa Fe Trail passed .8 km south of the site, running between Kozlowski's Ranch and Glorieta Pass. A wagon road, representing a later branch of the Santa Fe Trail, ran through the Glorieta Valley just south of LA 99029 after 1880.

Documents indicate that the Glorieta Valley was initially settled in the mid-1800s. This, in addition to the structure and content of the artifact assemblage, suggests that LA 99029 was occupied during the late Mexican Territorial period (1821-1846), and possibly into the early American Territorial period (1846-1912). Most of the diagnostic artifacts were local ceramics that were produced over an extended period of time, primarily Peñasco Micaceous (1600 to present) and Tewa Black (1700 to present). However, the presence of a Powhoge Polychrome sherd narrows this range to ca. 1760-1890. In addition, documentary evidence shows that this part of the grant was occupied by Hispanics no earlier than 1824 (Hall 1984). The relative paucity of Euroamerican artifacts suggests that the site was occupied before the railroad arrived around 1880, and perhaps before New Mexico became part of the United States in 1846. Thus, a possible date of 1824 to 1846 or slightly thereafter is likely for these remains.

## RESEARCH ORIENTATION

by James L. Moore

A buried midden at LA 99029 comprised the only feature or subsurface cultural deposit found within project limits during testing. Data recovery efforts are planned for this site only; the lack of cultural deposits within project limits at LA 99028 indicates that additional data are limited in that part of the site, and no further work is planned at that location. The structure of trash deposits and the types of diagnostic artifacts recovered suggest that the midden at LA 99029 was deposited during the Mexican Territorial period occupation of the Pecos Pueblo Grant by Hispanic settlers.

LA 99029 will be examined as part of an ongoing study of occupation in the Glorieta-Pecos area. An earlier phase of investigation involved the excavation of two sites near Glorieta. LA 76138 was a late prehistoric or protohistoric farmstead that is not comparable to LA 99029 and will not be discussed any further in this plan. LA 76140 was an American Territorial period jacal structure with associated trash pits and other exterior features. That site is comparable to LA 99029, and this plan will consider similar questions to those posed for LA 76140 (Moore et al. 1991). Unfortunately, field work was ending at LA 76140 when LA 99029 was being tested, so no detailed information was available from that site. However, it is likely that data recovery at LA 99029 will provide information that can be compared with data from LA 76140. LA 76140 may represent an Anglo occupation of the area ca. A.D. 1880 to 1920, though the ethnicity of site residents has not yet been accurately determined. In contrast, LA 99029 is thought to have been occupied by Hispanic settlers during the Mexican Territorial period. Comparison of the assemblages from these sites may help with the difficult problem of establishing ethnicity from material remains. It will also aid in contrasting acculturation on the early and late nineteenth-century New Mexican frontier.

LA 99029 will be examined in light of cultural processes in historic New Mexico. Particular attention will be paid to the artifact assemblage and what it can tell us about life on the Mexican Territorial period frontier. A model for the detailed study of this site is developed below, and a set of questions to be used in analysis is provided.

### Adaptations to the New Mexico Frontier

New Mexico was a frontier through most of its history, first to New Spain (1600 to 1821), then to Mexico (1821 to 1846), and finally to the United States (1846 to mid-twentieth century). Its role as a buffer between the interior provinces of New Spain and the Plains Indians shaped much of its history. It remained a frontier during these periods because of distance from the interior provinces, the cost and difficulty of communication and transport, and conflict with nomadic Indians. Though communication and transport costs decreased during the American Territorial period, and conflict with nomadic Indians ended in the late nineteenth century, New Mexico remained a frontier into the twentieth century because of its small population and distance from centers of manufacture and consumption. It should be noted that throughout this discussion the terms *settlers* and *natives* are used without regard to ethnic origin. People moving onto a

frontier are *settlers*, while *natives* are the population already resident there. Most discussions of frontiers are concerned with historic or geographic processes, and are hard to adapt to archaeological studies. Thus, a general discussion of frontiers is provided, followed by a model that attempts to apply these ideas to archaeological remains. Of particular interest to the model is the process of frontier acculturation.

*The Frontier as Place and Process*

Billington (1963) distinguishes between the frontier as a place and a process. As a place the frontier is

> a geographic region adjacent to the unsettled portions of the continent in which a low man-land ratio and unusually abundant, unexploited, natural resources provide an exceptional opportunity for social and economic betterment to the small-propertied individual. (Billington 1963:25)

By this definition, movement onto a frontier is an economic process, where individuals who lack wealth seek a chance to improve their economic situation. A frontier is also

> the process through which the socioeconomic-political experiences and standards of individuals were altered by an environment where a low man-land ratio and the presence of untapped natural resources provided an unusual opportunity for individual self-advancement. (Billington 1963:25)

Again, this definition views the frontier as an economic process where movement into a new environment caused changes in the settler's social, economic, and political systems. Steffen (1980) criticizes this model, suggesting that it is not relevant to development of the American frontier past the first tier of states west of the Mississippi River. Rather than farmers struggling to tame the frontier, these later settlers were more closely linked to mercantile capitalism (Steffen 1980). Two types of frontiers are defined:

> Mining and ranching were essentially expeditionary frontiers while the farming frontier was more sedentary in its nature. On the expeditionary frontier there was an absence of a "settling" mentality. Individuals of the mining and ranching frontiers, while temporarily removed from "civilization," retained the value structure which they brought with them. On the farming frontier the settler often experienced an equal sense of removal from civilization, but he had no intention of returning. Individuals on the farming frontier were building their own civilization and in the process some of their original manners and customs were altered as an expedient to meet environmental circumstances. (Steffen 1980:25)

Thus, while changes in the settler's social organization and structure, customs, and subsistence patterns might be expected on a farming frontier, they should not occur on an expeditionary frontier. While movement onto the farming frontier resulted in value transformations, this did not occur with movement onto the expeditionary frontier because it remained closely linked to the mainstream culture (Steffen 1980).

In his discussion of frontiers and boundaries, Kristof (1959:272) notes that: "the frontier has, and always had, also a strategic meaning--the defensive line which keeps enemies out--and in this depends on support from the hinterland." Frontiers are also areas of integration, representing a transition from one way of life to another, where traits from both are assimilated (Kristof 1959:273). As a place, New Mexico was a frontier that provided a chance for economic advancement while serving as a defensive buffer, first for the inner provinces of New Spain and Mexico, then for the United States. As a process, the New Mexico frontier was a place where Spanish, Indian, and Anglo-American cultures overlapped and adapted to one another, creating an amalgam that was neither wholly one nor the other.

The degree of acculturation probably varied with wealth, the amount of interaction with other groups, and cultural biases. Rich individuals, particularly those of high social status, would be less likely to adopt the trappings of another culture, and more likely to try to preserve their traditional lifestyle. Poor people may have had no choice; partial assimilation of another lifestyle may have been necessary for survival. Such trends are demonstrated in the Spanish Colonial remains at St. Augustine, Florida (Deagan 1983). There, the proportion of aboriginal to European ceramics decreased as economic status rose. Among the European wares, the proportion of British trade ceramics to Spanish majolica and earthenware also decreased as economic status rose. Thus, access to the more desirable traditional commodities improved with economic status, and they were selected over other available merchandise.

No matter how close or attenuated contact between natives and settlers was, cultural bias could cause the acceptance or rejection of specific aspects of the other lifestyle. Traits seen as superior or adaptive might be assimilated, while those viewed as inferior would be rejected. This is a two-way street--as settlers adapt to new environmental and cultural constraints, they will adopt native traits that are considered useful or necessary. In a similar fashion, the native population will adopt desirable traits from the settlers. However, there may also be a forced assimilation of economic, organizational, or religious traits, with settlers compelling natives to accept their ways.

Acculturation may also depend on the type of frontier being settled. It may act in both directions on a farming frontier, with settlers and natives assimilating adaptive traits from each other. Acculturation is more likely to be one-way on an expeditionary frontier. In that case, settlers should retain most of their traditional cultural baggage, while natives should assimilate traits from them. This may be true of the late New Mexican frontier, where the Anglo-American population maintained close ties with the east.

### *The Frontier as a Dynamic Process*

Because of the nature of expansion, frontiers are spatially and temporally impermanent (Lewis 1977:153). They change over time when events that occurred in the center of an occupied region are repeated on its periphery as the region expands outward (Lewis 1977:153). Chances for economic advancement decrease as frontiers become settled--unclaimed land becomes scarce and the best farming and herding areas are already occupied. New settlers begin to press beyond what had been the frontier in search of new economic opportunity. A new frontier is formed, and the previous frontier becomes part of the hinterland or core area.

