NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

8214

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

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NATIONAL REGISTER

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Pecos National Monument

other names/site number

2. Location

street & number Pecos National Monument ☐ not for publication

city, town Pecos ☐ vicinity

state NM code NM county San Miguel code 047 zip code 87552

3. Classification

Ownership of Property	Category of Property		Number of Resources within Property	
			Contributing	Noncontributing
☐ private	☐ building(s)			6 buildings
☐ public-local	☒ district			sites
☐ public-State	☐ site	12 components	96	
☒ public-Federal	☐ structure			4 structures
	☐ object	8 locales		objects
			96	10 Total

Name of related multiple property listing:

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official — Date 5/9/91

Chief, Western Regional Office, National Park Service
State or Federal agency and bureau

In my opinion, the property ☑ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date 4-15-91

State Historic Preservation Division, Office of Cultural Affairs
State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

☒ entered in the National Register. ☐ See continuation sheet. — Janet E. Townsend — 7-2-91

☐ determined eligible for the National Register. ☐ See continuation sheet.

☐ determined not eligible for the National Register.

☐ removed from the National Register.

☐ other, (explain:) _____

Signature of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
Domestic=Village site, institutional housing	Landscape - park
Commerce/Trade - trade	Education - Research facility
Religion - Religious structure, ceremonial site	Recreation - Cultural outdoor recreation
Agriculture/Subsistence - processing, storage agricultural field Defense - fortification	

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
N/A	foundation N/A
	walls N/A
	roof N/A
	other N/A

Describe present and historic physical appearance.

SECTION 7: DESCRIPTION

The nominated archeological district encloses an area of 384.8 acres in the upper Pecos River Valley, the boundaries of which are coterminous with Pecos National Monument. Strategically located at the mountain gateway between the southern Plains and the Rio Grande Valley, the upper valley served as a cultural crossroads and frontier for at least ten centuries of human occupation and cultural development. The history of the upper Pecos River Valley, as represented by the archeological and historic sites within the district, demonstrates a succession of different group's attempts at exploiting the natural and cultural resources of the Southwest and is a story of the rise, fall, and acculturation of those different cultural groups and their adaptations to the environment and each other.

Pecos National Monument contains a wide diversity of archeological and historic sites that represent the tricultural heritage of the Southwest and span a period beginning with the Archaic and ending in the early nineteenth century Historic period. Cultural resources within the district include the scattered remains of Archaic hunter-gatherers; early pithouse dwelling horticulturalists; Puebloan farmers and traders; protohistoric Pecos Indians; Apache hunter-gatherers and traders; Spanish missionaries and settlers; Comanche traders and hunters; and Anglo ranchers, settlers and campers. Known sites within the Monument include the ruins of six surface multiroom pueblos occupied between the early 1100s and middle 1800s, three Spanish Franciscan mission churches of the seventeenth and eighteenth centuries, five Spanish secular structures of the eighteenth century, an ancient walled area of unknown function and date, three pithouses dating to the early ninth century, eight Apache campsites and occupation areas, two Puebloan shrines, petroglyph panels, and 83 small prehistoric and historic sites consisting of artifact scatters, isolated agricultural features, small one-to-three room surface structures, overhangs, and possible tipi rings. Although not given site status, ruts of the Santa Fe Trail and foundations from Kidder's field camp also occur within the Monument. The attached list 1 itemizes all of the sites within the nominated district.

[x] See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

[X] nationally [ ] statewide [ ] locally

Applicable National Register Criteria [X] A [X] B [X] C [X] D

Criteria Considerations (Exceptions) [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Archeology = Prehistoric	Developmental - Historic	A.D. 800-1760s
Historic - Aboriginal	A.D. 800 - 1929	
Historic - Unaboriginal		
Architecture		
Commerce		
Ethnic heritage - Native American, Hispanic		
Military		
Religion		

Cultural Affiliation
Anasazi
Pecos Indians
Hispanic, Apache

Significant Person	Architect/Builder
Alfred Vincent Kidder	N/A

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

SECTION 8: SIGNIFICANCE

Pecos National Monument was the scene of an amalgamation of ethnic groups and events unique to the Southwest and its history. Strategically located at the mountain gateway between the Rio Grande Valley and the Plains, the Monument served as a cultural crossroads for the passage of goods and people for ten thousand years of prehistory and history. Those influences culminated in the historic pueblo of Pecos, following more than 800 years of sedentary settlement beginning in A.D. 800. Throughout its history, Pecos was a frontier pueblo situated on the eastern edge of the Rio Grande cultural area that initially derived its status, wealth and power as a trading center between the nomads of the Plains and the farmers of the Rio Grande and later as a military outpost. The historic pueblo reflects Spanish exploration and colonial history in the Southwest as well as Puebloan and Plains Indian responses to yet another cultural competitor for area resources. From the time of Coronado in 1541 until Pecos' abandonment in 1838, the pueblo contributed to the first three centuries of New Mexican history and was the focal point for many of the major historical events.

Sites within the Monument represent a complex of pueblos inhabited by ancestors of the Pecos Indians from A.D. 800 to 1838 and a series of Spanish Franciscan mission churches and secular buildings constructed in the seventeenth and eighteenth centuries. The ruins of the Monument are considered significant in the context of criteria a), b), c), and d) of the National Register of Historic Places since they are associated with events that have made a significant contribution to the broad patterns of prehistory and history; they are associated with the lives of persons significant in our past; they include distinct characteristics of a type, method and period of construction and represent a distinct phase and cultural entity; and they possess scientific value. Events typified by sites within the Monument include 1) population movement; 2) population coalescence/community formation and integration; 3) development of inter-regional trade networks; 4) Spanish

[X] See continuation sheet

9. Major Bibliographical References

☒ See continuation sheet

Previous documentation on file (NPS):

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☐ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: _____

10. Geographical Data

Acreage of property 348.8

UTM References

	Zone	Easting	Northing
A	13	438980	3934260
B	13	438980	3934260
C	13	437380	3933980
D	13	437560	3933960

☐ See continuation sheet

Verbal Boundary Description

Pecos National Monument is surrounded by private ranch holdings; almost all of which is owned by the Fogelsons. The nominated district boundaries are coterminous with the National Monument boundaries.

☐ See continuation sheet

Boundary Justification

Pecos National Monument was established in 1965 and added to in the 1980s by land donations from the Fogelsons.

☐ See continuation sheet

11. Form Prepared By

name/title Cherie L. Scheick, Program Director
organization Southwest Archaeological Consultants, Inc. date May 24, 1989
street & number 624 Agua Fria Street, Suite 1 telephone (505) 984-1151
city or town Santa Fe state NM zip code 87501

Chronological placement of sites within the Monument derives from dendrochronological and archaeomagnetic dates and ceramic associations. Dates for chronologically known sites are between A.D. 1115 and 1350; many others are undated. The three pithouse sites date between A.D. 800 and 850, and Pecos pueblo, the monument's namesake, dates pre-1450 to 1838. Absolute dates were obtained from tree-ring and archaeomagnetic samples for Pecos Pueblo (North and South Pueblos), Forked Lightning Ruin, and two of the three pithouse sites (the Sewerline Site and Hoagland's Haven). Using Kidder's ceramic sequences, relative dates were assigned to all of the remaining archaeological sites, with the majority dating between A.D. 1270 and 1350. (This includes all of the small architectural sites and Loma Lothrop, Black-on-white house, and 700 pueblo.) Ceramic associations also were used to determine occupational spans and periods of maximum population at the large surface pueblos with absolute dates. A few sites consisting primarily of chipped stone debitage and a few formal tools are thought to date to the Archaic period. Dates for historic sites were obtained using a combination of historical records, absolute dates, and archeological data. Dating historic structures and sites by ceramic associations occurred most often at small Puebloan sites, Spanish secular structures, and at Apache and Comanche artifact scatters and campsites. The absence of European artifacts and the presence of particular types of sherds were used to date the Lost Church and the Puebloan shrine excavated by Dittert in 1956.

Pecos prehistoric and protohistoric occupation has been attributed to culturally distinct groups within the Anasazi, Mogollon, and Plains cultural traditions. Historic occupation and use of the Monument have been associated with Puebloan, Plains Apache, Comanche, Spanish and, to a lesser degree, Anglo cultural traditions. Data used to support cultural affiliations include architectural, artifactual, and linguistic information, and physical attributes of populations. The earliest occupants of the valley may have been Archaic, and whether they were ancestral to Puebloan or Plains populations is unknown. The cultural affiliation of the early pithouse dwellers has been postulated as early Plains Caddoan, Jornada Mogollon, or Rio Grande, northern San Juan, or indigneous upper Pecos Valley Puebloan (Nordby 1981; Nordby and Creutz 1982; Stanislawski 1981, 1983; Snow 1987). Contradictory views also are present in the literature for the first pueblo dwellers within the Monument; the occupation of Forked Lightning has been attributed to populations from the north (Taos), the west (Chaco, Mesa Verde, and the Rio Grande), and from within the upper Pecos River Valley (Cordell n.d.; Mera 3940; Wendorf and Reed 1955; Kidder 1958; Kessell 1979; Nordby 1981; Nordby and Creutz 1982; Stanislawski 1983; Snow 1987). Suggestions also have been made that ancestral Jemez groups (Gallina populations) may have been responsible for some of the early A.D. 1100 sites (see Stanislawski 1983). Later population influxes, represented by sites like Loma Lothrop and

Black-on-white house, are attributed to immigrants from those same areas as well as populations derived from the south, e.g., the Galisteo Basin and the Jornada Mogollon areas. Stanislawski (1983) feels the last prehistoric arrivals, who were responsible for the construction of Pecos Pueblo, were Western Pueblo, while others feel their closest ancestors were Jemez descendants based on linguistic and other data (Cordell n.d.; Ford, Schroeder and Peckham 1972; Schroeder 1979). Kidder (1958) and Nordby (1981) believe Pecos Pueblo resulted from the aggregation of local populations that were augmented by population influxes from areas outside the upper Pecos Valley, including the southern Plains. What is clear is that the developing population of the upper Pecos River Valley in general and in Pecos National Monument in particular represents a blend of groups who may have succeeded each other in time or arrived simultaneously.

Both the archeological record and historic documents indicate that at least two Plains groups visited or raided Pecos protohistorically, the Teya and Querechos. Habicht-Mauche (1988) identifies the Querechos as Plains Apaches who were known by a plethora of band names. The band historically documented at Pecos probably was the Faraones, originally from the Northern Llano Estacado of the southern Plains. The ethnic identity of the Teyas to the south and east of the Llano Estacado is suggested to be Plains Caddoans, who probably were related to the historic Wichita of the Canadian and Red rivers in Oklahoma and west Texas, respectively.

Thirteen of the 96 known archeological and historical sites within the Monument have been tested, stabilized and/or excavated. This number is misleading because only one site number, LA 625, is used for Pecos Pueblo (both North and South pueblos), the three mission churches on the mesilla, Black-on-white house, 700 pueblo, the shrine, the Presidio and Casas Reales. With the exception of the shrine, all of them have been excavated or tested, and a number of them stabilized. Other excavated, tested, and/or stabilized sites are Forked Lightning Ruin (LA 672), Loma Lothrop (LA 277), the Lost Church (LA 4444), Hoagland's Haven (LA 14154), Square Ruin (LA 14114), LA 14081, Pecos 90 and 91, Gunnerson's shrine (LA 14107), two pithouses (the Propane Tank and Sewerline sites), and the shrine excavated by Dittert in 1956. Additionally, eight Apache localities were excavated by Gunnerson in 1970; these areas were not given site status. The remaining 83 sites are unexcavated; however, sixty percent were surface collected (24 percent were 100 percent surface collected and 36 percent were 20 percent or less surface collected). Most of those sites are undisturbed.

District and Site Condition

There are indications portions of the North Pueblo (the Quad) were pot-hunted and vandalized between its abandonment in 1838 and its formation as a State Park in 1935 (Kessell 1979:473), but the extent of disturbance is unknown. Approximately 30 percent of North Pueblo was excavated by Kidder between 1915 and 1929, although ceramics were collected earlier during Kidder's 1910 visit with Chapman. Because of sequential construction at North Pueblo, excavation estimates also include work done at underlying, earlier pueblos as well. Excavated portions of North Pueblo were backfilled, and the houseblocks are presently mounded over with the exception of the stabilized west end of the north houseblock, a small wall remnant of Kiva H, and segments of walls behind buried Kiva 14 and stabilized Kiva 1 (Metzger 1988). Kidder believed intact roofs and rooms exist in the west houseblock of the Quad, and his excavations indicate that three stories of rooms may still remain in portions of houseblocks. A number of kivas (1, 7, 9, 16, and 19) were left open after excavation and were stabilized by Hendron in 1939, Wendorf between 1952 and 1954, and Matlock between 1971 and 1974.

The north end of South Pueblo (rooms 78, 22, 43, 44, 33, 7a, 12, 15, 39, 66, 62, 67, 79, and 82) was tested by Kidder, partially excavated (98 rooms) by Corbett in 1939, and between 20 and 30 rooms were subfloored in 1972 and 1975 by Nordby and Matlock. Further excavations in rooms 98 through 100 and room 102 were done by Nordby in 1976. Stabilization also was undertaken between 1972 and 1976. In 1988, 37 rooms in the northern one-third of the site were stabilized and backfilled either partially or completely by park personnel. A small portion of South Pueblo's trash area was tested (Nordby 1983b); 10 cm of fill was removed from footings dug for an interpretive trail. The unexcavated portion of South Pueblo was trenched in 1956 by Stubbs to obtain tree-ring samples, and in 1968 Friar Hans Lentz tested a Spanish room attached to the southern end of South Pueblo. Approximately 33 percent of the pueblo was excavated and stabilized; stabilization included rebuilding the upper one foot of exposed standing walls and repointing them (Metzger 1988). Presently, 65 rooms are exposed in the northern one-third of the pueblo; the remaining two-thirds are mounded over. Only a single story of rooms remain. Kidder tested 700 Pueblo in 1929, but it is unclear as to how much of the pueblo was uncovered. No additional work has been done and the pueblo is mounded over. The early defense wall surrounding both North and South pueblos was reconstructed by Witkind between 1938 and 1940 (Metzger 1988) but fell down again by 1975. The northern portion of the defense wall that runs transverse to the long axis of the mesilla (north of Black-on-white House) was reconstructed in 1976/1977 by Nordby.

In 1915 J. Nusbaum partially excavated the eighteenth century church, rebuilt portions of the rear wall of the sanctuary, then stabilized the walls with concrete curbings, and repaired the interior arches. Prior to that, burials had been potted, structural beams had been removed and reused by local ranchers, and carved beams and corbels had been cut out for sale as relics (Stanislawski 1983). The cemetery was trenched in 1925 by Susan Valliant under Kidder's supervision. Extensive re-excavation of the church, excavation of the core of the attached convento, and additional stabilization of the church was conducted in the late 1930s by John Corbett and J.W. Hendron under supervision by E. Ferdon. Specific activities included removal of Nusbaum's concrete bases from the nave walls, laying of 15,000 adobe bricks in the church complex by building up walls, and replacing wooden beams and vigas in the sanctuary. In the 1960s Jean Pinkley, and upon her death Alden Hayes and Roland Richert, excavated and stabilized the eighteenth century church and convento, including the convento rooms backfilled earlier by Witkind. By 1970 the church and north wall of the convento were stabilized, kiva 23 within the convento corral had been located and excavated, and later stabilized and reconstructed, and additional rooms within the convento were excavated. Approximately 40 percent of the exposed church walls are original, and only 5 percent of the standing convento walls are original. An unestimated amount of original fabric within both the church and convento walls is covered by a protective cap and chemically amended adobe bricks (Metzger 1988). Repair stabilization at these features is on-going.

Only foundations of the large seventeenth century church remain; these were discovered during Pinkley's work in the 1960s and were stabilized at that time by capping the footings. Nothing remains of the temporary chapel (the third church of Pecos) constructed after the Pueblo Revolt and Reconquest. Portions of the eighteenth century convento incorporate wall segments of the seventeenth century convento that was incompletely destroyed.

The **Presidio** and **Casas Reales** were partially excavated by Hayes in the late 1960s and stabilized by Matlock between 1971 and 1974. The corner fireplace in room 2 and the footings of the **Casas Reales** were stabilized; the footings are exposed. Currently, the **Presidio** has no exposed rooms or features. The Lost Church, the first church at Pecos, was noted and measured by Bandelier in 1881 and drawn by Mr. Singleton Moorehead in 1915. Excavations in 1956 by Bruce Ellis exposed the foundations of the church and the interior floor space. The exposed foundations were stabilized between 1971 and 1974 by Gary Matlock. The site is defined presently by the low masonry foundation walls. Square Ruin was tested by Nordby and Creutz in 1982, but portions of walls were stabilized and a drainage system put in previously by Matlock between 1971 and 1974. Walls at the site have deteriorated to grade and have self-stabilized (Metzger 1988).

Forked Lightning was tested by Kidder in 1926, 1927, and 1929, resulting in exposure of 25 percent of the site. The site was not backfilled, leaving the adobe walls exposed to the elements. No walls are visible today; the site's surface is marked by overgrown mounds and filled depressions. Cement and stone foundations mark Kidder's 1922 field camp at the southern edge of the site, and Kidder is buried along the western edge near the arroyo. In the mid-1950s Stubbs trenched portions of the site to obtain tree-ring samples. Loma Lothrop was tested sometime between 1915 and 1929 by S. Lothrop; approximately 5 percent of the site was investigated. Of the pithouse sites, two (Hoagland's Haven and the Sewerline site) were excavated completely and one (the Propane Tank site) partially. All three were backfilled at completion of the fieldwork. Notes from the excavation of both shrines (Dittert's in 1956 and Gunnerson's in 1970) indicate the features were excavated completely and backfilled. Gunnerson's locales also were backfilled; the locales as well as structures encountered were tested, not excavated.

The archeological and historical resources of the Monument are subjected continuously to deterioration from environmental and human sources. Sites such as Forked Lightning Ruin, Loma Lothrop, Pecos Pueblo, the southern portion of South Pueblo, major portions of Casas Reales, the Presidio, and Square Ruin are relatively protected because they have deteriorated to grade and are self-stabilized (Metzger 1988). However, the architecture of the two churches and the convento, the northern one-third of South Pueblo, and several kivas of Pecos Pueblo contain substantial amounts of exposed masonry, thus subjecting them to erosive forces. Consequently, cyclical maintenance of previously stabilized walls has occurred at all of the sites since the 1970s. Emergency stabilization was undertaken by Felix Sena, Pecos National Monument, for the eighteenth century church north transept wall in the early 1980s. Maintenance activities over the years have included repointing eroded joints, replacing deteriorated stone, and constructing caps on tops of walls to prevent moisture penetration. Additionally, segments of walls have been rebuilt for the benefit of the visitor (Metzger 1988).

Today, the monument is surrounded by a large private ranch, providing the archeological and historical resources within the Monument a natural backdrop and buffer area. However, graveling operations by the ranch owners along the southern edge of Forked Lightning Ruin may be impacting portions of the site.

District Environment

From its source high in the Sangre de Cristo Mountains, the Pecos River breaks from a narrow mountain canyon into a 9 km wide valley less than 8 km north of the Monument. The upper Pecos River Valley is a southeast trending basin at the edge of the Sangre de Cristo Mountains in north-central New Mexico, bordered on the west by the sharply rising escarpment of Glorieta Mesa and on the east by the gradually rising Tecolote Hills, a low spur of the Sangre de Cristo Mountains. The valley closes to a narrow gorge approximately 16 km south of its opening. To the south and east of the valley is an entrance into the High Plains, to the east an entrance into the Canadian River Valley, and to the northwest through Glorieta Pass (a 48 km long natural pass) an entrance into the Rio Grande Valley. Thus, the upper Pecos River Valley forms a natural gateway to three geologic provinces: the Rocky Mountains to the north and east that reach their southern extension in the Sangre de Cristos; the Basin and Range on the south and west at Glorieta Mesa and the Rio Grande Depression; and the Great Plains on the east.

Pecos National Monument, is bisected by Glorieta Creek, about 1 km above its confluence with the Pecos River; Pecos River is approximately 1 km east. Here, the valley is cross-cut by small ephemeral washes and arroyos that intersect Glorieta Creek or the Pecos River, creating a heavily dissected landform of rugged ridges cut by tributary drainages. Deep alluvial deposits of cobbles of micaceous schist, granite, diorite, and quartzite mark the former course of the Pecos River through the valley. The soft shales and sandstones of the Sangre de Cristo formation are exposed between the Tecolote Hills and Glorieta Mesa. The valley floor is eroded from this formation, consisting of brownish red and gray conglomerate, buff and red sandstone, red siltstone, red and greenish shale, and gray limestone beds. These red and maroon sedimentary deposits create the alluvial fans, floodplains, and deltas that mark the valley floor. Weathering of the Sangre de Cristo formation has created a thick mantle of red soil across the valley floor. Substantial clay deposits, also derived from the formation, line the arroyo bottoms.

Located near the northern edge of the Upper Sonoran life zone at elevations ranging from 2,092 to 2,121 m above sea level, the upper Pecos River Valley contains dense pinon-juniper forests, broken by man-made grasslands (Environmental Plan, NPS, 1975), interspersed with clumps of ponderosa pine. The Monument is near the transition between the forests and grasslands; the southern part of the Monument is flat and grassy, and the northern part is covered with small evergreens. Cottonwood, willow and rabbitbrush are found along Galisteo Creek to the west. Past vegetation in the area of the Monument was characterized by a pygmy woodland of pinon-juniper with Ponderosa Pine common (Minnis 1978). Nearly 50 percent of the 135 plant types available were potential food sources for the prehistoric

and historic inhabitants of the valley and include among others: globemallow, milkweed, sunflower, goosefoot, tansy mustard, beeweed, buckwheat, pinon nuts, and various grasses, shrubs and cacti. Fauna common to the area are deer, elk, bear, wild turkey, antelope, fox, porcupine, badger, coyotes, rabbits, skunk, 30 species of birds, and various reptiles. Historically, deer, puma, bear and antelope ranged in proximity to Pecos Pueblo (Environmental Plan, NPS, 1975), and prehistorically, bison and mountain sheep occurred in areas surrounding the pueblo.

Because of the south-southeast orientation of the valley, considerably more precipitation is received than farther east or west. Average annual precipitation varies between 41 and 51 cm (Tuan et al. 1973). The elevation and the narrowness of the valley sloping down from the mountains encourage late springs and early winters, thus limiting the growing season to 120 frost free days. Data indicate, however, that the upper Pecos River Valley has undergone environmental change since the earliest horticulturalists entered the area. Stanislawski (1981) indicates that prior to A.D. 800 the area was cooler and wetter, but after A.D. 850, temperatures increased and moisture decreased. Furthermore, from about A.D. 990 until 1430, the environment was characterized by major fluctuations and irregularities with marked periods of increased and decreased precipitation. After A.D. 1430, conditions were relatively stable until A.D. 1735 when conditions again fluctuated dramatically. Cordell (1978) interprets past environmental conditions as indicating that temperature extremes were common during spring planting and that highly variable frost free seasons existed, thus growing seasons may often have been less than 120 days.

Site Information

Archeological and historical sites within the Monument consist of artifact scatters; small masonry fieldhouses (one-to-three rooms); pithouses; multiroom adobe pueblos; multiroom, multistory masonry pueblos; religious shrines; Spanish mission churches; Spanish secular buildings and structures; and Plains Apache tipi rings, campsites and activity areas. Although only a few of the small sites have been tested, associated features noted include firepits, hearths, cists, pits, and artifact concentrations of sherds and chipped stone. Large surface pueblos represent increased complexity in the economic, technological and social organizational aspects of area adaptation, and that complexity is manifested in the types of features and material culture associated with surface pueblos. Excavated sites have yielded living rooms and storage facilities, defense walls, kivas, agricultural features, hearths, firepits, storage pits, ovens, and discrete activity areas. Artifacts retrieved from these sites include chipped stone tools and debitage, groundstone, ceramics, stone, bone, and shell ornaments, clay pipes, perishables, religious effigies and idols, and bison bone. The majority of

historic sites found within the Monument represent specialized remains and focus on religious buildings, structures and artifacts. Fewer features are associated with these site types; identified features include gardens, ovens, and corrals. Artifacts also are limited and include domestic animal remains, iron objects, and ceramics decorated with religious motifs. Spanish secular buildings often include interior room features related to cooking or sleeping and exterior features related to animal husbandry such as corrals or pens. Material culture often is restricted to native ceramics and a few iron utilitarian items.

Ninety-six sites are recorded for the Monument; 83 were found during survey and are artifact scatters or small structural sites. Sites located during survey are summarized in Table 1. Also included in Table 1 are sites that were tested and have yielded minimal information or have not yet been reported. Thirteen sites and eight locales within the Monument have been excavated. These sites and locales are considered the primary resources of the Monument and are representative of the occupation and use of the valley since its initial habitation roughly A.D. 800. These sites are discussed below in chronological order. Remember, a single site, LA 625, contains eight separate site components and their associated features. The petroglyphs recorded for the Monument do not have site status; these are discussed because they form a single unique class of material remains in the Monument.

The Pecos Pithouses

Three pithouses have been uncovered at Pecos National Monument. The Sewerline Site and Hoagland's Haven (LA 14154) were excavated in 1976 by Nordby and Creutz, and the Propane Tank Site was tested in 1981 by Nordby. Dendrochronological dates provided by Wm. Robinson, University of Arizona, and archaeomagnetic dates provided by R. Dubois, University of Oklahoma, indicate the Sewerline Site was occupied between A.D. 800 and 830, with extensive remodeling circa 820 (Stanislawski 1981; Nordby and Creutz 1982). Hoagland's Haven was occupied between A.D. 830 and 850, with remodeling or repair occurring about 841 (Stanislawski 1981; Nordby and Creutz 1982). No absolute dates were obtained for Hoagland's Haven; Nordby feels the site was occupied between 800 and 900 because of its similarity to the other two sites. Cultural affiliation for the earliest house at the Sewerline Site is assigned to Plains Apishapa Focus, Jornada Mogollon, northern San Juan, and local groups. The later house at the Sewerline Site and the other two pithouses are suggested to be derived from the Puebloan Rio Grande, Northern San Juan, or the Jornada Mogollon.

The Sewerline Site pithouse is subrectangular, measures 8.5 by 9.5 m., and underwent extensive remodeling before its abandonment. Nordby suggests the superstructure was razed and replaced by a simpler design, the interior was remodeled, and the pit was expanded to the east and northwest. The house burned upon abandonment. Forty-six centimeter high vertical clay substrate walls form the edges of the house, and a patchy gray plaster defines the bowl-shaped clay floor. The superstructure was constructed of pole and mud. Two separate roof types were identified. The early, or first, house had a gable roof over the main chamber with an entrance alcove to the west (Nordby and Creutz 1982), creating an hexagonal roof post pattern. A four post roof support pattern was identified for the later roof; the four posts provided the central framework on which leaners rested, creating a flat roof with sloping sides (Stanislawski 1981). Nordby and Creutz (1982) suggest the house possibly had a ramada attached to the east side. Floor features include a centrally located, circular, unlined firepit; two rock-filled heating pits; two bin-like features; a deflector screen; jacal partition walls; possible loom anchor holes; and peg holes. The hearth measures .82 cm in diameter, is fire-reddened, and was used during both occupations. Both heating pits are basin-like, unlined, and unburned; one is triangular, the other oval. Bins were created by forming low jacal walls contiguous to the house walls (Nordby and Creutz 1982). Evidence for the deflector screen consists of a single line of holes .4 to .5 m long located west of the hearth in front of a break in the wall. A second deflector, thought to be associated with the late, or second, house, also was identified. Using fill evidence, Nordby assigns one of the jacal bins, the floor peg and loom anchor holes, and the firepit to the earlier house; all other features are associated with the later remodeled house. Activity areas were identified within the house by discrete concentrations of artifacts. The three natural layers of house fill were cut by an old latrine in use between 1945 and 1955 (Nordby and Creutz 1982).

Hoagland's Haven consists of a pithouse and two unrelated surface rooms. The site is included on Table 1, but the early pithouse component deserves more discussion. Evidence suggests this house too underwent repair or remodeling circa A.D. 841. The house is roughly circular, measuring 10.4 m in diameter. Like the Sewerline Site, the walls are straight-sided, unplastered and dug into clay substrate, and stand .6 m above the floor. The roof was on a four post system, which formed a rectangle upon which leaners rested to create the side walls. Three deep, rock-lined holes were recorded along the north and south edges of the house; these may be additional roof support posts (Stanislawski 1981). Unlike the Sewerline Site, the floor is not plastered. The house contains an adobe-collared central firepit, a bottle-shaped storage pit, three floor depressions used as mixing basins, and small storage cists. Three shallow holes may be loom anchor rests, and

a possible sipapu also was noted. Hoagland's Haven has the same basic size and roof pattern as the second, or rebuilt, house at the Sewerline Site but contains distinctively different floor features.

The Propane Tank Site was partially dug by Nordby. The house was discovered during preparatory work for installation of a propane tank adjacent to residential trailers. A single section, 1.8 m long, of the pithouse was exposed completely. Occupation dates were assigned based on construction similarities with the Sewerline Site and Hoagland's Haven. An irregular wall segment .35 m high and a single posthole were uncovered. The burned house is described as severely disturbed.

Excavation of the Sewerline Site and Hoagland's Haven yielded 190 tools. No data are yet available for the Propane Tank Site. Five reconstructable ceramic pots of unpolished, unslipped gray-brown wares with micaceous temper were recovered from the floors of the two pithouses. Chipped stone artifacts include cores, debitage, small corner-notched projectile points, bifaces, cobble axes, hammerstones, choppers, and side and end scrapers. Twenty percent of the items recovered are of Jemez obsidian, the remaining 80 percent are of local cherts. Both one and two-hand manos were found, along with five grinding slabs and anvils. Bone and shell tubes, tubular beads, and ornaments complete the artifact inventory. Recovered paleobotanical data collected includes more than 6,000 seeds and 300 pieces of wood, representing 16 taxa of plants and 8 taxa of trees (Minnis 1978). Identified economic plant remains are maize, goosefoot, pigweed, purslane, tansy mustard, sunflower, and marsh elder.

Forked Lightning Ruin

Forked Lightning, LA 672 or Bandelier's Bend, was first visited by Bandelier in 1880, at which time he noted sherds and ash eroding from the arroyo. Sherds have been collected from the site since 1915 when Kidder began his work at Pecos Pueblo. In 1922 Kidder's field camp was located on the southern edge of the site, and the camp building foundations are visible. Excavation of Forked Lightning was conducted by Kidder in 1926, 1927, and 1929. About 150 rooms or 25 percent of the site was excavated, primarily in the East Pueblo. Apart from the distribution of the houseblocks, the vertical extent of the site is unknown. The site is thought to date between 1100 and 1300 based on tree-ring dates and ceramics. Smiley, Stubbs, and Bannister (1953) obtained cutting dates of 1113 and 1120, which Kidder initially thought were too early. Based on ceramics, Stubbs estimated an occupational span between 1225 and 1300 for the site with major occupation between 1200 and 1250 (Metzger 1988). Later, Kidder thought the early dates may be accurate given the Chaco Black-on-white ceramics recovered and evidence of two earlier pueblos. Other than their identification, we know nothing of those

buildings. Cultural affiliation for site occupants is attributed to groups from the west along the Rio Grande, north from the Taos area, and/or from the immediate area. Although Kidder never determined a construction sequence for the site, the haphazard arrangement of houseblocks and the straggling aggregations of rooms surrounding small plazas suggested to him the site grew by accretion (Kidder 1958).

Forked Lightning Ruin has an irregular plaza site form similar to Pindi Pueblo along the Santa Fe River and Pot Creek Pueblo in Taos, consisting of three disassociated houseblocks (Kidder 1926a, 1958) that surround odd shaped plazas. Six hundred rooms are estimated (Stanislawski 1983:330). Although primarily constructed of coursed adobe, masonry walls are present. Adobe walls were constructed by laying hand-molded adobes in rows of turtlebacks. Masonry wall construction is core masonry; stones and mortar on both faces, which in turn are covered with plaster (Metzger 1988). Wall heights at excavation varied between .9 and 1.5 m., and widths between .23 and .36 m. Unlike later sites, walls rest on the ground surface, not in foundation trenches. Kidder (1926a) indicates trash deposits underlie some of the walls. Standard pueblo roof construction was indicated by the presence of impressed adobe chunks in the fill; primary roof beams covered by secondary roofing material of branches and split juniper topped with bark, twigs, branches, reeds, and mortar. Rooms tend to be rectangular and irregular in size. Small, rectangular doorways mark room walls, most of which were sealed with adobe. Room floors are adobe, occasionally with sandstone pavement beneath. The small number of circular, adobe-collared firepits discovered in rooms led Kidder to believe the pueblo may have been two story (Kidder 1926a:25, 1958).

Two circular subsurface and five square and corner aboveground kivas were located during excavations. Circular kivas measure 3.54 and 5.2 m in diameter and are isolated from the houseblocks. The smaller kiva D is one of the earliest at the site (Stanislawski 1983). Walls and floor are covered with adobe plaster, and the east wall is broken by a ventilator shaft. A slab lined hearth with adobe coping and an ashpit occur on the floor. Only the south wall of the larger circular kiva remains; the feature is located on the arroyo. A gray plastered floor was identified. The two square kivas were built into rooms, both have ventilators incorporated into their east walls. One of the kivas has masonry walls, the other coursed adobe. Both contain hearths; one is circular, the other is rectangular and slab-lined and is associated with a deflector and ashpit. The three adobe corner kivas (Kidder 1926a) are incorporated into houseblocks; pueblo walls form their two straight sides, while a third curved wall gives them their D-shape. All have ventilators in their east walls. Associated firepits are round with adobe collars. Two of the kivas have deflectors and one an ashpit.

Fill from the site suggests a portion of the site burned during use and that room abandonments were common throughout the occupational history. Although no detailed artifactual inventories are available for the site, Kidder (1926a) does remark on the large number of projectile points recovered and the 150 burials found in the trash deposits. Almost all of the burials were accompanied by meager grave offerings, except for a middle aged man whose burial yielded two black-on-white bowls, a shell bead necklace of 5,700 beads in a 15 m long strand, a light green stone ax, a large tubular pipe, and two pouches with medicine stones, concretions, whistles, red and yellow paint stones, a fossil, a crystal, and several pieces of turquoise.

Loma Lothrop

Loma Lothrop, LA 277, was tested by S. Lothrop in 1926, resulting in the outlining of several walls and rooms. Site dates are unclear. Ceramics suggest an occupational span between 1275 and 1375 (Kidder 1958; Stanislawski 1983), but Nordby (1984) places its occupation between 1315/1335 and 1400 also based on ceramics. In all likelihood, the site was contemporaneous with the later occupation of Forked Lightning and represents the last coursed adobe pueblo in the valley. Occupants of the site are postulated as having come from the west (Rio Grande, Chaco, Mesa Verde, and/or Jemez), the north (Taos), from the south (Galisteo and/or Jornada Mogollon), and/or from within the valley. Although Lothrop's site map is sketchy, the site appears to be U-shaped. Like Forked Lightning, the walls were laid in sections as turtlebacks, but unlike Forked Lightning, the coursed adobe walls were laid in foundation trenches on cobbles. No kivas are known for the site. Presently, the site appears as low rubblemounds and shallow depressions, possibly suggesting kivas (Metzger 1988), though Nordby feels some of the depressions may be Lothrop's test pits.

Pecos Pueblo

Pecos Pueblo (LA 625) was excavated by A.V. Kidder in ten field seasons between 1915 and 1929, but was visited earlier by Bandelier in 1880. Both Bandelier and Kidder recognized two separate pueblos, North Pueblo (LA 625 F), or the Quad, and South Pueblo (LA 625 E). Excavations by Kidder resulted in the identification of two additional pueblos below and extending beyond North Pueblo; Black-on-white House (LA 625 G) and an unnamed Glaze I-II pueblo (Kidder 1926b, 1958). Each of these, in turn, is associated with additional separate houseblocks. Since Kidder, individual features were excavated by Smiley, Wendorf and others.

North Pueblo. Archeological remains at North Pueblo cover more than 2.5 acres and span three occupational/construction phases beginning circa 1300 and continuing uninterrupted until 1838. Black-on-white House was the earliest pueblo on the **mesilla** and was occupied between 1300 and 1350/1370, partially contemporaneous with Loma Lothrop. Associated, smaller houseblocks are scattered over the general area. The second occupational phase is represented by the Glaze I-II pueblo, occupied between 1350/1370 and circa 1420, probably replacing Loma Lothrop. Smaller Glaze I and II pueblos occur over the abandoned Black-on-white House and elsewhere on the mesilla. Beginning in Glaze IV, North Pueblo began to take shape and was finished by 1450. Later additions were made during Glaze V (circa 1500-1600). Kidder determined occupational dates by stratigraphic information, later burials in trash filled rooms, and earlier sherds embedded in wall mortar. Approximately 30 percent of the combined area of the three main pueblos was excavated, with work focusing primarily on the north houseblock of the Quad, the west terrace, and the east trash midden. Kidder's excavations led him to believe that the initial occupants of the **mesilla** came from within the valley. Stanislawski (1983) feels the original settlers were from the west, ultimately from the Chaco/Mesa Verde area, from south in Galisteo, or from the central Rio Grande. Kidder felt the Quad was constructed by local populations with increments derived from the Jemez area and possibly from the east, while Stanislawski attributes construction to Western Pueblo immigrants.

Black-on-white House is described by Kidder (1925, 1958) as a three-sided, one-story pueblo associated with a haphazard arrangement of small houseblocks. Kidder (1925) describes the Black-on-white phase pueblo as running north-south along the break of the mesatop under the west Quad houseblock with a low, one-story row of rooms extending westward to the mesa edge, then turning south, and ending in an L. Later researchers describe the main pueblo as a one or two story, 60 room, U-shaped masonry pueblo oriented west (Stanislawski 1983; Metzger 1988; Cordell n.d.). The U-shape encloses a single plaza. The pueblo occupies most of the north terrace north of the Quad and continues south under the north Quad houseblock and into the plaza. Only wall foundations or wall stubs less than 1 m high remain. Evidence suggests a number of rooms burned. Kivas 5, 6, and 10 are associated with this pueblo, as are houseblocks located under the Quad plaza and its east and west houseblocks. Sites listed in Table 1 are contemporaneous with that occupational phase.