Recent studies in Africa have identified another type of frontier, the internal frontier (Kopytoff 1987). The African internal frontier "consists of politically open areas nestling between organized societies but 'internal' to the larger regions in which they are found" (Kopytoff 1987:9). This concept has also been applied to the historic Hopi of northeast Arizona (Schlegel 1992). Internal frontiers are dynamic, particularly those defined in Africa, and occur between organized societies rather than at their edges (Kopytoff 1987:9). New settlements in these zones are usually formed by groups of people rather than individuals. Fissioning can be for political, social, or economic reasons, and frontier settlements that survive without being reabsorbed or conquered may develop into a new nation or village. While the Hopi and African examples share several characteristics they are also quite different, suggesting that this is a complex process that can assume many forms.

While historic New Mexico mostly represented a traditional frontier related to an expanding society, internal frontiers may have also occurred. These areas probably consisted of lands that were occupied or claimed by Pueblo villages. Throughout the Spanish Colonial and Mexican Territorial periods and continuing into the American Territorial period there were constant attempts by Spanish settlers to occupy and farm lands considered to be the property of Pueblo villages. In particular, the Pecos Pueblo Grant seems to have represented a small internal frontier. Hall (1984) documents continuous attempts on the part of Spanish settlers to acquire part or all of the Pecos Grant, both as an area in which to found new settlements and for speculative purposes. Unlike the African and Hopi examples discussed by Kopytoff (1987) and Schlegel (1992), Spanish frontier settlements remained closely tied to the central government, from which they received their legitimacy. However, these attempts to acquire lands that were ostensibly owned by another group but were not currently being used resemble the process of internal frontier settlement.

Although New Mexico was a frontier to New Spain and Mexico, when viewed as a discrete spatial entity it was itself comprised of a hinterland and frontier. The hinterland was the core area around Santa Fe and along the Rio Grande where most of the population and wealth were concentrated. The frontier was the zone that surrounded the core area and, to some extent, protected it. The frontier represented a chance for economic advancement, and was settled by people who were willing to leave the relative safety of the core area in search of land or wealth.

This process is illustrated by movement into the Chama Valley (Quintana and Snow 1980). The first settlements in that area were small scattered homesteads. Rather than community grants, early settlers built on individual allotments and may have used the valley seasonally for livestock grazing before formal grants were acquired. Occupancy became year-round as the region developed; more substantial homes were built, and multifamily plazas began to appear. This was a rapid process--the first individual grant was approved in 1724 and the first community grant in 1734 (Carrillo 1988; Quintana and Snow 1980). Conflict with Indians kept the frontier from expanding further outward until late in the Spanish Colonial period. Initially, the village of Abiquiú was an outpost on the edge of the frontier settlement zone. It stopped serving as an outpost and became a supply center when herders and later farmers pushed beyond to develop lands to the north and west (Van Ness 1980).

Thus, the location of the New Mexican frontier was variable, changing as areas on the fringe of the Spanish-occupied zone were settled or abandoned. The entire territory was a frontier during initial colonization. Later, a core area developed and expanded as the frontier was pushed

outward by those seeking economic improvement. A lack of official support hindered this expansion, causing it to proceed slowly and suffer continual setbacks. This process underwent radical change as the United States came into close contact with New Mexico in 1821. Suddenly New Mexico was on the United States' frontier, and represented an area that could be exploited for economic gain. Led by trappers and traders, Americans began filtering into the region. Movement onto this frontier increased after the area was acquired by the United States in 1846. These settlers considered both Spanish and Indians to be the native population. Thus, the position of the Spanish inhabitants of New Mexico was suddenly reversed--they were in the same position relative to the American settlers as Pueblo and other Indians had once been to them. Political and economic power had shifted hands, and they no longer completely controlled either. The process of acculturation began once again as both natives and settlers strived to adapt to these new conditions.

*Socioeconomic and Cultural Change on Frontiers*

Social change accompanies movement onto frontiers, and settlers often suffer a sudden loss of sociocultural complexity because of the attenuation of economic and social contact between frontier and core area (Doolittle 1973; Lewis 1973, 1977). Even so, Lewis (1977) suggests that settlers must maintain a higher level of sociocultural complexity than natives, and Casagrande and others (1964) feel that settlers must possess a technological superiority over natives, as well as a power advantage. Communication between frontier and core area are important, and a continuity of tradition with the parent culture is maintained (Casagrande et al. 1964). Doolittle (1973) distinguishes between *colonial* and *pioneer* societies. Colonial societies are almost completely dependent on the parent culture for economic and technological support, while pioneer societies are largely self-sufficient. These differences are relative, and may be a function of communication and transportation speed.

Frontier societies must also be adaptable. Because of the difficulties involved in transportation and communication, many goods may not be available for long periods of time, the delivery of goods may be unreliable, or the cost of transport may make them so expensive that they are affordable by only a small part of the population. When this situation prevails there may be a reverse acculturation--rather than natives adopting the settlers technology, settlers may be forced to adopt native technologies. Thus, there is evidence that Spanish settlers in New Mexico adopted native lithic and ceramic technologies to supplement or replace goods that were economically unavailable to them (D. Levine 1990; Moore 1992a).

While frontier models consider adaptational changes in settlers, they are generally silent on corresponding changes in native societies. Obviously, native societies must adapt to the presence of settlers in their midst, and it is necessary to examine these processes before frontier adaptations can be understood. Native responses to settlement by outsiders should be conditioned by a number of factors including:

1. The degree of technological superiority displayed by the settlers;

2. The amount of interaction occurring between the groups;

3. Communication and transport costs between core area and frontier;

4. Cultural and political attitudes of one group toward the other;

5. The amount of sociocultural disruption caused by contact between settlers and natives;

6. The economic status of natives vis-à-vis settlers.

If settlers have little organizational or technological superiority over natives and there is no perception of an advantage to be gained by their presence, there may be an outright and hostile rejection of the settlers. The movement of Americans onto the northern Plains is an example of this process. European contact with this frontier was based on the fur trade until the early 1800s, operating according to customs that were violated by Americans who began entering Indian lands to hunt and trap in addition to trading (Swagerty 1988:363). Indians allowed trading posts to be built under the economically advantageous conditions of the early fur trade (Swagerty 1988). Their culture underwent significant changes in adapting to this economy, but those changes did not include accepting the presence of permanent settlers. The end of the Mexican War in 1848 brought a surge in westward movement, which was accelerated by the discovery of gold in California and the end of the Civil War (Utley 1988; Winther 1964). Resentful of the foreigners moving onto their lands, the Plains Indians unleashed a devastating campaign to drive them out. Among the factors that probably contributed to hostilities were a perception that the invaders were not militarily superior (frontier defenses were weakened by the Civil War), and there was no advantage to be gained by allowing them to remain.

Overwhelming technological or organizational superiority can result in an initial acceptance of settlers; however, if the deficits associated with colonization outweigh the benefits, organized resistance may eventually occur. Success or failure is dependent on the degree of technological or organizational superiority possessed by settlers. Initial Spanish settlement of New Mexico met little or no organized resistance (Bannon 1963; Sando 1979a). However, as the deficits associated with this occupation became clear, a rebellion was organized and the Pueblos were able to displace the settlers for twelve years (Sando 1979a; Simmons 1979).

The acculturation of settlers and natives to one another depends on the amount of contact occurring between the groups. This is tempered by the cost of communication and transport between frontier and core area, and the cultural and political attitudes of one group toward the other. When settlers form elite enclaves and choose not to mix with native peoples except under controlled conditions, contact is severely limited. While acculturation can occur, it may be slow and selective. Native groups might adopt desirable aspects of the settlers' culture, but the settlers will maintain close ties with the core area and assimilate little of the native culture. However, as communication between frontier and core area becomes more difficult and expensive, the amount of native material culture assimilated by settlers should increase. If native groups reject the settler's culture passively rather than overtly, settlers might still be restricted to enclaves and natives may adopt few traits other than the goods they find desirable. The former process is illustrated by the British colonization of India, and the latter by European attempts to establish colonies in China.

These processes can be affected by the amount of sociocultural disruption caused by contact between settlers and natives. This is best shown by early European colonies in the New World. Spanish settlers possessed little technological or organizational superiority over the native imperial powers of Mexico and Peru, yet small groups of adventurers were able to prevail over

these powerful nations. In both cases, the appearance of Spanish settlers on the scene disrupted the balance of power and introduced new diseases to which the natives had no immunity. In Mexico, Cortez was able to exploit dissention between the Aztecs and their vassal states and enemies, using the latter to cause the downfall of the former (Bray 1968; Cantu 1966). Aztec resistance was seriously affected by an outbreak of smallpox, which reduced the leadership as well as the general populace (Bray 1968; Cantu 1966). Smallpox also contributed to the Spanish conquest of the Incas in Peru by devastating the population before Pizarro's arrival (Hyams and Ordish 1963). The ruling Inca was one of the victims of this epidemic, setting in motion events that culminated in a bitter civil war as two of his sons fought for the throne (Hyams and Ordish 1963). Pizarro was able to exploit these conditions, and several distant provinces eventually allied with him, seizing the opportunity to rid themselves of Inca rule. In both cases, extreme disruptions caused by the introduction of new diseases and alliances with an outside power contributed to the defeat of nations that should have been able to resist the colonial efforts of foreigners under more favorable conditions.

Interaction between natives and settlers and the adoption of aspects of each culture can be conditioned by wealth and proximity. Rich individuals have fewer reasons to interact with the other population than do poor people--they can always hire others to act as go-betweens. Thus, as economic status increases, direct contact with the other population should decrease; conversely, as economic status decreases, interaction with the alien group should increase. Wealth also allows some individuals to better maintain the outward trappings of their traditional culture, or to acquire those of another culture. Thus, wealthy settlers are able to maintain their traditional material culture, while wealthy natives can more easily acquire the settlers' material culture. A similar differentiation should occur at the lower end of the economic scale. The greatest degree of acculturation to native customs and material culture should occur among poor settlers. Economically, they are less able to maintain their traditional material culture, and more prone to adopt aspects of native culture that enhance their prospects for survival. Conversely, the least amount of acculturation in the native population should occur among poorer individuals, who are forced to maintain their traditional material culture because they can't afford to acquire that of the settlers.

## A Model of Frontier Acculturation

While this discussion has considered New Mexico to be a frontier to New Spain, Mexico, and the United States, the model for examining LA 99029 will concentrate on the middle period. This research will continue studies begun at three sites near Abiquiú--Santa Rosa de Lima (LA 806), La Puente (LA 54313), and the Trujillo House (LA 59658). Significant variation in material remains from Spanish Colonial and Territorial period occupations were found at those sites, reflecting differences in access to goods resulting from changing frontier and trade patterns. Although general access to manufactured goods was poor during the Spanish Colonial period, the situation was particularly dismal on the New Mexican frontier. Few artifacts of distinctly European manufacture were found in Spanish Colonial deposits at Abiquiú. Instead, the assemblage indicated heavy trade with local Indians for certain commodities, and some adoption of native technologies. Territorial period deposits demonstrated a different orientation. Dramatically improved access to manufactured goods was indicated, particularly in American Territorial period deposits, and was associated with decreased reliance on native technologies.

While these sites provide data concerning Hispanic adaptations to the New Mexican frontier, information from other cultural groups was lacking. Analysis of LA 76140 during testing suggested it was occupied by Anglo settlers during the American Territorial period (Moore et al. 1991). However, it must be stressed that this assignment of ethnicity was an assumption based on comparisons with a limited number of other sites from that period, and not on excavational or documentary evidence. If the assumed ethnic identity is correct, the artifact assemblage at that site should differ greatly in content and character from those of sites occupied by Hispanic households. Testing at LA 99029 suggested it was occupied by Hispanic settlers during the Mexican Territorial period. By comparing and contrasting these assemblages with those from the Abiquiú sites, we may be able to address the questions of ethnicity and acculturation on the frontier.

All of our assumptions concerning LA 99029 have not yet been explicitly stated, and this must be done before the questions that will be asked during data recovery are developed. To reiterate, LA 99029 contains a buried midden and associated surface artifact scatter. Though no evidence of a structure was found, the extent of trash deposits suggests that one was present. Unfortunately, the area in which the structure was probably built is now occupied by a modern house and associated features. Diagnostic artifacts suggest occupation during the Mexican Territorial period, though a later date is also possible. The earliest recorded Hispanic occupation of the Pecos Pueblo Grant was ca. 1824 to 1826 (Hall 1984). Occupation of this site by Pueblo Indians from Pecos is unlikely as that population was very small by this time, and seems to have been restricted to the village. With few exceptions, the early Hispanic residents of the grant were poor farmers and ranchers (Hall 1984:61). Thus, it is likely that the occupants of LA 99029 were Hispanic farmers or ranchers from the lower end of the economic scale, and the site was probably occupied sometime after 1824.

It is also assumed that the Pecos Grant represents an internal frontier, into which moved groups of people seeking an improved economic base. However, movement into the Pecos Grant could also represent expansion of the core area population into a vacuum left by depopulation of Pecos Pueblo. It may be possible to distinguish between these processes using certain economic indicators, which are discussed in more detail below.

The main question that will be addressed is relatively simple, but its implications are quite complex. Succinctly stated, the main question that will be asked is:

> **What can these archaeological remains tell us about the process of acculturation on the frontier and the ethnicity of site residents?**

Determining ethnicity from material remains is not easy, but may be possible. At Abiquiú Reservoir, Kemrer (1992) used a combination of documentary evidence and information on site location and character, artifact assemblage content, and feature type, placement, and construction methods to argue a Tewa affiliation for the Piedra Lumbre phase sites that were originally assumed to be Navajo. Of particular interest to this plan is whether remains from LA 99029 are comparable to those from La Puente, Santa Rosa de Lima, and the Trujillo House near Abiquiú, and how they contrast with those from LA 76140. If the latter represents an Anglo homestead, as suggested during testing, the content and character of midden deposits should differ greatly between sites. Material remains from LA 99029 should be comparable to those recovered from Mexican Territorial contexts at the Abiquiú sites, and should closely resemble those from Spanish

Colonial period deposits. The artifact assemblage from LA 76140 should be quite different from the Hispanic sites. Different artifact classes should dominate the assemblage, there should be little or no evidence for the adoption of native technologies or the substitution of native goods for Euroamerican goods, and imported items should be much more common.

Access to manufactured goods was limited in Spanish Colonial and Mexican Territorial times by distance to market, lack of money or trade goods, and dangers associated with moving goods to Santa Fe and from there throughout the territory. Thus, many important commodities had to be done without or replaced. Though the situation improved somewhat with the opening of the Santa Fe Trail in 1821, transport remained difficult and goods continued to be comparatively expensive for poor people to acquire. Replacement of goods was accomplished in two ways--trade with nearby Indians, and local manufacture of substitutes. Studies at Abiquiú focused on two areas of substitution--ceramics and chipped stone tools. Ceramics were more important in Spanish colonies than they were in British colonies. Hispanic assemblages from Florida, Abiquiú, and Santa Fe are dominated by kitchen activity related remains, which in turn are distinguished by a preponderance of ceramic artifacts (Boyer 1992; Deagan 1983; Wiseman 1992).

Local manufacture of ceramics is generally presumed to mean production by Indian potters. While Snow (1984) admits that pottery making by genízaros or mestizos was a possibility, he believes that Pueblo and Athabaskan potters dominated pottery manufacture in New Mexico. This was a very low-status occupation, only undertaken by someone in dire need of economic support. He completely rejects Hurt (1939) and Hurt and Dick's (1946) arguments for a Hispanic ceramic tradition. In contrast, Carrillo (1987) asserts that a well-established Hispanic ceramic tradition did exist, particularly in the eighteenth and early nineteenth centuries before the opening of the Santa Fe Trail. Ceramics produced by Hispanic (or Hispanicized) potters were similar to those made by Pueblo and Athabaskan Indians, but are in many ways distinguishable from them. Similarities in decorative style and manufacturing techniques suggest that pottery-making skills were acquired from local Indians, and are representative of the acculturation process.

If Hispanic ceramic manufacture did occur, it was probably more common on the frontier than in the core area. The isolated nature of frontier villages, their lack of wealth, and the difficulties of transport may have combined to make ceramic production a necessity of frontier life. The opposite may have been true in the core area where comparatively more wealth, easier access and transport, and more concern for the outward trappings of social status probably united to severely limit Hispanic ceramic production. In considering the category of locally produced earthenwares, it is likely that the proportion of Indian to Hispanic manufactured pottery was higher at core area sites than at those on the frontier.

Chipped stone artifacts are often found at Spanish Colonial sites, but their presence is usually attributed to contamination from nearby or underlying prehistoric remains. Recently, Carrillo (n.d.) and Moore (1992a) have attributed a Hispanic origin to these artifacts. Use of chipped stone tools by Hispanics in New Mexico is undoubtedly related to the shortage and high cost of metal tools, and the irregular and undependable supply system. Chipped stone tool manufacture and use appears to represent the assimilation of native technology to supplement or replace metal tools.