The **Glaze I - II Pueblo** is located on the west terrace and consists of two, one-story quadrangles, each with a small enclosed plaza (Kidder 1916, 1925, and 1958). Both Stanislawski (1983) and Metzger (1988) describe the pueblo as a three-plaza pueblo facing east, with each of the three plazas overlapping and larger than the preceding one. An estimate of 200 to 300 rooms is given. Like the earlier pueblo, only wall stubs and foundations

remain. The pueblo overlays Black-on-white House on the north terrace and runs south under the Quad and extends out over most of the west terrace. Some of the rooms were incorporated later into the west houseblock of the Quad. Three circular kivas date to this period, as does a large cistern (Kidder 1925). Later burials, underground ovens and kivas penetrate the walls and rooms of the pueblo. Contemporaneous houseblocks occur under the south and east houseblocks of the Quad.

North Pueblo (the Quad) covers approximately 2 acres and consists of four separate multistory houseblocks enclosing a central plaza. Kidder believed the quad was preplanned and built as a unit with the southeast and southwest annexes added later. Approximately 600 to 700 rooms are suggested. Probably, the south houseblock was constructed first, followed by the east, west, and south houseblocks (Kidder 1917). After the north houseblock was finished, the east houseblock was remodeled and a surrounding defense wall built. During Glaze IV, additional construction occurred in the west houseblock; new tiers were added, and an additional row of rooms was appended to the first floor. The annexes probably were built in Glaze V, circa 1500 to 1520. Final construction took place after 1520 but before 1600 and entailed the addition of encircling galleries on the second and third stories. By the completion of the Quad, all of the earlier structures were abandoned except for a few small Glaze I-II houseblocks on the west terrace.

The compact, terraced masonry pueblo was three to four stories high with staggered, protected entrances to the plaza on the northwest, southwest, southeast and east. Characterized by a transverse linear arrangement of rooms, each houseblock was divided into a number of self-contained units without interconnecting doorways (Kidder 1929, 1958) by a line of rooms. Units commonly were six ground floor rooms wide, with rooms terraced upward from the plaza to vertical back walls (3 rooms wide) or terraced to each side with the greatest height reached at the center of the houseblock. (The north and west houseblocks are only three rooms wide on the ground floor.) Each unit contained three to four apartments, totaling 15 to 16 rooms, and was backed up against a similar unit facing the opposite direction. Apartments had six to seven rooms, with rooms on each floor. Individual rooms served storage, food grinding, and domestic and daily activity functions (Schroeder 1979). Kidder felt the fourth floor rooms were windbreaks or unroofed activity areas (Kidder 1958:98). Covered corridors, or galleries, encircled the pueblo on the second and third stories, crossing over plaza entrances by gangplanks (Stanislawski 1983:341). Hatchways served to interconnect stories within a unit and doorways to interconnect floors, except for first floor rooms that lacked doorways. Historical documents indicate access to houseblocks was by ladders to second story corridors. Corridors also provided access to the five to eight plazas located on upper floor levels, while a labyrinth of cellars and passageways in the first floors linked houseblocks,

and in one case, a circular subterranean kiva (Schroeder 1979). Kidder suggests the floor plan was similar to sites south in the Galisteo Basin and west on the Pajarito Plateau (Kidder 1958:125), but that the corridors were features unique to Pecos. Elsewhere, shorter segments of balconies are known for large, multistoried pueblos (e.g., Aztec Ruins). At excavation, only two or three stories remained with lower floor rooms filled with rubble from deteriorating walls and floors.

Masonry walls were built in foundation trenches, in trash, or on top of earlier walls. Walls of shaped and unshaped sandstone, conglomerate and siltstone were laid using wet-laid (stones placed in mortar), dry-laid (no mortar, flat spalls used between courses), and dry-laid mudded (walls laid dry, voids filled with mortar) techniques (Metzger 1988). Kidder (1924) describes the masonry as crude and poorly laid, uncoursed, and with broken joints. Load- bearing walls are wide, three stones thick, and buttressed inside with piles of stones. A few annex rooms encompass unmolded adobe bricks, while some later walls incorporate form-molded adobes (Kidder°s guardhouse kivas). Roofing evidence suggests roofs were flat and consisted of main beams of yellow pine or juniper laid across the short axis of the room. Shakers of cedar or small juniper poles were laid perpendicular to the main roof supports, and in turn, were covered by twigs of cedar, willow, and reeds (Kidder 1958), and topped with thick coats of adobe mortar. Lower room roofs served as floors for upper rooms; first floor roofs were supported by vertical beams. Floors and walls were covered with white lime plaster. A few floors in the annex have sandstone pavement below their hard-packed mortar finish. Corridors were 2.4 to 3 m wide and were roofed similarly to rooms, with the roofs resting on vertical timbers. Doorways are small and rectangular, measuring 71 to 81 cm high, and 46 to 51 cm wide, and occur approximately 15 cm above floors. Doorway trim includes sandstone slab sills and cedar rod lintels, with jambs and lintels rounded out with adobe. Hatchways, connecting stories, are rectangular, measuring 46 by 76 cm., and probably were covered with twig mats (Kidder 1958:91). Rooms average 2.7 m wide and 3 to 3.4 m long and often contain firepits. First floor rooms usually lack features and are trash filled or contain stored goods. Firepits are circular or oval and through time tend to become rectangular with rounded corners and adobe coping.

Twenty-four kivas are known; 21 of which were excavated by Kidder. Four of these Kidder refers to as guardhouse kivas, but Kessell (1979) believes them to be secular Spanish structures built in the 1750s for military use. Generally, Pecos kivas are small (6-6.7 m), circular, subsurface masonry features containing loom holes, slab-lined hearth and masonry deflector complexes, and ashpits. Ladder pits are common, and almost all of the kivas have east ventilators. One surface kiva (4) was found, two kivas (10 and 11) have hard-packed smooth clay walls, and three kivas (4, 7, and 14) have

sipapus. Most of the kivas have four-post roof support patterns and evidence multiple coats of plaster on their walls and floors. Plaster, normally, is white, though green, blue, and yellow plasters were noted (Kivas 4, 5, 6, and 11). Three kivas have a two-post roof support pattern, and two other kivas have wattle-and-daub inner linings. Stanislawski suggests the sipapu, the two-post roof support pattern, and the wattle-and-daub inner lining suggest Western Pueblo influences (1983:367). A single Great Kiva measuring 13 m in diameter with an encircling bench was found. The kiva is stone-lined, has an east ventilator and a separate west entrance. Artifacts recovered included a number of stone human figurines, cruder idols, and fetishes. Stanislawski suggests the kiva was occupied briefly, about 25 years, and represents one of the three latest Great Kivas in the area (1983:368). Kidder (1958) felt the kiva was unfinished because it lacks a firepit and prepared walls or floor.

Of special interest are kivas 4, 6, 7, and 18. Kiva 4 is a surface kiva built into the ruins of the abandoned Black-on-white House and contains an elaborate altar firepit system, a stone-paved floor, 23 loom holes, the earliest example of a sipapu at the site, and green and yellow coats of plaster. The kiva was built circa 1550 to 1600. Kiva 6, built between 1300 and 1320, is unique for Pecos because of its four directional ventilator system, a characteristic Stanislawski (1983) attributes to San Juan Chaco groups. Fifteen burials were removed from the kiva fill. Kiva 7, built between 1575 to 1625, contains a sipapu formed from a double-pierced stone slab covering a buried jar; the jar contained shell beads, and worked and unworked turquoise. Wall niches yielded eight miniature pottery vessels and caches of stone artifacts (thin, polished slabs; celt-shaped slabs; natural rock forms; and kiva bells). At least three renovations occurred; the latest used adobe bricks from the razed seventeenth century church. Kiva 18 also is unique for Pecos, it is the only kiva connected to rooms by an underground passage, and again Stanislawski (1983) sees this as influence from the San Juan Chaco or Mesa Verde groups.

Kidder's five guardhouse kivas are square to rectangular in shape, are entered through the roof, and are located adjacent to entrances to the Quad. Two examples found later have front entrances. Sizes range from 4.8 to 6.7 m per side. Masonry is crude, and some mold-made adobes were used. One structure contains squared Spanish beams. Multiple layers of green plaster were noted in three. All of the structures have at least some ceremonial floor features considered typical of circular kivas; rectangular hearth, ash pit, and deflector in U-shaped altar form. Both east and south ventilators were noted. At least one kiva has a slat-and-wattle inner lining (Stanislawski 1983:371). Associated artifacts include elaborately carved pipes, and Glaze V and VI ceramic types. Kidder (1958) felt the structures were related to earlier D-shaped surface structures at Forked Lightning and other sites in the valley. Nevertheless, the ceramic types present, the use

of squared beams and mold-made adobes, and their presence atop manure piles suggest a post-1625 date. Kessell (1979:381) feels most of the structures were built or rebuilt in 1750 by the Spanish Governor in an attempt to fortify the site against Comanche attacks.

During the earliest phases, three kivas were in use. Kivas 5, 6 and 10 are associated with Black-on-white House, and kiva 5 continued to be used until abandonment in 1838. No kivas are known for the Glaze I-II period. Either three (3, 18, and 21) or five (2, 3, 18, 20, and 21) kivas were constructed during Glaze III. Kidder (1958) suggests kivas 11 and 8 were built and abandoned during Glaze IV, and suggests only ending dates for additional prehistoric or protohistoric kivas. Stanislawski (1983) indicates nine kivas (4, 8, 9, 11, 13, 15, 17, 19, and 24) were constructed during Glaze IV, followed by five (1, 7, 12, 14, and 22) in Glaze V-VII, circa 1575 to 1625. Kidder (1958) thought kivas 14 and 16 were Spanish period, and that kivas 1, 4, 7 and 13 were in use until abandonment. Stanislawski (1983) indicates kivas 1, 5, 7, 14, and 22 were in use until abandonment. Stanislawski (1983) suggests that on the average four or five kivas were in use during any one period, with a maximum of 16 kivas during the site's greatest occupation.

Except for the trash midden, little work was undertaken outside the main pueblo. Consequently, associated features are few and include a few, simple, bell-shaped unlined earth ovens; stone-lined channels; and a defense/boundary wall (LA 625 I). The ovens are late and are associated with the historic occupation of the pueblo, and generally are found in trash deposits outside the Quad. The channels probably provided drainage for the pueblo; they are located on either side of the east entrance in the boundary wall. A gap in the southwest part of the wall may have functioned similarly. The boundary wall encloses completely both North and South Pueblo and consists of dry-laid masonry averaging 1.1 m in height (Kidder 1958:113). A portion of an earlier wall was found when Kidder was excavating Kiva 1 (Metzger 1988). Kidder (1958:113) felt the wall was a boundary rather than a defensive feature, identifying the village's extent and separating it from visitors/traders. The wall was rebuilt by Witkind between 1939 and 1940, repaired by Matlock in the 1970s, and portions of it relaid by Nordby in 1976 and 1977.

Trash deposits nearly 4 m deep cover the top of the **mesilla** and the west terrace. A formal midden of substantial size and depth extends along the east edge of the **mesilla** for the length of the pueblo (.4 km) and is 46 m wide and 6 m deep (Kidder 1926). The midden contains stratified fill from the earliest occupation to the latest, along with the majority of the 2,000 burials recovered. Burials also were recovered from trash-filled rooms, beneath the Quad plaza, and in the west trash deposits. Early burials rarely

contained grave goods, while Glaze I-II burials yielded ceramic vessels and ornaments. Shaman's outfits similar to the one found with the Forked Lightning burial also were recovered. Late prehistoric and historic burials lacked accompanying grave goods. Artifacts collected include thousands of ceramic sherds, hundreds of restorable pots, chipped stone debris, chipped stone and groundstone tools from local and nonlocal sources, beads, shell, bone artifacts, and perishables (digging sticks, arrows, gourds, textiles, sandals, and food remains including corn, beans, squash seeds, and herbs). Caches of pottery, stone idols, painted stone slabs, miniature pots, concretions, and other ceremonial material also were retrieved. Identified trade items are Alibates flint, Jemez obsidian, nine species of sea shells from the west coast and eight from the Gulf of Mexico, two macaws, and thirteenth-century St. John's Polychrome and fourteenth-century glaze wares. Additionally, many of the chipped stone tool forms as well as some of the bone working tools are considered Plains imports.

South Pueblo. Kidder opened 12 rooms in South Pueblo in 1920 and 1924, and Corbett excavated an additional 98 rooms in 1939. The unexcavated southern two-thirds of the housemound was trenched by Stubbs in 1956, and in 1968 Friar Hans Lentz investigated a large room on the south end (Lentz 1971). Further test excavations were completed in the northern part of the houseblock in the 1970s by Matlock and Nordby, and Nordby. Part of the trash midden was salvaged by Nordby in 1983 in preparation for an interpretive loop trail. In all, 33 percent of the site has been excavated. Based on ceramics, Kidder believed the major part of the pueblo was constructed in the 1600s, but that portions were built as early as Glaze II and III (Kidder 1958:108). Cutting dates obtained substantiate a mid-1400s occupation. Stubbs identified a pre Revolt (pre-1680) historic occupation with considerable remodeling and repair; adobes used in construction are similar to those used in the construction of the Lost Church. Kidder felt the pueblo may have been abandoned prior to the arrival of the Spanish, and that the 1600s construction was associated directly with Christianized Indians. Kessel (1979) places the later reoccupation at circa 1705. Nordby (personal communication) sees a pre-Spanish occupation circa Glaze I or II with abandonment prior to the arrival of the Spanish, followed by a second occupation around the 1680 Revolt. All of these dates may be accurate; Stanislawski (1983) indicates that at least four construction phases are present, and work by Nordby located multiple cross-walls beneath the historic pueblo.

During the 1300s South Pueblo probably was a series of unconnected rooms (Stanislawski 1983:357; Metzger 1988), but by the 1600s, had grown to a multistory masonry houseblock constructed in a traditional style. The historic pueblo is a solid rectangle oriented north-south, is six or more ground floor rooms wide, and was terraced on both the east and west sides. South Pueblo measures roughly 122 by 23 m. In its final form, Kidder

estimated 28 or 30 transverse sections with larger, later rooms attached to both the north and south ends, totaling 200 to 300 rooms. The pueblo is similar to North Pueblo with crude masonry in large amounts of mortar and use of all three masonry techniques; wet-laid, dry-laid, and dry-laid mudded (Metzger 1988). Galleries are documented for the second and third stories along the west side of the pueblo and are suspected for the east. Measuring roughly 3.3 m wide, they were braced by triple-thick stone outer walls on the first floor. With the exception of the north end of the pueblo, walls are a single stone width. Rooms contain multiple mud floors on top of earlier walls and/or trash and exhibit extensive remodeling. Large historic rooms at the north end of the pueblo probably were livestock units and/or stable areas (Nordby, personal communication June 4, 1989). A large southern room has mud-plastered walls with cedar vigas and was associated with metal artifacts, turquoise and bone beads, quartz stones, a small clay effigy, and a ceramic teacup decorated with crosses. Stubbs noted a late occupation in the southern portion of South Pueblo characterized by considerable remodeling. Adobes used in remodeling were similar to those in the Lost Church (Letter written to Kidder by S. Stubbs 1956). Four or five firepits were found within rooms, and we assume they are similar to those found in North Pueblo. A subfloor cist in room 7 is described as rectangular box with three sides of stone and a fourth side of a pine slab. The pine slab exhibits carvings similar to corbels or beam decorations. Feature measurements are 15 by 28 by 1.3 cm.

The absence of kivas, lack of sub-floor burials and the finding of the bell, numerous metallic artifacts, crosses, and a couple of metal wedding bands all suggest Christian Indians. The trash midden excavations (Nordby 1983b) contained three identifiable levels of fill and contained bone, shell, groundstone, pipes, sherds, and metal artifact fragments.

700 Pueblo. Tested in 1925 by Kidder, 700 Pueblo is thought to date to Glaze IV to V, 1520 to 1620, based on ceramics. The houseblock is located south of the Quad midway between it and South Pueblo. Based on limited excavations, Kidder felt 700 Pueblo was semi-independent and contained approximately 144 rooms. Like both North and South pueblos, the houseblock is masonry and arranged along a transverse line; 12 sections of 12 rooms.

Shrines

Three shrines are recorded within the Monument and occur north and northeast of the Quad; one somewhere near the Lost Church dug by Dittert in 1956, a second north of the Quad (LA 625 J), and a third (LA 14107) dug by Gunnerson in 1970. The features contain cobbles, with the edges defined by megaliths. Gunnerson's shrine measures approximately 6 m in diameter and was rock-filled with a centrally located firepit below the rock. Associated artifacts include three miniature kiva pots, beads, puebloan potsherds, and

projectile points. Dittert mentions sherds, chipped stone debitage, manos, hammerstones, a piece of worked phyllite, and a water-worn cobble on the ground surface near his shrine. The shrines are known to have been used through the 1800s, while the shrine north of the Quad was in use through the 1980s.

Petroglyphs

A petroglyph survey was conducted by Lentz and Varela in 1971. Numerous panels as well as stone grinding grooves used to sharpen stone axes and adzes were located. Petroglyph panels, or groups of petroglyphs, occur just south of the circular rock shrine (LA 625 J) north of the Quad, on the east edge of the narrow neck of land connecting the **mesilla** to the rising hillslope (Stanislawski 1983:343), on the west side of the **mesilla**, on top of the **mesilla**, behind the church, and on the west side of Arroyo del Pueblo. Many of the panels are badly weathered. For the most part, designs are simple and include masks, serpents, human figures, hunting scenes, hands, abstract figures, and geometrics. Most of the masks, or faces, have dots to mark eyes and mouths. A number of the star heads with bodies suggest Hopi Katchinas, while other figures are reminiscent of Tewa designs. Horseback riders are noted in several places. Petroglyph panels, or clusters, may indicate game trails, use of certain areas for specific clans, or ceremonial locations.

Lost Church

The Lost Church (LA 4444) was mapped by Bandelier in 1880, drawn by Moorehead in 1915, outlined by Kidder in 1925 (Kidder 1958; Hayes 1974), and excavated by Stubbs and Ellis in 1956. The foundations exposed by Smiley and Stubbs were stabilized between 1971 and 1974 by Gary Matlock. Although recognized as the first church at Pecos, suggested construction dates differ. Construction is attributed to Fray Luis de Ubeda in the 1540s, Fray Francisco de San Miguel in 1598, or to Fray Pedro Zambrano Ortiz about 1619. Abandonment occurred within five or six years (Stanislawski 1983).

The church was a south-facing, single nave adobe structure that lacked a transept but had a sanctuary and small side sacristy. Squared buttresses were appended to the west side later. Overall dimensions are 25 by 10 m with the nave measuring 20 by 7 m, the smallest such feature on record (Hayes 1974:13). The coursed, mold-made adobe brick walls rested on 1 m wide masonry foundations possibly constructed in trenches. Foundation walls are of irregularly shaped stone set in adobe mortar with liberal use of small stone spalls. At excavation, a few courses of adobe (made without straw) in dark red mortar remained and measured 51 by 23 by 7 cm. Adobe bricks also were used in the floor of the church. The tapered sanctuary is separated from the main portion of the chapel by a low wall of adobe bricks,

which serves as a retaining wall for the elevated sanctuary (Stubbs, Ellis and Dittert 1957). A ramp-like feature occurred in front of the sanctuary and it sloped up to and abutted the retaining wall. Evidence indicates both the interior and exterior walls were plastered. Three doorways were located, two of which occur in the sacristy walls. Contained within the sacristy were two hundred and fifty adobe bricks. Stanislawski (1983) suggests the stock-piled brick indicate the sacristy was unfinished, but Stubbs, Ellis and Dittert (1957) believe the bricks represent reuse of the church for storage and may have come from the demolition of the church. Bricks similar to them were identified in South Pueblo and in areas within the Quad annexes.

Also suggestive of reuse were two firepits identified in the fill of the church. The first firepit was found above the floor in the southwest corner of the sacristy, and the second below the present ground surface on top of the adobe wall in front of the sacristy. Artifacts recovered from church fill consist primarily of ceramics. No European objects were noted.

Church and Convento Complex

Three churches and two conventos have stood on the present location of the partially standing eighteenth century church and convento ruins. The earliest church, the second church of Pecos (LA 625 A), was discovered by Jean Pinkley in 1967 and is represented only by foundations. The second church on the site, the third church of Pecos, was a temporary chapel built after the Pueblo Revolt; no archeological evidence remains of this building. Knowledge of it was acquired from historical documents (Hayes 1974). The temporary chapel was constructed by Fray Diego de la Casa Zeinos circa 1694/1696 and was in use until circa 1706. The chapel was located south of, and parallel to, the south nave wall of the earlier church. The third church on the site, the fourth church of Pecos (LA 625 B), was first tested by Nusbaum in 1915 and has received continuous excavation and stabilization since. It is that church that presently dominates the **mesilla**.

Seventeenth-Century Church. Jean Pinkley discovered and fully excavated the remaining foundations of the seventeenth century church (LA 625 A) in 1967 and in the following year stabilized them. The church was considerably larger than the succeeding eighteenth century church, thus its foundations are visible beyond the standing walls of the eighteenth-century church. In 1985 Peter McKenna and James Bradford tested a portion of a seventeenth-century midden believed associated with the convento but well to the southeast of it (McKenna 1986). Construction of the church was started by Fray Ortega and finished by Fray Suarez between 1620 and 1625 (Hayes 1974; Kessell 1979) and was in use until the Pueblo Revolt of 1680. The church was claimed to be the second largest north of Mexico, measuring

ca. 43 by 13 m with walls 3.4 to 4.3 m thick. Benavides described it as the most splendid temple of singular construction and excellence in the region (in Kessell 1979). A large convento and cloister were attached to the church on the south; these were enlarged continuously until 1680.

Described as a single nave church with a small trapezoidal sanctuary flanked by massive earth-filled buttresses, the church was cruciform in plan. The buttresses extended the full height of the north, south and east walls. Six towers, three to a side, lined the nearly 12 m high walls, which were capped with a crenelated parapet. At the eastern corners of the church, two bell tower bases were found, measuring 2 by 2.7 m with 1 m thick walls. Apparently, the towers were enclosed spaces with stairs leading to a choir loft. Projecting 1.5 m east, the towers formed a shallow narthex in front of the church, possibly bridged by a balcony. A baptistery was attached to the south end of the east wall. The coursed, mold-made black adobe walls rested on massive rubble-filled foundations faced with random masonry elements. Excavated foundation heights vary between .6 and 1.8 m and are approximately 3 m thick. The church had an exposed beamed ceiling, which burned during the Revolt. The nave was tapered, decreasing in width from 12 m to 11.4 m to create the impression of greater length. Floors were both bedrock and adobe, and walls were plastered white as was the exterior of the church.

Associated with the church was a cemetery and convento. Thirteen burials were recovered by Pinkley and Hayes in the cemetery to the east. The convento was attached to the south and is known primarily from historical documents. Hayes (1974) feels portions of the seventeenth century convento were incorporated into the existing eighteenth century convento walls and are distinguished by the dark adobe bricks made from North Pueblo trash deposits. The convento was smaller than the eighteenth century convento, was constructed of coursed adobe on stone foundations, and consisted of a garth and cloister, a Porter's lodge with a small courtyard, 19 living/work rooms, and a large corral with stables and pens. Portions of the complex were two stories. The Porter's lodge, the cloister, living rooms and open patio were constructed first, following the church's completion. Four additions were made before the Revolt in 1680 and included corrals, more living rooms, an open shed or portal, a possible tower, stock pens, utility rooms, and a drainage system. Generally, floors were untreated except for the Porter's lodge and living quarters. Those had adobe brick floors and walls plastered with white gypsum. The drains were subsurface features, rectangular in cross section with flat stone slab bases and walls of slabs or masonry (small stone) (Hayes 1974).

Midden deposits yielded a distinctive cultural mix, which included ceramic vessels, chipped stone tools, grinding implements, and Spanish introductions such as historic vessel forms and sheep bone (McKenna 1986).

Eighteenth-Century Church. Between 1838 and 1880 the church and ruins of the pueblo were visited by painters, writers, soldiers and settlers. In an 1858 painting, the church appears intact, but by 1866 the nave roof and towers were missing. Bandelier's visit in 1880 recorded the loss of the corbels and woodwork, and the vandalism of historic graves. Prior to Bandelier's visit, Andrew Kozlowski, a Polish squatter, pulled down the beams of the church and excavated inside the church corner, looking for the cornerstone. With the work of Jesse Nusbaum in 1915, scientific excavations and stabilization of the church (LA 625 B) and convento (LA 625 C) began. Work begun by Nusbaum was continued by Valliant (1925), Witkind (1938-1940), Pinkley, Hayes and Richert (1966-1970), and NPS personnel. Their combined efforts resulted in the complete excavation and stabilization of the church and convento. Approximately 40 percent of the church and 5 percent of the exposed convento walls contain original fabric. Construction of the church began in 1705 and was completed between 1716 and 1717 under the supervision of Fray Jose de Arragenqui. The church continued in use until circa 1790 when it was reduced to a visitia of Santa Fe, though Kessell (1979) believes that happened earlier and that the church was maintained only on the records as a resident mission.

This last church of Pecos, known as Iglesia Nuestra Senora de los Angeles Porciuncula, was constructed on top of the rubble of the razed seventeenth-century church with its floor 1.5 to 2 m above it. Built in a cruciform with an open transept and reversed orientation, the smaller church fit in between the earlier nave walls. The walls of red adobe enclose a space only 23 m long and 4.6 m wide. Two bell towers flanked the door, making a shallow narthex that held a balcony. Coursed walls of molded-adobes stood nearly 12 m tall on top of masonry foundations. Both wet-laid and dry-laid mudded techniques were used in foundation wall construction. Superstructure walls measure 1.5 to 2.4 m thick, with the walls of the transept and apse thicker. The church had a flat roof made of squared ponderosa pine beams set on .6 m centers resting on carved corbels of juniper or pine. Over the roof beams were laid small, wooden rods, which in turn, were covered with bark and earth. The roof over the transept and sanctuary was higher, providing a clerestory window covered with sheet mica. The church originally had three windows, one of which later was covered and used as a niche. The altar had five steps up to it, and arched doorways flanked each side of the front sanctuary. Arches are rare in New Mexico adobe architecture, and these two examples represent the only known such features in a church interior (Hayes 1974:67; Kubler 1972). A balcony 2.4 m wide lined the south and east walls of the south transept.

The seventeenth-century convento was destroyed only partially during the Pueblo Revolt. With the new church construction, the convento was expanded and modified. Space was made for more work rooms, and additional corrals were attached to the south side of the existing ones. Approximately 53 rooms and eight corrals and pens were identified during excavation. Hayes (1974) identifies the most significant period of rebuilding as between 1694 and 1708. Included in the new additions were a torreon, or defense tower, fireplaces in rooms, and ten new rooms. Remodeling consisted of removing partition walls, reducing the size of the cloister, adding adobe floors and plastering the walls in the cloister, paving the patios with flagstone, plugging courtyard exits, adding flights of stairs to new second stories, thickening walls to support second stories, rebuilding floors over debris, paving the manager-like area with cobblestones, and changing the kitchen. Also during this period, a lined and paved cellar was dug. The cellar was constructed with reddish brown adobe bricks that contrast with the gray-black brick of the earlier church.

Features associated with the mission church include a cemetery, the priest's garden, and kiva 23. The cemetery was excavated fully, and it was located over the area of the apse and bell towers of the earlier church and defined by a low wall. Historic burials were recognized easily by their supine position and absence of grave goods. The priest's garden (LA 625 D), or kitchen garden, is west of the seventeenth-century church foundations and serves only as a visitor's exhibit. Previously, the garden walls were thought to be reconstructed on original foundations. Such is not the case, and the garden has been removed from the list of classified structures for Pecos. Kiva 23 was discovered by Hayes in 1970 in the convento corral, and from its construction style and materials, was assigned to the Revolt period, 1680 to 1692. Kiva walls consist of blackened adobe bricks on top of masonry foundations. The trash-filled bricks are characteristic of the razed seventeenth-century church. Kiva 23 was stabilized and the upper walls and roof reconstructed. The feature presently is used as an interpretive exhibit.

Presidio

Two rooms of the **Presidio** (LA 625 H) were tested by Hayes in 1970, and their walls partially stabilized by Matlock between 1971 and 1974. Architectural style, associated artifacts, and historical documents provide evidence that the building was in use between 1751 (Hayes 1974; Kessell 1979) and 1786 (Nordby 1982b). Spanish construction is suggested.

The secular masonry building forms a compound measuring 107 m by 38 m. Pens and corrals are appended to the north and south sides, with a series of rooms attached to the east side of the north pens. The central area of the compound forms an open yard measuring 36 by 43 m. Low

stone walls were revealed by excavation, which probably were topped by coursed adobe walls. The two excavated rooms measure 2.4 m square. Hayes (1974) believes the compound served as a garrison for Spanish solders during a period of increased Comanche raids.

Casas Reales

There are some indications Kidder tested this building in 1925 when he tested 700 Pueblo. Using aerial photographs taken by Lindbergh in that year, Hayes identified an exposed room on one of the aerials as the location of **Casas Reales** (LA 625?). In 1970 Hayes trenched most of the rooms, and excavated one room in the southern part of the building complex and two in the center. Again, based on architecture and artifacts recovered, Hayes suggests the building is of Spanish secular construction built in the 1750s. Kessel (1979) and Nordby (1982b) both imply earlier use, possibly beginning around 1719. Kessel feels the building was constructed by Indians to serve as a visible reminder of Spanish nonreligious presence (1979:321).

Casas Reales is a string of contiguous rooms 18 m west of the eighteenth century convento. The alignment measures 44 by 11 m, and trenching exposed 1 m wide stone foundations and heavy trash deposits. The room excavated at the south end of the complex measures 2.7 m square and contains a fireplace. Evidence suggests the room was remodeled twice. Both rooms in the center of the complex measure 2.4 by 3.7 m but apparently served different functions. The first room contains a small corner fireplace and an adobe brick floor in a herringbone pattern. The second room has a cobblestone floor and a earth bench faced with stone slabs, suggesting a cooking area. The bench stands only .2 m above the floor. Also within the room, is a stone-lined subfloor drain. The drain was dug .3 m into the ground.

Artifacts retrieved include historic ceramics, Chinese porcelain sherds, metal objects, flint scrapers, and groundstone tools.

Square Ruin

Square Ruin (LA 14114) was described and mapped by Bandelier in 1880. In 1971 a few courses of stone were reset and a drainage system installed (Nordby 1982b), and Square Ruin is a pentagonal enclosure measuring 50 by 50 m and is defined by a low stone mound. The walls are formed of medium-to-large unshaped sandstone blocks and cobbles set in mud mortar (Nordby 1982b).

A single burial was found below the floor of the building. Surface artifacts noted during survey include black-on-white and Glaze V ceramic types, and a few lithics. No European artifacts were found in the immediate vicinity.

LA 14113 is associated spatially with Square Ruin. The site structure is described as a collection of irregular mounds and scattered rubblemound (feature 1) (Nordby 1982b). Feature 1, a rubblemound, consists of medium-to-large sandstone block masonry with at least four corners exposed. Features 2,3, and 4 probably represent between two and four houseblocks of tabular slab construction (Nordby 1982b). Nordby (1982b) suggests feature 1 may be related temporally and functionally to Square Ruin, while features 2 through 4 seem to date between 1200 and 1325.

Gunnerson's Locales

Nine locales were located and tested by Gunnerson in 1969, and in 1970 some of those locales were excavated more thoroughly. Both the features and occupational areas identified are believed to date between 1600 and the mid-1700s and are assigned to Faraon and Jicarilla Apaches, with the exception of four burials. The burials probably were native Pecos Indians.

An Apache structure dating between 1650 and 1680 was located 100 m east of the church. Remains include charred poles in a pattern suggesting a dome-shaped roof with radial poles held in place by horizontal poles. In all likelihood, clay daub covered the superstructure and roof. The feature was nearly 5 m in diameter. Two restorable pots (Glaze ?) and one restorable Apache pot were recovered from within the structure, along with a clay cloud-blower pipe, a copper ornament, and one worked Chinese porcelain sherd. A possible tipi ring, indicating a pole-and-earth structure, and portions of adobe walls also were located; their location within the Monument is unclear. Gunnerson believed they were associated with a Jicarilla Apache camp. The location of a Faraon campsite and associated Spanish secular masonry structure also are unclear. The sites were dated by associated ceramics (?).

Southwest of the church, an Apache campsite consisting of a hearth and ceramics was identified. Apache sherds also were found in an area on the east side of the south end of South Pueblo in the upper fill levels of a trash area. The four, extended, supine burials were located 100 m southeast of the church; only one was removed. The burials are thought to date circa 1600.

Collections

More than 300,000 artifacts have been removed from Pecos National Monument since Kidder's initial excavations; 58 percent of which were collected by Kidder. The number represents an estimate of the minimum number of artifacts collected, because most collections have not been inventoried completely and most bulk collections of sherds and chipped stone debris are listed by numbers of boxes only. Collections are housed at the Phillips Academy in Andover, Massachusetts; the Museum of New Mexico, Santa Fe, New Mexico; Pecos National Monument, Pecos, New Mexico; the Southwest Cultural Resources Center, NPS, Santa Fe, New Mexico; the Western Archeological Center, NPS, Tucson, Arizona; Arizona State Museum, Tempe, Arizona; the University of Nebraska, Lincoln, Nebraska; the Smithsonian Institution, Washington, D.C; Rochester Municipal Museum, Rochester, New York; Ohio State Museum, Columbus, Ohio; Chicago Field Museum of Natural History, Chicago, Illinois; Harvard, Cambridge, Massachusetts; and the Southwest Museum, Los Angeles, California.

The bulk of Kidder's collection (80 percent) is on loan to Pecos National Monument from the Robert S. Peabody Foundation for Archaeology, and represents a classic collection in the history of American archeology. Artifacts retained by the Peabody Museum include collections from Rowe Pueblo and Forked Lightning. In addition, Kidder gave one or two pots to each of 13 institutions, including one in Paris. Kidder estimated that 15,000 nonceramic artifacts, hundreds of whole and restorable pots, and hundreds of thousands of sherds were recovered between 1915 and 1929. Among the artifacts recovered are pottery; elbow, cloud-blower, and flat pipes; flageolets; flutes; clay figurines; stone idols; bone awls, fleshers, and punches; bone ornaments; chipped stone; groundstone tools; lightning stones; carved stone and wood tablitas; stone concretions and fetishes; beam samples; shell jewelry; hammerstones; axes; and a variety of perishables such as textiles, sandal fragments, digging sticks, arrows, gourds, and vegetal materials. Recognized Plains materials include drill types, double-beveled knives, side and end scrapers, projectile point types, and bone and antler tools. In addition to artifacts, the Kidder collection contains field notes, photo negatives, and other documentary material not included in the count.

The Museum of New Mexico, Laboratory of Anthropology, retains artifactual materials recovered between 1935 and 1965 when Pecos was part of the New Mexico State Monument system. On permanent loan to the Monument from the Laboratory are five whole pots, a number of ceremonial objects, a wood corbel, and wood specimens from the eighteenth-century church. The Laboratory maintains 342 catalogue items including 102 whole pots, 37 bone artifacts, 6 ceremonial objects, 9 pieces of shell jewelry, 17 metal objects, a glass bead, 172 stone artifacts, and 7 wooden artifacts. Ceramic vessels are represented by bowls, jars, cups, miniature vessels, effigies, and pipes. Bone artifacts

include whistles, scrapers, awls, beads, jewelry, tools, flutes, flageolets, gaming pieces, and sacred stones. Other noteworthy objects are four kiva bells, stone effigies, and a number of stone fetishes. In addition to these artifacts, seven large and eight smaller boxes of uncataloged artifacts are held in the repository.

Nearly 127,000 artifacts are housed at the Southwest Cultural Resources Center. These collections are from work done in conjunction with small-scale research projects such as Nordby's pithouses and Square Ruin, stabilization projects, and from park development projects. To date, most of the collections are uncataloged, thus detailed inventories are not available. Total item counts are available for individual projects as are numbers of items within classes of artifacts. By far, ceramic, chipped stone, and bone artifact classes are best represented. Other artifact classes include metal, minerals, wood, plant materials, and clay/mud/soil and clay/soil/mud samples. Unusual items noted in publications include square ceramic pots (McKenna 1986) and basket-molded pots (Nordby and Creutz 1982).

The Western Archeological Center's materials are not catalogued, nor inventoried. Approximately 242 boxes of artifacts recovered from Pinkley's excavation and stabilization projects between 1966 and 1969 are housed there. These include, generally, ceramics, lithics, trade goods (?), faunal bone, groundstone, shell, textiles, wood, eggshell, and beads.

Sixty burials removed by Pinkley are on loan to Christy Turner at Arizona State University.

Apache, Spanish and other materials recovered by Gunnerson in the 1960s and 1970s from the Park are loan to the University of Nebraska. No inventory for these materials exist, although a large percentage consists of Apache ceramics.

Bell fragments, a complete bell, and many corbels from the church are curated by the Smithsonian Institution as are a number of other items that are thought to be from Pecos. Their origins are questionable.

Analyses of collections has been limited primarily to ceramic studies by Shepard (1942), Kidder and Shepard (1936), Warren (1970), and Habicht-Mauche (1988), and descriptive and chronological artifact studies by Kidder (1931, 1932) and McKenna (1986). Shepard's studies are significant because of ceramic source area identifications. Although not reported, artifact analyses of materials from the pithouse site excavations have been conducted by Nordby.

Burials

Two thousand and six burials were removed from trash middens, from within abandoned trash-filled rooms, from below church floors, and from historic cemeteries. Almost all of these (96 percent) were recovered by Kidder between 1915 and 1929. Many of the burials retrieved by Kidder were in poor condition and were reburied without analysis (Kidder 1958:279). Pinkley's work represents the second largest burial assemblage with 3 percent. The remaining 1 percent consists of eight burials discovered during testing and stabilization projects since 1970.

Primarily, human remains were recovered from the east trash midden, with Glaze III burials the largest burial population represented. The deceased were interred in shallow graves lined with mats, hides, and feather or cloth blankets. Burials usually were flexed, placed face-down with their legs closely bent against their chests, and their hands drawn up under their chins (Kidder 1924). A number of unusual finds differed from that pattern. One burial was doubled at the waist, face down, over outstretched legs with the head between the shin bones. Large rocks had been used to weigh down the head and shoulders. A second burial was placed face down with the legs bent backward, and the feet brought forward with the toes near the back of the head. Again, large rocks were used to weigh down the feet. Finally, three stillborn or miscarried infants were interred in urns. Accompanying grave goods generally consist of ceramics, either whole pots or large sherds; 13 little duck pots were recorded. Other burial grave goods include projectile points, fragments of yucca sandals, cotton textile fragments and pouches with ground minerals. Adult grave goods tend to be utilitarian objects including scrapers, knives, arrow-shaft straighteners, axes, pipes, and pot polishing pebbles. A single metate was observed with a middle-age female. Ornaments were rare and are limited to tubular bone and shell beads, and a few pieces of turquoise. Kidder suggested shell and turquoise were reserved for infants and young children (Kidder 1958:295). Items found include pendants, disc beads, strings of Olivellas, and Olivia tinklers (Kidder 1958:295).

Two elaborate burials were recorded. Burial 990 was covered with a layer of sticks across the top of the burial pit, topped with sandstone slabs, creating a somewhat flat semi-arched roof. A mat occurred below the body, and a flint arrowhead was embedded in the forehead, while an obsidian point lay among the ribs. Kidder identified at least nine other individuals who seem to have had lethal injuries. The second burial was unusual for the amount of accompanying grave goods, and Kidder suggests the individual was a flint knapper. Retrieved items include several projectile points, a scraper of Alibates dolomite, bone and antler objects, and two pipes.

Fifty-six burials were found below the nave floor of the eighteenth-century church. These burials were not analyzed and were reburied. Very few accompanying grave goods were noted. The few items observed include glass or copper beads. A single burial was wrapped in a woolen blanket, and a second burial wore a bronze religious medal.

Previous Archeological and Historical Investigations

Archeological investigations and preservation activities have been conducted within the Monument since the late 1800s. Work undertaken has ranged from extensive excavations and excavation/stabilization projects, to surveys, to limited test excavations, to cyclical stabilization maintenance programs. Moreover, comprehensive historical and ethnohistorical research projects have been completed, supplementing and expanding on information gained from those projects. Although most projects are documented in field notes, very few are reported in the literature. Those that are reported include Bandelier's 1880 visit (1881), Kidder's excavations (1916a, 1916b, 1917a, 1917b, 1924, 1926a, 1926b, 1931, 1932, 1951a, 1951b, 1958), Hewett's ethnohistorical investigations of the Pecos Indians (1904), Stubbs and Ellis' work at the Lost Church (Stubbs, Ellis and Dittert 1957), Alden Hayes synthesis of the mission-convento complex (1974), Gunnerson's Apache site data (1970), Kessell's documentary history of the pueblo (1979), and Hall's land's claim history (1982). A few other projects are summarized and briefly interpreted in manuscripts (Southwest Cultural Resources Center library, NPS). Unfortunately, most results from archeological work completed since Kidder's monumental study are in preparation, and Pinkley's substantial excavation/stabilization work of the late 1960s is not well documented. Table 2 lists and briefly describes projects completed within or in reference to the ruins of Pecos National Monument. The following discussion highlights the more significant studies.

The first professional visit to the ruins of Pecos was made by Adolph Bandelier in 1880. Bandelier spent ten days locating and recording ruins on the **mesilla** and in the surrounding area (1881). Interestingly, Bandelier never returned, but he did meet at Jemez in 1881 three previous Pecos residents whom he interviewed (Kessell 1979:477). Following this avenue of research, ethnohistorian Frederick Webb Hodge and archeologist Edgar L. Hewett collected data on the archeology and history of Pecos by field observations and interviews of Pecos descendants living at Jemez. Hewett's work resulted in a study of Pecos Indians and their aboriginal range, and the archeology of the Upper Pecos River Valley (1904). Most importantly, the study fixed the date for the abandonment of Pecos at 1838. Not until 1910 did an archeologist return to Pecos. In the company of Kenneth Chapman, Kidder visited and collected sherds from various ruins in the Upper Pecos River Valley, including Pecos Pueblo and Forked Lightning. Five years later, the trustees of the

Phillips Academy, Andover, Massachusetts, sought a long-term excavation project in the Southwest and placed a Harvard man, Alfred Vincent Kidder, in charge. Kidder suggested Pecos. Kidder believed Pecos provided the opportunity to straighten out the chronology of the area. His purpose, as he saw it, was to use the potential stratigraphic knowledge gained at Pecos to put other ruins in the Rio Grande area into a regional chronology. Moreover, Kidder believed Pecos was the logical first step in examining Plains archeology, a precept later researchers would follow up on.

Solidly trained in field methods by a well-known Egyptologist, Kidder was anxious to move archeology from antiquarianism to systematic, planned research (Kessell 1979:480). In the course of ten summers between 1915 and 1929, Kidder thoroughly trenched the east midden, trenched limited amounts of the Quad plaza, excavated kivas within the plaza, and dug rooms. Quad excavations concentrated primarily on the west houseblock, with a few rooms dug to floor. The unstable conditions of lower rooms, however, generally confined work to upper stories. A few first floor rooms (uppermost floors) also were dug in the north and south houseblocks and south of the east entry in the east houseblock. A single section in the southwest annex was dug to bedrock, and four guardhouse kivas (H, I, J and K) were investigated. For the most part, Kidder adopted a dig-and-fill method at Pecos.

The first two field seasons were spent trenching the east trash midden and excavating hundreds of burials. The 1915 season's work succeeded in defining eight successive pottery types that would become markers for the chronology of Pecos (Kidder 1917a, 1917b). (Simultaneous with Kidder's opening field season, Jesse Nusbaum of the Museum of New Mexico directed excavation and stabilization of the historic Spanish church.) Looking for deeper, earlier deposits in the 1916 field season, Kidder discovered a complex occupational history that began with a Black-on-white pueblo circa 1300. The rest of the season was spent investigating that pueblo and later Glaze II-III deposits, which resulted in Kidder identifying the general sequence of Pecos Pueblo growth and abandonment (1917a, 1917b). Kidder felt the Black-on-white phase settlement pattern represented a shifting population who built new structures rather than repair old ones, and which was supplemented by populations moving onto the **mesilla** from within the valley and farther east. From his work, Kidder also concluded the period between 1600 and 1700 was the "Augustan Age" for the pueblo.

The following four seasons were spent examining rooms and kivas in the Quad. The 1924 season focused on investigating the Glaze I-II pueblo found on the west terrace. From burial and stratigraphic data, Kidder (1925) detailed the internal relationships of the three phases of pueblo growth and identified the last rooms occupied at the site. Kidder (1958) believed portions of the Glaze I-II houseblock were occupied throughout the

construction of the Quad, and with its completion, most of the population moved there, except for a small population remaining on the west terrace until just prior to 1625. Work during the 1925 season concentrated on the south end of the plaza, and the south and east houseblocks. An unfinished (Kidder 1926a) Great Kiva (Stanislawski 1983) and five guardhouse kivas were found. The guardhouse kivas occur at entrances to the plaza and were thought to be built during the 1600s. Kidder also believed that the east orientation of Pecos kivas in general suggested Plains or Mogollon influence. Adjunct studies conducted during this period include Hooten's work with the Pecos burials and Anna Shepard's ceramic research. Hooten later produced a monograph (1930) on Pecos Indian health, disease, rates of mortality, and population by cultural periods. Shepard's analysis of Pecos pottery centered on clay sources, tempering materials, paints, and firing techniques (Kidder and Shepard 1936; Shepard 1942), which later became standards for ceramic studies in the Southwest.

The 1925 season also saw work at South Pueblo. Kidder cleared a few rooms at the north end of the houseblock and one room section (rooms 39, 62, 66, 67, 79, and 82). Although limited in scope, the work allowed Kidder to determine the construction sequence and growth of the historic pueblo occupied in the 1600s (Kidder 1926a). Initial occupation of the area occurred circa Glaze I or II, indicated by a loose collection of unrelated rooms, followed by light Glaze III area use. The historic South Pueblo resulted from remodeling of earlier rooms and the addition of a second story during the 1600s. However, Espejo's chronicler of the 1590 expedition noted a houseblock with plaza separate from the Quad, which Kidder believed was located on the west terrace.

Work during the 1926, 1927, and 1929 field seasons concentrated on Forked Lightning. Kidder was concerned primarily with Forked Lightning's relationship to Pecos Pueblo. Investigations included clearing a number of rooms, trenching the western periphery of the site, and digging a series of exploratory trenches and test pits to determine the site's extent. Kidder's investigations revealed a haphazard arrangement of houseblocks with two earlier pueblos below, which led him to believe Forked Lightning grew from accretion as waves of populations entered the valley from the west. Kidder (1926b) also believed the site was occupied for about 100 years, and that it was typical of contemporaneous sites in the Rio Grande Valley. Furthermore, Forked Lightning was seen as the ancestral home of Pecos Pueblo, whose inhabitants had abandoned the site as a result of raiding Plains groups (Kidder 1958).

Kidder's work provides the foundations upon which much of Southwestern archeology is based. His excavations resulted in a series of monographs that have had lasting impacts on area archeology and understanding of Upper Pecos River Valley cultural growth and development. Kidder's data indicated an initial occupation of the valley circa 1300 by groups from the west, an occupation he felt began with Forked Lightning. Abandonment of Forked Lightning resulted from raids by Plains groups, thus forcing a move to the **mesilla**. Initially, small houseblocks were constructed, but later abandoned in favor of a preplanned, fortified quadrangle. The population of Pecos grew by accretion as more and more sites in the valley were abandoned. Kidder (1958) also believed part of the population on the **mesilla** were Puebloan immigrants from the east, who earlier had ventured out onto the Plains but had failed to hold their own there. Kidder viewed Pecos' growth as a direct result of their middleman position between the Rio Grande Puebloans and Plains groups. Kidder believed the trade-or-raid relationship between the two groups was influenced by environmental conditions, a relationship that was worsened by the intrusion of the Spanish. Trading conditions deteriorated further with the emergence of the Comanches onto the Plains. Kidder (1958:311) postulated the Comanches were a primary cause of Pecos's downfall, coupled with Spanish-introduced diseases and internal strife.

Kidder saw Pecos as a frontier pueblo from about 1400 on that later became a military buffer and trading center for the Spanish and pueblos farther west. As a result, Kidder saw different cultural influences shaping the development of the pueblo throughout its history. Kidder speculated those influences began in 1300 and were manifested in the ceramic assemblage and kiva shapes at Forked Lightning; western influences are suggested because of the presence of St. Johns Polychrome and square kiva shapes. Black-on-white ceramics from the earliest occupation of the **mesilla** came primarily from Galisteo or Santa Fe (Kidder and Shepard 1936; Shepard 1942), followed by Galisteo imports from the south and biscuit wares from the north during Glaze I, and from as far west as Hopi during Glaze III and IV. Glaze V artifact assemblages are dominated by Plains or Plains-like artifacts, artifact types absent from pueblo sites farther west (Kidder 1958).

In the late 1930s, excavation and stabilization projects were conducted in preparation of the Cuatro Centennial celebration. Overseen by Edwin Ferdon and eventually completed by Wm. Witkind, J.W. Hendron, and John Corbett, extensive work on the eighteenth century church, convento, and defense wall was conducted. Corbett also excavated 98 rooms in South Pueblo (1939). Unfortunately, work from the period is not well documented. Corbett believes South Pueblo was constructed by Christianized Indians who wanted to live closer to the church, and cites the lack of kivas in the pueblo as evidence.

Although very little work was done in the 1950s, a significant study was undertaken at the Lost Church by Stubbs and Ellis. Excavations were conducted to prepare a more adequate ground plan and to determine the age of construction. Their work led them to believe the Lost Church was the first church constructed at Pecos early in the 1600s and that later was destroyed during the 1680 Revolt (Stubbs, Ellis and Dittert 1957). They dismissed references that located the razed church of 1680 south of the pueblo, and they perceived the standing ruins there as representing the second church, constructed in the early 1700s and abandoned when Pecos Pueblo was in the 1800s.

The next major excavation and stabilization project focused on the standing ruins of the 1706 church-convento complex and was undertaken by Jean Pinkley in 1965. Pinkley died in 1969 before she could complete the project, but not before she discovered foundations of a third church, identified correctly as the seventeenth century church razed during the Revolt. Earlier, Adams and Chavez (1956), based on review of historical documents, speculated on the possibility of four churches at Pecos. Not only did Pinkley's work clarify the succession of churches at Pecos, but it cleared up what were thought to be contradictions in the historical record. In the 1600s Benavides had written of the magnificent building erected at Pecos (Hodge, Hammond and Rey 1945), details of which had alluded excavators of the 1706 church. Pinkley's work is not well documented and details of her excavations are unknown.

Work began by Pinkley and finished by Richert and Hayes in the convento demonstrated the feature was larger than originally thought and more complex. Their work identified two conventos; an earlier one associated with the seventeenth century church, and a later superimposed one associated with the eighteenth century church. This work, along with descriptions and discussions of the churches of Pecos, was written up by Hayes in 1974. Hayes' publication identifies and locates the four churches at Pecos, outlines the relationships between the four churches and two conventos, interprets the mission complex stratigraphy, details the remodeling/alterations to the conventos, and identifies the construction phases of the two conventos. Besides summarizing the archeology of the historical buildings, Hayes reviews contemporary documents of the seventeenth and eighteenth centuries. In so doing, he identifies their builders and exact dates of construction for each of the four churches. Hayes believes Fray Ortiz was responsible for the first church (pre-1620), Fathers Ortega and Suarez for the second (1620-1680), Fray Zeinos for the temporary church (1694-1706), and Fray Arranegui for the fourth and final church (1716/1717-1800s). Hayes' work also led him to believe South Pueblo was built or occupied during the construction of the second church at Pecos, ca. 1621-1622.

Hayes also excavated two secular Spanish structures, identified as the **Presidio** and **Casas Reales**. Hayes' investigations in 1970 suggested the **Presidio** was constructed sometime in the 1750s and functioned as a garrison complete with barracks, stables and fortifications (Hayes 1974). Architectural and artifactual data recovered from the second secular building tested led Hayes to identify it as the **Casas Reales**. He believed families of soldiers assigned to the **Presidio** resided there. Hayes also notes in passing the presence of a large corral across the arroyo, Square Ruin, that may have been associated with the Comanchero trade of the 1700s.

Between 1969 and 1970, Gunnerson located and investigated nine locales of Apache ceramics east of Pecos Pueblo. There is some question as to where those nine locales are. A draft manuscript (Southwest Regional Office, NPS) suggests they were where the present visitor's center is, thus no longer in existence. Gunnerson's research was designed to determine the relationship between the Pecos Pueblo Indians and the Apaches, and to learn more about Apache occupation in the area (Gunnerson 1970). According to Gunnerson, Apache campsites, complete with structures in two cases, were revealed by excavations. Use of these is attributed to Jicarilla and Faraones groups. Gunnerson feels the sites support historical documentation of a close relationship between Apaches and Puebloan groups and are the most solid archeological evidence for Apaches residing at Pecos during the 1750s.

Work in the early part of the 1970s consisted primarily of stabilization directed by Gary Matlock. Cyclical maintenance as well as new stabilization projects were undertaken. Continued work on the convento, both churches, **Casas Reales**, the **Presidio**, Square Ruin, and the defense wall are documented. Matlock also stabilized five kivas in North Pueblo and the foundations of the Lost Church. Five rooms in the north end of South Pueblo were dug.

In 1972 Albert Schroeder, contracted by the National Park Service, wrote an ethnohistory of Pecos Pueblo. Schroeder suggests the Pecos Indians spoke a Towa dialect of the Tanoan language and that the Jemez dialect of today grew out of Pecos immigrants to their village, suggesting a sizable number of Pecos Indians may have left Pecos prior to 1838. By tracing Pecos ancestry through traditional legends, Schroeder identifies a northern origin for the original inhabitants of Pecos Pueblo, and a Jemez area origin for settlers of Rowe Pueblo located 8 km south of Pecos. Apparently, maize, beans, greens and squash were grown by Pecos Indians, but not cotton. Agricultural lands farmed included dry-farm plots around the pueblo, irrigated plots located northeast of the pueblo, and floodwater fields along the river. Schroeder also outlines the ceremonies, societies and organizations associated with Pecos Pueblo and identifies those societies unique to Pecos, some of which may have developed because of their close contact with Plains groups.

Included within the ceremonial structure of Pecos Pueblo were the two known shrines north of the pueblo and a sacred cave. (The two shrines were visited by Pecos descendants as late as the twentieth century [Schroeder 1972].) In reviewing intertribal relations, Schroeder suggests Pecos Indians differed from other Rio Grande groups because of their small, circular kivas, their extensive contact with Plains groups, and a language intelligible only to Jemez Indians. Schroeder recognizes Pecos Pueblo as a major base for missionary activities in the Plains and for trade during the 1600s and 1700s.

Archeological work at the Monument during the 1970s was limited to test excavations in conjunction with cyclical maintenance of previous stabilization and park development. Three projects conducted by Larry Nordby, National Park Service archeologist, during this period are noteworthy. The first project involved test excavations in South Pueblo between 1972 and 1976; work included subflooring some of Corbett's previously excavated rooms, testing three new rooms, and trenching between rooms. Probably, the single most significant find was the presence of juxtaposing older walls below those of the historic pueblo (Nordby and Matlock 1972 & 1975), confirming a pre-1600s date to initial site construction. Also found were three identifiable fill layers and evidence of extensive remodeling. The second project was a survey of the Monument and portions of the Forked Lightning Ranch surrounding it. Started in 1976, the survey is on-going. The objective of the survey was, and is, the location and evaluation of the nature of small sites. Special emphasis is placed on site function determinations through the use of tool kits and on the definition of the relationship between site class and land form (Nordby 1982a). More than 80 new sites have been identified within the Monument thus far. Most sites are small one-to-three room fieldhouses with associated artifact scatters, but a few larger houseblocks were found as well as tipi rings, secular Spanish buildings, and Archaic artifact scatters. Based on ceramic information, the fieldhouses were occupied between 1270 and 1350. Site boundary definitions are complicated by the almost continuous scatter of artifacts across the Monument (Nordby, personal communication, January 1989). Further complications arise from the multicomponentcy of many of the small sites (Traylor 1976).

The third project was the test excavations of three pithouses as part of the small site evaluation process (Nordby and Creutz 1982). Two of the pithouses (Hoagland's Haven and the Sewerline Site) were excavated completely, the third (Propane Tank Site) was dug only partially. Nordby's work suggests the three houses may be part of a single large community occupied between 800 and 850. Archaeomagnetic and tree-ring samples date two of the pithouses to that period, and Nordby suggests the third pithouse was contemporaneous because of architectural similarity (Nordby and Creutz 1982). Two phases of architecture were identified during excavation; the first or early phase is represented by the original pithouse at the Sewerline Site, and the late phase

by the remodeled pithouse at the Sewerline Site and the two pithouses at Hoagland's Haven and the Propane Tank Site. Nordby feels the architectural styles represented by these pithouses were derived from three sources; the northern Rio Grande (early phase), the northern San Juan (late phase), and the Jornada Mogollon (early phase). Overall, the Pecos pithouses are somewhat similar to those found in the Cimarron area of northeastern New Mexico (Larry Nordby, personal communication, April 1989); however, they are much larger and have a richer array of floor features. Those earliest horticulturalists in the Upper Pecos Valley may have been immigrants from the west, east, or indigenous groups adapting to horticulture considerably later than their neighbors to the west. Nordby suggests a Rio Grande origin is the most unlikely of the three because of the presence of a well-developed black-on-white ceramic technology there by 800 that is not replicated in the Pecos ceramics. Even utility pots are unusual in that they were all made in coiled basketry molds. Regardless, Nordby believes the three pithouses are evidence of a well-established community in a late Archaic/early Basketmaker adaptation (Nordby 1981:7).

In the 1970s John Kessel, under contract with the National Park Service, researched Spanish historical documents pertaining to Pecos Pueblo and its mission churches. His work resulted in a documentary history of the Pecos Indians and their ancestral home. Kessell's work emphasizes the political and social arenas within which the pueblo prospered and declined between 1540 and 1838. Recognizing the pueblo's cultural and physical gateway position, Kessel identifies and examines the many different cultural influences that helped shape Pecos' history. He suggests location more than any other factor determined the prominence of Pecos, and ultimately its decline, because it guarded the natural route of trade and war between the Puebloans and the Plains (Kessell 1979). Unlike earlier researchers, Kessel suggests interpueblo factionalism may have been the single most important reason for the pueblo's downfall and ultimate abandonment. That factionalism was the division between farmer and trader, precipitated by the arrival of the Spanish and encouraged by the Pueblo Rebellion of 1680. Kessell, like Kidder before him, regards Pecos as the frontier mission for the Plains and the center for Plains/Pueblo/Spanish trading.

Closely following Kessell's work was George Emlen Hall's study of the Pecos Land Grant (1982), detailing the formation and dissolution of Pecos' legal title to their Spanish four leagues. The study provides a chronological and narrative history of the land grant and emphasizes the part the convergence of different cultures and traditions played in the struggle for Pecos Pueblo land since 1803. Additional work in the 1980s was done by Mike Stanislawski, who wrote a synthesis of Pecos archeology to be used as an interpretive guide by Park personnel. Of particular interest is Stanislawksi's interpretation of the Pecos pithouses and the origins of Pecos

Pueblo. Stanislawski feels architecturally the houses are closest to Jornada Mogollon styles constructed farther south along the Pecos River, but that floor elements and ceramics are more similar to Cimmaron area pithouses (Stanislawski 1983). By combining all data sets, he suggests the houses were constructed by Apishapa Focus western Plains groups who had seasonal contact with Rio Grande Jornada Mogollon groups, but not with developing Anasazi groups farther west. The Plains groups were forced out of the Upper Pecos because of changing environmental conditions, replaced a few hundred years later by basically Puebloans whose origins lay to the west in Chaco Canyon or Mesa Verde.

Other work in the 1980s included a survey by the German geographer Dietrich Fliedner who sought to identify differences between economic and residential territories. Fliedner located and collected artifacts from hundreds of sites within the Upper Pecos River Valley; unfortunately most of those sites were not well recorded and their locations are unknown. Fliedner (1981) suggested Forked Lightning was colonized by populations from outside the valley and that later pueblos in the area were offshoots of that colonizing population, perhaps augmented by later arrivals from the home territory. Ultimate abandonment of the area, Pecos Pueblo, resulted from Spanish interference in the structure of Pueblo lifeways. Only a few test excavations occurred in the 1980s, among them were Nordby's tests of South Pueblo's trash area (1983a) and sites Pecos 90 and 91 (1983b), and Bradford and McKenna's testing of the seventeenth century convento's trash midden (McKenna 1986). Nordby's tests are documented in field notes only and are descriptions of the work and features found. McKenna's manuscript details the analysis of artifacts uncovered and places them within their historic context. Before Bradford and McKenna's work, the midden was unknown.

Monument Background

When the Pecos Indians left their pueblo in 1838, they abandoned their land, they did not sell it. The land, states tradition, was left in the care of Mariano Ruiz, a resident of the Spanish village of Pecos (Hall 1982). In 1858 the few remaining Pecos Indians residing at Jemez sought to sell their land and asked the American Government for permission to do so. They were issued a patent in 1864, and for the next 40-plus years the land was sold and resold, often the same parcels were sold to different buyers. By 1913 Gross, Kelly and Company, among others, owned the Pecos Pueblo Grant, and by 1918 the company began issuing quitclaim deeds to non-Indians with tracts in the northern one-third of the grant (Hall 1982). The company, however, retained ownership of the ruins. (At the same time, the federal government was assessing claims to the land by the Pecos Indians who sought monetary compensation because of perceived negligence on the part of the government

in safeguarding their lands. In the end, they won their battle, but lost their land.) The ruins have been publicly owned since 1920 when Harry Kelly and his wife, along with the company, deeded a 67 acre tract of land containing the pueblo and mission ruins to the Roman Catholic Archdiocese in Santa Fe. Eventually, the historic parcel was donated to the Board of Regents of the Museum of New Mexico and the Board of Managers of the School of American Research, who in turn donated the land to the State for the creation of a State Park in 1935.

In 1965 Pecos Pueblo and the Spanish mission ruins became a National Monument, established to preserve, develop and restore for the benefit and enjoyment of the American people, a site of exceptional historical and archeological importance. Initially, the park contained 341.3 acres; the 62.6 acre donation by the Museum of New Mexico and the School of American Research was enlarged by a 278.7 acre donation by the E.E. Fogelsons, owners of Forked Lightning Ranch. Within the last five years, the park has been added to by additional donations from the Fogelsons, bringing the total to 364.804 acres.

LIST 1: Itemized Sites Within the Nominated District

Site No.	Field Name
LA 277	Loma Lothrop
LA 625	Pecos Pueblo
A	17th Century Church
B	18th Century Church
C	Convento
D	Priest's Garden
E	South Pueblo
F	North Pueblo
G	Black-on-white House
H	Presidio
I	Defense Wall
J	Casas Reales
	700 Pueblo
	Shrine North of North Pueblo
LA 672	Forked Lightning
LA 4444	Lost Church
LA 14079	4
LA 14080	5/Fliedner 42b
LA 14081	6
LA 14082	7
LA 14083	33/Nordby 1975:15
LA 14084	9
LA 14085	10
LA 14086	11
LA 14087	12/Fliedner 51
LA 14088	13/Fliedner 49
LA 14089	14/Fliedner 53
LA 14090	15/Fliedner 79 & 79a
LA 14091	16/Fliedner 87/ Ancient Walled Area
LA 14092	17/Nordby 1975:18
LA 14093	18
LA 14094	19/Fliedner 132, 137
LA 14095	20/Fliedner 4
LA 14096	21/Fliedner 6
LA 14097	32/Nordby 1975:12
LA 14098	27
LA 14099	28/Nordby 1975:14
LA 14100	40
LA 14101	38
LA 14102	39
LA 14103	37
LA 14104	36
LA 14105	45
LA 14106	46

List 1 (cont'd.)

Site No.	Field Name
LA 14107	47
	49/Fliedner 41/ Gunnerson shrine dig
	50/Fliedner 44
LA 14108	44
LA 14109	41
LA 14110	42
LA 14111	43
LA 14112	26
LA 14113	30/Fliedner 162-166; Nordby 1975:11c
LA 14114	Square Ruin
LA 14115	29/Fliedner 167
LA 14116	31
LA 14117	24/Fliedner 108
LA 14118	48/Nordby 1975:22
LA 14119	34/Nordby 1975:11A
LA 14120	22/Fliedner 107
LA 14121	77
LA 14122	73
LA 14123	78
LA 14124	23/Fliedner 148
LA 14125	76
LA 14126	88
LA 14127	86
LA 14128	87/Fliedner 316
LA 14129	75
LA 14130	74
LA 14131	8
LA 14132	72
LA 14133	79/Fliedner 170 & 171
LA 14134	80/Fliedner 174
LA 14135	85/Fliedner 301
LA 14136	83/Fliedner 172
LA 14137	25
LA 14138	84
LA 14139	82
LA 14140	81
LA 14141	71/Nordby 1975:17
LA 14142	67
LA 14143	62

List 1 (cont'd.)

Site No.	Field Name
LA 14144	69
LA 14145	68
LA 14146	60/Nordby 1975:8
LA 14147	59/Nordby 1975:9
LA 14148	65/Nordby 1975:4
LA 14149	58/Nordby 1975:5
LA 14150	61
LA 14151	66
LA 14152	56
LA 14153	55/Nordby 1975:2
LA 14154	Hoagland's Haven 53/Nordby 1975:2
LA 14155	57/Nordby 1975:3/ Fliedner 73
LA 14156	54
LA 14157	52
LA 14158	51
LA 14159	63
LA 14161	89
	90
	91
	92
	102/Fliedner 30 & 31
	103/Fliedner 17
	Sewerline Site
	Propane Tank Site
	Dittert's Shrine
	Gunnerson's 8 Locales
	Petroglyphs

TABLE 1: Small Sites at Pecos National Monument

LA #	Field #	Description
14079	4	Small check dam. No artifacts observed.
14080	5/Fliedner 42b	Single room rubblemound and two rock alignments with artifacts. 100% collected.
14081	6	Five features, a number of which are superimposed: tipi rings; jacal fieldhouse with ramada; pit structure; sall alignments; and rock rings. Fieldhouse dates 1375-1450. Pit structure trapezoidal shape with earthen walls, contained within fieldhouse walls. Rubblemound forms 3-sided structure of 1 course high cobble walls. Hearth associated; A.D. 1540-1700 ceramics found. Tested 1976 by Rob Traylor.
14082	7	Possible tipi ring. Area 20% collected.
14083	33/Nordby 1975:15	Rubblemound. 100% collected in 1975.
14084	9	Overhang with rock wall. Artifacts 100% collected. Three petroglyphs on east border recorded by Varela and Lentz 1971.
14085	10	Rockshelter with burning evident on ceiling. 100% collected.
14086	11	Two check dams with lithics. 50% collected.
14087	12/Fliedner 51	Small check dam. No observed artifacts.
14088	13/Fliedner 49	Rubblemound with artifact concentration. 50% collected.
14089	14/Fliedner 53	Large rubblemound with artifacts. 100% collected.
14090	15/Fliedner 79 & 79a	Three small rubble areas with artifacts. 20% collected.

Table 1 (cont'd.)

LA #	Field #	Description
14091	16/Fliedner 87/ Ancient Walled Area	Large pentagonal walled area.
14092	17/Nordby 1975:18	Stone wall. Artifacts collected in grab sample.
14093	18	Stone wall. 20% collected.
14094	19/Fliedner 132, 137	Small rubblemound with artifacts. 20% collected; 50 cm grids.
14095	20/Fliedner 4	Three rubblemounds and North Pueblo trash area. 20% collected; 1 m grid system.
14096	21/Fliedner 6	Stone wall with artifacts. 20% collected; 1 m grid units.
14097	32/Nordby 1975:12	Four single room rubblemounds. Grab sample taken of artifacts.
14098	27	Three small rubblemounds with artifacts. 100% of mounds collected; 50% from eroding trash.
14099	28/Nordby 1975:14	One-room structure with hearth. 100% collected.
14100	40	Rubblemound with artifacts. 20% collected; 2 m grids.
14101	38	Sherd and lithic scatter. Grab sample collected.
14102	39	Rock cairn; no artifacts observed.
14103	37	Hearth. 100% collected.
14104	36	Possible hearth with no artifacts.

Table 1 (cont'd.)

LA #	Field #	Description
14105	45	Rubblemound with no artifacts observed.
14106	46	Possible hearth. No artifacts observed.
14107	47	Possible hearth. No artifacts observed.
	49/Fliedner 41/ Gunnerson shrine dig	Four 1-room structures associated with shrine.
	50/Fliedner 44	Single room structure with artifacts. 100% collected.
14108	44	Rubblemound with no artifacts observed.
14109	41	Rubblemound and check dam. Artifacts 100% collected in the arroyo in a 5 x 5 m area.
14110	42	Rubblemound. 100% collected in a 2 m area.
14111	43	Two rubblemounds. No artifacts observed.
14112	26	Rubblemound. No artifacts observed.
14113	30/Fliedner 162-166; Nordby 1975:11c	Possibly a collection of fieldhouses or multiroom pueblo. Random collection of artifacts made, plus collections within three 2 m grid units.
14115	29/Fliedner 167	Rubble area with three hearths. 100% collected.
14116	31	Four single room rubblemounds. Two grab samples taken in areas of features 1 and 2, and 3 and 4.
14117	24/Fliedner 108	Six hearths and three possible wall alignments with artifacts. 20% collected in 1 m grid units.

Table 1 (cont'd.)

LA #	Field #	Description
14118	48/Nordby 1975:22	Possible rubblemound with artifacts. Grab sample collected in 1975.
14119	34/Nordby 1975:11A	Two structures, two depressions. Artifacts collected in grab sample.
14120	22/Fliedner 107	Possible rubblemound with artifacts.
14121	77	Single room structure disturbed by chaining (FLR).
14122	73	Five or six room historic structure in chained area (FLR).
14123	78	Shallow depression ringed with burnt adobe; historic artifacts in area; area disturbed by chaining (FLR).
14124	23/Fliedner 148	Charcoal and burned adobe concentration with artifacts. 20% collected in 1 m grid system.
14125	76	Possible rubblemound and hearth disturbed by chaining (FLR).
14126	88	Small rubblemound in chained area (FLR).
14127	86	Possible round stone structure with artifacts (FLR).
14128	87/Fliedner 316	Rubble and rock alignment in chained area (FLR).
14129	75	Small rubblemound disturbed by chaining (FLR).
14130	74	Multiroom pueblo disturbed by chaining (FLR).

Table 1 (cont'd.)

LA #	Field #	Description
14131	8	Overhang with burning on south end. Some artifacts collected. Petroglyph on south face recorded by Varela and and Lentz 1971.
14132	72	Possible hearth (FLR). A silver spoon was found and collected.
14133	79/Fliedner 170 & 171	Nonlocal rock concentraion (possible rubblemound). 20% artifacts collected in 1 m grid units.
14134	80/Fliedner 174	Nonlocal rock concentrations and a possible hearth with artifacts. 100% collected.
14135	85/Fliedner 301	One large and one small rubblemound, two wall alignments; artifact scatter.
14136	83/Fliedner 172	Rubblemound. Random collection conducted of eroding artifacts.
14137	25	Hearth with artifacts; possible second hearth indicated. 100% collected.
14138	84	Possible single room structure. Grab sample collected.
14139	82	Possible hearth. No artifacts observed.
14140	81	Small rubblemound. No artifacts observed.
14141	71/Nordby 1975:17	Two or three exposed walls. 100% collected in a grab sample.
14142	67	Hearth. No artifacts.
14143	62	Two hearths with artifacts. 100% collected.
14144	69	Two wall alignments. No artifacts observed.

Table 1 (cont'd.)

LA #	Field #	Description
14145	68	Historic hearth with historic artifacts.
14146	60/Nordby 1975:8	Three rubblemounds with artifacts. 100% collected in a grab sample.
14147	59/Nordby 1975:9	Two hearths with artifacts. 100 collected in 1 m grid units.
14148	65/Nordby 1975:4	Possible tipi ring. 100% collected in 1975.
14149	58/Nordby 1975:5	Rubblemound. 100% collected.
14150	61	Possible hearth. No artifacts observed.
14151	66	Small stone storage cache or box xhrine with few artifacts.
14152	56	Stone circle and stone hearth. No observed artifacts.
14153	55/Nordby 1975:2	Hearth. 100% grab sample taken 1975.
14154	53/Nordby 1975:2	Two-room Spanish structure with artifacts. Random collection conducted. Later excavation revealed Pueblo pithouse; collections done in grids.
14155	57/Nordby 1975:3/ Fliedner 73	Earthen mound with sherds, lithics and bone. Previously collected but done again in 1 m grids.
14156	54	Rubblemound with artifacts.
14157	52	Two possible hearths with sherds, lithics and groundstone. 100% collected.
14158	51	One, three-room structure with artifacts. 20% collected in 1 m grid units.
14159	63	Check dam, no artifacts observed.

Table 1 (cont'd.)

LA #	Field #	Description
14161	89	Rubblemound with few artifacts. Random artifact collection done.
	90	One-to-two room structure. Eroded. Artifacts collected. Tested by Nordby 1983.
	91	Possible remains of structure; fragmentary wall lines found. Ill-defined hearth 42 floor artifacts and sherrds. Tested by Nordby 1983.
	92	Single room structure with 1 sherd recorded (not collected).
	102/Fliedner 30 & 31	Two wall allignments with artifacts. 20% collected in grids.
	103/Fliedner 17	Rubblemound and artifact scatter. 20% collected in a 5 x 5 m grid area divided into quarters.

TABLE 2: Excavation/Stabilization at Pecos

1880	Adolph Bandelier mapped the **mesilla** and ruins in the surrounding area and published a paper in 1881.
1904	Edgar Hewett collected data on the archeology and history of Pecos by field observations and interviews with Pecos descendants at Jemez Pueblo (Hewett 1904).
1910	Kenneth Chapman and A.V. Kidder, working with Hewett and the Archaeological Institute of America on the Pajarito Plateau, collected sherds from Pecos area sites.
1915-1929	A.V. Kidder conducted field investigations at Pecos Pueblo, Forked Lightning and 1929 sites in the Upper Pecos Valley (Kidder 1916a, 1916b, 1917a, 1917b, 1921, 1922, 1924, 1925, 1926a, 1926b, 1932, 1951a, 1951b, 1958).
1915	Jesse L. Nusbaum excavated and stabilized eighteenth century church; he repaired interior arches, laid concrete curbings, and partially rebuilt the rear wall of the sanctuary.
1925	Susan Valliant trenched the eighteenth century cemetery west of the church and removed additional burials from below the floor of the nave.
1929	Charles Lindbergh shot aerial photographs of the ruin.
1938-1940	In preparation for the New Mexico Quatro Centennial, Edgar L. Hewett arranged for additional stabilization of the 1940 eighteenth century church; excavation of the convento; partial excavation of the north end of South Pueblo; re-excavation, stabilization, and reconstruction of Kiva 16; stabilization of kiva 1; and reconstruction of the masonry defense wall. Stabilization of the church included removal of most of Nusbaum's concrete bases from the nave walls, replacing wooden beams and vigas in the sanctuary, and relaying bricks on walls. Work was completed by Ferdon, Witkind, Hendron (1939) and Corbett (1939). Corbett excavated 98 rooms in South Pueblo. Some stabilization of South Pueblo was conducted.
1952-1954	Fred Wendorf excavated kiva 7.

Table 2 (cont'd.)

1956	Stanley Stubbs and Bruce Ellis excavated the Lost Church (Stubbs, Ellis and Dittert 1957).
1966	Frank Wilson repaired the roof of kiva 16 and applied white plaster to the walls.
1966	National Park Service began program of extensive excavation and stabilization of the mission ruins under direction of Jean M. Pinkley.
1967	Eleanor Chavez researched unpublished historical documents in the University of New Mexico archives.
1967	J. Pinkley discovered the foundations of the seventeenth century church.
1968	The eighteenth century church was almost completely stabilized, and the exposed footings of the seventeenth century church were capped. The convento was almost completely excavated, and some of Witkind's work on the church was removed.
1968	Hans Lentz tested the southern portion of South Pueblo, uncovering a later Spanish room addition (Lentz 1971).
1969	Upon Pinkley's death, Roland S. Richert and Frank Wilson finished stabilization of the two churches and the north wall of the convento. Work included laying concrete floors in both churches, capping the low nave wall of the eighteenth century church, and rebuilding the foundation of the west convento wall, capping the north convento walls, and stabilizing rooms 41 and 42 of the convento. Frank Wilson found the foundations of what he believed to be the Priests' Garden, located west of the seventeenth century church, stabilized its remnants, and reconstructed the walls. In all liklihood, Wilson found footings of the campo santo (Ann Rasor, letter dated September 30, 1989).
1969	J. Gunnerson located and tested a number of locales containing Apache sherds.

Table 2 (cont'd.)