It should be noted that lithic technology was not absent from the traditional Spanish lifestyle--gunflints and strike-a-light flints were integral components of firearms and fire-making kits. However, chipped stone tools were not normally used for other purposes. The use of other varieties of chipped stone tools is probably attributable to acculturation, and their substitution for metal tools was undoubtedly conditioned by wealth and access. Such substitutions are expected to have been considerably more common on the frontier than in the core area.

By contrasting the assemblage from LA 99029 with those from the Abiquiú and Santa Fe areas, it may be possible to determine whether Hispanic movement into the Pecos Grant represented settlement of a frontier or expansion of the core area. If our assumptions are correct, several propositions should hold true:

1. The proportion of European goods to locally produced goods should be higher at sites within the core area than at those on the frontier.

2. Within the category of locally manufactured ceramics, the ratio of pottery made by Hispanic potters to that produced by Indians should be higher at sites on the frontier than at sites within the core area.

3. Chipped stone tools other than gunflints and strike-a-light flints should be more common at frontier sites than at sites in the core area.

If LA 99029 was occupied at a time when this area was a frontier, patterns similar to those derived at Abiquiú should be found. If the region was part of the core area at the time the site was occupied there should be distinct differences between those assemblages.

The model can be tentatively accepted if these propositions are upheld. If they are not, two possibilities must be considered: (1) the model is incorrect, and (2) the variables being studied are not sensitive enough to measure local acculturative processes. If the model is incorrect, factors other than access to manufactured goods and the distribution of wealth may be responsible for the assimilation of native technologies, and other acculturative processes must be considered. If the variables are not sensitive enough to measure the acculturative effects of residence on the frontier versus the core area, the possibility that they are controlled by more general conditions must be considered. In other words, it is possible that they reflect life in New Mexico as a frontier to New Spain, and represent the acculturative process at a coarser-grained level.

Analysis of Mexican and American Territorial period remains near Abiquiú showed that while access to manufactured goods improved with the opening of the Santa Fe Trail and the coming of the railroad, certain aspects of traditional material culture persisted. While it is not yet possible to determine whether this occurred for economic or cultural reasons, the latter is likely. At both sites, there continued to be a heavy reliance on native-produced pottery (both Indian and Hispanic) and the use of lithic artifacts for certain tasks. These artifact classes may be the key to determining ethnicity at sites of questionable cultural origin. Hispanic assemblages from Florida, the Abiquiú area, and Santa Fe are dominated by kitchen activity related remains, which in turn are distinguished by a preponderance of pottery (Boyer 1992; Deagan 1983; Wiseman 1992). Chipped stone tools were used as components in fire-making systems (gunflints and strike-a-light flints), and as replacements for expensive and difficult to acquire metal tools (Moore

1992a). While improved supply and transport seems to have superseded the latter use, the former was retained.

These studies allow us to model the expected pattern of material culture at Hispanic versus Anglo-American sites.

1. At Hispanic sites:

    a. Material culture should be dominated by kitchen-activity items, primarily pottery. While other activity sets may be represented by a diverse range of artifacts, kitchen-activity items should comprise a dominant proportion of the assemblage.

    b. A reliance on locally produced pottery, both Indian and Hispanic, should be evident. This pattern should continue into the American Territorial period at frontier sites, despite the increased availability of Euroamerican wares.

    c. Lithic artifacts should occur in the assemblage; they will be associated with other remains, and should mostly reflect fire-making activities, though other uses may be indicated. Non-fire-making uses should be more common at frontier sites than in the core area.

    d. Imported pottery may include Spanish wares. Anglo-American wares may occur in small quantities at sites occupied after the opening of the Santa Fe Trail, and should dominate the Euroamerican ceramic assemblage during the American Territorial period.

2. At Anglo-American sites:

    a. While kitchen-activity items should comprise a large percentage of the assemblage, they will not dominate material culture remains. Other activities should be represented by roughly equivalent percentages of artifacts.

    b. Little locally produced pottery should occur.

    c. If lithic artifacts are present, they should reflect an earlier occupation of the area, and should not be in direct association with the rest of the assemblage.

    d. Imported pottery should be dominated by American and British wares; Spanish wares should be absent.

    e. Aspects of native culture in the assemblage should be subsistence related. These may include specialized tools and foods; limited numbers of utilitarian objects might also occur.

While it is assumed that certain classes of artifacts are ethnic markers, other possibilities must also be considered. Transport cost and difficulty are important aspects of frontier acculturation. Settlers are more prone to adopt parts of the native adaptational system when it is difficult and expensive to acquire goods from the parent culture. Attenuation of contact with New Spain caused Spanish settlers in New Mexico to adopt aspects of native culture as noted earlier. New Mexico was a farming frontier during the Spanish Colonial and Mexican Territorial periods, and some alteration of traditional customs was necessary to meet environmental circumstances (Steffen 1980:25). Trade over the Santa Fe Trail improved the supply of manufactured goods in New Mexico and caused prices to drop somewhat. Still, imported goods remained relatively expensive, especially for the poorer strata of society.

New Mexico was primarily an expeditionary frontier during the American Territorial period (Steffen 1980). Most settlers from the east came to exploit the frontier while retaining their traditional value structure. By the time LA 76140 was occupied, the railroad had arrived in the area and movement of manufactured goods was much more efficient and less expensive. Settlers would be expected to assimilate few aspects of native material culture under these conditions, and natives would be expected to acquire more aspects of the settler's material culture.

If use of the artifacts assumed to be ethnic markers in the model was a function of economics, there may be no easily discernable differences between settler and native assemblages. While the Abiquiú sites were of similar age and contained evidence of continuity in material culture, that area is much further away from the main supply centers and transport corridors. Were cultural factors responsible for the retention of traditional material culture in that area or was it due to transport costs?

LA 99029 is located very close to the route of the Santa Fe Trail through Glorieta Pass, and is also much closer to the center of supply in Santa Fe. Thus, if transport costs and distance from Santa Fe were the main factors involved in retention of traditional material culture, there should be more evidence for the replacement of traditional goods by imported Anglo-American goods at LA 99029 than at the Abiquiú sites. Locally manufactured ceramics and stone components of fire-making kits should be much rarer at LA 76140 than the Abiquiú sites, no matter what the ethnicity of site occupants. Conversely, if cultural factors were involved in the retention of traditional material culture, assemblages from both areas should be dominated by traditional goods. Anglo-American goods should occur primarily as replacements for traditional goods that were either difficult to acquire or expensive. While imported goods should be more common at Hispanic sites occupied during the American Territorial period (particularly after arrival of the railroad), certain traditional goods should be retained. Thus, if LA 76140 was occupied by Hispanic rather than Anglo-American settlers, local ceramics and stone components of fire-making kits should continue in use.

LA 99029 is assumed to have been occupied by Hispanics. The term "Hispanic" in this context refers to lifestyle as well as ethnicity. The Spanish population of New Mexico was augmented by genízaros and Pueblo Indians who had left their villages to live among the Spanish. Within a generation or two it was difficult to distinguish these people because they had adopted a Spanish lifestyle, blending with that other culture. Thus, the Hispanic population includes settlers of Spanish descent as well as hispanicized Indians. With this in mind, the assemblage from LA 99029 will be compared with those of Hispanic sites near Abiquiú and Santa Fe to look for similarities or differences that may reflect ethnicity. These results will be compared with the

assemblage from LA 76140 to help determine whether that site represents a Hispanic occupation reflecting Anglo-American acculturation, an Anglo-American occupation reflecting Hispanic acculturation, or a purely Anglo-American occupation.

## Data Required to Test the Model

LA 99029 will be examined as part of a study that is already in progress. In particular, it will be used to provide data on acculturation and ethnicity comparable to those recovered from LA 76140 during an earlier phase of this study. The most critical data needed to test the model will be derived through analysis of ceramic and lithic artifacts. Examination of ceramic artifacts will provide information concerning what cultural group(s) produced the pottery used at the site. Lithic artifact analysis will focus on reduction technology and tool use patterns to determine the range of activities in which stone tools were used, and whether they were produced on-site or procured elsewhere. Both of these artifact classes were recovered from the midden during testing, and should be available in sufficient quantities to allow us to examine the model.

Several other data sets will be used to amplify the results of these analyses, and to provide general information concerning Hispanic life in New Mexico. Botanical and faunal samples should demonstrate that domesticates dominated the array of plants and animals exploited for food. The identification of plant species recovered from flotation samples taken in the midden should provide information concerning the range of plants used as well as the relative importance of various domestic and wild species. Little is really archaeologically known about the importance of wild plants in the traditional Hispanic economy (Toll 1989), so it is difficult to predict patterning. However, analysis of charcoal from the Abiquiú area indicates that patterns of use differed from that of the Pueblos, with a narrow range of conifers being preferred for firewood over a broad range of locally available trees and shrubs (Toll 1989). Though an exact pattern cannot be predicted, it is likely that it will differ significantly from that found at historic pueblos.