1969-1970	Alden Hayes finished J. Pinkley's map, tested several new areas in the convento, tested the **Presidio** and **Casas Reales**, and trenched an area west of the church to find the cemetery. Kiva 23 was discovered in the corral of the convento. His work, along with a summary of Pinkley's, was published in 1974.
1970	J. Gunnerson excavated nine locales, identifying Apache campsites and occupational areas (Gunnerson 1970).
1970	Frank Wilson directed park staff in stabilizing convento.
1970	Lentz and Varela completed a petroglyph survey of the Monument; 44 separate groups were found (Lentz 1971).
1970	Corner fireplace in room 2 of the **Casas Reales** was stabilized.
1970-1971	Stone remnants of the **Casas Reales** walls were stabilized.
1971-1974	Gary Matlock continued stabilization maintenance on the convento, both churches, **Casas Reales**, the **Presidio**, Square Ruin, and the defensive wall. Stabilization at the convento included both the east and west walls, the excavated rooms, and the convento patio wall. Also, a foundation was built for the torreon. Work at Square Ruin consisted of resetting five courses of stone and installing a drainage system. Kivas 1, 7, 14, 16, 19, and 23, and the Lost Church were stabilized. Kiva 14 was partially backfilled, and five rooms in South Pueblo were re-excavated.
1975-1980	Larry Nordby directed cyclical maintenance of previously stabilized sites, conducted 1980 test excavations in South Pueblo, excavated two pithouses (Hoagland's Haven, Sewerline Site), and surveyed the Monument.
1976	Rob Traylor tested LA 14081, a multicomponent site consisting of tipi rings, rock circles, a prehistoric fieldhouse, and possible secular Spanish structure (Traylor 1976).
1979	John Kessel's **Kiva, Cross and Crown**, a documentary history of the pueblo, was published.

Table (cont'd.)

1981-pres.	Felix Sena, Pecos National Monument staff, directed cyclical maintenance of previously stabilized areas, and SWR Division of Conservation conducted emergency stabilization of the north transept wall of the eighteenth century church, and initiated a three-year project to stabilize and backfill major portions of South Pueblo.
1982	George Emory Hall's **Four Leagues of Pecos** was published, a legal history of the Pueblo grant.
1982	Larry Nordby tested Square Ruin.
1983	Michael Stanislawski prepared an archeological overview of the Monument.
1983	Larry Nordby tested the Propane Tank Site, the third pithouse at Pecos, the trash area for South Pueblo (the South Pueblo Interloop project), the visitor center's trail, and sites Pecos 90 and 91 (field notes on file).
1984	Kiva 14 walls were replastered.
1985	Jim Trott wrote a scope of work to deal with excessive moisture in Kiva 16; the project has not yet been implemented.
1985	James Bradford and Peter McKenna tested for leach lines and discovered a seventeenth century trash midden (McKenna 1986).
1986	Terry Morgart stabilized the north transcept of the eighteenth century church.
1987	The Priest's garden walls were recapped.
1988	T. Morgart removed white plaster from Kiva 16 and replastered with brown mortar; dismantled a portion of the deflector reconstructed by Wilson, and repointed the exterior wall.
1988	Todd Metzger and Joan Gaunt documented 37 rooms in South Pueblo prior to stabilizing and backfilling, which followed.

exploration and settlement; and 5) cultural change. At least two sites within the Monument are associated with Alfred V. Kidder, who is responsible for turning American archeology into a systematic science and for providing the cultural-temporal framework used in the Rio Grande region. Architectural features at Pecos Pueblo are unique because they represent a particular type of site, technological innovations, and blends of different cultural styles. Furthermore, the Monument has a physically unique and culturally representative sample of sites for all periods of cultural development within the upper Pecos River Valley as well as physically unique site types, e.g., the early Pecos pithouses. Finally, the physical, cultural, and stratigraphic integrity of the cultural remains provide an opportunity to obtain information on: 1) population origins; 2) population coalescence; 3) the development of Plains-Pueblo trade; 4) the nature of Plains-Pueblo interaction and trade; 5) interpueblo strife, 6) cultural change, 7) Spanish Colonial history; 8) the nature of eighteenth century Puebloan-Spanish interactions; and 9) the origins of an historic pueblo.

Prehistoric and Historic Context. The Upper Pecos River Valley: Gateway Between the Pueblo and the Plains

Kidder's work at Pecos Pueblo and Forked Lightning Ruin and Guthe's more limited work at Rowe Pueblo have provided the chronology for cultural developments in the upper Pecos River Valley and the Rio Grande region. While that initial work has been supplemented over the years by new research, very little of that research has been conducted in the upper Pecos River Valley. Consequently, cultural-historical reconstructions of the area rely on early work supplemented by work in the Rio Grande region (Wendorf and Reed 1955; Dickson 1975), masking important differences between the areas. The upper Pecos River Valley is a natural geographic corridor between the pueblos of the Rio Grande and the various groups on the High Plains, both of which influenced cultural developments within the valley. Where appropriate, developments in other areas are used to emphasize developments or events in the Monument.

The cultural sequence used for the Rio Grande region departs from the standard Pecos system whereby Anasazi cultural development is described and classified as Basketmaker II through Pueblo V. The system adopted was proposed initially by Wendorf and Reed (1955) to circumvent problems encountered in using the Pecos system in the Rio Grande region. Those problems arose from scarcity of sites in particular areas, lack of data in others, and temporal inconsistencies in developmental stages between Anasazi subregions. Wendorf and Reed's system begins with an Aceramic period (pre-A.D. 600), followed by Developmental (A.D. 600-1200), Coalition (A.D. 1200-1325), Classic (A.D. 1325-1600), and Historic Pueblo (A.D. 1600-present) periods.

Aceramic

The earliest known occupation of the American Southwest was by big game hunters, collectively referred to as Paleoindians (9500-6600 B.C.). While early Paleoindian groups are characterized as hunters of now-extinct mammoth, later Paleoindian cultural remains consist of a number of distinctive artifact assemblages and projectile point types associated with **Bison antiquus** or **Bison occidentalis** and other fauna. Generally, however, recorded Paleoindian sites are located primarily in grassy basins or plains around playa lakes and are identified by large, diagnostic projectile points and transverse scrapers (Judge 1973). Known Paleoindian sites in the area occur in the middle Rio Grande Valley and in the high Plains. Cordell (1979a) indicates that homesites usually are associated with fresh water, while other sites are located at the edges of inner basins, providing hunting access to both high plains and mountains.

The term Archaic applies to the broad-spectrum foraging cultures that evolved out of the Paleoindian big game hunting populations in the Southwest around 6600 B.C. Recent paleoclimatological studies (Bryson et al. 1970) indicate the subsistence shift resulted from complex interactions between population increases, minor climatic fluctuations, decreased climatic equitability, and changes in social organization and technology (Cordell 1979a:1). Archaic adaptations are marked by a mixed hunting and gathering strategy with progressive refinements in food procurement and processing, and in associated tools. Late in the adaptation, maize was added to the diet; thus by the end of the Archaic, generalized hunting and gathering gave way to intensive exploitation of smaller biotic communities by larger, less mobile populations. Optimal warm season campsite locations of the early and middle Archaic include terraces above floodplains, at canyon heads, and on high ridges overlooking washes. Associated limited activity sites are found near ephemeral ponds, in the mountains, and on low mesas. By the late Archaic, sites contained structures and occurred consistently at lower elevations. The early pithouse villages of the Anasazi are thought to have evolved from the shallow pithouses of the late Archaic groups.

Upper Pecos River Valley. A single Paleo point was found in the upper Pecos River Valley (Nordby 1981), and six in the middle valley at lower elevations (Jelinek 1967; Levine and Mobley 1976). Nordby (1981) feels the high elevation of Pecos, 2,134 m, may have precluded use of the area because of an environment cooler than today. However, Wendorf and Miller (1959) recovered a Paleo point in the Sangre de Cristo Mountains at an elevation of 3,505 m. Cody Complex remains (late Paleoindian) were identified in the Galisteo Basin, and Lang (1977) suggests the remains were left by small bands of nomadic hunters. The largest number of Paleo finds near Pecos occur to the

east along the western border of the Plains (Stuart and Gauthier 1981). Sites there occur in two north-south trending geographical bands, with each group of sites recognizable by distinctive material culture. One band parallels the Canadian Escarpment (1,524 m), and the other extends along the foothills of the Sangre de Cristo Mountains (2,134 m). Differences in site assemblages between the two bands may indicate different hunting and subsistence strategies. Although generalized points are found within both bands, specialized points used in bison hunting are restricted to the lower elevation band.

A few Archaic projectile points have been recovered from the headwater area of the Pecos River, and others have been collected from within the upper Pecos River Valley by local landowners (Nordby 1981). Eight Archaic/Basketmaker II sites and numerous isolated finds have been recorded in the mountains surrounding the valley (Wendorf and Miller 1959; Wirtz 1979, FS site files; McCrary et al. 1981; Abel 1987; Viklund 1984), and five late Archaic/Basketmaker sites have been documented within the valley (Anscheutz 1980; Hogan 1983; McCrary 1983). An additional 17 nondiagnostic lithic scatters (Wirtz 1979, FS site files; Abel et al. 1987; Anscheutz 1980; Morrison 1984; ARMS files) recorded probably date to the Archaic. The sites are interpreted as temporary encampments associated with hunting or plant gathering, an interpretation consistent with what we know of Archaic land use and settlement in the Rio Grande region. The lack of plant processing and preparation tools on sites in the mountains surrounding the upper Pecos River Valley suggests specialized hunting camps. Nordby (1981) suggests Archaic sites in the valley represent camps used by small bands for procuring and processing wild plants and hunting mule deer on a seasonal basis. Lang (1977) saw a similar pattern of use for the Galisteo Basin to the west-southwest. Use of inner basins, apparently, was intermittent and temporary. The excavations of two late Archaic site components (Allen and Hogan 1983; Viklund 1984) near Pecos village tend to support these hypotheses. Data from the sites indicate use as generalized campsites, complete with evidence of tool production and maintenance, plant processing, and hunting. The types of raw materials documented for sites and isolated finds in the area, including materials from the Jemez Mountains to the west, the high Plains to the east, and from along the New Mexico/Colorado border to the north, suggest either different Archaic groups were using the area or local groups had access to different geographical areas. There also is some indication the Archaic adaptation continued longer than A.D. 400/600 in the mountainous country surrounding the Rio Grande and in the Pecos River Valley (Jelinek 1967; Levine and Mobley 1976; Nordby 1981).

Developmental

The Developmental period (A.D. 600-1200) is represented by a shift to more permanent dwellings and storage structures, the use of ceramic containers, and the location of sites near potentially productive agricultural lands. These changes are not uniform throughout the area, nor did they appear in any one location and gradually spread elsewhere (Cordell 1979a:2). As groups became more reliant on farming, eventually a more sedentary lifestyle replaced the highly mobile way of life (Cordell 1979a:2). Early Developmental sites (600-900) are characterized by ceramic assemblages normally associated with different cultural traditions (Mogollon brown wares and Anasazi gray wares) and pithouse villages (5-20 houses) located on first terraces above drainages at elevations below 1,828 m (6,000 ft), from foothills overlooking drainages, and on gravel bluffs and hilltops. During the late phase (900-1200), the transition from pithouse to contiguous surface pueblos occurred in most areas, and concomitant changes in social organization, settlement and subsistence are visible in the archeological record. Subterranean pithouses began to assume ceremonial importance, becoming the kivas of later periods (Nordby 1981). Near the end of the period, permanent settlements clustered along secondary and tertiary drainages of the Rio Grande and along the base of mountains and mesas. Ceramic assemblages associated with late sites vary in time and among subareas (Cordell 1979a:2) and include ceramics of the San Juan Basin and Colorado Plateau traditions, or southern Mogollon tradition. Wendorf and Reed (1955) indicate the number and size of sites increased gradually during the phase, peaking toward the 1100s and 1200s. These trends are viewed as a response to population growth by immigrants from the collapsing Chacoan system in the San Juan Basin, possibly supplemented by Mesa Verde groups from the northern San Juan later (Wendorf and Reed 1955; McNutt 1969; Stuart and Gauthier 1981). By and large, Developmental period sites are not well known in the Rio Grande region.

Upper Pecos River Valley. All three of the known Developmental period sites in the upper Pecos River Valley are located within the Monument and are represented by isolated pithouses dating between 800 and 850. The sites represent the first semisedentary use of the Monument and the earliest semisedentary occupation in the valley. Nordby feels the three sites may represent a single large community (Nordby and Creutz 1982). Although the houses date toward the end of the early Developmental phase, their similarity to earlier Basketmaker III houses (500-700) elsewhere in the Anasazi region and their associated rudimentary ceramics suggest they represent an initial transition from Archaic hunter-gatherers to horticulturalists in the valley. A transition that is 100 to 200 years later than in the Rio Grande Valley and its tributaries. Contemporaneous sites within the Rio Grande Valley are

architecturally dissimilar and are associated with well-developed black-on-white ceramic traditions, unlike the undecorated containers formed inside baskets associated with the Pecos pithouses (Nordby 1981; Nordby and Creutz 1982).

Based on the available data, the populations responsible for the pithouses probably were not middle Rio Grande Valley immigrants (Nordby 1981; Nordby and Creutz 1982). Nordby feels the Pecos pithouse architectural styles are a composite of Rio Grande Valley, northern San Juan, and Jornado Mogollon traits whose foundations lie in a basic Anasazi pattern characteristic of much of northern New Mexico. These attributes are shared with pithouses in the Cimarron area of northeastern New Mexico (Nordby and Creutz 1982). Glassow (1980) describes the Cimarron pithouses as basically northern Rio Grande, whose origins ultimately may have been in the Navajo Reservoir district of the northern San Juan River. The similarity with the Navajo Reservoir district is strongest during the earliest phases in the Cimarron cultural sequence; the Vermejo, 400 to 700, and the Pedregoso, 700 to 900. During the Pedregoso phase, ceramics first appear on sites. The architectural and chronological similarities between the Cimarron and upper Pecos River Valley pithouses may have resulted from population movement into the upper Pecos River Valley from northeastern New Mexico. Glassow (1980) suggests the northern Rio Grande Valley could not support intensive horticulture, and late Archaic/early Basketmaker populations expanded into more favorable areas, like the Cimarron, by 500. Lang (1978) suggests an even earlier date of A.D. 200 based on data from the Conchas Reservoir area. Regardless, the area between the northern Rio Grande and the western Plains may have been populated by backfilling, with populations reaching the upper Pecos River Valley by 600 or 700 (Nordby and Creutz 1982). The shared architectural traits among the Pecos pithouses and the middle Rio Grande and the Jornado Mogollon probably resulted from trait diffusion and not population movement (Nordby and Creutz 1982).

Alternatively, Stanislawski (1981, 1983) postulates the Pecos pithouses were constructed by marginal western Plains Apishapa focus groups with seasonal trade and social contact with what he calls the Rio Grande Jornado Mogollon. (However, the Apishapa focus post-dates the Pecos pithouses by roughly 150 to 200 years.) His ideas are based on perceived similarities between Plains and Pecos architecture, artifact types, and subsistence elements. Specific Jornado Mogollon traits were acquired through diffusion by way of the middle Pecos River Valley. Stanislawski believes Plains groups moved into the upper Pecos River Valley during a period of favorable environmental conditions for horticulture, and abandoned the area a few years later when more marginal conditions prevailed. Stanislawski relies heavily on Jelinek's work (1967) in the middle Pecos River Valley, where early developments are described as similar to those of the Jornado Mogollon. Like

the upper Pecos River Valley, the first horticulturalists in the area appeared circa 800 to 900 and possessed a basic Archaic lithic technology. Jelinek (1967) notes that evidence exists for contact between the middle and upper Pecos River Valleys.

By the late Developmental period, 900/1000-1200, small rectangular contiguous surface masonry structures appear elsewhere in the middle Rio Grande region; a few sites are known for the Santa Fe River Valley (Cordell 1979a), and Lang (1977) notes limited settlements of both surface masonry and pithouses around springs and permanent streams in the Galisteo Basin. Likewise, small surface pueblos are identified in the middle Pecos River Valley (Jelinek 1967) and along the western margins of the Plains (Stuart and Gauthier 1981). In the middle Pecos River Valley the sites were a continuation of earlier events, but along the western margins of the Plains, they represent population expansion between 1100 and 1200, except in the Cimarron area. There, the cultural sequence continues after the Pedregoso phase, and site architecture resembles developments in the Albuquerque area (Glassow 1980). After 1100, aboveground masonry sites appear containing both Taos and Santa Fe River Valley ceramic types. No late sites are known from within the upper Pecos River Valley; however, earlier structures underlie Forked Lightning Ruin and Rowe Pueblo, and Dick's Ruin may have been constructed between 1100 and 1200. Potentially, late Developmental sites should occur within the Monument as part of the overall population expansion characteristic of the period. Their absence may be attributed to low visibility, accentuated by the size and abundance of later deposits (Nordby 1981). The perceived hiatus in occupation of the upper Pecos River Valley between 850 and 1100 to 1200 is interpreted by Stanislawski (1983) as part of an upland/lowland population movement tied into changing environmental conditions. Increased use of upland valleys during the 1100s and 1200s resulted directly from population pressure from within the Rio Grande Valley as immigrating populations pushed people farther east. Stanislawski (1983) feels groups entering the upper Pecos River Valley during the 1100s were Chaco immigrants.

Coalition

Prior to the thirteenth century, the Rio Grande Valley was largely peripheral in both population and cultural integration to the major developments of Anasazi prehistory (Wendorf and Reed 1955). During the eleventh and twelfth centuries, when the spectacular regional complexes of Chaco Canyon, and later Mesa Verde, were developing and reaching their zenith, the Rio Grande Valley and its surrounding plateaus remained thinly populated by isolated settlements of single or extended family farmsteads (Cordell 1984). However, after the disintegration of these centers and the subsequent dispersion and redistribution of large segments of the Anasazi population, the

Rio Grande region emerged as a major center of Puebloan cultural development (Wendorf and Reed 1955; Cordell 1984; Habicht-Mauche 1988). Just prior to 1200, the northern Rio Grande began to experience a dramatic increase in population. The rapidity and scale of the demographic change seems to preclude any theory of development that does not take into account substantial movements of people into the region. Using ceramic data, sources for those immigrating populations have been identified as the San Juan Basin, Mesa Verde, and to a lesser extent the Little Colorado River (Wendorf and Reed 1955; Ford et al. 1972; Cordell 1984). Nevertheless, apart from ceramic styles, few other diagnostic attributes of those populations appear in the archeological record, suggesting individual families or family groups formed the basis of the emigrating populations rather than entire communities. The late Developmental/early Coalition period also witnessed the expansion of Puebloan culture east of the Rio Grande Valley, extending as far east as the Canadian River and the Jornado del Muerto (Wendorf and Reed 1955; Cordell 1984). Throughout the Coalition, and continuing into the early Classic, the mountainous areas along the Plains margin provided a buffer zone for local population expansion. Unlike populations within the Rio Grande Valley and its tributaries, however, subsistence in those areas relied heavily on the hunting and gathering of wild plants, followed by agriculture.

The Coalition period (A.D. 1220-1325) is recognized by aggregations of populations at lower elevations along permanent drainages and by the transition from mineral to carbon paint in ceramic traditions. Early on, the period was distinguished by 1) an increase in the number of village sites, indicating an overall increase in population; 2) the construction of surface dwellings consisting of rectangular rooms arranged in small roomblocks; and 3) ceramic assemblages that included Santa Fe Black-on-white, a finely made ceramic decorated with black carbon-based paint (Cordell 1979a). Sites tend to be located along small drainages with easy access to seeps, springs and potentially good agricultural lands. Certain Rio Grande ceramic types, such as Santa Fe and Galisteo black-on-whites and the early glaze polychromes, resemble types from Chaco, Mesa Verde, and the lower Little Colorado River region. Those similarities have led researchers to suggest population immigration into the Rio Grande region, while others view technological changes as local responses to new ideas diffusing into the area from outside the northern Rio Grande (Dickson 1980:12). Cordell (1979a) believes the continuity in design elements between the earlier type Kwahe'e Black-on-white and the later type Santa Fe Black on-white, and the continuity between Rio Grande-style pithouse and kivas in this period argue for internal change. Regardless, increased emphasis on exchange is documented with contacts occurring to the west and east to the Great Plains (Lang 1988:373). By the end of the early Coalition period, the number and size of sites declined (Dickson 1980:12), and aggregated villages appeared in the Santa Fe River

Valley, in the Galisteo Basin, and in the upper Pecos River Valley. Cordell (1978, 1979a) indicates site aggregation and abandonment patterns of this and the following period reflect population instability as waves of populations entered the Rio Grande region.

Late Coalition sites demonstrate a mixture of architectural techniques and ceramic styles and traditions. Masonry construction became common in the Galisteo Basin, while puddled adobe continued to be the primary construction form in the Santa Fe River Valley. The appearance of Galisteo Black-on-white, a ceramic type with supposed Mesa Verde ceramic tradition affinities, has led researchers to suggest immigrants from that area were reaching the Rio Grande by the late 1200s/early 1300s. Concomitant with those changes was an increased emphasis on trade networks both within and outside the region and the beginnings of ceramic regionalization/specialization. For the first time, ties to the Western Pueblos (Zuni) and to the Plains are visible in artifact assemblages. Cordell and Plog (1979) suggest intervillage alliance networks critical to the subsistence security of each village were established during this period as a means of sharing local surpluses, while other authors feel the alliances grew out of changing religious concepts (Wendorf and Reed 1955).

Upper Pecos River Valley. Within the upper Pecos River Valley, six pueblos (Forked Lightning, Dick's Ruin, Black-on-white House, Rowe, Hobson-Dressler, and an unnamed site), and a number of small structural sites (Anscheutz 1980; Morrison 1984) and sherd and lithic scatters (Forest Service Site Files) have been identified. Kidder (1958) placed Loma Lothrop in this cluster of sites, with occupational dates of 1275 to 1375 suggested. Nordby, on the other hand, suggests dates between 1315/1335 and 1400 (Nordby 1984) for Loma Lothrop. Of the known Coalition period sites, Forked Lightning, Black-on-white House, Loma Lothrop, and the unnamed pueblo as well as a large number of fieldhouses identified during survey (Nordby 1982a) are located within the Monument.

Forked Lightning and Dick's Ruin were constructed near the beginning of the period (1117-1225), followed closely by Loma Lothrop (ca. 1275) and probably an early Rowe pueblo. Although Rowe Pueblo was not constructed until 1306 (Smiley, Stubbs and Bannister 1953), recent work by Cordell (n.d.) indicates at least two earlier structures occur below the site, suggesting thirteenth-century construction. Nordby (1981) concurs with an early Developmental period occupation for Rowe. All of these sites are large, puddled adobe multiroom houseblocks with mixed kiva styles, typical Coalition period sites in the northern Rio Grande and Santa Fe River valleys. The sites have irregular forms, suggesting enlargement by simple additions. Kidder (1958) believed the sites were built by western immigrants (Chacoans via the Rio Grande?) and were a continuation of occupation down the Pecos River and

out onto the Plains. He also acknowledged southern influence from the Mogollon in kiva style and orientation. Kidder (1926a) believed the entire site was never occupied at one time, and that growth occurred by increments, evidence of a developing population. The large kivas, changes in artifact shapes, and new ceramic decorations were all innovations that had entered the Rio Grande Valley from the west. Nordby (1981) believes the sites possibly were constructed by populations remaining in the upper Pecos River Valley between 850 and 1200, and who were not affected by changes in the Rio Grande Valley until circa 1100. Based on shared architectural similarities, Stanislawski (1983) attributes their construction to ancestral Tiwa immigrants from the north (Taos), whose ancestry ultimately lay within the Piedra River Valley, and/or to ancestral Tewa (Mesa Verde) groups in the Santa Fe River Valley. Wendorf and Reed (1955) suggest it was ancestral Jemez groups from the west or Gallina-related groups from the north who arrived in the upper Pecos River Valley by 1200.

By 1300, adobe pueblos were replaced by mulitroomblock masonry pueblos surrounding one or more plazas strategically placed within the valley. Only one of these sites, Black-on-white House, is located within the Monument. Black-on-white House is centrally placed within the valley adjacent to a spring, while Rowe Pueblo is situated near the south entrance to the valley, and the Hobson-Dressler Ruin sits above the valley near its north entrance. Stanislawski (1983) suggests the Hobson-Dressler Ruin was the earliest of the three, possibly constructed by 1300. Both Kidder (1958) and Nordby suggest populations from the abandoned Forked Lightning and Dick's Ruin were responsible for the construction of Black-on-white House circa 1300. Tree-ring dates obtained for Rowe Pueblo indicate a 1306 construction date (Smiley, Stubbs and Bannister 1953), and the presence of earlier structures and the continuity in artifact assemblages there suggest to Cordell (n.d.) construction by local groups. Others have suggested that new and different immigrants were entering the valley (Wendorf and Reed 1955; Ford, Schroeder and Peckham 1973; Schroeder 1979; Stanislawski 1983). Their origins are postulated as ancestral Jemez, ancestral southern Tewa (Tano) from the Galisteo Basin, ancestral northern Tewa (Mesa Verde) by way of a southern route, or Chacoans. Jemez tradition states the earliest inhabitants of Pecos Pueblo were from the north, while those at Rowe were from the west (Schroeder 1979). Stanislawski (1983) indicates the Hobson-Dressler site is a Chacoan form, probably constructed by groups from the El Morro area. The site contains 75 rooms arranged in several multistory back rows with two or three curving arcs of lower rooms in front, forming a dividing line down the middle. Stanislawski (1983) suggests the site may have represented a Chaco population attempting to gain a foothold in the area prior to or during the

collapse of that system. He further suggests that Black-on-white House, Rowe, and Hobson-Dressler were trading communities established to take control of the valley from the earlier northern settlers of Forked Lightning and Dick's Ruin (1983:311).

Kidder (1958) saw the move onto the **mesilla** as defensive; he believed Forked Lightning, and later Dick's Ruin and Rowe Pueblo, were abandoned due to raiding by Plains groups. The raiders probably were not from the Plains; by the end of this period large sites were founded in the Galisteo Basin, the middle Pecos River Valley saw intensive agricultural use, and Puebloan sites along the western frontier were being abandoned. Kidder (1958) suspected the increasing number and size of sites on the **mesilla** resulted from abandonment of other sites in the valley and the retraction of Puebloan farming communities farther east. Stanislawski (1983) sees the circa 1300 population movement into the valley as an attempt to control the growing Pueblo-Plains trade, and that the abandonment of the earlier sites resulted from growing competition from the later arrivals. Jelinek (1967) notes that contact/trade with middle Rio Grande populations by groups in the middle Pecos River Valley dropped markedly during this period, coupled with increased contact with upper Pecos River Valley groups. Cordell (n.d.) indicates that early sites in the upper valley were serving as central points in an extensive trade network, where exchange was used to counter spatial variability in rainfall. Earlier, Wendorf and Reed (1955) commented on the Pueblo-Plains Panhandle Aspect connection. Trait intrusions appear in both areas from roughly 1000 on either through the Taos/upper Canadian River tributaries or through the upper Pecos River Valley and increased in frequency on sites post-dating 1200 (Stuart and Gauthier 1981; Snow 1981; Wilcox 1984; Habicht-Mauche 1988). Various authors suggest that upper Pecos Valley sites were located advantageously in a down-the-line acquisition pattern for obtaining Plains good used in various religious ceremonies after 1200/1300 (Ford 1972; Snow 1981, 1987; Wilcox 1981, 1987).

Classic

The continued influx of populations into the Rio Grande region throughout the fourteenth century, coupled with in situ growth, set the stage for major structural changes in Rio Grande settlement, subsistence, social organization, and economic integration (Habicht-Mauche 1988:75). The Classic period (1325-1541/1600) is marked by the initial appearance of multistory, multihouseblock villages consisting of hundreds of rooms with several plazas. Plazas generally contain a single large kiva and several smaller kivas, and kivas were neither universally present, nor structurally uniform (Habicht-Mauche 1988:77). While one-to-four farmsteads continued to be common, noticeably absent were medium-sized sites between 13 and 30 rooms (Stuart and Gauthier (1981). Elaborate retaining dams and reservoirs are

associated with communities in the Galisteo Basin (Lang 1977), and extensive water control features have been recorded along the Chama River and on the Pajarito Plateau. Subsistence diversification as well as agricultural intensification apparently accompanied population growth and aggregation. The subsistence base was expanded by developing areas where dry-farming was possible and by supplementing domestic crops with wild plant and animal resources. Regardless of the innovations, agriculture remained unreliable in most of the Rio Grande region, especially in high elevation areas where cooler temperatures increase the threat of frost. Settlement patterns of the period reflect the basic population instability characteristic of the late Developmental period; sites were settled, abandoned, and/or relocated within a generation or two. Concomitant with those changes was the development of regional systems of social integration and economic interaction. That process is reflected in the increasing exploitation and distribution of spatially restricted natural resources, and in the development of craft and crop specialization. Evidence also exists for the expansion or elaboration of a pan-regional religious system, which aided in the regulation of variability among ecosystems (Habicht-Mauche 1988:80).

Most researchers believe interpueblo exchange focused on the interchange of finished products and raw materials rather than foodstuffs (Ford 1972; Snow 1981; Wilcox 1984) and created links between different Puebloan communities and individuals. In times of shortage, trade contacts provided pueblos and/or individual families access to the produce of other villages (Ford 1972; Snow 1981). By the 1400s, each local economic system was embedded in a regional system concerned with the exchange of religious paraphenalia, promoted by the adoption of a shared religious tradition (Katchina Cult) that developed in the Jornado Mogollon area or in the Western Pueblos (Schaafsma and Schaafsma 1974; Wilcox 1981). The use of exotic materials in the manufacture of religious paraphenalia served to generate, support, and intensify interpueblo exchange (Ford 1972; Snow 1981; Wilcox 1984). By the close of the prehistoric period, ca. 1450-1500, mutual ritual and social obligations between clusters of pueblos resulted in the formation of ethnic alliances (Wilcox 1984), later recognized by the Spanish as cultural provinces. Although alliances also existed between provinces, those were less formal and generally fluid. In contrast, the eastern frontier pueblos of Taos, Picuris, Pecos, and San Marcos were isolated, single ethnic communities involved in trade partnerships with groups farther east, thus expanding the social and economic networks beyond the Rio Grande region. That expansion was a direct extension of the development of an internal pan-regional system of economic specialization and trade (Habicht-Mauche 1988:472) that integrated Rio Grande basin village clusters (ethnic alliances) and provided a measure of insurance against a variable and unpredictable agricultural subsistence base.

The development of widespread networks of economic interaction and trade is reflected in the distribution of Rio Grande glaze ware ceramics. Between 1300 and 1700 red-slipped, glaze-decorated ceramics were traded widely within the Rio Grande region and westward to groups on the Plains. Work by Shepard (1942) and Warren (1970) demonstrate that the early glazewares were produced at different sites around Albuquerque prior to 1400, with the Cochiti area probably serving as the major trade center. After 1400, the number of villages producing significant quantities of glazewares decreased, and local centers became prominent (San Marcos and other Galisteo Basin pueblos became the major production and trade centers between 1350 and 1475). Until about 1525, the Galisteo Basin ceramic centers furnished most of the pottery traded throughout the Rio Grande Valley, but by 1500 Pecos, Picuris, and Abo began producing significant quantities of their own. Glazeware ceramics were traded widely not only within the Rio Grande Region but out onto the Plains as well (Snow 1981; Cordell 1984). Snow (1981) suggests ceramics served as containers for the transport of other items of trade also, e.g., feathers and cotton. Additional archeological evidence for interpueblo trade includes copper, lead, and turquoise from the Cerrillos mines north of the Galisteo Basin; fibrolite axes from the mountains north of Santa Fe; obsidian from the Jemez Mountains; malachite and azurite from Cerrillos; travertine from near Los Lunas; salt from the Estancia Basin; and Perdernal chert from the Chama Valley (Snow 1981).

Thirteenth- and fourteenth-century trade with the Plains involved small quantities of exotic and esoteric items (Baugh 1982, 1984; Spielmann 1983) and probably resulted from occasional ceremonial exchange (Wilcox 1984) or gift giving during Puebloan hunting expeditions onto the western margins of the Plains (Spielmann 1987). Puebloan goods are documented in Antelope Creek Focus sites (1200-1450) in the Llano Estacado and southern Plains and in Washita River phase (1200-1450) sites in the Texas and Oklahoma Panhandles; both of which were occupied by hunter-farmer groups. Wendorf and Reed (1955) suggest the intensification of eastern trade during the Classic period was instrumental in the development of Puebloan culture in the Rio Grande. Plains artifacts and raw materials began to appear on eastern frontier pueblo sites in ever-increasing numbers after 1350, with a dramatic rise witnessed on post-1450 sites. Besides bison bone, exotic lithic materials including Alibates agate and Tecovas jasper occur, along with new tool forms of bison-split rib side scrapers, bison scapula scrapers, bison rib awls, snub-nose scrapers, 4 edged beveled knives, and drills with unworked T-shape bases (Kidder 1932; Snow 1981; Spielmann 1983). For the most part, however, those goods appeared only on sites whose inhabitants had direct contact with Plains groups. By the mid- fifteenth century, trade patterns seem to have shifted from esoteric and nonutilitarian items to the regular exchange of large quantities of basic utilitarian and subsistence items (Baugh 1982, 1984, 1988; Spielmann 1983, 1986; Speth 1987), suggesting a fundamental change in

the role of inter-regional exchange in the economies of the Eastern Pueblos and Plains groups. Large quantities of agricultural foodstuffs and utilitarian items, such as ceramics and cotton cloth, were traded on a regular basis to groups living and hunting on the Plains. The intensification of trade is manifested in the adoption of Puebloan utility ceramic technology and food complexes by certain Plains groups after 1500 (Habicht Mauche 1988). The institution of regular exchange relations became critical elements in the growth and survival of eastern frontier Puebloan and Plains groups. In the middle of the system were the eastern frontier pueblos.

Coincidental with the changes outlined above, but independent of them, were significant changes on the southern Plains. A return to drier climatic conditions during the late 1300s resulted in abandonment of the Llano Estacado by Antelope Creek Focus groups and increased reliance on bison hunting by the Washita River phase groups in the Texas and Oklahoma areas around 1450. The increased presence of Puebloan ceramics on those sites post-dating 1350 suggests to Baugh (1982, 1984) and Habicht-Mauche (1988) that groups were expanding their subsistence base as buffers against crop failures by intensifying trade relations with the eastern frontier pueblos. The remains of the Antelope Creek Focus were replaced by the culturally unrelated Tierra Blanca complex, a highly specialized bison-hunting adaptation. Those people are now thought to be the ancestors of the Querechos noted by Coronado in 1541. The transition from hunter-farmer to a more specialized bison hunter-farmer in the Oklahoma and Texas Panhandles resulted in the identification of a new cultural phase, the Wheeler phase. That group is considered ancestral to the historic Wichita Caddoans. A westward extension of the Wheeler phase onto the lower Llano Estacado resulted in adoption of the specialized hunting economy characteristic of the Tierra Blanca groups farther north; the remains of which are referred to as the Garza complex, ancestral to Coronado's Teyas. Artifact assemblages from all of these sites demonstrate a dramatic increase in the number and kinds of Puebloan goods associated with them.

The arrival of specialized nomadic bison hunters onto the southern Plains during the mid-fifteenth century restricted the occupation and exploitation of Plains hunting grounds by Puebloans (Spielmann 1987), resulting in the loss of important foraging grounds and disruption of trade relations among the bison-hunting Garza complex, their neighbors the Wheeler phase hunter-farmers, and the Puebloans. Habicht-Mauche (1988) believes the loss of hunting areas was responsible, in part, for the development of a specialized economic system of mutualistic interaction (Spielmann 1982, 1983, 1987) and trade between the bison hunters and the Puebloan farmers during the late Classic period, post-1450. Baugh defines the complex Plains-Pueblo interactions as a macroeconomy whereby alliances are formed between ethnically and geographically diverse social groups based on the reciprocal exchange and

distribution of specialized items and regionally restricted resources. The result is a mutual economic interdependence and division of labor on a regional scale (Wilcox's multiethnic division of labor). The core of the system lay in the relationship between the eastern frontier pueblos and their nomad allies, with secondary trade relations with other puebloan groups farther west and semisedentary hunter-farmers farther east. Spielmann (1982, 1987) believes the initial basis for trade was dietary, viewing it primarily as an exchange of carbohydrates for protein, which grew out of competitive interactions over Plain's faunal resources. She further believes the trading relationship was encouraged initially by intimidation (raids) on the part of the nomads. Speth (1987) suggests mutualistic relationships were only possible after 1300 when aggregated villages heavily reliant on agriculture provided the potential for surplus carbohydrates to be traded to groups heavily dependent on bison. The economic motivation for intensification of trade after 1450, however, extended beyond the simple mutualistic exchange of foodstuffs (Habicht-Mauche 1988:170) and is reflected in the formation of trade partners, the wholesale adoption of the Puebloan food complex, complete with its associated ceramic technology, food processing and storage practices, and the appearance of Plains tool complexes on eastern frontier Puebloan sites.

The Rio Grande Classic period is divided into an Early (1300/1350-1450) and Late phase (1450-1541/1600). The early phase is marked by several hundred to a thousand people living in pueblos located at springs or on perennial streams. Although town plans demonstrate great variation, the preferred plan includes one or more roomblocks with each housing a plaza (Lang 1988:411). Galisteo Black-on-white gradually went out of production during the 1400s (Lang 1988:411), replaced by various polychromes decorated with glaze paints. Many see this change as influence from the west (see Cordell 1979b), and in fact, the appearance of other Western Pueblo traits (e.g., extended inhumation, rectangular kivas) seems to indicate ties between the two regions were becoming closer (Dickson 1980:14). The Late phase is characterized by an overall population decline. Many farmsteads and fields were abandoned following the droughts of the 1400s and early 1500s, resulting in the shift of population centers to areas along major river valleys. In the Santa Fe area, few pueblos remained occupied even into the 1500s. In the Galisteo Basin, by A.D. 1420 populations were fairly well centralized and large scale community water control systems were being employed. Between 1500 and Coronado's arrival in New Mexico in 1541, loosely aggregated towns gave way to tightly clustered, multistory pueblos grouped around plazas.

The close of the Classic period in the Rio Grande region is bracketed by Coronado's explorations and the founding of Santa Fe in 1610. During that period (protohistoric), four separate expeditions were made into New Mexico. Following Coronado, Fray Agustin Rodriguez journeyed north in 1581, Antonio

Espejo in 1583, Gaspar Castano de Sosa in 1590, and Gutierrez de Humana and Francisco de Layva y Bonilla in 1595. Prior to that, the first European/Pueblo encounter took place in 1539 when Fray Marcos de Niza, accompanied by Indian servants and a black man called Esteban, traveled north from New Spain as far as the Zuni pueblos. Esteban was killed during the initial contact, and after having claimed the area for New Spain, de Niza fled home. It was de Niza's exaggerated report that led to Coronado's expedition. Apart from confrontations, the later explorations left little impact on the pueblos of the Rio Grande region. Most explorers were after the reputed seven cities of Antilla, and all were seeking riches for the Spanish empire. Onate's colonization of New Mexico in 1598, however, marked the beginning of a permanent Spanish presence in the Southwest. Unlike earlier exploration parties, the motive behind Spanish expansion into the area in the late sixteenth century was primarily a missionary one, but in order to finance the fledgling colony, Onate encouraged reconnaissance surveys of the new territory.

Upper Pecos River Valley. Seven pueblos date to the Classic period and include Black-on-white House, the Glaze I-II pueblo under Pecos, Hobson-Dressler, Arrowhead, Loma Lothrop, Rowe, and Pecos. Surveys (Anscheutz 1980; Nordby 1982a; Morrison 1984) have identified numerous fieldhouses around Pecos and Rowe that probably were associated with those pueblos settlement systems (Cordell n.d.). Three fieldhouses and a single artifact scatter were tested by Wood in 1963; one of which shows use into the Historic period. Only a few artifact scatters have been recorded (Hogan 1983; Viklund 1984). Black-on-white House, the Glaze I-II pueblo, Pecos Pueblo, and Loma Lothrop are located within the Monument, along with numerous fieldhouses listed on Table 1 in section 7.

At the beginning of the Classic period, Black-on-white House, Hobson-Dressler Ruin, Loma Lothrop, and Rowe Pueblo were the only known pueblos occupied in the valley; all of which were built in the preceding period and abandoned by the 1370s. Hobson-Dressler may have been the first site abandoned during the early period, prior to 1350 (Stanislawski 1983), followed by Loma Lothrop, Rowe Pueblo, and Black-on-white House. Nordby (1981) feels Loma Lothrop continued to be occupied into the 1400s, but Kidder (1958) placed abandonment at circa 1370, roughly the same time Black-on-white House fell into disuse. Cordell (n.d.) suggests populations began leaving Rowe Pueblo circa 1350, with final abandonment around 1375, but Hewett (1904) felt Rowe was the last site occupied in the valley prior to the growth of Pecos Pueblo. Kidder (1958) disagreed, suggesting Loma Lothrop was occupied well-past Rowe. Prior to abandonment of Black-on-white House, houseblocks were added to the main building, and separate houseblocks were constructed in locations across the **mesilla** (Kidder 1925, 1958). Kidder (1958) believed the isolated houseblocks on the **mesilla** were part of the consolidation and growth

of Black-on-white House, with pueblos built and abandoned rapidly as groups moved on to the mesilla from both within and outside the valley to the east. He attributed their short occupational spans to natural deterioration, and rather than repair buildings, groups simply built new ones. Stanislawski (1983) attributes those same characteristics to immigrating groups having serious adjustment problems. Although Cordell (n.d.) believes the remodeled Rowe was built by groups inhabiting the valley, Stanislawski (1983) indicates the abrupt change in architectural style represented at the site and the preplanned nature of the north houseblock suggest construction by new immigrants who ultimately were from Mesa Verde, by central Rio Grande populations, or by additional Galisteo Basin groups.

Reasons for site abandonment include climatic change, population influxes, interpueblo strife, and trade competition. Both Dickson (1981) and Stanislawski (1981) indicate that falling water tables and fluctuating climatic conditions may have encouraged site locations along the middle sections of permanent water courses, a position favorable to irrigation agriculture. Nordby (1981) suggests the social and economic requirements of irrigation agriculture may have encouraged population aggregation/consolidation. Cordell (1978), on the other hand, believes the short-lived site occupations and the shifting site locations characteristic of the early period resulted from continual influxes of people into the entire Rio Grande region, thus creating competition between groups for land. That position also is acknowledged by Nordby (1981) and strengthened and elaborated on by Wilcox (1981, 1984). Wilcox identifies the beginnings of interpueblo strife as early as 1300, grounded in competition over land and other resources. Kidder (1958) suggested that the need for defense prompted movement onto the mesilla and other secure positions in the valley. Cordell (n.d.) suggests the abandonment of Rowe Pueblo circa 1370/75 coincided with the departure of bison hunter and gatherers from the middle Pecos River Valley, thereby breaking a trading relationship between the pueblo and the hunter-gatherers. That relationship may have provided the Puebloans with subsistence stability in face of fluctuating environmental conditions. With the departure of bison hunters from the middle Pecos River Valley, Pecos may have been left without trading partners, and the northward shift of sites in the valley may reflect a realignment of trade networks by Pecos Valley groups. Stanislawski (1983) suggests population influxes coupled with competition with sites in the Galisteo Basin for control of trade networks led to site abandonment and eventual consolidation.

Abandonment of the late Developmental/early Classic period sites coincided with construction of two new sites in the valley, the Glaze I-II pueblo beneath Pecos Pueblo, and Arrowhead Ruin. Like Rowe, the Glaze I-II pueblo and Arrowhead were three-plaza masonry houseblocks with a kiva in each of the overlapping plazas (Stanislawski 1983). Both Kidder (1958) and Nordby

(1981) feel the Glaze I-II pueblo was built by 1370 and occupied by groups who had been living in Black-on-white House and elsewhere in the valley. Although Stanislawski (1983) agrees that populations were being drawn from sites in the valley, he suggests initial construction may have been by groups similar to those responsible for the now-abandoned remodeled Rowe, by ancestral Jemez groups, or by groups from the Zuni/Acoma area. Arrowhead Ruin may have been built as early as 1340, but its main occupation was between 1370 and 1390 with use continuing into the 1400s (Holden 1955; Kidder 1958; Nordby 1981). Stanislawski (1983) believes Arrowhead was purposefully built to supplement or replace Hobson-Dressler as guardian of the northern pass into the valley. Fortifying the pass, would have helped solidify Pecos' control of the Plains-Pueblo exchange system described by Wilcox (1984). Interestingly, the abandonment of Arrowhead coincides with abandonment of the Santa Fe River Valley as populations moved to lower elevations along the Rio Grande. Nordby (1984) has suggested that Loma Lothrop was occupied until at least 1400, suggesting it and Arrowhead were the last two sites occupied prior to the aggregation of population onto the **mesilla** in the 1420s.

By 1450, Pecos Pueblo was the only major site left in the valley, rebuilt from the earlier Glaze I-II houseblock into a multistory quadrangle, similar to other eastern Rio Grande pueblos of the period. Unlike them, however, Pecos had four staggered protected entrances, was surrounded by a low wall, retained circular subterranean kivas, and contained Plains-like artifacts in its assemblage. Kidder estimated between 660 and 800 rooms were embodied within the pueblo, housing approximately 1600 people (Kidder 1958; Stanislawski 1983). Stanislawski (1983) describes the new architectural form as a defensive trading post, created as a result of shifts in ecology, the occurrence of new trade routes, and the appearance of Western Pueblo immigrants. Those changes precipitated population reshuffling and alterations in local settlement types, sizes and locations. Stanislawski (1983:78) relates the new architectural form to Western Pueblo immigrants entering the valley as a continuation of the establishment of new trade sites from west to east. Baugh (1986), on the other hand, suggests the form and internal organization of the pueblo reflect individual trade alliances between social units within the community and their respective trade partners. Apart from Stanislawski, most researchers feel the occupants of Pecos may have derived ultimately from the Jemez area (Ford, Schroeder and Peckham 1974), while Jemez legend indicates the inhabitants arrived from the north (Hewett 1904; Schroeder 1979). Kidder (1958), however, saw Pecos as a natural outgrowth of developments in the valley; based on Hooten's work (1930), he believed Pecos residents were an amalgamation of Pecos Valley, Plains, and possibly southern populations.

Kidder (1958) interpreted the defensive nature of the pueblo as a response to raiding Plains nomads, a position drawn from early sixteenth century historical accounts and gaining popularity with Plains archeologists. Both Nordby (1981) and Stanislawski (1983) refute this idea because of work done by Gunnerson (1969) in northeastern New Mexico, who suggests Athabaskan Plains groups (Querechos or Vaqueros Apaches) did not arrive in the Southwest for another 100 years or so. However, recent Plains archeological and ethnohistorical data suggest the origins of the raiding Plains nomads lay in the Tierra Blanca Complex of the northern Llano Estacado, an Athabaskan population now believed to have entered the southern Plains east of the Sangre de Cristo Mountains around the beginning of the fifteenth century (Habicht-Mauche 1988:160). Archeological data from Tierra Blanca sites indicate those groups were in regular contact with Pecos Valley inhabitants prior to 1450. Spielmann (1987) suggests those initial contacts may have been aggressive in an attempt to coerce Puebloan groups into trade relations. Finally, Nordby (1981) believes the consolidation and defensive nature of Pecos Pueblo may have resulted from population pressures on the available agricultural land, fostering competition and raids between pueblos, or from a need to protect stored trade goods (Larry Nordby, personal communication, April 1989). Habicht-Mauche (1988) holds that initially Pecos was constructed to protect the Rio Grande pueblos from raiding nomads, but by 1500, the site served to defend their interest in the Plains trade.

By 1500, Pecos Pueblo may have been the most successful pueblo in the ethnic division of labor exchange system recognized by Wilcox (1981, 1984). Situated on a natural corridor between the pueblos of the Rio Grande and the bison-hunting nomads and horticulturalists of the Plains, Pecos inhabitants were in a position advantageous for trade; a position that afforded them a more or-less monopolistic middleman control over the westward diffusion of Plains products in demand in the Rio Grande Valley and points farther west (Kidder 1958; Nordby 1981:11). Kidder (1958) believed their role in the Plains-Pueblo trade was suggested by the abundance of Plains tools in artifact assemblages post-dating 1500 and the absence of similar tools in Puebloan assemblages farther west, e.g., the Galisteo Basin. He also believed the abundance and variety of artifact forms found as well as a number of unique items, indicate Pecos' wealth at the time of contact. Baugh (1982) hypothesizes that Pecos grew in strength because unlike other eastern frontier pueblos, the inhabitants practiced irrigation agriculture, which is not as susceptible to environmental vagaries. The higher productivity of irrigation agriculture provided them with a competitive edge over both Taos and Picuris. Wilcox suggests the 1520s raid on the Galisteo Basin pueblos by Teyas (Kessell 1979) possibly was masterminded by Pecos in hopes of destroying the Galisteo Basin's Plain's contacts and gain control of the turquoise and lead ore minerals of the Cerrillos Hills (1984:23). Kessell (1979) indicates that at

contact Pecos boasted of holding dominion over the Galisteo Basin pueblos. Data from the Plains, however, suggests Pecos may have formed alliances early with Tierra Blanca complex groups (Querechos), and it was probably that alliance that encouraged the disruption of Galisteo Basin/Garza complex (Teya)/Wheeler phase trade (Baugh 1988). Prior to the appearance of Tierra Blanca groups onto the Plains, the semisedentary Garza complex and Wheeler phase groups were the primary suppliers of Plains commodities to the Puebloans.

Protohistoric Period in the Upper Pecos River Valley. During the exploration period (1540-1600) in Spanish history, almost all of the expeditions into New Mexico had contact with Pecos Pueblo. Coronado was greeted at the Zuni pueblo of Hawikuh in 1540 by a delegation from the pueblo of Pecos. Kessell (1979) suggests the leader of the delegation, Bigotes, may have been a war captain and independent trader. Riley (1978) indicates the delegation was typical of trading parties of the period, and that those groups traversed the Southwest and northern Mexico when bartering for goods. Information provided by the Pecos delegation led Capitan Hernando e Alvarado, and later Coronado, to journey out onto the Plains from Pecos, accompanied by two interpreters and guides provided by the pueblo. While on the Plains, Alvarado heard tales of the riches of Quivira, and these stories led to his return to Pecos to learn more about the potential mineral wealth. Pecos' denial of the stories resulted in Alvarado taking captive two Pecos leaders and returning with them to Coronado, who had set up a winter camp in a confiscated Tiwa pueblo. Kessell (1979) notes that as Coronado fought the Tiwas during the winter of 1540-1541, the Keres pueblos provided the Spanish with aid, and supposedly at one point, the Pecos captives offered to bring back warriors and aid Coronado's troops in exchange for one of the Tiwa pueblos (Kessell 1979:20). This information tends to support Wilcox's (1984) ideas of interpueblo strife throughout the protohistoric period.

The following spring, Coronado, also seeking the riches of Quivira, set out for the Plains from Pecos, and again the pueblo supplied guides. After having gotten as far as Kansas and having encountered various Plains groups, he and his men returned to Pecos, where they were met by hostility. Coronado laid seige to the pueblo and claimed the area for New Spain (Kessell 1979). At Coronado's departure, two Franciscans remained behind who eventually probably were martyred by the Indians. Chroniclers of Coronado's expedition onto the Plains documented two separate groups of dog-nomads who hunted buffalo and traded with the eastern frontier pueblos annually (Hammond and Rey 1940). Those two groups were the Querechos, located in the northern Llano Estacado in the Texas Panhandle, and the Teyas, located along the eastern edge of the Llano Estacado. The Querechos (named by Coronado) displayed most of the traits generally associated with the historic "Plains Complex", suggesting those characteristics were well established by the

mid-sixteenth century. Unlike the Querechos, the Teya also practiced limited horticulture. Both groups are purported to have spent winters under the eaves of Pecos Pueblo. Baugh (1988) believes each social unit within the pueblo maintained trading partnerships with an individual Plains group, all of which belonged to the same band, and that the individual bands then spent the winter with their trade partners, creating the large Plains camps outside the pueblo documented by the Spanish. Snow (1981) suggests the Plains horticulturalist (Teyas) may have traded for seed corn, having consumed their limited supply by late fall, while the Querechos traded for maize as a dietary complement to their bison-based subsistence (Spielmann 1982). The historic documents also indicate that both the Teyas and Querechos roamed the entire southern Plains, carrying goods and information between the frontier pueblos and the horticultural villages of the Jumanos (Wheeler Phase, Plains Caddoans) farther east (Habicht-Mauche 1988:43). Control of that trade may have been a significant factor in Pecos' rise after 1450 (Kidder 1958:313) and their position of strength at contact. However profitable that relationship proved to be, it was also precarious. Castaneda (in Hodge 1907:357) wrote of the Teya attacks on the Galisteo pueblos and of their unsuccessful attempt to destroy Pecos as well. The chronicler also noted that although the Teyas, among other groups, traded with Pecos, they did not stay within the pueblo at night, but outside under its eaves. Kidder's (1958) identification of the wall surrounding Pecos Pueblo as a boundary marker rather than a defensive feature may be accurate; the wall may have provided a visible reminder of where, and where not, Plains groups were allowed.

Pecos also may have had contact with the second expedition into New Mexico in 1581 (Kessell 1979:38). Fray Agustin Rodriguez, accompanied by two companions and nine soldiers commanded by Francisco Sanchez Chamuscado, visited the Piro and Tano pueblos, and possibly Pecos. Interestingly, no mention is made of Pecos traders greeting the Spanish while they were at the Tano pueblos in the Galisteo Basin as they had done at Hawikuh. Habicht-Mauche speculates that either Pecos had learned to be cautious with their overtures of friendship or that inter-pueblo politics prevented such an encounter (1988:47). She suggests San Marcos Pueblo was the economic and political rival of Pecos at that time and that travel there would have been discouraged.

In 1582 Antonio Espejo left Mexico to rescue the two friars left behind by the Rodriguez-Chamuscado party, who had by that time been martyred. The expedition visited Pecos and was only able to secure provisions through force. While at Pecos, they seized two men to act as unwilling guides to the buffalo plains. Accounts of their expedition report Pecos as the largest and best of all the pueblos visited (in Hammond and Rey 1966).

In 1583 the King of Spain revoked the requerimiento and made plans for the settlement of New Mexico. The contract for settlement was awarded to Don Juan de Onate in 1595, but before Onate was able to begin colonization, Gaspar Castano de Sosa entered New Mexico illegally via the Pecos River and again contact was made with Pecos. An advance group from the party reached Pecos Pueblo where they were attacked by the Puebloans after an initial gesture of hospitality (Kessell 1979:51), which resulted in de Sosa advancing on Pecos and battling the Indians into submission (Simmons 1979:178). Documents indicate that that night the entire population of the pueblo disappeared. De Sosa is reported to have captured two Pecos residents the following day, who led him through Glorieta Pass northwest toward the Tewa pueblos. Kessell (1979) suggests this was a deliberate attempt to lead the Spanish away from the hiding Puebloans, who may have fled to the Tanos in the Galisteo Basin, and toward the Tewas, reinforcing the suspected animosity between Pecos and the Tewas along the Rio Grande.

Castano de Sosa journals (Schroeder and Matson 1965) provide us with a graphic portrait of Pecos during its zenith in the sixteenth century. The pueblo was reported to be four to five stories high and encircled with balconies that could only be reached by ladders from the ground. Large stores of goods were noted in first floor rooms purported to have contained three years supply of maize, many varieties of beans, cotton, herbs, chilis, squash, and other goods. The description suggests Pecos may have housed large stores of materials for the express purpose of trade, reinforcing interpretations of Pecos' wealth and its status as a frontier trading center between the Rio Grande pueblos and various Plains Indian groups. Riley (1978) refers to Pecos during the sixteenth century as an entrepreneurial redistributive center for the passage of goods eastward to the High Plains and Caddoan area and westward to the Rio Grande pueblos.

A second illegal expedition into New Mexico was instigated by Captain Francisco Leyva de Bonilla in 1593. Like his predecessors, the captain was searching for the gold of Quivira and used Pecos as a jumping off point onto the Plains. Records of his travels suggest by the turn of the seventeenth century the Vaqueros (descendants of Coronado's Querecho Indians) monopolized Plains-Pueblo trade (Habicht-Mauche 1988:66) and that regular, prolonged trade visits between those groups and the pueblos occurred. Apparently, the particular participants in the trade/exchange relationships were based on proximity of groups to each other.

Onate's initial colony near San Juan Pueblo was far enough removed from Pecos that apart from the conciliatory oath demanded by the new governor, little Spanish impact was felt by Pecos inhabitants. In keeping with the main focus of settlement, Onate assigned friars to pueblos soon after his arrival. Fray Francisco de San Miguel was assigned to Pecos, and there exists a

possibility that the father was responsible for the Lost Church at Pecos (Kessell 1979), but this seems dubious because he left after only a few months. Kessell (1979:84) feels the distance of the church from the pueblo suggests the missionary was not well received, thus accounting for a hasty departure. More than likely, the departure correlated with the Acoma uprising in which Onate's nephew was killed. (Beginning in the late 1500s and continuing into the early 1600s, Pecos participated in an alliance with the pueblos of Taos and Picuris, and the Apaches against the Tewa for allowing the Spanish to live among them [Schroeder 1966]).

Onate had initiated a series of exploratory expeditions from his seat in San Juan in an effort to discover resources that might sustain the colony, but none had materialized. Records of those expeditions indicate, however, that Vaqueros were living in the vicinity of modern Las Vegas, New Mexico, and that regular trade was conducted between the frontier pueblos (Hammond and Rey 1953). Among the goods traded were buffalo meat, skin, fat, and tallow, and salt in exchange for cotton blankets, pottery, maize and some green turquoise. Interestingly, the journals also mention that the Vaqueros were enemies of the Jumanos (the earlier Teyas), an animosity that may have had its bases in the usurpation of earlier Teya-Pueblo trade by the Tierra Blanca ancestors of the Vaqueros. Later expeditions by Onate outlined and identified other Plains groups in the vicinity of Pecos Pueblo and expand the picture of inter-regional trade during the sixteenth century. Importantly, trade apparently did not take place in the open but in private homes between trade partners, and as many as 400 to 500 Apaches (Onate's reference) gathered outside the frontier pueblos to conduct that trade. Wilcox (1982) suggests special houses of trade existed for the exchange of goods.

Spanish documents indicate that at least by 1540 Pecos Pueblo had established strong economic ties to bison-hunting nomads living to the east on the southern Plains. Pecos, at contact, was a large, consolidated, and powerful pueblo, which historic data suggests arose, in part, from defensive needs. Regardless, it is also clear that much of its size and status derived from control over the distribution of Plains goods to pueblos west along the Rio Grande, and possibly to Hawikuh and other Zuni pueblos. Documents of the period also indicate that at least two separate groups occupied the southern Plains and were involved early on in that trade. The Teyas are mentioned more often in this regard than are the Querechos (Habicht-Mauche 1988). By the turn of the seventeenth century, however,the Vaquero Apaches (Coronado's Querechos) seem to have usurped the Plains-Pueblo trade at Pecos. Competition for control of the trade from the Plains probably was the source of hostilities between the Teya and Vaqueros. Finally, historic chroniclers of

the period documented the annual visits of large groups of Plains bison-hunters to Pecos, Picuris and Taos, suggesting by the late sixteenth and early seventeenth century, Pecos had usurped the Galisteo Basin pueblo's trade.

Historic

The first 250-plus years of history in the Rio Grande region is dominated by Spanish colonization and settlement, interrupted briefly by the Pueblo Revolt of 1680. In 1821 Mexico declared independence from Spain, and the Rio Grande region saw new overseerers with governmental policies different from those of the Crown. Mexico's hold disintegrated in 1846 with the arrival of General Stephen W. Kearny in Santa Fe, and whose entrance marked the beginning of the American period. By then, Pecos Pueblo, the latest site in the Monument, was abandoned.

The Historic period begins with the establishment of Santa Fe in 1610 by don Pedro de Peralta as the seat of a royal missionary colony financed almost entirely by the Crown. Until 1680, the period is best described as one of spiritual conquest characterized by economic and labor exploitative systems. During that period, the mission program was expanded south into the Keres, Tano and Tiwa pueblos along the Rio Grande, and to those of the Salinas east of the Manzano Mountains. Imposing churches were raised with Indian labor at Pecos, Acoma, the Hopi village of Awatovi, at sites among the Tompiros, southern Tiwa, Jemez, and elsewhere (Simmons 1979:181). As a corollary to the mission program, the friars introduced economic changes meant to remove the Puebloans from their native life and religion. Indigenous populations were forced, often violently, to follow European religions and to pay heavy tribute in goods and labor to the Spanish government. Beginning with Onate, Spanish colonists had inherited the Crown's rights to tribute, labor, and services from subjugated native populations. The **encomienda** extended to certain individuals the right to collect an annual tribute from a specified pueblo or number of Indians (Kessell 1979; Simmons 1979). In return the trustee of the encomienda was to provide material aid to the church and military protection. The **repartimiento** was a system of forced labor designed to provide workers for Spanish farms and haciendas. After 1665, pueblo populations had been so reduced by disease and raids, they were hardpressed to meet the competing obligations.

As early as 1613, jurisdictional disputes over the native populations erupted between the church and civil authorities (Schroeder 1966; Kessell 1979). Although the colonial governors held supremacy in temporal matters, the clergy held them in the spiritual realm (Simmons 1979:184). The disputes were founded in an open rivalry between the two bodies (maximum development of the missions as opposed to private economic interests) and provoked struggles

for supremacy that left the native people suffering from lack of consistent administration. Essentially, both bodies strove to manage and exploit the native populations without interference from the other. The lack of other resources in the colony only served to intensify the rivalry. The result was litigation in the court of the Inquisition between 1650 and 1670, incidents of violence, rifts within the Spanish community, and increasing disharmony among the Puebloans coupled with internal factionalism.

Combined with those problems was the disruption of the Plains-Pueblo trade by Spanish authorities. Spanish documents of the period indicate seventeenth-century Plains-Pueblo trade was an intensification of the system first commented on by Spanish explorers. Annual trade visits continued to be made to the eastern frontier pueblos, and by the seventeenth century Pecos dominated that trade. The Spanish sought to profit from the trade because of the poor land and lack of mineral resources in the colony. By the mid-1600s trade products had become just as important to Spanish survival as the native population was (Kessell 1979:136-137). Increased Spanish demands and the articles they traded began to draw trade away from the pueblos, and increasing raids by the Spanish on the Apaches (Spanish name for the Plains dog nomads) for slaves further strained Pueblo-Plains trade relations. Dry periods throughout the 1660s and 1670s had dislocated Puebloan populations and increased Apache raiding, leading to punitive expeditions by the Spanish (Kessell 1979; Spielmann 1987). The dry periods combined with heavy tribute taxes severely depleted the Puebloan reserves of goods needed for subsistence and for trade with the Apache. The Spanish also upset the internal alliances within the ethnic provinces, reducing them to single communities by 1700 (Wilcox 1984). Furthermore, the denial of use of various religious items as well as the prohibitions concerning rituals by the missionary programs caused breakdowns in the secondary systems of Plains-Pueblo trade.

Ultimately, the church's efforts to abolish the traditional ceremonial system as well as dissatisfaction with civil rule and interference in Puebloan economics led to the Pueblo Revolt in 1680, forcing the Spanish out of the area for 12 years. Their 12-year absence was marked by changing Puebloan alliances, reversion to traditional ways, and hatred of anything Spanish. Mass destruction of Spanish buildings and records occurred. Many believe that ingrained particularism and strong traditions of village autonomy led to the dissolution of the Puebloan unity and eventual reconquest. In 1692 Don Diego de Vargas recaptured the northern Rio Grande region for the Spanish without a single hostile confrontation. At his arrival, most Puebloan groups fled to defensive sites atop mesas or retreated into the mountains to their Apache and Navajo allies. De Vargas' return in 1693 met with more resistance; the Indian inhabitants of Santa Fe refused to surrender it, and armed conflict occurred at many pueblos. During the reconquest and the period immediately following it, an increasing number of Puebloans joined the Spanish in raids on

villages remaining hostile. Their actions encouraged older antagonisms among the pueblos and increased intra-pueblo factionalism; the most well-documented factionalism occurring at Pecos Pueblo and among the Hopi.

The seventeenth century was a period of cultural clash between Spanish and Indian brought about by missionary activities and economic exploitation of native groups. Opposing factions that developed weakened the social and religious orders, and the exchange of material items altered the cultural patterns of both groups. Spanish enslavement of nomadic peoples encouraged retaliatory raids, increasing stress on the Puebloans. The presence of Spanish colonists, moreover, led to the development of new hostilities and alliances among the Puebloan peoples.

Programs and policies of the eighteenth century ensured the incorporation of the Puebloan into the Hispanic world empire. Ultimately, the Pueblo-Plains macroeconomy was transformed into an appendage of the larger, more encompassing frontier system (Baugh 1988). The policies and programs developed out of a concern for defense and revenue (Kessell 1979), not missions. New Mexico became a defensive frontier against the Apaches, the Comanches, and encroaching foreign governments. (During the seventeenth century the dog-nomads of the Plains became referred to as Apaches and were known by a plethora of band names [Thomas 1935].) By 1730 the Comanche had dislodged most of the Apaches in northeastern New Mexico, driving them, along with earlier immigrants from Colorado and Kansas, into the Sangre de Cristo Mountains between Taos and Pecos. The Comanche also effectively pushed the Apache from the southern Plains, most of which resettled along the eastern frontier of the Rio Grande region or farther south. (The Faraons, long-time allies of Pecos, had settled east of the Pecos River, south of Pecos Pueblo, and along the Rio Grande to El Paso after the Pueblo Revolt [Gunnerson and Gunnerson 1971; Schroeder 1960; Thomas 1935].) The **encomienda** and **repartimiento** were not reinstituted in the 1700s, instead a land tenure system developed that served to encourage settlement of New Mexico, particularly the Rio Grande basin, by Hispanic colonists. In addition, genizaro, Christianized Indians, communities were established along the eastern and northern frontiers. The push to populate the northern frontier was an attempt by the Crown to protect its northern Mexican mines from both the encroaching French and Plains nomads, but by so doing, brought Spaniard and Puebloan alike into direct conflict with dislocated Plains groups and the Comanche.

Those changes, coupled with a missionary program tempered with moderation, left pueblos largely to their own devices. Reduced missionary activities and influence resulted from the secularization of the clergy and declining government support (Kessell 1979; Simmons 1979). The rise of a secular clergy redirected the energies of the Holy Office toward protection

of its own privileged status. Additionally, missionary activities were being channeled towards California, Arizona, and Texas. Those factors, along with discontinuity in church administration, resulted in a loss of clergy and a consolidation of missions, with many reduced to **visitas**. Also, under the new policies missions were partially responsible for defense needs, and friars began organizing labor for the production of foodstuffs and cottage manufacturing for colonial trade and tribute. The combined result was partial neglect on the part of the clergy and peaceful coexistence between Puebloan and the Church. Moreover, the creation of a system whereby Indian complaints could be heard shifted the influence of the convento to secular buildings representing civil authority.

During the eighteenth century, increased use of Puebloan auxiliaries occurred to supplement Spanish forces against common enemies, the Utes, Comanches, Navajos, and Apaches. Increased Apache raiding resulted from interference in Plains-Pueblo trade, increased raids by the Spanish for slaves, population dislocation, and the appearance of the Comanche. Forced acculturation under the missionary system, depopulation due to disease and famine, and the demand for tribute in the form of food, textiles and ceramics by Spanish officials functioned to reduce Puebloan surpluses needed for trade with the dog-nomads. The situation was exacerbated by the arrival of the Comanches into northeast New Mexico, which placed them in direct competition with the Apache for hunting and trading grounds. Historical documents indicate Apaches often left their women and children at the eastern frontier pueblos while they traveled out onto the plains to hunt. Kavanaugh (1986) maintains the Comanche moved onto the Plains to control the lucrative horse and hide trade established between Spanish officials and Plains groups in the seventeenth century. Once achieved, the Comanche maintained their dominance by controlling access to other contexts in which trade took place. For example, the Comanche repeatedly harassed Pecos Pueblo. By forcing other Plains groups off the Plains, they also controlled indirect access to goods. Thus, raiding served as the primary vehicle for controlling trade. Because of the increased need for defense, pueblos began to take on a decidedly defensive fortress appearance. Protective walls with heavy gates, bastions, and fortified towers were added to the already impregnable terraced pueblo without groundfloor doors and windows. The fortified complexes often drew in Spanish residents during times of danger (Simmons 1979:189). Furthermore, Spanish soldiers were garrisoned periodically at pueblos along the eastern frontier (Kessell 1979).

Regardless of antagonism, however, at fixed periods the Puebloans, Spanish, and Plains nomads engaged in active trade. Spanish-Pueblo trade involved a variety of cereal grains, fruits, and vegetables, and products of domestic animals introduced into the Puebloan diet prior to the Revolt. In turn, the pueblos supplied the Spanish with utility and service ware ceramics

(Warren 1979). The Plains-Pueblo interchange continued to be mutualistic, carbohydrates for protein along with hides for clothing. Thus, Wilcox's (1984) ethnic division of labor had expanded by the eighteenth century to include Spanish village products and craft specialization, e.g., carpentry, weaving. Although annual trade visits were still made by the Apache to certain pueblos, by 1700 most trade had evolved into regulated trade fairs, which became a primary source of revenue for both local civil authorities and the Spanish Crown. Establishment of trade fairs was an attempt by civil authorities to monopolize trade, but by 1723 the fairs were open to everyone (Levine 1987). Trade fairs differed from early exchanges in other ways as well. First, no longer were basic subsistence items the primary commodities exchanged. Instead, slaves and hides were desired, which could either be sold to the Spanish or used in tribute payments. The tribute system, in turn, stimulated local trade by restricting foreign trade from New Mexico and channeling all goods acquired south to Mexico. Second, direct Spanish participation was new, encouraged in part by the absence of the government subsidized supply service characteristic of the seventeenth century. Third, items exchanged were regulated and set rates were established. Simmons (1979) suggests the largest of the trade fairs was held in Taos historically, with lesser trade fairs conducted at Pecos and Picuris. The pre-eminence of the Taos trade fair coincides with the introduction of the Comanche into the system. Early on, the Comanche formed a trade relationship with Taos, while they consistently raided Pecos. That combination resulted in the Spanish trading at Taos, if they wished to trade. However, unlike other Plains groups, the Comanche had no hard and fast trade partners (Ford 1972), and their trade relationships were normally volatile and fluid. The Spanish promoted Comanche trade because they provided an additional defense against the encroaching French and Anglo-Americans on the Spanish Colonial border. Good relations with them also opened up trails across the Plains that could be used to connect Santa Fe and San Antonio, drawing together the Spanish empire.

The trade fairs were an important adjunct to the colonial economy, their dates coinciding with the departure of the annual trading caravan to Chihuahua. Likewise, Kessell (1979) notes the commodities exchanged were essential for survival during the eighteenth century when deprivation was the norm; one of the provisions of Governor Juan Bautista de Anza's negotiated peace with the Comanches in 1786 was the re-establishment of trade at Pecos, thus bringing trade closer to the impoverished Spanish settlements. Apart from formal, governmentally regulated trade, an indirect trade developed between the Comanches and colonists after 1786. The informal trade siphoned off sanctioned trade at the pueblos, eventually redirecting it toward developing Spanish communities along the eastern frontier (Levine 1988). Because the Comanche also traded with the Jumano farther east, who were in

contact with the French, the Comanche became the middleman in trade networks that were oriented farther east. That trade was sustained until more serious competition developed from the large-scale buffalo hunts of the Anglo-Americans in the late nineteenth century. Exchange also was an important part of the government's policy of bartering for peace with native populations (Thomas 1940). At various times, the Crown maintained a delicate truce with the Apaches, Comanches, and other Plains groups in part by providing annual distributions of symbolic and substantive goods.

As part of the 1786 Comanche peace, the Spanish and Comanches formed an alliance against the Apaches. As a result, Apache raids intensified during the latter part of the eighteenth century and on into the nineteenth century, forcing the eastern pueblos into precarious positions.

By the turn of the nineteenth century, Pueblo Indians had gained a secure place in provincial New Mexico society. Throughout the previous years the number of Franciscan missionaries had declined, those remaining performed a minimum of ecclesiastical duties (Simmons 1979:191). Superficial conformance to church practices resulted in noninterference in other aspects of village life. By 1820 most pueblos had their own elected civil officials, and Puebloans had gained full citizenship and legal equality. Comanche peace, however, renewed interests in lands located along the eastern frontier, and Puebloans suffered a new kind of assault on their lands in the late eighteenth and early nineteenth centuries.

The Mexican period of history began in 1821 with the signing of the Treaty of Cordoba, consummating Mexican independence from Spain. Political, social and economic trends started in the later phase of the Spanish Colonial occupation continued and accelerated under Mexican jurisdiction. New Mexico was largely ignored by Mexico, resulting in almost total self-government with officials elected locally. As an outgrowth of the new political structures, pueblos returned to an autonomous political structure operative prior to the Revolt, and their occupants functioned as Mexican citizens with full legal rights. The period saw an almost total collapse of the church's influence. The small number of priests left within the province concentrated on the Rio Grande pueblos, abandoning other missions and allowing them to deteriorate. That trend allowed for a reversion to traditional ways by Puebloans; by the 1830s pueblos relaxed policies of secrecy and publicly performed rituals that had been hidden from the church for the last 150 years. Under Mexican jurisdiction, more land was granted than during the entire Spanish Colonial period. Large tracts of land were set aside for communities, to be settled gradually, and given illegally to newly arrived Anglo-Americans. The expansion of the Mexican population east of the Rio Grande placed pressure on the available farmland, and with growing frequency, Mexican settlers trespassed on pueblo grants.

Mexican Independence also resulted in the lifting of restrictions on trade relations between Mexico, the United States, and the Comanche. With the opening of trade between New Mexico and the United States, the Santa Fe Trail was established connecting Missouri to the Mexican province. Initially, the opening of the trail expanded the job market, encouraged business, and stimulated Anglo settlement. The cheaper American goods, however, eventually led to conflict and war, resulting in an American invasion in 1846. Government control of the growing Comanche-Mexican trade eased when Mexican officials realized the traders served as effective spies for American activities on the Plains. For the most part, trade fairs ended by 1810, possibly due to the spread of settlers east along the Pecos drainage. Groups from those settlements traveled to the Plains to trade with the Comanche (Kessell 1979), who themselves had moved farther east. Comanche movement east may have in response to the arrival of the Kiowa Apache and Arapaho, who were challenging Comanche dominion of the southern Plains. Those two factors resulted in the deterioration of Pueblo-Plains trade and the strengthening of Hispanic-Plains trade. Comanche trade remained essential to rural Mexicans and Puebloan alike. Subsistence items, wool, ceramics, hides, horses, and slaves were still critical elements of the trade, while later on American goods could be acquired indirectly through the Comanche connection to tribes further east. The two systems of trade, American and Comanche, eventually came into conflict; however, the conflict was tied into larger issues including the increased competitive market for valuable buffalo hides, the American land grab justified by the policy of Manifest Destiny, and the potential threat of alliance of New Mexican and Plains Indians posed to American commercial enterprises on the western frontier (Levine 1987:571). Ultimately, the Plains Indians were caught between the American frontier moving west and the Hispanic settlements advancing east. East met west in 1846 when General Kearny rode into Santa Fe and claimed the Mexican holdings for the United States.

Upper Pecos River Valley. During the 1600s Pecos Pueblo continued to be the only pueblo occupied in the valley. Documented sherd and lithic scatters in the surrounding area contain historic glaze ceramics (Anscheutz 1980; Morrison 1984), and glaze wares were found at both multicomponent sites tested in the Hispanic village of Pecos (Allen 1983; Viklund 1984). Three of the four churches at Pecos were built during the seventeenth century. The first probably was constructed by Fray Pedro Zambrano Ortiz, who arrived at Pecos in 1619 (Hayes 1974). There is some speculation the Lost Church may have been built as early as 1540 or 1598 (Kessell 1979). Kessell (1979) credits Fray Pedro de Ortega with beginning the large seventeenth church and convento, but Fray Andres Suarez for finishing it between 1622 and 1623. Hayes (1974) suggests South Pueblo may have been built or occupied then and that Suarez may have lived there during construction of the church. Kidder

(1958) and Nordby (1981) believe South Pueblo was rebuilt into its two story, contiguous form sometime prior to the Revolt. Both Hayes (1974) and Kessell (1979) indicate South Pueblo was occupied by Christianized Indians, but interestingly there is no mention in the historical documents of a spatial division between anti- and pro-Spanish forces in the pueblo. The church was razed in 1680 during the Revolt, although Pecos denied having done it. Until then, the church was one of the largest in New Mexico, built in an architectural style common to provincial France. Architecturally it was a unique complex, a sixteenth century Mexican fortress church in medieval tradition built in adobe, a transition between a European fortress church and a New Mexican mission (Kessell:1979:128). The third church, a temporary chapel built in the ruins of the earlier one, was constructed by Fray Diego de la Casa Zeinos in 1694/1696 and was the first church built after the Revolt. The temporary chapel was enlarged by Fray Juan Alpuente 16 months later.