Bone was recovered during tests in the midden, and should provide information that will be a valuable aid in testing the model. Spanish faunal remains consistently reflect the use of domestic animals for food (N. Akins, pers. comm.). Deviance from this pattern can be particularly significant. In St. Augustine, use of domestic versus wild fauna varied according to social and economic status (Reitz and Cumbaa 1983). High-status households used a wider range of domestic as well as wild animal species; middle-class households primarily exploited domestic animals for food (particularly cattle), but there was some use of wild terrestrial species; lower class mestizo households followed the aboriginal pattern of exploiting a wide variety of species, modified to some extent by use of domestic animals (Reitz and Cumbaa 1983:166). Thus, the variety of wild and domestic species in the assemblage could be used to support arguments concerning the economic status of the household and its level of access to manufactured goods, and may provide information on the ethnicity of site residents. Examination of butchering methods can provide important supporting information on market procurement versus in situ production. Butchering marks can also indicate whether metal or stone tools were used by site residents. Use of the latter would be evidence for the substitution of native tools for traditional goods that were difficult and expensive to acquire.

Euroamerican goods should be rather rare when compared to locally manufactured items. Metal items may be more common than other types of Euroamerican goods in refuse deposits, reflecting improved supply over the Santa Fe Trail. Other durable items of Anglo-American manufacture may occur, but should be comparatively rare. However, as a whole, Euroamerican goods should be more common than they are at Spanish Colonial period frontier sites.

Temporal control is critical to this analysis. Though LA 99029 probably dates to the Mexican Territorial period, it could actually be later. In order to determine whether the site was on the frontier or in the core area it will be necessary to assign an accurate date to the remains. Several methods will be used to accomplish this. Most accurate would be documents that establish an occupational span for the site. Unfortunately, discovery of such documents is unlikely. Diagnostic artifacts will also be used to estimate the period of occupation. Other chronometric data will be collected, but should have limited utility. Radiocarbon and tree-ring samples can help establish an occupational date, but problems can develop when wood salvaged from abandoned structures was reused. This problem was encountered at La Puente (Boyer 1992), and suggests that radiocarbon and tree-ring dates are acceptable only when corroborated by other data. Archaeomagnetic samples may also be collected, but it is unlikely that features amenable to such methods will occur within project limits.

By focusing on the patterning of Euroamerican goods, locally manufactured ceramics, and chipped stone artifacts in the LA 99029 assemblage, and comparing the results of analysis with those derived from studies in the Abiquiú area, an idea of the degree of assimilation of native technologies as conditioned by access to manufactured goods should be obtained. Data recovered from studies of floral and faunal remains are expected to corroborate these results. Temporal data and documentary information are necessary to establish the comparability of LA 99029 with the Abiquiú sites, and to place it in the proper historical setting.

# FIELD AND ANALYTIC METHODS

by James L. Moore

## General Excavation Procedures

The first step in excavation will be reestablishment of a grid system that will be used to provenience collection and excavation units. Surface artifacts will be collected in 1-by-1-m grids inside project limits. While hand tools will be used to excavate cultural deposits, mechanical equipment may be used to strip disturbed or sterile overburden, or in areas lacking surface remains.

Excavation by strata is considered optimal because they tend to represent specific depositional episodes. Thus, exploratory units will be excavated to aid in defining the natural vertical and horizontal structure of cultural deposits. Excavation units will consist of 1-by-1-m grids, and will be dug in arbitrary 10-cm vertical levels unless natural stratigraphic divisions are encountered. When natural divisions are found they will be used to delimit the boundaries of a level. These unit sizes allow the desired amount of control over recovered materials. Excavation will be expanded outward from exploratory grids to determine the nature and extent of cultural deposits and features that are encountered. Surface stripping may be used to define features that are not visible from the surface. Excavation of features or other cultural deposits will continue until sterile soil is encountered.

Features that extend into two or more grids may become individual excavation units, depending on their size and structure. For example, while a 1-m diameter hearth that extends into two or more grids would be excavated as a single unit, a midden covering 30 or 40 sq m would be dug by grids. A structure or room that contains culturally deposited strata would be excavated (or sampled) in 1-m grids. One that contains nonculturally deposited strata (ie., windblown or colluvial soils) will be excavated in quadrants or as a single unit, depending on size. A structure or room that is only 2 to 3 m in diameter might be dug as a unit, while one that is larger would be excavated in quadrants.

All soil recovered from undisturbed cultural contexts will be screened through ¼-inch mesh hardware cloth, with artifacts being removed and bagged for analysis. If it is determined that certain strata were deposited by noncultural processes, the excavators may elect to remove them without screening, though artifacts noted while digging will still be collected for analysis. Artifacts found on floors or other occupational surfaces will be mapped in place and bagged separately. Flotation samples will be taken from each cultural stratum and feature encountered. If available, charcoal, tree-ring, and archaeomagnetic samples will be collected to aid in identifying the period of occupation.

Areas in which features or surface artifacts are not visible will be investigated using a soil auger to determine whether subsurface cultural remains are present. All materials removed by auger will be screened through ¼-inch mesh hardware cloth, and artifacts recovered in this way will be collected and bagged for analysis. If subsurface cultural deposits are found in an auger hole, that area will be more intensively investigated using the methods outlined above, or will

be trenched by mechanical equipment to delineate the extent of buried remains.

Discovery of burials during data recovery seems unlikely. LA 99029 appears to have been associated with a residence occupied in the early to mid-nineteenth century, and on-site burials are unlikely. Related interments should be in cemeteries, and we can assume that no human remains will be found at this site. However, if human remains are discovered, standard archaeological excavation techniques will be employed to remove them after consultation with appropriate review authorities has been completed. They include definition of the burial pit, use of hand tools to expose skeletal materials, mapping and photographing the position of the skeleton and any grave goods, and retrieval of soil for pollen analysis.

Field treatment of human remains and other sensitive cultural discoveries will be based on the Museum of New Mexico policy adopted March 20, 1986, "Collection and Display of Sensitive Materials" (SRC Rule 11; Appendix 2). If human remains or other sensitive materials are uncovered, no person will be allowed to handle or photograph them except as part of data recovery efforts. Data recovery related photographs of sensitive materials will not be released to the media or general public. As LA 99029 is on private land, human remains will be treated in accordance with state law. Should human remains be encountered, local law enforcement officers and the State Historic Preservation Officer will be notified and necessary consultations will be completed before the remains are excavated. Excavation will be conducted under blanket permit ABE-34. Interested parties including relatives (if found) will also be informed, and will be consulted concerning disposition of the remains and any grave goods.

Areas of excavation, structures, cultural and topographic features, and site limits will be mapped using a transit and stadia rod or tape. Artifacts will be provenienced by grid and excavation unit (either arbitrary 10-cm levels or natural stratum), or by exact location when such treatment is warranted as outlined above. Plans and profiles of individual features and excavation areas will be drawn, and standard recording forms will be completed. Features will be photographed before and after excavation.

## Unexpected Discoveries

There is always a risk of finding unexpected deposits or features during an archaeological excavation, and the project outlined in this plan is no exception. The procedure that will be followed in the event of an unexpected discovery will vary with the nature and extent of the find. Should human remains be found, appropriate consultations will be completed, and they will be treated according to the procedures outlined above and in Appendix 2. Small features, structures, or cultural deposits that were not located during survey or testing will also be excavated according to the procedures outlined above. On the other hand, finds that have the potential to significantly alter the scope and intent of this plan will require consultation with the New Mexico State Highway and Transportation Department, the State Historic Preservation Officer, and other agencies involved in permitting.

## Analysis

Laboratory analysis will be conducted by the staff of the Office of Archaeological Studies and qualified professional consultants. The types of cultural materials anticipated and brief descriptions of the kinds of information desired from each are presented below.

### *Ceramic Artifacts*

In order to assign date, origin, and function to locally made pottery, a detailed analysis of morphological attributes will be undertaken. Sherds will be identified by existing type name and vessel form. Other attributes that will be studied include rim form and cross section, vessel diameter, paste texture and color, temper, surface color and finish, slip, design style, thickness, and alterations such as burning, smudging, reuse, and mending. Examination under a binocular microscope will facilitate this analysis. The analysis of Euroamerican pottery will differ from this approach, and is discussed along with other categories of historic artifacts.

Analysis of both Euroamerican and locally produced ceramics will provide data in several critical areas. Ceramic dates will aid in assigning an accurate period of occupation to the site. Information on trade patterns and access to certain categories of trade or exchange goods will also be provided. Combined with other types of information, ceramic studies can provide an idea of variation in production and trade as conditioned by distance from source, wealth, and location on a frontier versus the core area. Local earthenwares should be considerably more common than Euroamerican wares. Analysis of this artifact class is central to the study of acculturative processes.

Preliminary results from the Abiquiú sites suggest certain trends in ceramic production. Based on technological differences, two traditions are present--Indian and Hispanic. Characteristics distinguishing these traditions from one another include tempering materials, surface treatment, vessel form, and (possibly) firing techniques. Hispanic wares account for almost 20 percent of Spanish Colonial period earthenwares, and nearly 50 percent of Territorial period earthenwares. These percentages may indicate changing exchange patterns, with better access to Pueblo wares occurring during the Spanish Colonial period than during the Territorial period. If LA 99029 was a core area settlement, Hispanic ceramics should make up considerably less than 50 percent of the earthenwares and vessel forms should be dominated by bowls and flange plates. Indian made earthenwares should total considerably more than 50 percent, and vessel forms should consist primarily of jars and flange plates. If the site was a frontier settlement, percentages and vessel forms approximating those obtained at Abiquiú should be found.

Ceramic artifacts should provide information in several areas. In particular, pottery will provide temporal data that can be compared with dates from other sources to assess their reliability. This information will be provided by using such attributes as rim form and cross section, paste color and texture, temper, surface color and finish, slip, design style, and thickness to assign sherds to existing types with known dates. These attributes can also be used to determine where many vessels originated.

*Chipped Stone Artifacts*

Attributes that will be studied on all chipped stone artifacts include material type and texture, artifact morphology and function, size, and alterations like thermal treatment, incidental breakage, and use. The range of attributes examined will depend on artifact morphology. The reduction process produces three by-products: debitage, cores, and formal tools. Debitage and cores are the immediate by-products of reduction, while formal tools are by-products that were modified to produce specific shapes. While the former categories provide information about the reduction strategy employed, the latter provide data on tool-using activities. Thus, different attributes will be examined for each of these broad categories.

Debitage and cores will provide data on reduction strategies. Attributes used for this analysis will include debitage type, amount of cortical surface, artifact portion, and size. Cores will be morphologically identified by the direction of removal and number of striking platforms, providing basic information on how they were reduced. Flakes are debitage that were purposely removed from cores, and can provide critical data on reduction technology. Hence, several attributes will be analyzed on this class of artifact including platform type and modification, platform lipping, direction of dorsal scarring, and distal termination.

Formal tools will be identified by morphology and wear patterns. Informal tools will be identified by the presence of marginal retouch or use-wear patterns along one or more debitage edges. A binocular microscope will be used to identify and classify retouch and wear patterns on all tools, and utilized or retouched edge angles will be measured. All evidence of edge modification will be recorded for informal tools, while evidence of use or modification unrelated to production will be recorded for formal tools. These attributes will provide information on activities employing chipped stone tools.

When lithic information is combined with other data from LA 99029, it will allow an assessment of the economy and the degree of acculturation demonstrated by site residents. Comparison of lithic artifact data with information from sites of similar type and date may aid in the isolation of specific manufacture or use patterns that are culturally rather than functionally determined. Lithic artifacts should have been used for a wide range of tasks at frontier sites, in many cases being substituted for metal tools. If it was in the core area the opposite should be true--most lithic artifacts should have been used in fire-making activities and not in tasks for which metal tools were better suited.

*Ground Stone Artifacts*

Like the chipped stone assemblage, ground stone artifacts will be studied to provide data on material procurement and selection, range of activities, and alterations. Raw material choice, procurement costs, and the cost of producing specific tools will be studied by examining material type and quality, preform morphology, production input, plan-view outline form, and ground surface texture. Because ground stone artifacts are large and durable, they may undergo a long life history and be used for a variety of purposes, even after they are broken. Several attributes will be used to monitor artifact life histories by identifying post-manufacture changes in form and treatment. They include size, heat alteration, portion represented, evidence for sharpening of the grinding surface, wear patterns, physical alteration for secondary use, and the presence of

adhesions. Relative tool and assemblage age will be measured by examining the cross-section form of manos, and the depth and cross section of metate grinding surfaces.

Analysis of ground stone tools will provide information on subsistence and site type. The morphology of such tools can be used to determine whether they were used in food preparation or for other purposes. The presence of numerous well-worn ground stone tools would suggest that the midden at LA 99029 was related to a residence used for a relatively long period of time. The absence of such tools may be an indication of temporary or sporadic site occupation, suggesting that no substantial residence was present. Ethnicity may be indicated by the presence of tool types that are common to Hispanic sites, but rare or absent on Indian sites.

*Faunal Remains*

Faunal analysis will concentrate on the identification of species, age, bone element, and condition to aid documentation of food procurement and consumption patterns. Data concerning the use of faunal materials as tools, and information on butchering and processing methods will also be collected. As is the case with other types of formal tools on a site, bone tools can provide information on activities occurring at that locale. Thus, bone tools will be categorized by morphology and wear patterns.

Analysis of faunal remains from LA 99029 should provide information on the economic orientation of site occupants. Domestic animals should dominate the assemblage, though some wild game may also be represented. The range of elements present and butchering patterns will be used to determine how and where meat was procured. Evidence of axe butchering and the presence of elements from skulls, feet, and pelvis would suggest on-site butchering and processing. In this case, it is possible that site occupants were raising animals for consumption. The presence of saw-cut bone representing a limited range of elements and meat cuts would suggest that meat was bought from a merchant. Evidence of burning, roasting, or boiling provides details on the processing of faunal materials as well as confirming their economic use. Similarly, the age distribution of individuals represented in the assemblage may provide information on season(s) of use.

*Floral Remains*

Two types of floral remains may be gathered during data recovery. When possible, macrobotanical specimens such as corncobs, nuts, charcoal, and seeds will be separated from other materials during excavation. Other botanical materials will be obtained from flotation samples. Where possible, macrobotanical samples will be identified to species. Selected charcoal samples will be analyzed to determine the types of fuel woods used, and may be submitted for radiocarbon dating to supplement other types of chronometric data. Other macrobotanical and flotation samples will be used to provide information on subsistence and seasonality.

Macrobotanical and flotation samples will be used to examine economic and consumption patterns. Traditional crops and some wild plant foods may occur. If parts of economic plants are identified, they may help define the economic orientation of site residents. Plant parts like cornstalks and beanpods may occur if they were raising their own food, but should be absent if

they were not. Unfortunately, the absence of such materials is not definite evidence for the latter. Fuel wood consumption patterns should resemble those of other Hispanic sites in New Mexico. A relatively narrow range of mostly conifers is expected to have been used as fuel. The use of a wide range of fuels, including shrubs as well as trees, is not expected.

*Euroamerican Artifacts*

This class of artifacts includes Euroamerican sherds, glass, metal, leather, plastic, and cloth. The most important attribute monitored by this analysis will be function. Artifacts will be arranged in categories related to basic human activities such as subsistence-production and indulgence. Within these categories, artifacts will be further subdivided by type and specific function. Other variables that will be studied include material type, evidence of source, and manufacturing date.

Material type provides a secondary method of categorizing artifacts. While this attribute was not selected to be the focus of analysis, it will be recorded because it can be an important aid in dating artifacts. In addition, many other analyses *are* categorized by material type, so this information is necessary for comparison. Evidence of source includes attributes such as "manufacturer" and "brand name," where the former refers to the company that made an artifact and the latter to the product it contained. These attributes can provide information on where an artifact originated and the size and scale of the mercantile network into which a site was tied. Several attributes will be used to assign dates to artifacts, when possible. They include seams on bottles and cans, bottle finishes, can seals, glass color, size or volume, and pottery decoration styles. By combining these data with information on the maker of an artifact, it is often possible to very accurately determine the manufacturing date.

If our predictions are correct, Euroamerican artifacts should be rather rare in the assemblage. Even so, these artifacts can provide important information about LA 99029. Besides helping to date the occupation, the types and frequencies of historic artifacts should be an indication of ease of access to the source of manufactured goods as well as the relative wealth of site occupants. The variety of tools or tool fragments recovered may be valuable indicators of the kinds of economic activities performed. If recovered, leather will also be an indicator of access to manufactured goods. Limited access will be suggested by a preponderance of locally manufactured goods rather than those made in factories, while the opposite suggests easy access. No special effort at conservation of perishable materials will be made in the field. An attempt will be made to retain those materials in the condition in which they are found (ie., wet or dry, and with a protective covering of soil, if possible), but cleaning and preservation will be completed in the laboratory.