In all likelihood, Apache campsites also occur within the Monument and the valley. Although they have not been identified, historical documents indicate Faraon Apaches were living at Pecos when the first missionary arrived, and there is repeated mention of Plains groups camping outside the walls throughout the seventeenth century (Kessell 1979). Fray Andres Suarez remarked on the arrival of the Vaqueros every fall between late August and October, with wintering nearby (Kessell 1979:134-136). Apache encampments normally were located on the Pecos Valley floor downslope and east of the Church (Gunnerson and Gunnerson 1970).

Throughout the 1600s Pecos Pueblo was the subject of missionary activities and economic exploitation characteristic of the period. Those pursuits were intensified at Pecos because of its size, richness, and relationship to the Plains. Historical documents indicate Pecos was the largest pueblo in the northern Rio Grande, with a resident population of 2,000 at the turn of the seventeenth century (Kessell 1979). Pecos' prosperity resulted from its role as the leading middleman in the Pueblo-Plains trade that later expanded to include the Spanish colony. That wealth is reflected in the artifact assemblage; Kidder noted during the seventeenth century the number of Plains articles increased dramatically and the assemblage came to include clay human figurines and bells (1932:314), spirally grooved fibrolite axes, and a large number of different kinds of pipes (crook, lightning arrow, rain cloud, and horned serpent) found rarely or only in small numbers elsewhere (1932:112-182). Furthermore, eight species of seashells from the Gulf of Mexico and nine from the west coast were identified at Pecos as well as freshwater shell from areas east (Stanislawski 1983). The Pecos-Plains trading relationship also afforded the pueblo an uncommon level of security. Apparently, although alliances with other Puebloans vacillated, the Apache-Pecos connection remained stable into the eighteenth century

despite active Apache raiding elsewhere in the Rio Grande region. McKenna comments Pecos retained the status of a neutral trading center even into the 1660s and 1670s, periods of increased Apache depredations (1986:31). All of these factors combined to make Pecos attractive to the Franciscans because of the potential number of souls to be saved and the opportunity to reach beyond the Rio Grande into the Plains, and to the civil authorities and settlers because of the wealth to be gained from trade and tribute.

It was not until 1619 that the church made a second appearance at Pecos. Reasons for the absence are unclear. We know that circa 1609 Pecos formed an alliance with Taos, Picuris, and the Apache against the Tewa for allowing the Spanish to live among them, which may have discouraged missionary activity at Pecos. With the arrival of Fray Pedro Zambrano Ortiz, however, the church forged a foothold in the pueblo that lasted nearly 200 years. Like the Apache, the missionary was not allowed inside the pueblo boundary wall; the first church at Pecos lies northeast of North Pueblo at some distance. The identification of a small circular feature close to the church (S. Stubbs, fieldnotes on file, Laboratory of Anthropology, Museum of New Mexico) indicates the priest resided in a temporary shelter also isolated from the pueblo, although Kessell (1979) suggests he took up residence adjacent to the mostly unoccupied South Pueblo. The second church was constructed at the south end of the **mesilla**, which remained the site of subsequent religious building. As noted by Governor Eulate, the construction of the large ostentatious structure laid a heavy burden on the inhabitants of Pecos, as did the subsequent services required to maintain the church and convento. Kessell (1979) notes 20 Indians served the convento, and particular fields were set aside for the subsistence needs of the friar. The church representatives also made a concerted effort to remove the Puebloan from his traditional ways. Fray Ortega undertook a program of systematic destruction of traditional religious objects, Benavides ordered piles of Katchina masks and prayer sticks put to the torch, Suarez introduced carpentry and adobe brick making, and Fray Posada built bonfires from religious artifacts (Kessell 1979). Both Kidder (1958) and Stanislawski (1983), however, indicate that throughout the seventeenth century between three and nine kivas were in use, suggesting the activities had little effect on traditional religion. The Friars also introduced vegetables, grains, and domestic animals, but McKenna (1986) indicates consumption of sheep was a European taste that never seemed to develop within the pueblo.

By the mid-1600s Pecos had become the religious seat of power in the colony. Several times during the period, the agent of the Court of the Inquisition resided at Pecos, and as a result of Church-State conflicts, in 1663 Father Posada, the present custos, moved church business to Pecos and was followed there by Fray Juan Bernal, the succeeding custos (Kessell 1979). Consequently, Pecos saw first hand examples of the Church-State conflict, and

in many cases was the focus of it because of the Pueblo's lucrative trade. For example, Fray Ortega's church was halted initially by Eulate (Kessell 1979:114), at issue was the social and economic control of the resident population. Only a relaxing of the Church-State conflict saw the church's completion by Fray Suarez. Throughout the 1630s and 1640s, the Church charged the Governors were turning the Pecos mission into a trading post for their personal profit. In 1638 Governor Rosas arrested Fray Antonio de Ibargaray at Pecos for having allowing the trade to start before he arrived; the hide trade was a source of private income in New Mexico for civil authorities. In yet another incident, the agent of the Inquisition arrested the Pecos **encomiendo** and confiscated his goods and a Spanish trader who visited the Plains encampments with a Pecos trading party (Kessell 1979). After 1640, the friction between Church and State intensified. In 1662 Governor Penalosa arrested the Custos (custodian) of the Province at Pecos, which brought the Province to the brink of civil war.

Pecos was potentially the richest **encomienda** in New Mexico, and although Church interests were evangelical, the State's interest was economical. The Spaniards sought to profit from Pecos' trade because of the colony's resource poor condition. To accomplish that, the State required a substantial tribute from Pecos in Plains goods, primarily hides, and actively participated in trade to obtain both hides and slaves. The items the Spanish traded to the Plains groups, metal knives and horses, became important components of Plains trade by the mid-1600s. (Trade goods and tribute acquired were warehoused with the intent of export for sale in the mining district of Zacatecas or in Mexico City [McKenna 1986:32].) Between 1500 and 1700 Pecos was the primary trade center of the region with a network that reached west to Hopi (Shepard 1942; Kidder 1958), and east to Oklahoma and Kansas (Baugh 1982, 1986, 1988). Trading was an annual autumn event and had increased in size and importance since the 1500s. Trade primarily involved the exchange of agricultural products for bison products, with secondary items of Pueblo pottery and possibly textiles and ornaments, while Plains groups provided Alibates chert (as knives), salt, various bone tools, and occasionally Quivira slaves (Kessell 1979:136-137). Slave trading had increased with Spanish participation in the Plains-Pueblo macroeconomy and eventually led to the Spanish making expeditions to the Plains to acquire slaves directly. Governor Rosas' troops set out from Pecos on one such expedition and killed a number of Plains Indians who traded regularly with Pecos. Kessell (1979) reports Pecos considered the attack an attack on them, and recognized the potential deleterious effect the action held. That raid may have contributed more to Pecos' participation in the Revolt than any other single event.

Spanish participation in the Pueblo-Plains trade was disruptive both internally and externally. Tribute took trade items away from Pecos that were needed for exchange and also removed items acquired through trade that were

necessary for survival. At the same time, the late trade provided the basis for Pecos' continuing economic importance even after the Spanish disruption of it. The Spanish slave raids increased the potential for Plains retaliation, although the Pueblo remained relatively unaffected throughout the 1660s and 1670s. Spanish interference in their economy, coupled with direct intervention in their religion, led to open conflict within the pueblo. The split developed as early as 1620, though Kessell believes it originated in a fundamental division between a liberal faction of traders influenced by outside contacts and a more traditional, agriculturally community oriented faction (1979:132). Kidder (1958) suggested the pueblo contained a mixture of Plains and Puebloan groups, a position supported by Baugh (1982, 1984) and Habicht-Mauche (1988) who believe intermarriage was an important adjunct of trade. Church baptismal records list a number of different Indian ethnic groups at the pueblo, though most are perceived to have been slaves (Kessell 1979). Regardless, part of Pecos acknowledged the utility of Spanish material culture, horses, and steel blades, while the other part remained steadfastly anti-Spanish. Schroeder (1966) and Kessel (1979) suggest South Pueblo was constructed/remodeled because of the growing rift within the pueblo.

Probably as a result of the rift within the pueblo, Pecos was divided over its role in the Revolt of 1680. Part of the population warned the Friar who sent a Pecos runner to Santa Fe (Kessell 1979:227), while another group from Pecos killed their lay brother and a Spanish family residing there. Pecos also participated in the seige of Santa Fe with Puebloans from San Cristobal, San Lazaro, San Marcos, Galisteo, and La Cienega, but left at the end of the day when the Spanish refused to surrender. The seige lasted a week and was taken eventually by the northern pueblo groups. Pecos demolished their church after the Revolt and built a kiva (23) within the convento corral, but later blamed the Tewa for it. Pecos joined Puebloans from Taos, Picuris, Jemez, Acoma, and the Tano, Keres, and southern Tiwa provinces to abort a reconquest attempt by Otermin in 1681 at Cochiti, but offered no resistance to De Vargas in 1692. Interestingly, throughout the period, Pecos and the Apaches (Faraons) remained allied and trade continued (Kessell 1979). (It was during this period that the Faraons moved closer to Pecos, taking advantage of the Spanish absence to expand their range [Levine 1987].) Kessell (1979) indicates, however, that unlike the Pecos-Plains alliances, alliances with other Puebloan groups were not as stable. In 1689 Pecos joined a Keres-Jemez-Taos alliance against the Tewas, Picuris, and possibly the Tanoans. Three years later, the Tanoans and Tewas identified Pecos and the Apaches as their mortal enemies (Kessell 1979:241). A Tewa-Tano-Picuris alliance marched on Pecos with De Vargas in 1692.

Pecos was abandoned when de Vargas arrived. According to Kessell, the population fled to Taos and their Apache allies (1979:245). De Vargas' decision to leave the pueblo untouched won Pecos over, however, for the

following year they supported him in the capture of Santa Fe. After the Revolt, Pecos adopted a pro-Spanish attitude and provided the single largest number of Puebloan auxiliaries to Spanish military operations. Governor Juan de Ye of Pecos effectively countered the war-like faction within the pueblo, and he and his followers proved critical in subduing other pueblos throughout the following years, including a minor rebellion in 1696. Kessell believes Juan de Ye hoped to restore Pecos' traditional position in the Plains-Pueblo-Spanish trade by helping return peace to the region (1979:262). Juan de Ye also delivered the Faraon Apaches to de Vargas, who were now living within 14 days of Pecos. Ye was killed at Taos when attempting to convince the pueblo to surrender to de Vargas. The bond that developed between Pecos and the Spanish during the period may explain, in part, why Pecos was the first mission re-established after reconquest. Fray Diego de Zeinos arrived in 1694 and constructed the temporary chapel that served Pecos until 1705.

During the eighteenth century, Pecos Pueblo continued to be occupied and both religious and secular construction occurred on the **mesilla**. The fourth and final church at Pecos was built by Fray Jose de Arranegui between 1705 and 1715/1716. The church was smaller than its predecessor with a reverse orientation (Hayes 1974), fitting completely within the walls of the razed seventeenth century church. Historical documents (Kessell 1979) and archeological data (Hayes 1974) indicate the attached convento incorporated portions of the earlier structure into its construction. The two known Spanish secular buildings date between 1719 and 1786. Historical documents indicate the **Presidio** probably was constructed between 1740 and 1751 in response to increased Comanche raiding at Pecos and was in use through 1786 (Hayes 1974; Kessell 1979). Kessell (1979) notes troops were garrisoned at Pecos after a major attack in 1746, when the Comanche tried to burn the church and convento. In 1750 Governor Cachupin fortified both Galisteo and Pecos pueblos with towers (Kidder's guardhouse kivas ?) and earthworks (Kessell 1979:381). Kidder (1958) identified the features as kivas because of the types of interior features present; Kessel (1979) suggests they may have functioned secondarily in religious ceremonies but their primary function was defensive. The **Casas Reales** was built prior to 1719 (Kessell 1979; Nordby 1982b) and probably continued in use throughout the eighteenth century, if not longer. The **Casas Reales** served as lodgings for visitors and government officials, and as an official government building for settling disputes (Kessell 1979; Nordby 1982b). Hayes (1974), on the other hand, suggests the building housed military families. Additional Spanish secular sites are known within the Monument, but there is no reliable chronological or functional data available. Square Ruin is hypothesized as a corral, trading house, or weigh station, among other things. The increased presence of Spanish secular buildings correlates directly with Spain's need to protect the frontier Province from Apaches, Comanches, and encroaching foreign governments (Kessell 1979).

Elsewhere within the Monument, eighteenth century Jicarilla and Faraon Apache campsites are known (Gunnerson 1970). On the basis of Apache sherds in the upper levels of trash, Gunnerson (1970) also suggests Apaches might have occupied portions of South Pueblo. Historical documents, however, do not mention Apaches living inside the walls of Pecos. By the late 1700s, two Spanish villages were established within the valley, the first new settlements since the consolidation of the pueblo in 1450. The villages, San Miguel del Vado and San Jose del Vado, were founded in 1794 by Spanish families from Santa Fe.

Apart from the construction of a new church in 1705, the Franciscans had little effect on Pecos during the eighteenth century, but the pueblo continued to figure centrally in Church matters. Between 1704 and 1758, 58 missionaries were assigned to Pecos, but few were in residence because of Apache hostilities; Pecos was considered a dangerous and isolated mission (Kessell 1979). The church's preoccupation with internal affairs led to almost total negligence of the pueblo, and Kessell (1979) reports that dances and ceremonies were held in the open, and nine kivas were built or were in use during the period (Kidder 1958; Stanislawski 1983). One of the more important Church State conflicts resulted; Governor Juan Ignacio Flores Mogollon instituted a program of systematic destruction of Pecos kivas without consulting the church, who had by this time adopted a policy of cooperative coexistence with the pueblo. Pecos provided them with a contact to the Plains and was the primary source of their subsistence needs. Pecos also was the scene of internal church conflicts. The Franciscan's autonomy was being challenged by the Bishop in Durango and a growing body of secular priests. All three of the Bishops to visit New Mexico and look into the order stayed at Pecos, presumably in the **Casas Reales** (Kessell 1979).

The **Casas Reales** had replaced the convento as the focus of Spanish influence at Pecos Pueblo (Kessell 1979:325) for two reasons. First, the Spanish civil authorities were direct participants in the Plains-Pueblo trade. Between 1694 and 1730 Pecos continued as an important trade center, but by the early 1700s, trade was regulated by Spanish officials and participated in directly by Spanish settlers. Moreover, Spanish employment of Pecos carpenters provided them with goods that brought higher rates of exchange at the trade fairs. Second, those same civil authorities were responsible for recruiting Puebloan auxiliaries, a source of additional material goods for the pueblo. The military alliance between Pecos and the Spanish developed with Diego de Vargas and continued throughout the eighteenth century. As auxiliaries, Pecos shared in the plunder captured from at first Apaches and later Comanches. The booty acquired provided additional items for trade or for meeting tribute payments.

Sometime between 1760 and 1776, Pecos became a **visita** of Santa Fe, no longer served by a resident Friar. Partially responsible for the Church's abandonment of Pecos was the pueblo's declining population. Pecos had been reduced from 1,000 occupants at the beginning of the century to 138 by 1778. The reasons for the decline are attributed to small pox epidemics, famine, internal strife (populations began deserting the pueblo for Spanish villages), and Comanche raids (Kidder 1958; Kessell 1979; Schroeder 1979; Nordby 1981; Stanislawski 1983).

Comanche attacks at Pecos were first felt in the 1730s (Kessell 1979; Schroeder 1979), though Pecos served as auxiliaries for Spanish raids on the Comanche as early as 1719. The Comanches were responsible for the large populations of Faraon, Jicarilla, Carlana, Paloma, and Cuartelejo Apache living at Pecos in the 1750s (Thomas 1940). The Jicarilla and Faraon began to extend their annual fall trade visits to Pecos over the winter as early as 1730 (Schroeder 1966; Gunnerson 1970). During this period, the Spanish encouraged those stays to provide additional military strength to a pueblo considered essential for the protection of the Spanish Rio Grande settlements. As additional security, 30 Spanish soldiers were garrisoned at Pecos intermittently, and the pueblo was fortified with towers and earthworks (Kessell 1979). The first major attack on Pecos by the Comanche occurred in 1746, and attacks continued throughout the following four decades. Kessell (1979) suggests the frequency of raids on Pecos resulted from their alliance with the Apache, enemies of the Comanche, though Kavanaugh (1986) believes the hostilities were a successful attempt to disrupt and gain control of the Plains-Pueblo-Spanish trade.

Trade continued between Pecos and the Faraon Apache until the 1760s, but by 1750 the majority of Spanish trade was redirected to Taos. The Comanche had driven out the Jicarilla, long-time trade partners of Taos, and had taken their place as Taos' primary provider of Plains goods. At the same time, Comanche harassment of Pecos and their Apache trade partners resulted in infrequent and unreliable trade at Pecos. Because of the Spanish reliance on the Plains-Pueblo trade for their subsistence needs, their participation in the trade shifted north. The disruption in Pecos' trade, however, started before the Comanche with the Spanish tribute system, the usurpation of control over the trade, and the slave raids on the Apaches. Pecos trade returned in 1786 as part of the negotiated peace with the Comanche. With peace negotiated, the Spanish began to use Pecos as a jumping off point for exploration of the vast Plains between Santa Fe and San Antonio. Those explorations were an attempt to secure Spain's holdings by connecting its various colonies. The entrance of the French into Picuris and Pecos throughout the 1730s and 1740s had challenged Spain's authority. (The French had attempted to set up trade relations with New Mexico, but such trade was illegal.)

At the turn of the nineteenth century, Pecos' population declined to less than 100 people. Comanche trade had shifted east to the Hispanic village of San Miguel del Vado established in 1794. Historical documents indicate nearly 150 Spanish residents were at Pecos in the late 1700s, suggesting that some of the rubblemounds within the Monument may have been built by them. Kessell (1979) and Hall (1982) indicate that the Governor's stipulated in the San Miguel del Vado grant that settlers be allowed to live at the pueblo and plant small fields for their subsistence until their settlement was established. Although Pecos became a regular stage stop along the Santa Fe Trail, the founding of San Miguel del Vado removed Pecos' strategic and economic importance to the Spanish authorities. With Mexico's independence in 1821, increased settlement of the valley resulted in much of Pecos' land being granted to land-poor families living in the Rio Grande Valley (Hall 1982). By 1838 the pueblo was abandoned completely. Reasons for that abandonment include loss of trade, declining population, disease, Comanche raids, factionalism, and Hispanic encroachment of their lands (Kidder 1958; Kessell 1979; Schroeder 1966, 1979; Hall 1982; Stanislawski 1983).

Use of the Monument after the abandonment of Pecos Pueblo was peripheral. Simmons (1981) and Nordby (1982b) suggest the ruins functioned as an overnight stop along the Santa Fe Trail, and Kessell (1979) indicates people (origins?) were living at the pueblo as late as 1848. Historical accounts during the early American period detail visits to the ruins by settlers, soldiers, and writers. Kozlowski settled at what is now the Forked Lightning Ranch in 1858, and his ranch served as the military camp of the Union Army prior to their battle at Glorieta. Forked Lighting Ranch headquarters are located less than 1.6 km south of Pecos Pueblo, and in all likelihood, Union soldiers camped within the boundaries of the Monument.

Supporting Data for Significance Criteria

Criterion a)

Population Movement. As early as the Developmental period, populations were expanding into previously unoccupied environments in response to new subsistence adaptations and changing environmental conditions. During the twelfth and thirteenth centuries, the disintegration of the Chaco and Mesa Verde regional centers resulted in the dispersion and redistribution of large segments of the Anasazi population. By the end of the Coalition period, the number and size of sites increased to the point where population growth is attributed directly to immigrants from those collapsing systems in the San Juan Basin, or indirectly from population pressure as immigrating populations stimulated population expansion along tributary drainages and into upland valleys. Evidence for large-scale population movement is derived from changes in ceramic styles and technology, architectural forms, and site organization,

and the introduction of new organizational features, e.g., great kivas. Late Coalition period sites demonstrate a mixture of architectural techniques and ceramic styles and tradition, and are characterized by short occupational spans reflecting population instability. Throughout the fourteenth century, the influx of populations into well-watered areas continued. Communities were founded, abandoned, and or relocated within a generation or two, reflecting the basic instability characteristic of the arrival of new populations either by immigration or expansion. By the middle of the Classic period, population movement culminated in the consolidation of groups into large, aggregated communities. Influences from the northern San Juan (Mesa Verde) in the early Classic period gave way to influences from the Western pueblos, and unlike the earlier changes, the later changes are thought to reflect the increased flow of goods and information rather than people. By the end of the period, major interregional population movement was replaced by the internal rearranging and regrouping of settlement components. The significance of prehistoric population movement lies in its result; the rearrangement of cultural groups and the introduction of influences that led eventually to the formation of the historic pueblos.

The population movements identified are paralleled by similar events within the Monument. The three pithouse sites excavated by Nordby and Creutz (1982) date to the early Developmental and represent the first semisedentary occupation of the Monument by populations whose origins may lay outside the valley. Nordby and Creutz suggests the sites resulted from population movement into the valley from northeastern New Mexico as a result of backfilling. Stanislawski (1983) believes the sites represent Plains group expansion into the valley during a period of favorable horticultural environmental conditions. Only a single site of the late Developmental is located within the Monument, Forked Lightning with construction dates beginning in 1115. Nevertheless, the site reflects changes similar to those documented elsewhere in the Rio Grande region and growth by accretion within short occupational spans. Construction of the site reflects the overall population expansion of Rio Grande populations into upland areas characteristic of the period, though there are some who feel the site was constructed by immigrating Chaco populations and grew as new groups reached the valley.

During the Coalition period, the number of sites within the Monument increased. Three of the six sites dating to this period in the valley are located within the Monument. Forked Lightning, Loma Lothrop, and Black-on-white House were built within a few years of each other and exhibit changes characteristic of the period: the use of puddled adobe; irregular site forms; the presence of mixed kiva styles, multiple aboveground kivas, and a single large kiva; ceramic assemblages heavily influenced by Chaco styles; and site growth by population accretion. Some researchers attribute these changes to

population movement into the valley as a continuation of occupation down the Pecos River and onto the Plains by western immigrants, to local populations supplemented by Rio Grande immigrants, or from Chaco, Taos or Mesa Verde immigrants. By the end of the period, sites consisted of a loose collection of houseblocks, masonry construction replaced puddled adobe, the number of kivas per site decreased, standardized kiva forms developed, ceramic types resemble Mesa Verde and Little Colorado wares, and populations moved toward seeps and springs or along perennial streams. Black-on-white House is the only known pueblo representative of this period within the Monument. Groups responsible for the construction of this site include populations from within the valley in addition to, or separate from, immigrants from the Jemez, Galisteo Basin, Chaco, Mesa Verde areas, or dislocated Puebloans from the Plains.

By 1370 these sites were abandoned, and two new sites were constructed, one of which is located within the Monument. The Glaze I-II pueblo is a preplanned, three-plaza multistory masonry pueblo with a kiva in each overlapping plaza and is consistent with changes evidenced in the Rio Grande Valley. The site may represent the aggregation of local populations, perhaps supplemented by populations from Mesa Verde or the Jemez area, and later from the Zuni/Acoma area. In less than 100 years the site was abandoned, replaced by Pecos Pueblo. Pecos Pueblo represents the culmination of population movement within the Monument and the upper Pecos River Valley. Construction episodes at Pecos Pueblo tend to correlate with major population shifts in the region (Stanislawski 1983), and changes in architectural styles and material culture suggest influxes of population and/or shifting cultural influences. Whether Pecos was founded by indigenous populations in concert with Western Pueblo immigrants, or by either population alone, the pueblo has a decidedly different shape from earlier sites in the valley and along the Rio Grande. Like sites along the Rio Grande, the pueblo forms a quadrangle, is multistory and terraced, but unlike them, Pecos has four staggered entrances, a low wall surrounding the perimeter of the site, small, circular subterranean kivas, and Plains-like artifacts in its assemblage. Stanislawski (1983) suggests the architectural form relates to Western Pueblo immigrants entering the valley, which precipitated population reshuffling and alterations in local settlement types, sizes, and locations. Other researchers feel the site was constructed by groups from Jemez or as a natural outgrowth of developments within the valley. Burial data suggests the Pecos residents were an amalgamation of local, Plains, and possibly southern groups (Hooten 1930).

Population Coalescence/Community Formation and Integration. Population coalescence reflects the reduction or consolidation of populations into fewer and larger pueblos over time. Between 700 and 1450, the settlement pattern changed from isolated settlements of single or extended family farmsteads, to numerous small farmsteads and villages with several large

pueblos, to several loosely aggregated towns associated with fieldhouses, to large towns of hundreds of rooms arranged around central plazas. This process occurred throughout the Rio Grande region at roughly the same time, the reasons for which are unclear. Some of the most accepted explanations include decreasing precipitation coupled with increasing population, the development of irrigation agriculture, inter-pueblo strife, and the formation of regional economic and interaction networks. This placed subsistence as well as cultural stress on populations who responded culturally as well as economically; large communities of related and unrelated individuals developed, and changes in intracommunity organization, subsistence, and settlement occurred as well realignment of exchange/trade networks. Within communities, social integration was achieved by pan-religious mechanisms, such as formalized religion and sophisticated ceremonialism. The importance of these events is that they represent changes in group composition that eventually led to the formation of the historic pueblos we recognize today.

The process of population coalescence is documented by sites within the Monument and the end product is typified in Pecos Pueblo. The three isolated pithouses dating between 800 and 850 gave way to linear or L shaped houseblocks occupied by extended families during the 1100s (a date of 1115 was obtained for Forked Lightning and probably is associated with the adobe pueblo located below the site namesake), which in turn were replaced by irregular, single-story, puddled adobe, contiguous houseblocks with multiple kivas as suggested by Forked Lightning proper and Loma Lothrop. Forked Lightning is estimated to contain 600 rooms, but not all were contemporaneous. The site may have started as a village, but grew to a large pueblo by abandonment circa 1300. Fieldhouse and farmsteads in the Monument also date to this period, although the majority fall toward the later end of the spectrum. Forked Lightning was followed by Black-on-white House, consisting of a large, multiroom, masonry U-shaped houseblock with a central plaza. Exact room estimates are not possible because of the superimpositioning of three pueblos at this site location, though hundreds of rooms are suggested. Numerous isolated houseblocks on the mesilla and many of the fieldhouses documented during survey are contemporaneous. The succeeding Glaze I-II pueblo is a three-plaza, possibly two-story, masonry houseblock with a kiva in each of the overlapping plazas. Although no total room estimate is provided, Kidder's site map indicates the pueblo extends north of Pecos Pueblo and west under Pecos Pueblo and then out onto the west terrace. Contemporaneous houseblocks are documented under the east houseblock of Pecos Pueblo and under the plaza. The site postdates the numerous fieldhouses within the Monument. Pecos Pueblo was constructed between 1420 and 1450 and represents the single latest site in the Monument and valley. By 1450 all other sites within the valley were abandoned. The site covers 2.5 acres, consists of four separate terraced multistory, masonry houseblocks enclosing a central plaza, and contains between 660 and 800 rooms.

Pecos Pueblo typifies characteristics identified for coalesced communities (sections 7 and 8 of this nomination). The pueblo was the largest community documented in the Rio Grande region at contact, consisting of residential, ceremonial and possibly public architecture; the site is believed to have housed 1,600 people at contact, and nearly 2,000 by the end of the sixteenth century. A shift in community organization and economics is evidenced by the radical change in pueblo layout, number of storage rooms, and specialized storage practices. The community was organized into houseblocks characterized by a transverse linear arrangement of rooms, with each houseblock divided into a number of self-contained units encompassing three to four apartments backed up against a similar unit facing the opposite direction. Units probably housed related family groups, while houseblocks may have been arranged in larger social groupings. Ground floor rooms throughout the pueblo served as storage receptacles, and historical documents indicate at least three years of maize was kept along with locally and nonlocally produced goods. Physical characteristics of the site have led researchers to believe Pecos represents the coalescence of culturally distinct populations, of culturally related but geographically distinct populations, and/or of local populations. The formal integrative mechanisms developed to bond such a disparate population are illustrated by the types and number of religious structures identified. By 1550 to 1600, 16 subterranean, circular kivas were in use in three, five-kiva sets with one inner communal plaza kiva for each set. Pan-community integration is suggested by a single great kiva, but Kidder (1958) believed the structure was never finished, though Stanislawski (1983) feels it was in use for about 25 years. Baugh (1986) believes Pecos' contact with the Plains was responsible for the community's social organization, and it is these trade partnerships that are reflected in the distribution of kivas at the site.

Unlike pueblos along the Rio Grande, Pecos was not part of an intra-pueblo ethnic alliance but formed a single ethnic community whose social units (represented by kiva sets?) formed individual trade alliance with different Plains groups from a single band. Although they have not been identified, Wilcox (1984) believes special trade houses existed for the exchange of items between trade partners. Square Ruin, the Ancient walled area or other isolated structures known within the Monument may have functioned as such. The Plains-Pueblo trade as identified at Pecos represents a realignment of trade networks after the collapse of the Chacoan and Mesa Verde systems. Trade during the Classic period moved east-west and extended from the Hopi mesas, through Zuni, along the Rio Grande, east to Pecos and the Plains beyond.

Development of Interregional Trade. The development of Plains-Pueblo trade was critical to the growth and survival of eastern frontier Pueblos, secondarily to the maintenance of inter-pueblo exchange, and after 1700 to the

survival of Spanish colonist (see Classic and Historic period discussions, Historic Context, Section 8). Currently, researchers believe the basis for that trade was dietary, viewing it primarily as the exchange of carbohydrates (maize) for protein (bison meat). The identification of Pecos Pueblo as the core unit in a macroeconomy involving both the Rio Grande pueblos to the west and Plain's Apache and Caddoan groups to the east indicates the site was instrumental in the development, intensification, and final form of the pan-regional trade system characteristic of the post-1450 Rio Grande region. As demonstrated within the Historic Context, Pecos was the primary functional component of that system between 1450 and 1700. The pueblo is described as a defensive trading post, which developed, in part, from a need to protect its interest in that trade. Although initially the pueblo may have been constructed to protect the Rio Grande pueblo from raiding nomads or itself from interpueblo strife, by 1500 the site served to defend Pecos' interests in the Plains trade and to protect surpluses of stored trade goods. In all likelihood, Pecos' battle with the Galisteo Basin pueblos during the fifteenth century was a successful attempt to gain access and control of the lead and mineral resources of that district and monopolize trade with the Plains. Regardless, Pecos' growth, eventual size and status derived from its more-or-less monopolistic middleman control over the westward distribution of Plains goods to pueblos west along the Rio Grande, and possibly to Hawikuh and other Zuni pueblos. By the seventeenth century, Pecos dominated that trade, and the pueblo became the focus of Spanish exploitation because of the wealth derived from it. Not until 1730, did Pecos finally lose its hold over the Plains-Pueblo trade network.

Spanish Exploration and Settlement. Pecos Pueblo has a direct association with almost every significant phase of Spanish history in New Mexico: exploration; missionization of the Rio Grande pueblos; Spanish colonization; Pueblo Revolt and Reconquest; and Spanish Colonial resettlement. Pecos was one of the largest pueblos in New Mexico and was a landmark to Spanish explorers since Coronado first visited in 1542. Pecos was the last pueblo seen on their way to the Plains, and the first pueblo coming back. Except possibly for the Rodriguez-Chamuscado expedition of 1581, Pecos had contact with every expedition to enter New Mexico. Pecos supplied provisions and guides to Alvarado' first **entrada** into the Plains, again to Coronado the following spring during his search for Quivira, and finally to Antonio Espejo in 1582. Espejo was only able to secure provisions and guides through force, possibly resulting from Coronado's confrontation with the Puebloans on his return from the Plains. Castano de Sosa attacked and subjugated Pecos during an illegal expedition into New Mexico in 1590, while Captain Francisco Leyva de Bonilla peacefully set out from the Plains from there in 1593. Pecos was visited by Onate in 1598 and functioned as a jumping off point for Plains expeditions later commissioned by Onate. Pecos received

one of the first missionaries under Onate in 1598, and if Fray Francisco de San Miguel was responsible for the construction of the Lost Church, the church represents the first such structure in New Mexico and further enhances the significance of the Monument.

During the 1600s, Pecos Pueblo served as a base for missionary activities in the Rio Grande and for the Plains. Pecos was a key church mission for the Franciscans and represented the eastern frontier outpost of Catholism in the province. The pueblo's importance to missionary activities is reflected in the construction of three churches; the Lost Church in 1619 by Fray Diego de la Casa Zeinos, the large church convento in 1622/1623 by Fray Andres Suarez, and the temporary chapel after the Revolt in 1694/1696 by Fray Pedro Zambrano Ortiz. The temporary chapel at Pecos Pueblo was the first church re-established after de Varga's reconquest, again emphasizing Pecos' importance to church activities and the Monument's significance in the Spanish history of New Mexico. That significance is enhanced if,in fact, South Pueblo was constructed by christianized Indians in the mid- to late-1600s. The pueblo would represent the culmination of the missionary process and one of the Church's few successes prior to the Revolt. The history of site use throughout the 1600s reflects Spanish Colonial history in New Mexico, featuring dissents and conflicts of the secular and religious colonial authority, suppression and exploitation of native ways and livelihoods, followed by rebellion. To a large degree, Pecos Pueblo was the focal point of Church-State conflict and the brunt of labor and service extractive systems. Pecos also figured centrally in the Pueblo Revolt of 1680 and Reconquest of 1692; Pecos runners warned the Governor in Santa Fe, anti-Spanish factions at the pueblo martyred their lay brother and a Spanish family living there, and warriors from the pueblo helped in the siege of Santa Fe. Although Pecos participated in aborting Oterim's reconquest attempt at Cochiti Pueblo, they were instrumental in the reconquest of New Mexico by de Vargas in 1692.

During the 1700s, Pecos Pueblo functioned as a base of military activities on the Plains and was the key pueblo in the defense of Spanish settlements along the Rio Grande. Pecos now represented the eastern frontier outpost of Spanish colonization. The strategic importance of the pueblo is reflected in the secular construction characteristic of the period; the **Casas Reales**, **Presidio**, Kidder's guardhouse kivas (Spanish towers), and possibly earthworks (Kessell 1979). Spanish military activities throughout the eighteenth century were directed toward the Comanche and Apache. Pecos Pueblo and the **Casas Reales** are singularly significant during this period as the locations where Governor de Anza negotiated peace with the Comanche in 1786. The Comanche's importance in history lay in their dislocation of Apache Plains groups, their redirection of eighteenth century trade, and their involvement in Spanish, Mexican and American frontier economies during the eighteenth and

nineteenth centuries. After 1786, Pecos continued to be of strategic importance as a port of entry to the Spanish provincial capital of Santa Fe and as a point of departure for military related expeditions to the Plains. Spain hoped to prevent French and American encroachment of her provincial boundaries by establishing a route across the Plains, starting at Pecos, to connect Santa Fe and San Antonio. The threat of a potential invasion increased the importance of Spanish frontier outposts and resulted in policing of natural corridors of access into the province (Nordby 1982). Pecos as the easternmost frontier outpost and as guardian of the main access to Santa Fe via the Plains was doubly important to Spain during this period. Part of the Spanish defense policy was the construction of temporary fortifications at the entrances of passes into the Rio Grande Valley. Nordby (1982) feels some of the Spanish masonry houseblocks within the Monument may represent similar features.

Pecos' importance to the Spanish during the eighteenth century also derived from its trade alliances. Items obtained through trade with Plains groups became the primary source of revenue for the Crown and civil officials. Tribute extracted from the pueblo as well as goods obtained in trade by local officials were shipped to Mexico City for sale to benefit the dwindling Crown treasury or for the personal profit of the provincial civil officials. In either event, the Pueblo-Plains macroeconomy of the seventeenth century was now a cog in the larger world market of the Spanish empire. Plains-Pueblo trade also remained important at the regional level. Goods obtained through trade were critical for survival of Puebloan and Spanish alike during the 1700s (Kessell 1979). Until the mid-1700s Pecos was still central to that trade, and became so again after the Comanche peace. Pecos Pueblo as well as the Spanish secular structures and Apache campsites within the Monument are representative of those aspects of Spanish history. The cultural remains at Pecos also reflect the secularization and loss of influence by the church during that period. The last church and convento at Pecos was constructed by Fray Jose de Arranegui between 1705 and 1715. Throughout most of its history the church suffered from the lack of a resident Friar, finally becoming a visita of Santa Fe during the 1770s. The neglect of the church and pueblo are a direct reflection of the status of the church at that time and of its redirected focus toward California and Arizona missions.

Cultural Change. The ruins within the Monument and the body of historical documents relating to them provide a vital glimpse of cultures in the Rio Grande region and southern Plains as they existed and interacted with one another prior to the complex cultural, economic and demographic changes that accompanied European contact and colonization. Moreover, the sites within the Monument are a primary example of culture change, and as such, they are important for what they demonstrate about the changing nature of prehistoric and historic culture change. The sites also are important because

they mirror a series of evolutionary and cultural changes in the rest of the Southwest, of which they were but one part of the process. Culture change documented at Pecos Pueblo includes the introduction of: cereal grains, fruits, vegetables and products of domestic animals to the subsistence base; new ceramic vessel forms (soup plates or flanged rim bowls, comals, pitchers), design elements (crosses), and technological attributes (mold-made vessels, mica-slipped utility wares); new architectural forms (arches, windows) and techniques (raised vertical walls of height, mold-made adobes, carpentry); feast day celebrations to a traditional cycle of religious events; metal tools to artifact assemblages; new agricultural techniques; use of draft animals; new burial practices; and wool blankets and clothing to name but a few. Other changes resulted from contact and include changes in social organization, traditional land use, formation of pueblo boundaries, development of pueblos as autonomous societies, intra- and interpueblo interactions, patterns of behavior, and pueblo leadership.

Cultural change is not, however, restricted to the historic period. The body of sites contained within the Monument reflect changes resulting from contacts with groups farther west, and possibly from the north, as well as groups to the east. These changes are manifested in new architectural forms, construction techniques, ceramic paint types, ceramic designs, vessel forms, artifact types, inter-regional exchange systems, social organization, rock art styles, and religious cults.