*Human Remains*

As discussed in the section on field methodology, the probability of locating and recovering human remains is low. If any human remains are recovered, the sample should be extremely limited. Under such circumstances, it will not be possible to establish that they are representative of the human biological populations that created a site. The main goal of skeletal analysis will therefore be a nondestructive study of the remains in order to add to our general knowledge of historic human populations, rather than to address specific questions raised in the research design.

This nondestructive approach will include standard metric studies, aging and sexing of the remains, and documentation of pathologies.

*Documentary Research*

Archival research will be conducted to identify documents pertinent to LA 99029 and the historic occupation of the study area such as deeds, records of lawsuits, and other legal documents that might be available at the State Records Center and Archives. Types of information being sought include the names, origin, and backgrounds of site residents, date of occupation, and range of economic activities performed. By comparing these data with the analytic results it should be possible to assess the accuracy of the model developed earlier. This will permit an assessment of the ability of material remains to predict ethnic identification and to document the process of frontier acculturation. Unfortunately, it is not likely that many documents that are directly applicable to LA 99029 will be found.

## Research Results

The final data recovery and analysis report will be published in the Office of Archaeological Studies' *Archaeology Notes* series. The report will present all important excavation, analysis, and interpretive results, and will include photographs, site and feature plans, and data summaries. Field notes, maps, analytic notes, and photographs will be deposited with the Archeological Records Management System of the State Historic Preservation Division, located at the Laboratory of Anthropology in Santa Fe.

If human remains (including associated burial goods) are recovered, their disposition will be based on consultations carried out in accordance with State regulations. No disposition of the remains will be completed until the wishes of concerned parties have been documented. Unless an alternative disposition is established through consultation, the remains will be submitted to the Museum of New Mexico Archaeological Repository, for physical storage at the forensic laboratory of the Department of Anthropology, University of New Mexico. Other artifacts will be submitted to the Museum of New Mexico Archaeological Repository for storage.

# CONCLUSIONS AND RECOMMENDATIONS

Testing was conducted at two sites. LA 99028 contained a surface scatter of American Territorial period artifacts and a possible trash pit. Slightly more than 5 percent of this site extends into project limits, and no subsurface remains were found in that area during testing. Since no buried cultural deposits or features were encountered in the part of LA 99028 that extends into project limits, no further archaeological investigations should be necessary in that part of the site.

LA 99029 is a probable Mexican Territorial period midden and associated surface artifact scatter. About 95 percent of this site is within project limits, including the entire midden. Buried cultural deposits were found at this site, indicating that it has the potential to provide information on local history. This suggests that a more intensive phase of data recovery is necessary at LA 99029. A plan for recovering that information has been developed and is incorporated into this report. The plan includes a research design, outlining questions that will be addressed with information recovered during more intensive investigations, and the field and analytic procedures that will be followed. LA 99029 will be examined as part of a study that is already in progress, and includes completed excavations at two nearby sites (LA 76138 and LA 76140). Historic components from these sites will be examined for evidence of ethnicity in material culture remains, and will provide information on the process of frontier acculturation.

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# APPENDIX 2. TREATMENT OF HUMAN REMAINS

## 18-6-11. Permit required for excavation of archaeological sites; penalty.

A. It is unlawful for any person or his agent or employee to excavate with the use of mechanical earth moving equipment an archaeological site for the purpose of collecting or removing objects of antiquity when the archaeological site is located on private land in this state, unless the person has first obtained a permit issued pursuant to the provisions of this section for the excavation. As used in this section, an "archaeological site" means a location where there exists material evidence of the past life and culture of human beings in this state but excludes the sites of burial of human beings.

B. Permits for excavation pursuant to Subsection A of this section may be issued by the committee upon approval by the state archaeologist and the state historic preservation officer when the applicant:

(1) submits written authorization for the excavation from the owner of the land;

(2) furnishes satisfactory evidence of being qualified to perform the archaeological excavation by experience, training and knowledge;

(3) submits a satisfactory plan of excavation for the archaeological site and states in the plan the method by which excavation will be undertaken; and

(4) agrees in writing, upon the completion of the excavation, to submit a summary report to the committee of the excavation, which report shall contain relevant maps, documents, drawings and photographs, together with a description of the archaeological specimens removed as a result of the excavation. Failure to file the summary report shall be grounds for refusing issuance of a future permit to the person.

C. All archaeological specimens collected or removed from the archaeological site as a result of excavation pursuant to Subsections A and B of this section shall be the property of the person owning the land on which the site is located.

D. Nothing in this section shall be deemed to limit or prohibit the use of the land on which the archaeological site is located by the owner of the land or to require the owner to obtain a permit for personal excavation on his own land, provided that no transfer of ownership is made with the intent of excavating archaeological sites as prohibited in this section, and provided further that this exemption does not apply to marked or unmarked burial grounds.

E. Any person convicted of violating the provisions of this section is guilty of a misdemeanor and shall be punished by a fine not to exceed one thousand dollars ($1,000) and in addition thereto shall forfeit to the state all equipment used in committing the violation for which the person is convicted.

**History: 1953 Comp., § 4-27-12.1, enacted by Laws 1977, ch. 75, § 1; 1989, ch. 267, § 2.**

**The 1989 amendment,** effective June 16, 1989, in Subsection A inserted "or his agent or employee" in the first sentence, and substituted all of the present language of the second sentence following "state" for "and includes the sites of burial and habitats of human beings: Indian, Spanish, Mexican and other early inhabitants of this state"; in Subsection B inserted "pursuant to Subsection A of this section" and "and the state historic preservation officer"in the introductory paragraph; in Subsection C inserted "pursuant to Subsections A and B of this section"; in Subsection D added all of the language beginning with "and provided further"; and made minor stylistic changes throughout the section.

## 18-6-11.2. Permit required for excavation of unmarked burials; penalty.

A. Each human burial in the state interred in any unmarked burial ground is accorded the protection of law and shall receive appropriate and respectful treatment and disposition.

B. A person who knowingly, willfully and intentionally excavates, removes, disturbs or destroys any human burial buried, entombed or sepulchered in any unmarked burial ground in the state, or any person who knowingly, willfully and intentionally procures or employs any other person to excavate, remove, disturb or destroy any human burial buried, entombed or sepulchered in any unmarked burial ground in the state, except by authority

of a permit issued by the state medical investigator or by the committee with the concurrence of the state archaeologist and state historic preservation officer, is guilty of a fourth degree felony and shall be punished by a fine not to exceed five thousand dollars ($5,000) or by imprisonment for a definite term of eighteen months, or both. The offender shall upon conviction forfeit to the state all objects, artifacts and human burials excavated or removed from an unmarked burial ground in violation of this section, and any proceeds from the sale by the offender of any of the foregoing shall also be forfeited. As used in this section:

(1) "unmarked burial ground" means a location where there exists a burial or burials of any human being which is not visibly marked on the surface of the ground in any manner traditionally or customarily used for marking burials and includes any funerary object, material object or artifact associated with the burial or burials; and

(2) "human burial" means a human body or human skeletal remains and includes any funerary object, material object or artifact buried, entombed or sepulchered with that human body or skeletal remains.

C. Any person who discovers a human burial in any unmarked burial ground shall cease any activity that may disturb that burial or any object or artifact associated with that burial and shall notify the local law enforcement agency having jurisdiction in the area. The local law enforcement agency shall notify the state medical investigator and the state historic preservation officer.

D. The state medical investigator may, consistent with the statutes governing medical investigations, have authority over or take possession of any human burial discovered in the state, in which case the provisions of Subsections E and F of this section shall not apply.

E. Permits for excavation of a human burial discovered in an unmarked burial ground shall be issued by the committee within sixty days of receipt of application when the applicant:

(1) submits written authorization for that excavation from the owner of the land on which the human burial is located or the applicant is the owner of the land;

(2) demonstrates appropriate efforts to determine the age of the human burial and to identify and consult with any living person who may be related to the human burial interred in the unmarked burial ground;

(3) complies with permit procedures and requirements established by regulations authorized in this section to ensure the complete removal of the human burial and the collection of all pertinent scientific information in accordance with proper archaeological methods; and

(4) provides for the lawful disposition or reinterment of the human burial either in the original or another appropriate location and of any objects or artifacts associated with that human burial consistent with regulations issued by the state historic preservation officer, except that the committee shall not require, as a condition of issuance of a permit, reinterment or disposition, any action that unduly interferes with the owner's use of the land.

F. Permits for the excavation of any human burial discovered in the course of construction or other land modification may be issued by the committee with the concurrence of the state archaeologist and the state historic preservation officer on an annual basis to professional archaeological consultants or organizations.

G. Except when the committee requires as a condition of the permit that any object or artifact associated with a human burial be reinterred or disposed of with that burial, that object or artifact shall be the property of the person owning the land on which that burial is located.