Criterion b)

Pecos National Monument is significant because of its association with A.V. Kidder, whose work was of paramount importance to the development of american archeology. Kidder removed American archeology from antiquarianism that concentrated on collecting museum specimens and moved it in the direction of systematic, planned research and of detailed analysis of data (Kessell 1979:480). Kidder transformed archeology from a hobby to a science by emphasizing the need to treat objects as sources of ideas and understanding rather than as treasures for museums. Artifacts were viewed as clues from which culture history could be written. Kidder pioneered new methods of artifact recordation and analysis, specifically for nonceramic artifacts that previously were only described. He encouraged Anna Shepard's detailed analysis of Pecos pottery from the standpoint of clay sources, tempering materials, paints, and firing techniques. Kidder introduced a multidisciplinary approach to archeology by bringing to his work a wide variety of anthropological, biological, and historical studies and fostered other such work. He sponsored Hooten's physical anthropological work, Carl Guthe's modern ceramic manufacturing studies, and Elsie Clews Parson's

ethnological study of Jemez. Kidder also is important as a teacher of these ideas; his students included Samuel Lothrop (Loma Lothrop), George Valiant, Charles Amsden, and Robert Wauchope, all of which have made significant contributions to archeology in their own right.

The Pecos archeological project begun by Kidder in 1915 and finished in 1925 was unprecedented in its focus on a single site, its duration and scale, its careful planning and organization, and its use of specialists outside archeology (Woodbury 1981). The project was unique because of the detailed aims laid out prior to fieldwork, but most importantly, excavations at Pecos demonstrated the importance of stratigraphic information for reconstructing culture history. Excavations at Pecos later served as a model for a new kind of research that focused on large and complex sites. Three major results occurred from Kidder's work at Pecos. The first was the publication in 1924 of **An Introduction to the Study of Southwest Archeology**, a comprehensive review of the current knowledge of the prehistoric Southwest within a general framework of geographical subregions. The monograph placed artifacts within their cultural contexts, a key concept in archeology today. The second major result was the initiation of the annual Pecos Conference in 1927, the first such archeological conference held. Some 40 archeologists attended the conference where they agreed upon a cultural sequence for defining and naming the successive periods in Southwest prehistory, and standardized names for pottery types (Kessell 1979). That work in conjunction with the stratigraphic information gained from the site formed the basis for the relative dating technique still used today. The third result of Kidder's work at Pecos was the publication of the first ethnoarcheological synthesis. Kidder's **Pecos, New Mexico; Archeological Notes** was a study of pueblo growth, function, and decline.

Criterion c)

Pecos Pueblo has been recognized as possessing traits characteristic of frontier trading posts, but apart from its recognition as a specialized site type, significance is also achieved due to its size, complexity, and associated types of features. Pecos' significance is enhanced further because the ruins represent one of the largest protohistoric and historic communities in the Southwest where both its sociopolitical and trade systems were interrelated in such a way as to centralize population and business in one major regional center (Stanislawski 1983).

Pecos Pueblo represents a unique site type in the Rio Grande region during the protohistoric, a defensive trading post, and as such, reflects major social and economic changes that were integral to the future development of historic Puebloan culture. The site type reflects a particular cultural response to changing environmental conditions, population influxes, developing

pan regional religious cults, and the realignment of trade networks east. The site is unique to the Eastern Puebloan frontier areas and consists of a three to four story terraced quadrangle with a central plaza marked by four, staggered protected entrances. Houseblocks were not contiguous and were spanned by gangplanks. Lower floor rooms contained no doorways or windows, and access to the houseblocks was by ladders to second floors. Interior balconies completely encircled the upper stories. Circular subterranean kivas were found within the plaza and along the exterior eastern wall, and may have been arranged in sets. Lower floor rooms served as repositories for stored goods, and upper rooms for domestic activities. Houseblocks were arranged in units consisting of three to four apartments; units were not interconnected and were arranged along a transverse line. Room estimates vary between 660 and 800; the population at contact, circa 1540s, was 1600 but increased to 2000 by the early 1600s. During the 1600s South Pueblo was constructed, and later during the 1700s towers were placed at plaza entrances. The entire pueblo was surrounded by a low wall.

The pueblo also contains unique architectural features including encircling balconies, a boundary wall, tower/kivas, a kiva with four ventilator systems, a kiva connected to a room in the pueblo with a passageway, subterranean kivas, and a series of cellars and passageways between first floor rooms.

Pecos Pueblo is unique for the social adaptation it represents. Unlike other Eastern Pueblos, Pecos was not part of a larger Puebloan ethnic alliance as identified by the Spanish at contact. Pecos Pueblo represented a single, autonomous unit whose only alliances were with Plains Apaches. The formalized trade relationship with Plain's Apaches was unique in and of itself; Pecos maintained trade partners with different groups of Plains Apache who often spent winters outside Pecos Pueblo. The combination of pueblo and Apache campsites forms a settlement pattern distinct to the Monument. Baugh (1982) believes the individual trade partnerships formed with different groups within a band were responsible for the distinct social organization reflected in the kiva distributions at Pecos Pueblo. Pecos Pueblo had a dramatically different social organization than its counterparts in the Rio Grande, including bilateral social organization, non-exogamous dual divisions, and several kivas with associated societies rather than matrilineal descent, matrilocal residence, exogamous clans, and dual ceremoninal divisions.

Ruins within the Monument form a physically unique and culturally representative sample of Puebloan and Spanish architecture. All phases of Puebloan architectural development are present within the Monument, beginning with subterranean pithouses, followed by puddled-adobe and masonry one-story surface pueblos, and ending with multistory, mulitroomblock masonry pueblos. Pueblo sizes range from one to nearly 800 rooms. Puebloan religious

architecture includes 24 small circular kivas, one great kiva, and three shrines. Examples of both Spanish religious and secular architecture at the Monument include the four churches of Pecos, the two conventos, the priest's garden, the **Casas Reales**, the **Presidio**, possibly Square Ruin and the Ancient Walled area, the towers, and numerous isolated masonry features of unknown function. Only a few examples of Colonial secular structures are known, thus their presence and number adds to the Monument's significance.

The large seventeenth and eighteenth century churches are singularly significant. The seventeenth church represents one of the largest churches in the province at that time and was built in a unique transitional style (Kessell 1979). The church was a sixteenth century Mexican-fortress in a medieval tradition, rendered in adobe in the baroque age. Kessell (1979) describes the church as pure transitional, from a transplanted European fortress church, built of masonry, to a New Mexican mission of earth, fieldstone, and wood. Unique features included the floor to ceiling buttresses, the crenelated parapet, and the six towers. The eighteenth century church was smaller, but was the largest in New Mexico at that time. Distinctive characteristics of the church included the wall thickness, 2-3 m, and the arched doorways to either side of the sanctuary. Arches are considered rare in early New Mexico adobe architecture, and those in the Pecos church represent the only known examples in a church interior.

Prehistoric and protohistoric sites within the Monument are culturally distinct because as a body they represent a continuum of occupation temporally, physically and traditionally associated with the development of an historic Eastern Pueblo group, whose descendents now reside at Jemez Pueblo. The sites document the specific ancestral antecedents of historic Pecos Pueblo and represent the cultural and technological adaptations that formed the foundations of that group. They are simultaneously physically distinct because they represent the full native occupational history of the region, culminating in the historic pueblo of Pecos, and include aspects of occupation not documented elsewhere. Paleoindian projectile points occur within the valley and have been collected by relict hunters through the years; thus the potential for limited Paleoindian remains exists for the Monument. Although presently a hiatus in occupation occurs in the late Developmental, that hiatus is believed to be more apparent than real. The nature of cultural remains associated with that period (pithouses, jacal surface structures followed by small surface pueblos) and the density of later, more substantial masonry remains indicate the lack of late Developmental sites may relate to visibility problems (Nordby 1981). All three of Nordby's pithouses were found accidentally, and the disintegrated adobe pueblo of Forked Lightning eluded researchers for years. As a result, beginning circa with the Archaic, and potentially the Paleoindian, every cultural-temporal stage of prehistory is documented within the Monument. Moreover, the earliest (Nordby's pithouses,

800-850) and latest (protohistoric Pecos Pueblo) known native habitation sites in the upper Pecos Valley are included in the sites within the Monument. Pecos National Monument, then, forms a culturally and physically unique sample of sites that is unprecedented.

The Pecos pithouse house sites are singularly significant because of their rarity in the region, because they represent the first permanent or semipermanent occupation of the upper Pecos River Valley, because they may represent a primary example of the transition from Archaic to horticulturalist, and because they reflect a variety of physical characteristics attributed to culturally distinct populations that come to mark occupations in the valley.

Finally, the tricultural heritage of the American Southwest distinguishes it from other parts of the country, and the ethnic groups and events that contributed to that heritage are represented by sites within the Monument. The total sweep of the prehistory and history of the region is manifested in those sites. Known sites relate to the Archaic, Puebloan, Spanish, Mexican and American occupational phases. Moreover, some of the sites and/or features in the Monument reflect the blending of cultures that resulted from the interactions between cultural groups and that presently characterize occupation of the valley. Part of the Monument's significance lies in the perpetuation of those cultural patterns.

Criterion d)

The potential for scientific investigation and interpretations is determined primarily by the condition of the cultural resources within a particular area. Within Pecos National Monument, this potential is enhanced by the excellent preservation of cultural materials and architectural structures. Although surface material has been disturbed, removed and/or destroyed, substantial amounts of subsurface materials remain undisturbed. Excavations have confirmed the presence of artifactual and botanical remains, chronometric data, faunal assemblages, mortuary remains, and stratified deposits within rooms and in extramural site areas. The amount and kinds of perishable materials recovered is extraordinary. Material remains recovered from Pecos National Monument represent one of the most complete material culture records of human occupation to date and allows for the study of internal spatial organization, storage and consumption practices, and changes in those practices through time as well as broader concerns of prehistory. Structural integrity of the unexcavated portions of the site are excellent, which suggests unexposed site elements will hold comparable scientific materials. The number and sizes of sites, the percentage of unexcavated portions of the large sites, and the number of smaller unexcavated sites

suggest the full research potential of the Monument's cultural resources has not been realized. Information that has been and potentially can be derived from sites within the Monument can be used to address the research issues identified below and listed in Table 3.

Successfully addressing many of the research problems identified, however, is being jeopardized by the lack of published interpretive material on work at the Monument. Although Pecos Pueblo (North and South pueblos), Forked Lightning Ruin, and the eighteenth century mission-convento complex have all undergone substantial excavation and/or testing, they are not well understood. Kidder's work provided detailed architectural descriptions, ceramic artifactual analysis, and outlined patterns of pueblo growth and abandonment, but considerably more information is available from the extant collections. Advances in types and methods of analyses have enabled us to refine our interpretations of material culture. Thus, the research potential of the available site collections has not been exhausted. Much of the work done since Kidder has not been reported, nor analyses completed on the collections. The wealth of potential site information that body of data holds is staggering. The sites included within Pecos National Monument form an unprecedented sample of the material remains representative of the prehistory and history of the Rio Grande region. Historical processes and events reflected mirror the larger history of Spanish, Mexican and American occupation of the Southwest. In many cases, sites within the Monument were directly associated with those events and processes. Thus, the physical attributes of the sites combined with the collected data and integrity of the remains potentially can provide information on: 1) cultural affiliation/population origins; 2) the Developmental period; 3) population movement; 4) late prehistoric settlement systems; 5) population coalescence/community formation; 6) inter-regional interaction and trade; 7) culture change/acculturation; 8) missionary system in New Mexico; 9) warfare/strife; 10) Pueblo abandonment.

TABLE 3: Research Potentials of Nominated Sites

Problem Domains	Discussion
Cultural Origins/Affiliations	Questions of indigenous and immigrant populations and their affiliation(s). Archeological data is confusing. Nordby and Stanislawski offer contradictory origins for Developmental period pithouses. Adobe pueblo construction in valley is attributed to local, Chacoan, Mesa Verdean, Gallina, Jornado Mogollon, and/or Rio Grande groups. Stone pueblos are attributed to central Rio Grande, Galisteo Basin, Jemez, Mesa Verde and Western Pueblo populations. Kidder and Hooten both suggest protohistoric Pecos Pueblo population also included Plains groups. Questions of origin also relate to protohistoric and historic Plains groups. Information between historical documents and archeological record confusing and in opposition.
Developmental Period	Beginning dates later than elsewhere if pithouses represent initial transition from hunter-gatherers to horticulturalists. Question of permanent or seasonal occupation/use of valley. Potential exists sites all part same village; 10 to 15 house villages common elsewhere. Questions about origins of groups and nature of movement into valley. Hiatus of occupation indicated between 850 and 1100, but Nordby feels not real. Early adobe pueblo dates need to be substantiated under Forked Lightning, and Loma Lothrop tested for underlying deposits.

Table 3 (cont'd.)

Problem Domains	Discussion
Population Movement	Questions of immigration at base of arguments. Sites indicate outside influences but whether they result from migrations or trait diffusion is unclear. Researchers differ on if, when, how, and why occurred as well as who is represented. Some researchers view valley occupation as a series of migrations from different areas, others as additions of small groups from outside the valley to a resident population. Others see movement after initial movement into the valley as process of local site abandonments and relocations. Data seem to indicate a combination of population influx, intravalley movement, and trait diffusion. Exact processes represented at which sites unclear. Debate also over role of population expansion in instability characteristic of Coalition and Classic periods.
Coalition/Classic Period Settlement System	There exists a wide range of site types within the Monument, including fieldhouses, farmsteads, both adobe and masonry pueblos, artifact scatters, agricultural features, and Apache campsites. To date, the exact relationships between the sites as well as specific site function is unclear. Some view sites as independent communities, others see larger, intravalley valley organization.

Table 3 (cont'd.)

Problem Domains	Discussion
Population Coalescence/ Community Formation	Reasons behind are problematic. Favored interpretations include population increases resulting from migrations and/or in situ growth, precipitation decreases, adoption of irrigation agriculture, interpueblo conflict, raiding Plains groups, and development and control of Plains-Pueblo trade. Researchers have hypothesized everything from an entirely local event to the establishment of trading centers by emigrants from the Western Pueblos.
Inter-regional Interaction and Trade	Archeological data documents. Plains-Pueblo trade from ca. 1300 on. Basis for trade primarily attributed to dietary needs between maize growers and bison hunters. Indications of interaction/trade intensification after 1450 as well as products exchanged. Between 1600 and 1800 other changes in form and nature of trade and in participants. Debate exists over nature of trade prior to intensification; reasons for intensification as well as social and economic implications of it; nature and form of protohistoric trade relations; impact of trade on sociopolitical developments in Rio Grande region; relationship of trade to population coalescence and consolidation; specific relationship between Pecos and Plains and how that effected Pecos' growth and social organization; economic and social changes introduced by Spanish, form of Spanish/Pueblo/Apache/Comanche trade of the 1700s; and social implications of trade realignments during late 1700s.

Table 3 (cont'd.)

Problem Domains	Discussion
Cultural Change/Acculturation	Interchange between cultures is documented within the valley from possibly Archaic on. Questions arise over the exact processes of culture change and how that change effected social composition, social organization, population alliances, subsistence, and intra- and inter-regional interactions. Debate also exists over what kind of change took place, how was that change instituted, and how cultural modifications effected cultural developments on a regional and local scale and, ultimately, historic Pueblo social and economic organization.
Missionary System	Historical documents indicate the church was well-established in the Rio Grande region by 1612/1615, yet no mention is made of Pecos until 1619. The reasons for this are unclear, especially if the Lost Church was built earlier, circa 1598. What happened at Pecos that led to the abandonment of such an important mission- convent for over 20 years? Once established, what impact did the church have on Pecos?, What part did it play in the pronounced factionalism manifested in the Pueblo by the 1600s? What part did it play in rebuilding or enlargement of South Pueblo? What cultural changes was the Church responsible for? What role did the church play in the growth, development and abandonment of the pueblo? Did it effect social organization and land use patterns or not? Finally, what benefit was received by the Church from the Plains Pueblo trade conducted at Pecos, or how did the church participate in or affect it?

Table 3 (cont'd.)

Problem Domains	Discussion
Warfare/Strife	Prehistory and history of the valley is marked by conflict. Conflict is documented by defensive site features, changing alliances, and historical records. Researchers have suggested that Pecos and Galisteo battled over land and control of trade. If so, what part did it play in settlement patterns, site organization, and population consolidation? Suggestions have been made that Plains raiding contributed to the development of trade between the eastern frontier pueblos and Plains Apache and was responsible for site abandonments within the upper Pecos River Valley and eventually construction of Pecos Pueblo. Pecos' role in Spanish military expeditions thought to have contributed to wealth and status of pueblo and to autonomous nature of pueblo. Comanche raids attributed to Pecos' fall as trading center and eventual abandonment of pueblo. The role of warfare and strife in trade, pueblo growth, settlement patterns and protohistoric and historic cultural patterns need to be examined.
Pecos Pueblo Abandonment	No documented explanations exist. Reasons for abandonment have been hypothesized as related to disease, factionalism, pestilence, Comanche attacks, loss of trade, Hispanic encroachment of lands, declining population, and mythological serpents and extinguished fires.

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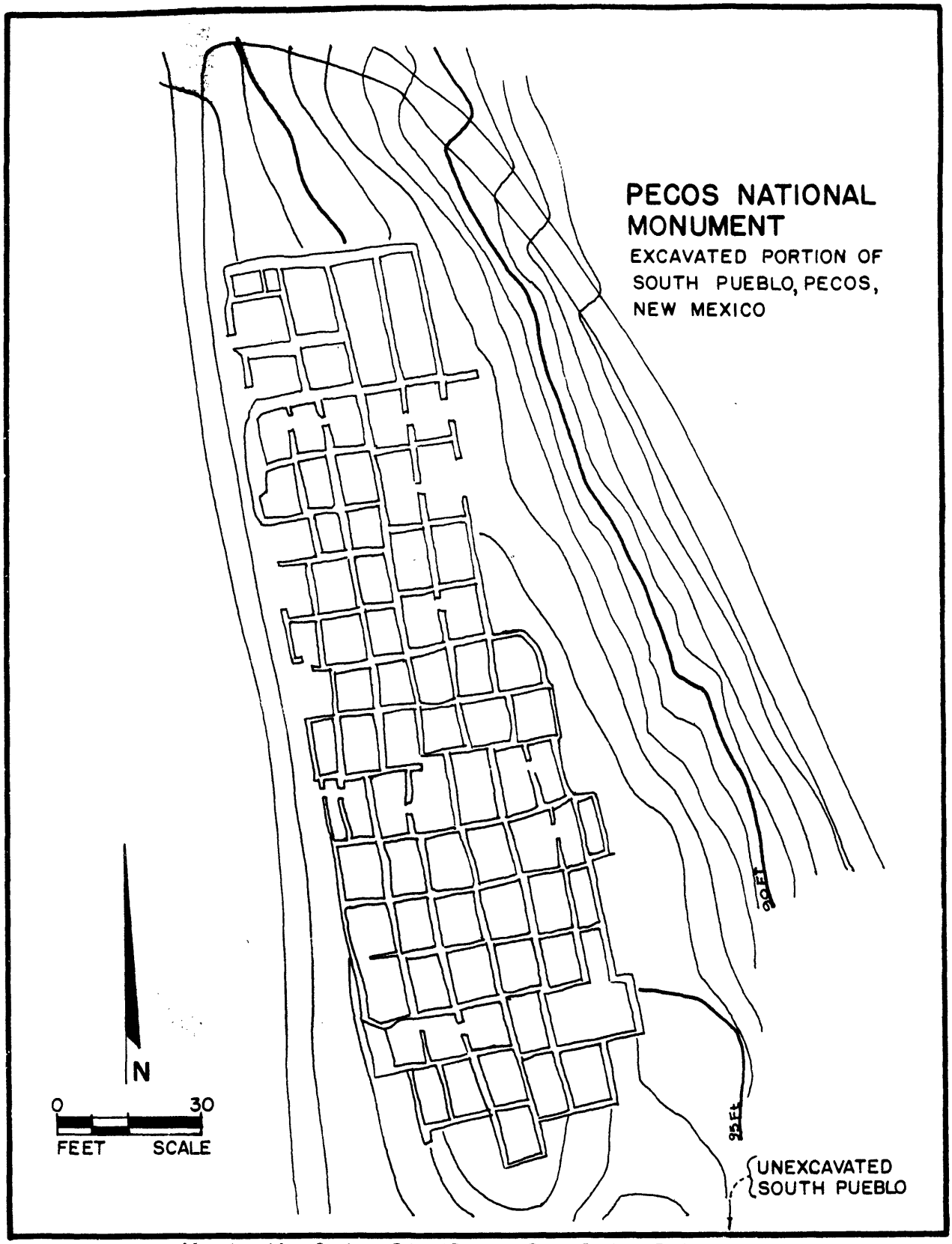
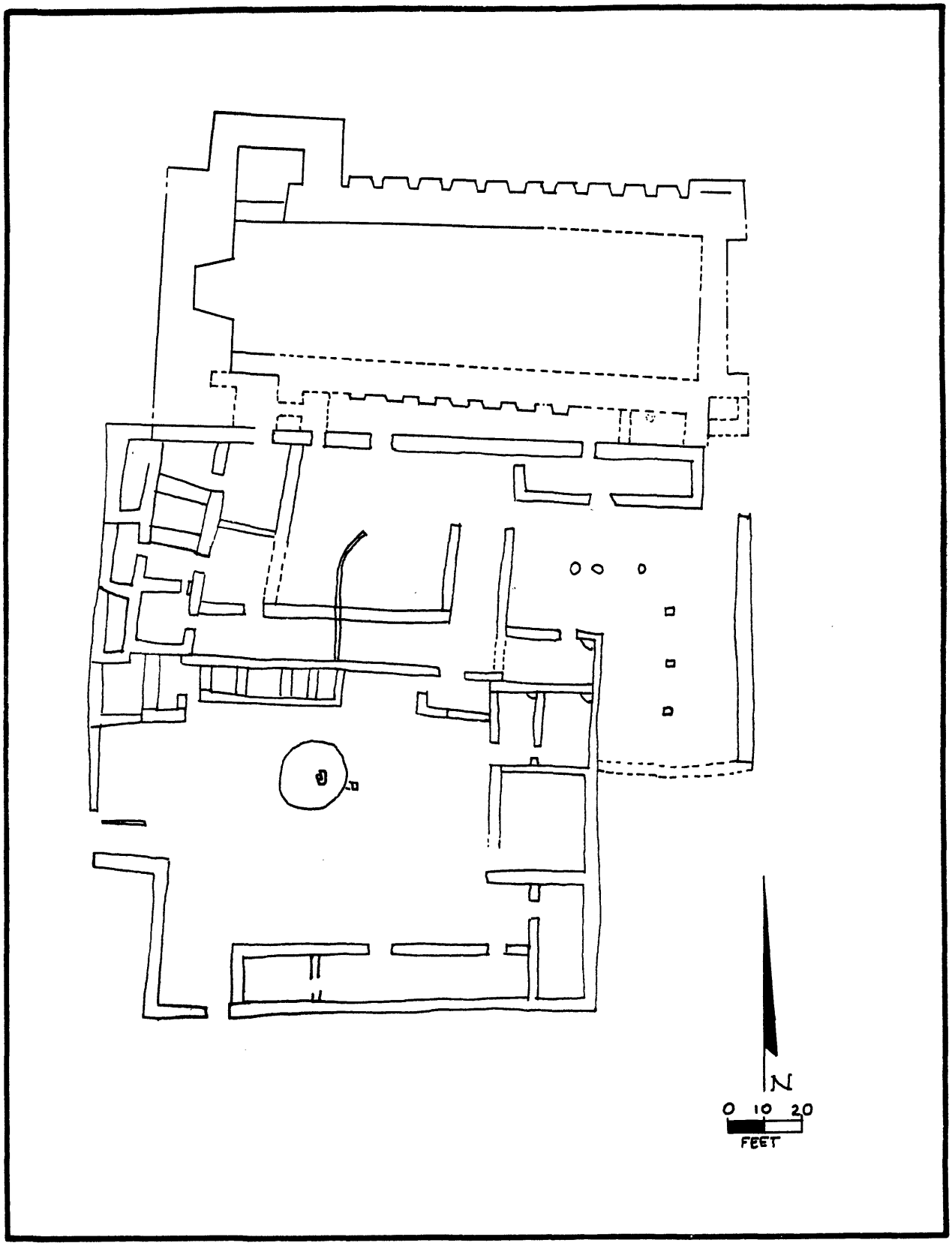
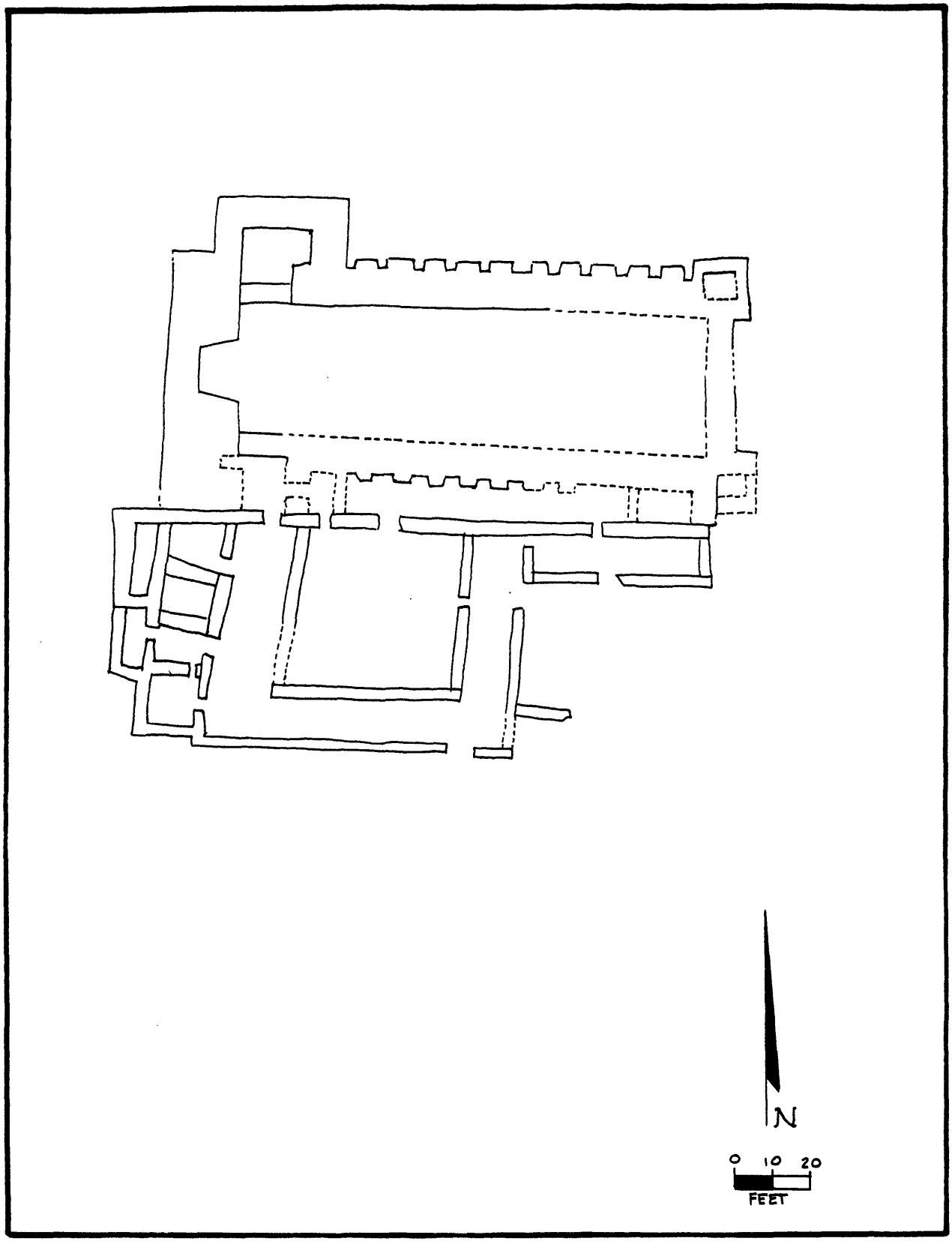


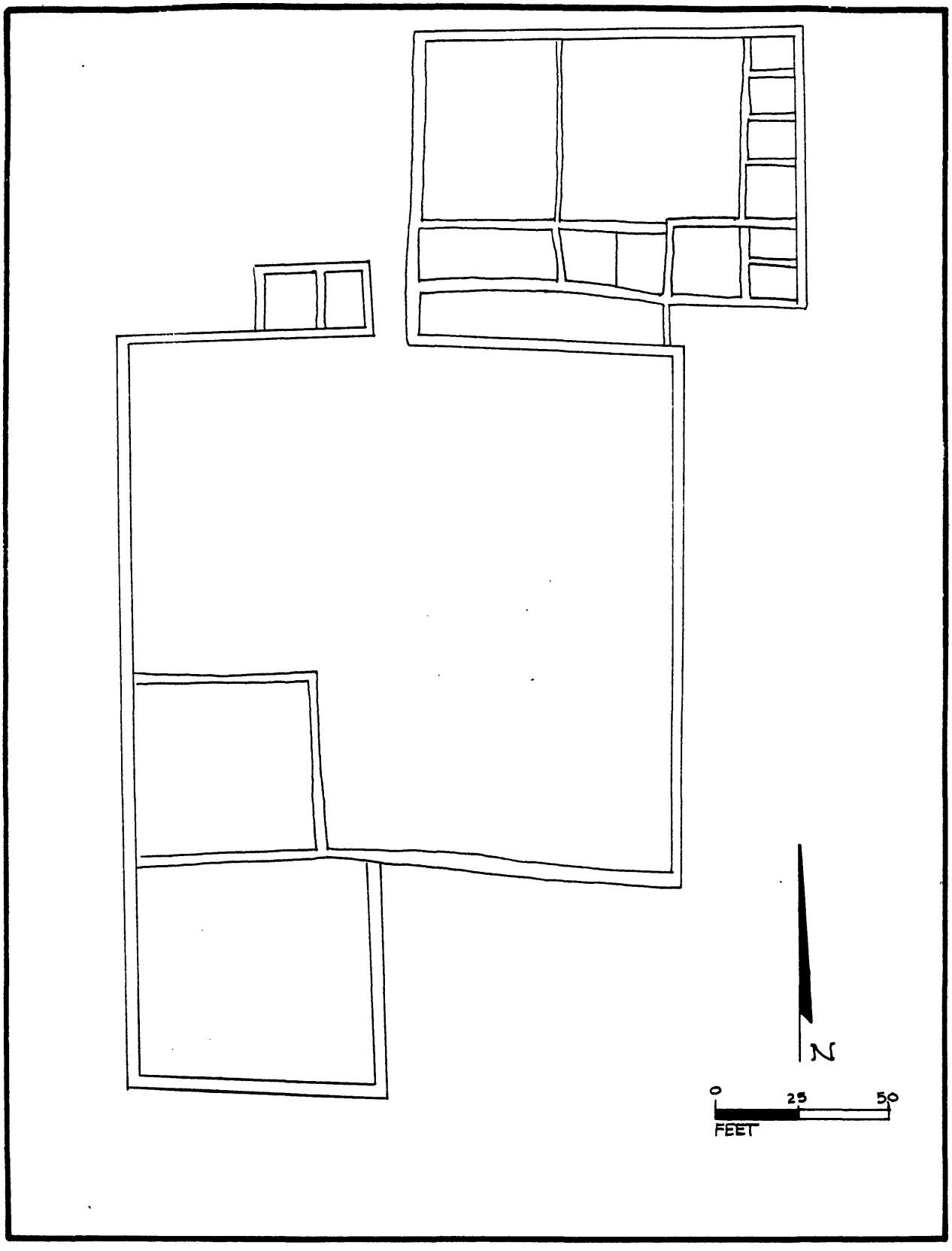
Map adapted from Southwest Cultural Resources Center, Southwest Region, National Park Service Illustration.



The 1620s church and enlarged convento prior to the 1680 Revolt.
Adapted from Hayes 1974.

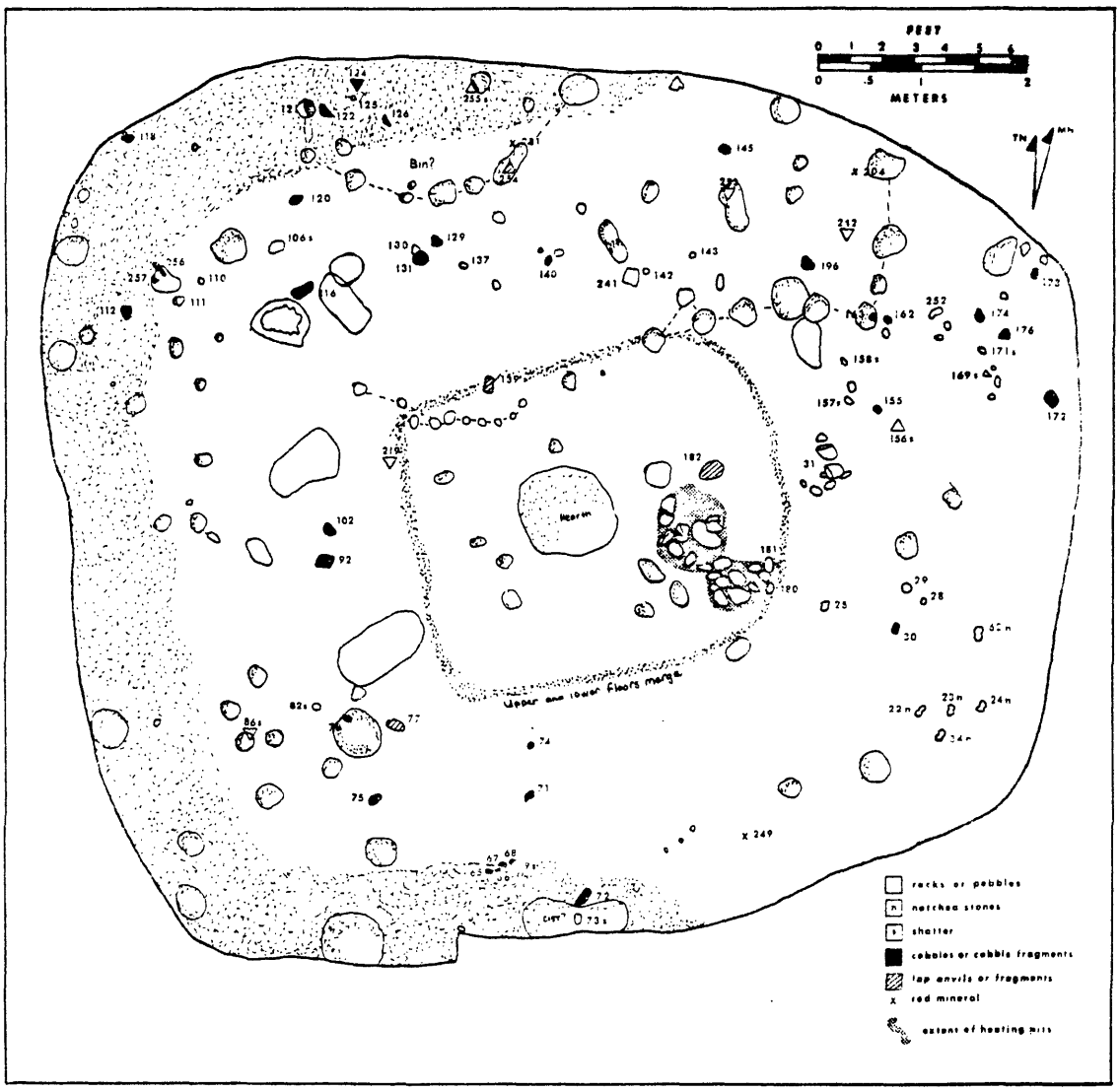


The 1620s church and first convento. Adapted from Hayes 1974.

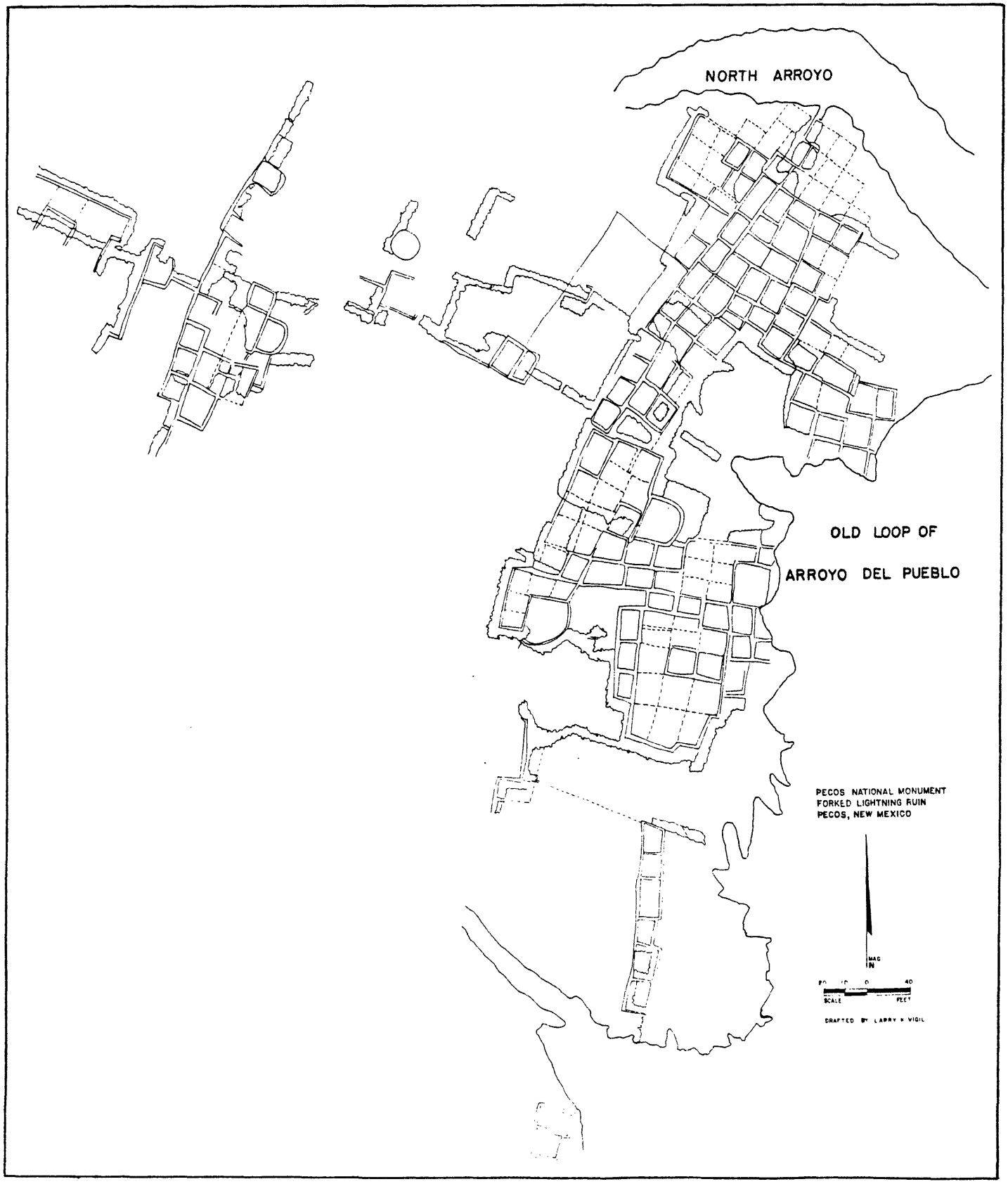


Plan of mid-Eighteenth Century Presidio. Adapted from Hayes 1974.