H. Any object or artifact and any human burial excavated or removed from an unmarked burial ground in violation of this section shall be forfeited to the state and shall be lawfully disposed of or reinterred in accordance with regulations issued by the state historic preservation officer; provided that no object or artifact so forfeited shall ever be sold by the state; and provided further that any object or artifact removed from the land

without the owner's consent and in violation of this section shall be returned to the lawful owner consistent with Subsection G of this section.

I. The state historic preservation officer shall issue regulations with the concurrence of the state medical investigator for the implementation of this section.

**History: Laws 1989, ch. 267, § 1.**

**Effective dates. — Laws 1989, ch. 267 contains no effective date provision, but, pursuant to N.M. Const., art IV, § 23, is effective on June 16, 1989.**

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Office of Cultural Affairs
Museum Division
(Museum of New Mexico)
P.O. Box 2087, 113 Lincoln Ave.
Santa Fe, New Mexico 87504

Rule No. 11 POLICY ON COLLECTION, DISPLAY AND REPATRIATION OF CULTURALLY SENSITIVE MATERIALS Adopted: 01/17/91

I. INTRODUCTION

The policy of the Museum of New Mexico is to collect, care for, and interpret materials in a manner that respects the diversity of human cultures and religions.

Culturally sensitive materials include material culture as well as the broader ethical issues which surround their use, care, and interpretation by the Museum. The Museum's responsibility and obligation are to recognize and respond to ethical concerns.

II. DEFINITIONS;

A. "Culturally sensitive materials" are objects or materials whose treatment or use is a matter of profound concern to living peoples; they may include, but are not limited to:

1. "Human remains and their associated funerary objects" shall mean objects that, as a part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later;

2. "Sacred objects" shall mean specific items which are needed by traditional religious leaders for the practice of an ongoing religion by present-day adherents;

3. Photographs, art works, and other depictions of human remains or religious objects, and sacred or religious events; and

4. Museum records, including notes, books, drawings, and photographic and other images relating to such culturally sensitive materials, objects, and remains.

B. "Concerned party" is a museum-recognized representative of a tribe, community, or an organization linked to culturally sensitive materials by ties of culture, descent, and/or geography. In the case of a federally recognized indian tribe, the representative shall be tribally-authorized.

C. "Repatriation" is the return of culturally sensitive materials to concerned parties. Repatriation is a collaborative process that empowers people and removes the stigma of cultural paternalism which hinders museums in their attempts to interpret people and cultures with respect, dignity, and accuracy. Repatriation is a partnership created through dialogue based upon cooperation and mutual trust between the Museum and the concerned party.

D. The Museum of New Mexico's Committee on Sensitive Materials is the committee, appointed by the Director of the Museum of New Mexico, that shall serve as the Museum of New Mexico's advisory body on issues relating to the care and treatment of sensitive materials.

III. IDENTIFICATION OF CONCERNED PARTIES

A. The Museum shall initiate action to identify potentially concerned parties who may have an interest in culturally sensitive material in the museum's collections.

B. The Museum encourages concerned parties to identify themselves and shall seek out those individuals or groups whom the Museum believes to be concerned parties.

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C. The Museum's sensitive materials committee shall review all disputed individual claims of concerned-party status in consultation with the tribe, community, or organization which the individual(s) claims to represent.
The Museum's sensitive materials committee shall assist, when necessary, in designating concerned parties who have an interest in culturally sensitive materials contained in the collections of the Museum of New Mexico.

D. The Museum shall provide an inventory of pertinent culturally sensitive materials to recognized concerned parties.

E. The Museum shall work with concerned parties to determine the appropriate use, care and procedures for culturally sensitive materials which best balance the needs of all parties involved.

IV. IDENTIFICATION AND TREATMENT OF CULTURALLY SENSITIVE MATERIALS

A. Within five years of the date of adoption of this policy, each Museum unit shall survey to the extent possible (in consultation with concerned parties, if appropriate) its collections to determine items or material which may be culturally sensitive materials. The Museum unit shall submit to the Director of the Museum of New Mexico an inventory of all potentially culturally sensitive materials. The inventory shall include to the extent possible the object's name, date and type of accession, catalogue number, and cultural identification. Within six months of submission of its inventory to the Director of the Museum of New Mexico, each Museum unit shall then develop and submit, a plan to establish a dialogue with concerned parties to determine appropriate treatment of culturally sensitive items or materials held by the unit.

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B. As part of its treatment plans for culturally sensitive materials, the Museum reserves the right to restrict access to, or use of, those materials to the general public. The Museum staff shall allow identified concerned parties access to culturally sensitive materials.

C. Conservation treatment shall not be performed on identified culturally sensitive materials without consulting concerned parties.

D. The Museum shall not place human remains on exhibition. The Museum may continue to retain culturally sensitive materials. If culturally sensitive materials, other than human remains, are exhibited, then a good-faith effort to obtain the advice and counsel of the proper concerned party shall be made.

E. All human skeletal remains held by the Museum shall be treated as human remains and are de facto sensitive materials. The Museum shall discourage the further collection of human remains; however, it will accept human remains as part of its mandated responsibilities as the State Archaeological Repository. At its own initiation or at the request of a concerned party, the Museum may accept human remains to retrieve them from the private sector and furthermore, may accept human remains with the explicit purpose of returning them to a concerned party.

IV. REPATRIATION OF CULTURALLY SENSITIVE MATERIALS

A. On a case-by-case basis, the Museum shall seek guidance from recognized, concerned parties regarding the identification, proper care, and possible disposition of culturally sensitive materials.

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B. Negotiations concerning culturally sensitive materials shall be conducted with professional discretion. Collaboration and openness with concerned parties are the goals of these dialogues, not publicity. If concerned parties desire publicity, then it will be carried out in collaboration with them.

C. The Museum shall have the final responsibility of making a determination of culturally sensitive materials subject to the appeal process as outlined under section VII A.

D. The Museum of New Mexico accepts repatriation as one of several appropriate actions for culturally sensitive materials only if such a course of action results from consultation with designated concerned parties as described in Section III of this policy.

E. The Museum may accept or hold culturally sensitive materials for inclusion in its permanent collections.

F. The Museum may temporarily accept culturally sensitive materials to assist efforts to repatriate them to the proper concerned party.

G. To initiate repatriation of culturally sensitive materials, the Museum of New Mexico's current deaccession policy shall be followed. The curator working with the concerned party shall complete all preparations for deaccession through the Museum Collections Committee and Director before negotiations begin.

H. Repatriation negotiations may also result in, but are not limited to, the retention of objects with no restrictions on use, care, and/or exhibition; the retention of objects with restrictions on use, care and/or exhibition; the lending of objects either permanently or temporarily for use to a community; and the holding in trust of culturally sensitive materials for the concerned party.

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I. When repatriation of culturally sensitive materials occurs, the Museum reserves the right to retain associated museum records but shall consider each request for such records on an individual basis.

VI. ONGOING RECOVERY OR ACCEPTANCE OF ARCHAEOLOGICAL MATERIALS

A. In providing sponsored archaeological research or repository functions, the Museum shall work with agencies that regulate the inventory, scientific study, collection, curation, and/or disposition of archaeological materials to ensure, to the extent possible under the law, that these mandated functions are provided in a manner that respects the religious and cultural beliefs of concerned parties.

B. When entering into agreements for the acceptance of, or continued care for, archaeological repository collections, the Museum may issue such stipulations as are necessary to ensure that the collection, treatment, and disposition of the collections include adequate consultation with concerned parties and are otherwise consistent with this Policy.

C. In addition to the mandated treatment of research sites and remains and in those actions where treatment is not mandated, defined, or regulated by laws, regulations, or permit stipulations, the Museum shall use the following independent guidelines in recovering or accepting archaeological materials:

1. Prior to undertaking any archaeological studies at sites with an apparent relationship to concerned parties, the Museum shall ensure that proper consultation with the concerned parties has taken place.

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2. When so requested by concerned parties, the Museum shall include an observer, chosen by the concerned party, in the crew of an archaeological study.

3. The Museum shall not remove human remains and their associated funerary objects or materials from their original context nor conduct any destructive studies on such remains, objects, and materials, except as part of procedures determined to be appropriate through consultation with concerned parties, if any.

4. The Museum reserves the right to restrict general public viewing of in situ human remains and associated funerary objects or items of a sacred nature and further shall not allow the public to take or prepare images or records of such objects, materials, or items, except as part of procedures determined to be appropriate through consultation with concerned parties. Photographic and other images of human remains shall be created and used for scientific records only.

5. The Museum reserves the absolute right to limit or deny access to archaeological remains being excavated, analyzed, or curated if access to these remains would violate religious practices.