SEWERLINE SITE

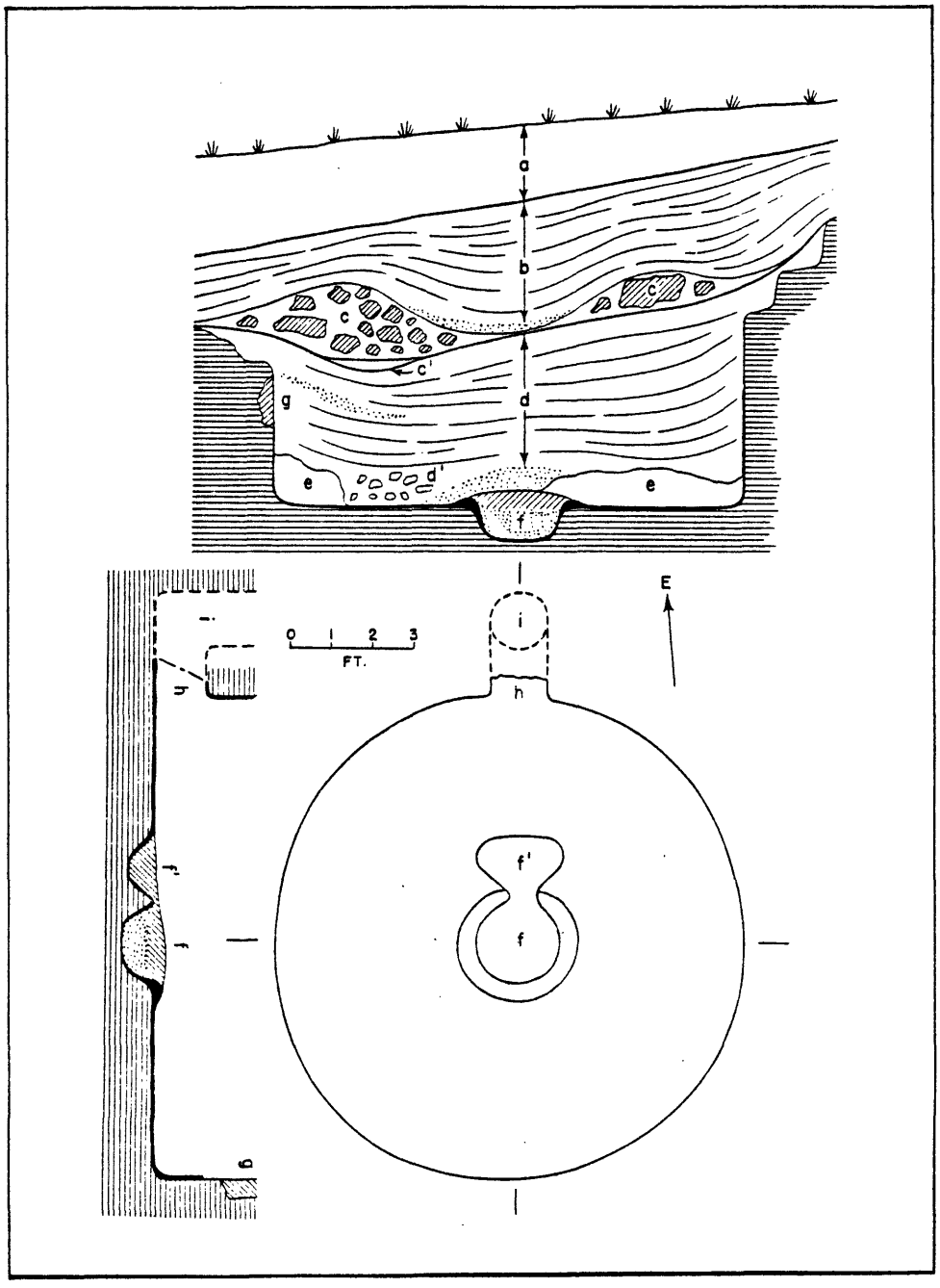


The Sewerline Site excavated by Nordby; pithouse represents earliest architecture in the Upper Pecos River Valley. Map adapted from Southwest Cultural Resources Center, Southwest Region, National Park Service Illustration.

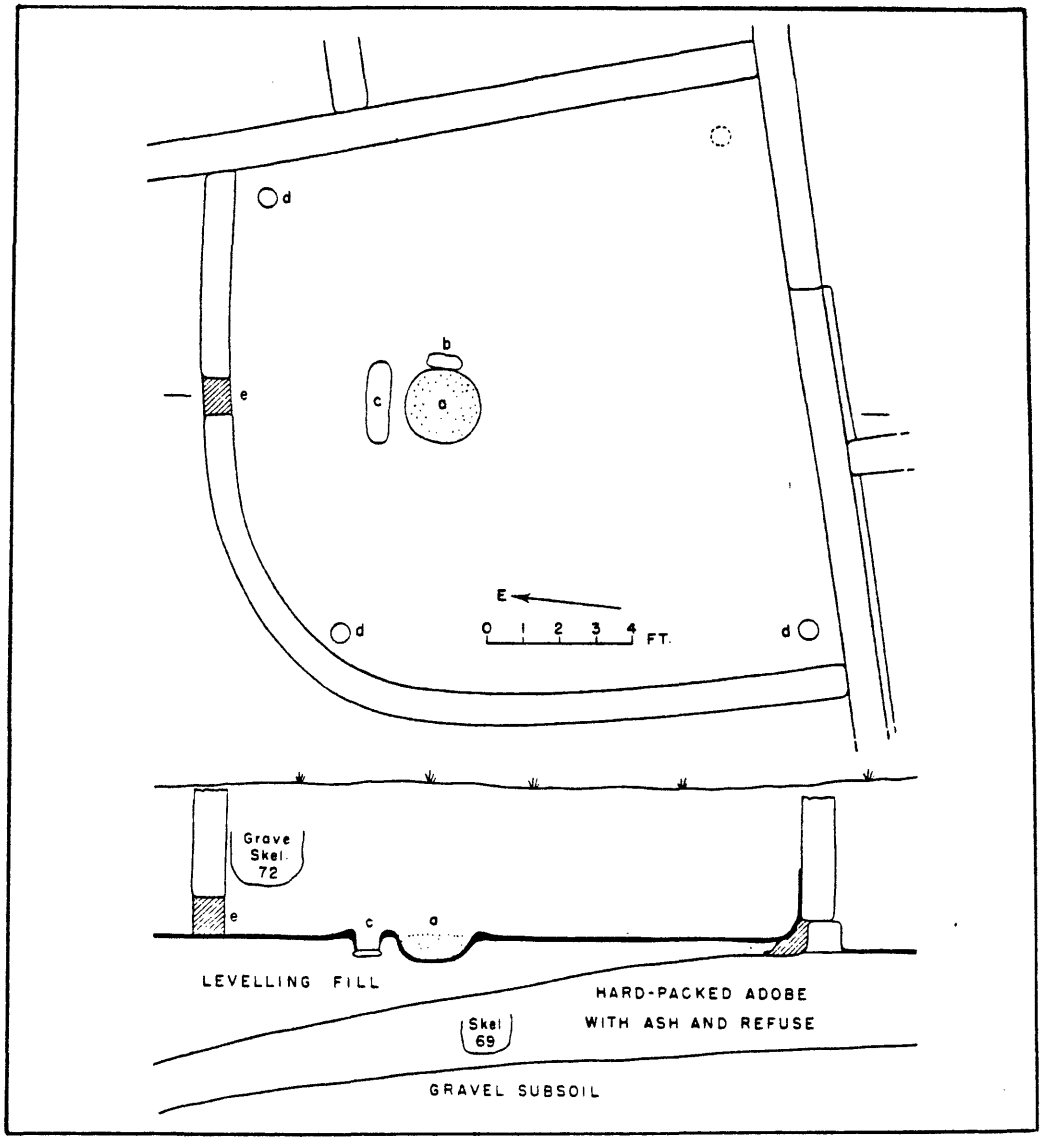


Pecos National Monument. Forked Lightning Ruin, Pecos, New Mexico.
Map adapted from Kidder's field maps 1926, 1927 and 1929.

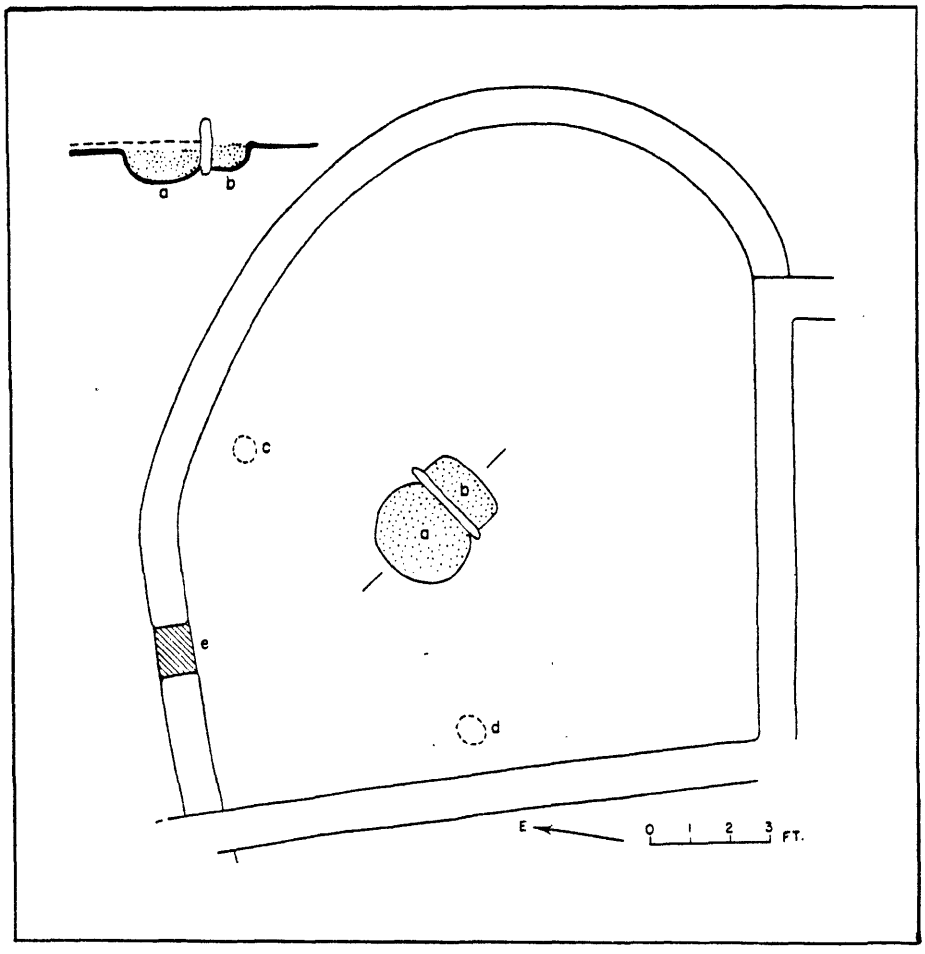
FORKED LIGHTNING RUIN



Round Kiva D (plan, sections): **a**, wash deposited after abandonment of pueblo; **b**, thin, hard-packed layers of ash and charcoal-soiled adobe, evidently a long-used living area; **c**, heaps of fire-hardened adobe roof and wall material with charcoal, carbonized corn, and partly calcined human bones from nearby rooms that burned some time after abandonment of kiva; **c**^{1}, dip in pre-fire living surface containing horizontally bedded silt deposited in standing water; **d**, soft, rubbishy earth with ash, fine charcoal, animal bones, and many sherds, a rapid accumulation of household refuse topped by a hard-packed living surface; **d**^{1}, pile of small burned river boulders with charred pine bark and twigs; probably from a barbecue pit; **e**, red clay from upper walls; **f**, firepit with adobe plug; **f**^{1}, ash repository; **g**, patchings of dark adobe in red clay walls; **h**, opening of ventilator; **i**, probably position of vertical flue, but size and distance behind east wall of kiva not determined. Map adapted from Kidder 1958.

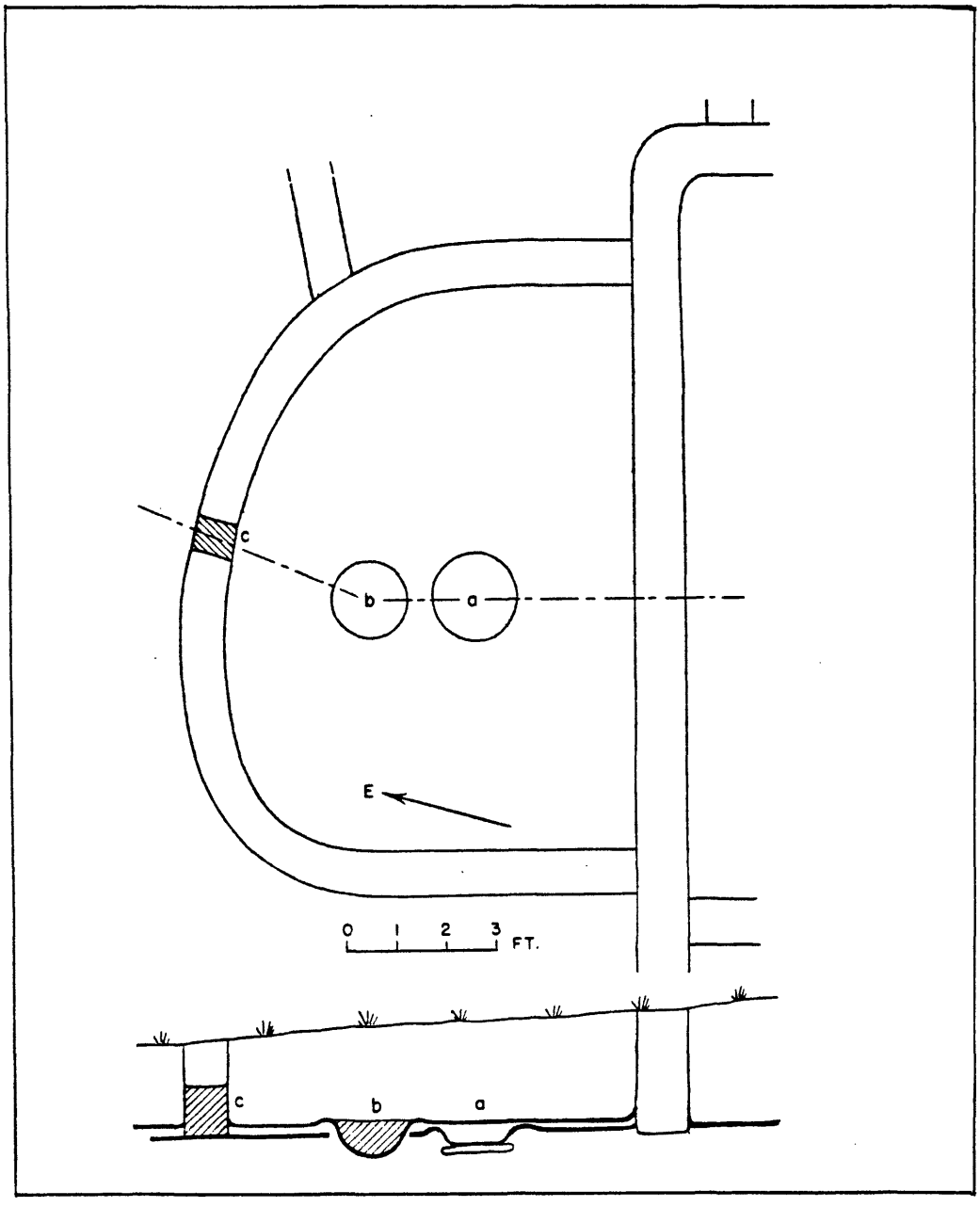


Corner Kiva 3: **a**, firepit; **b**, grinding slab; **c**, ash pit, **d**, postholes; **e**, sealed ventilator. Map adapted from Kidder 1958.



Corner Kiva 4: **a**, early firepit? **b**, firepit; **c** and **d**, probable postholes; **e**, sealed ventilator. Map adapted from Kidder 1958.

FORKED LIGHTNING RUIN



Corner Kiva 5: **a**, unused firepit; **b**, firepit plugged with adobe; **c**, sealed ventilator.
Map adapted from Kidder 1958.

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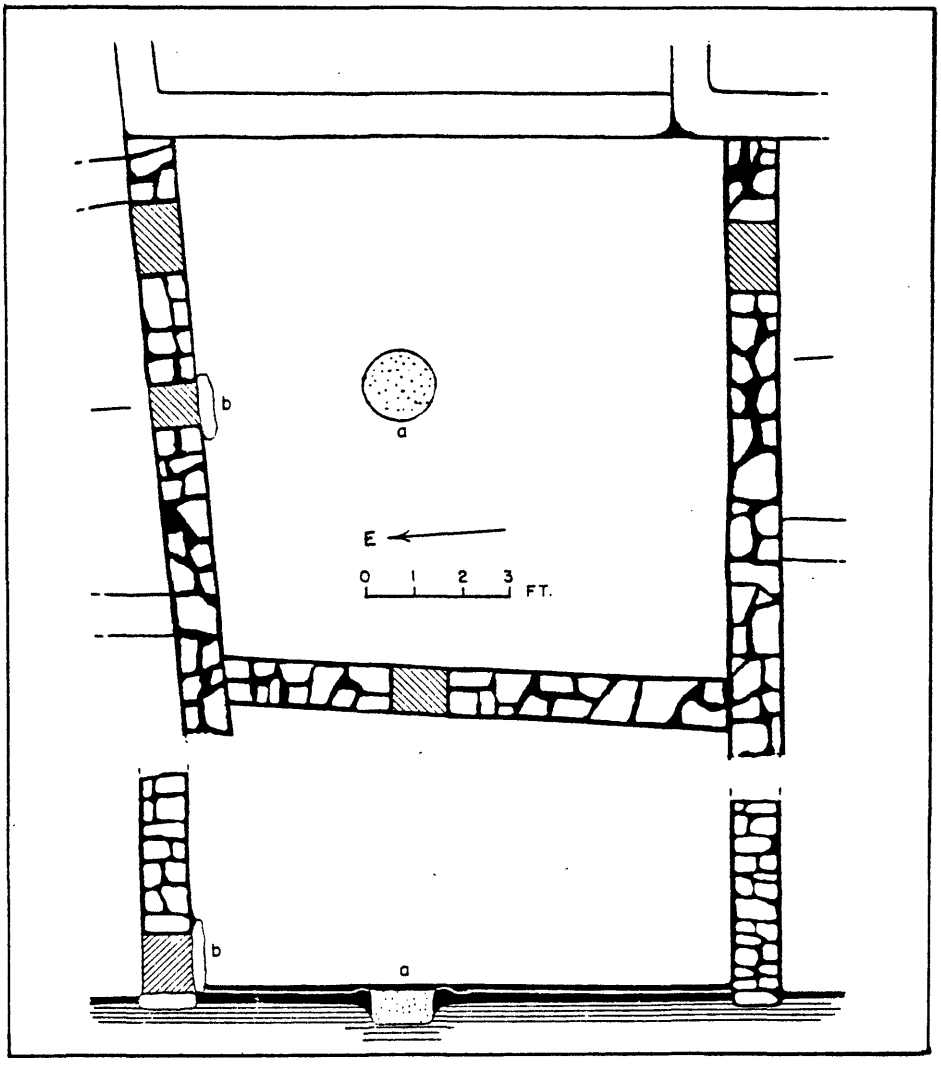
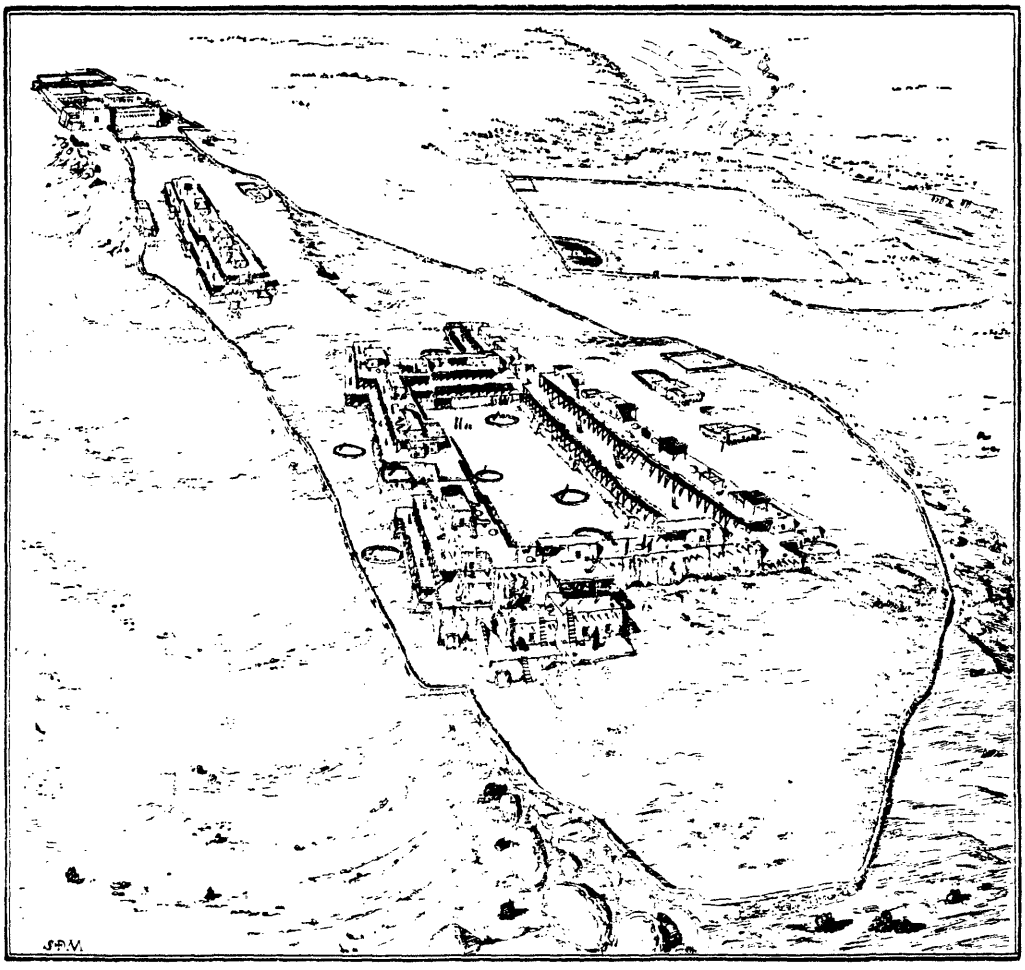


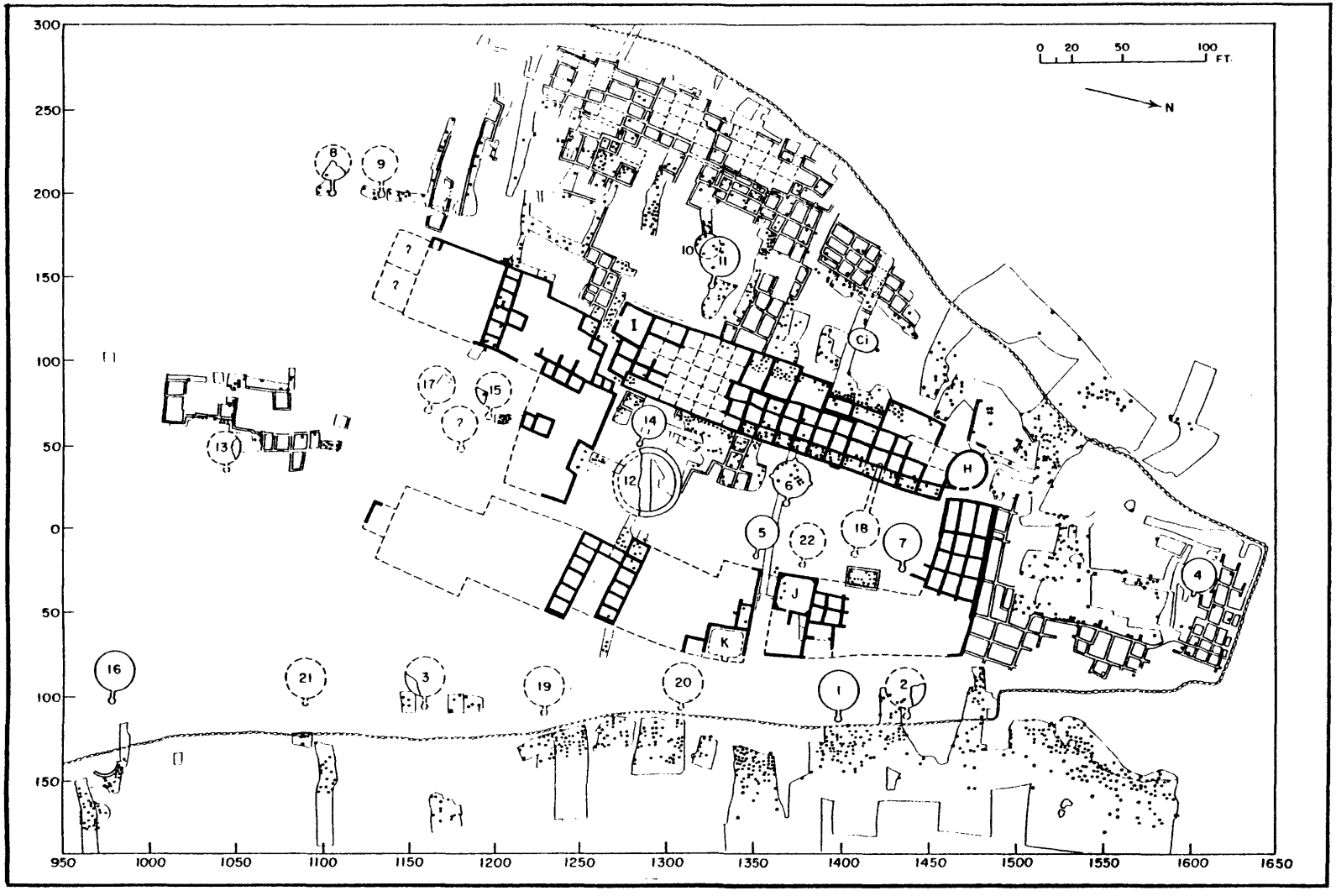
Square Kiva 2, refloored for secular use: **a**, firepit, covered by late floor; **b**, stone slab held by late floor against sealed ventilator. Map adapted from Kidder 1958.

PECOS PUEBLO



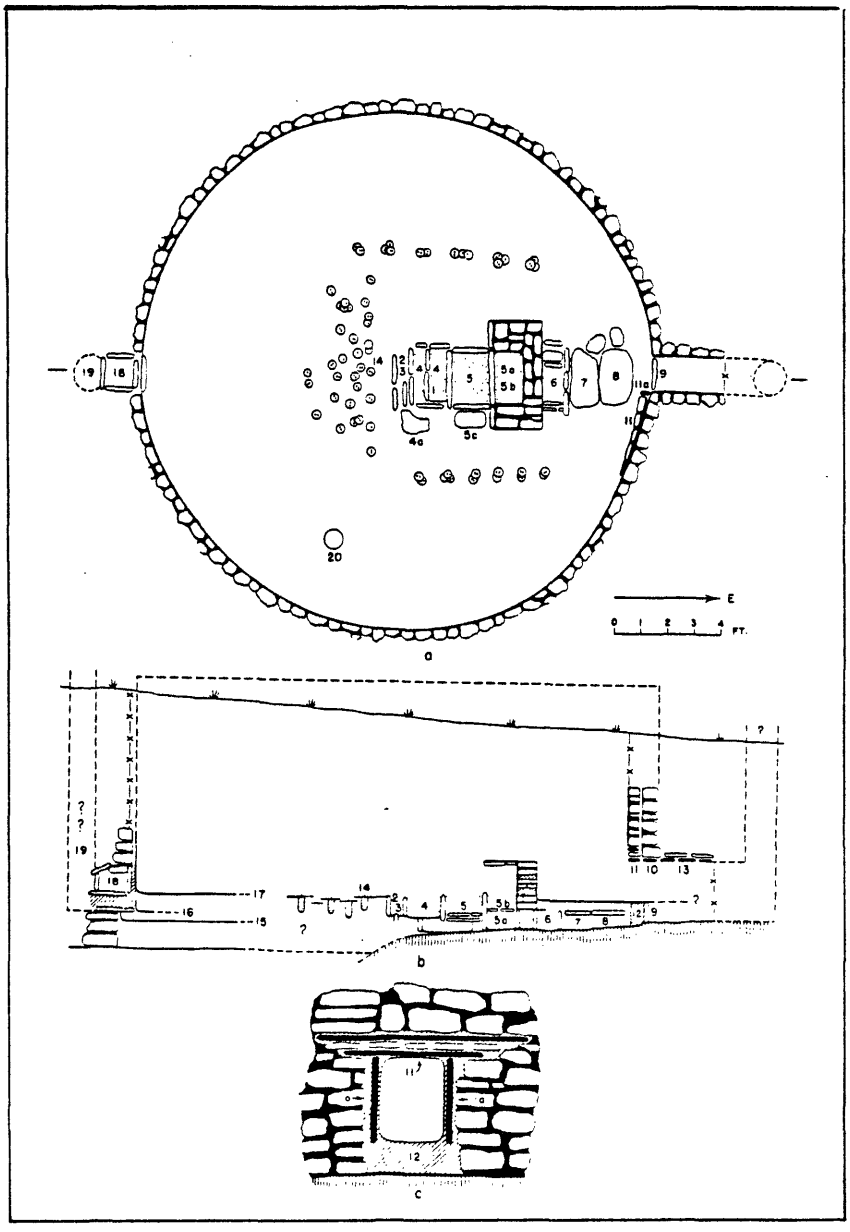
Pecos from north: Quadrangle, South Pueblo, Mission and Convent beyond. Restoration by Singleton Peabody Moorehead as of about 1700. Map adapted from Kidder 1958.

PECOS PUEBLO

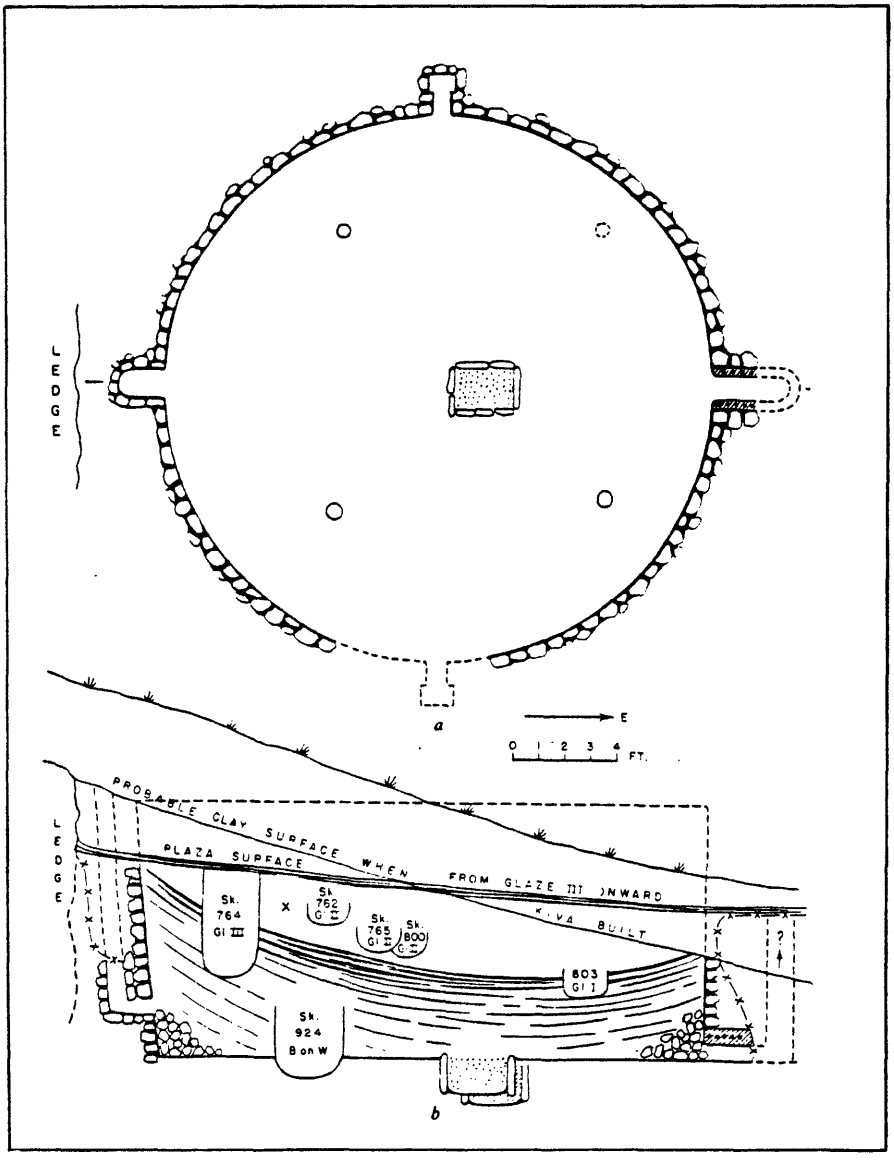


Excavations at Pecos north of South Pueblo. Heavy lines indicate late Quadrangle; lighter lines, earlier ruins, all covered by later refuse. Trenches by wavy lines, burials by dots. Map adapted from Kidder 1958.

PECOS PUEBLO

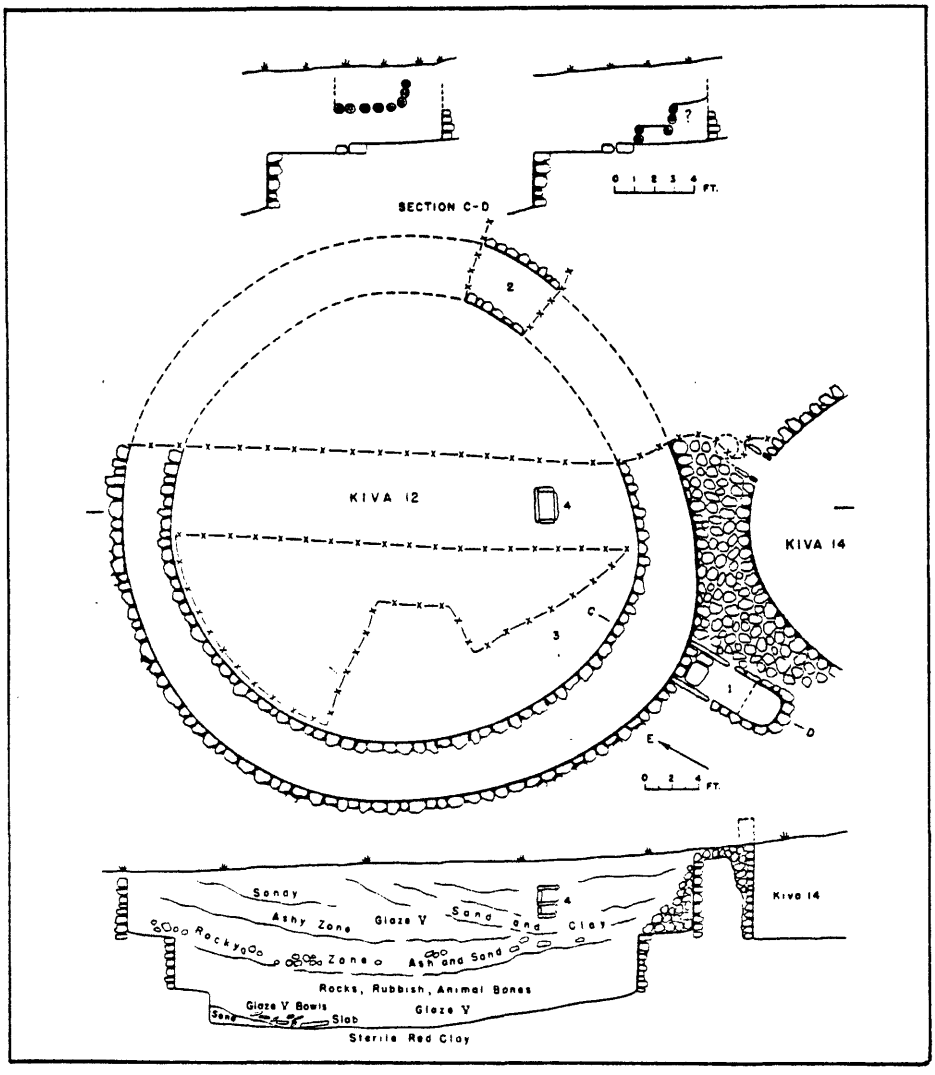


Kiva 5. Key: 1-5, firepits; 5a and 5b, ash repositories; 4a and 5c, grinding slabs south of firepits 4 and 5; 6, ladder pit east of deflector; original length reduced with vertical slabs and a small horizontal slab; 7 and 8, landing slabs; 9, vertical slab in mouth of horizontal passage of ventilator; 10, original wall; 11, short added veneer, a veneer of equal length on north side of ventilator not shown; 11a, wooden jamb of reduced orifice of ventilator; 12, adobe plug inserted when ventilator orifice reduced; 13, wooden slats supporting stone slab roof of horizontal passage of ventilator; 14, row of six loom-loop holders in latest floor; 15, 16 and 17, successive floors; 18, slab receptacle for stone idol; 19, possible supplementary ventilator; 20, post hole; c, in-kiva orifice of ventilator after reduction in size. Map adapted from Kidder 1958.



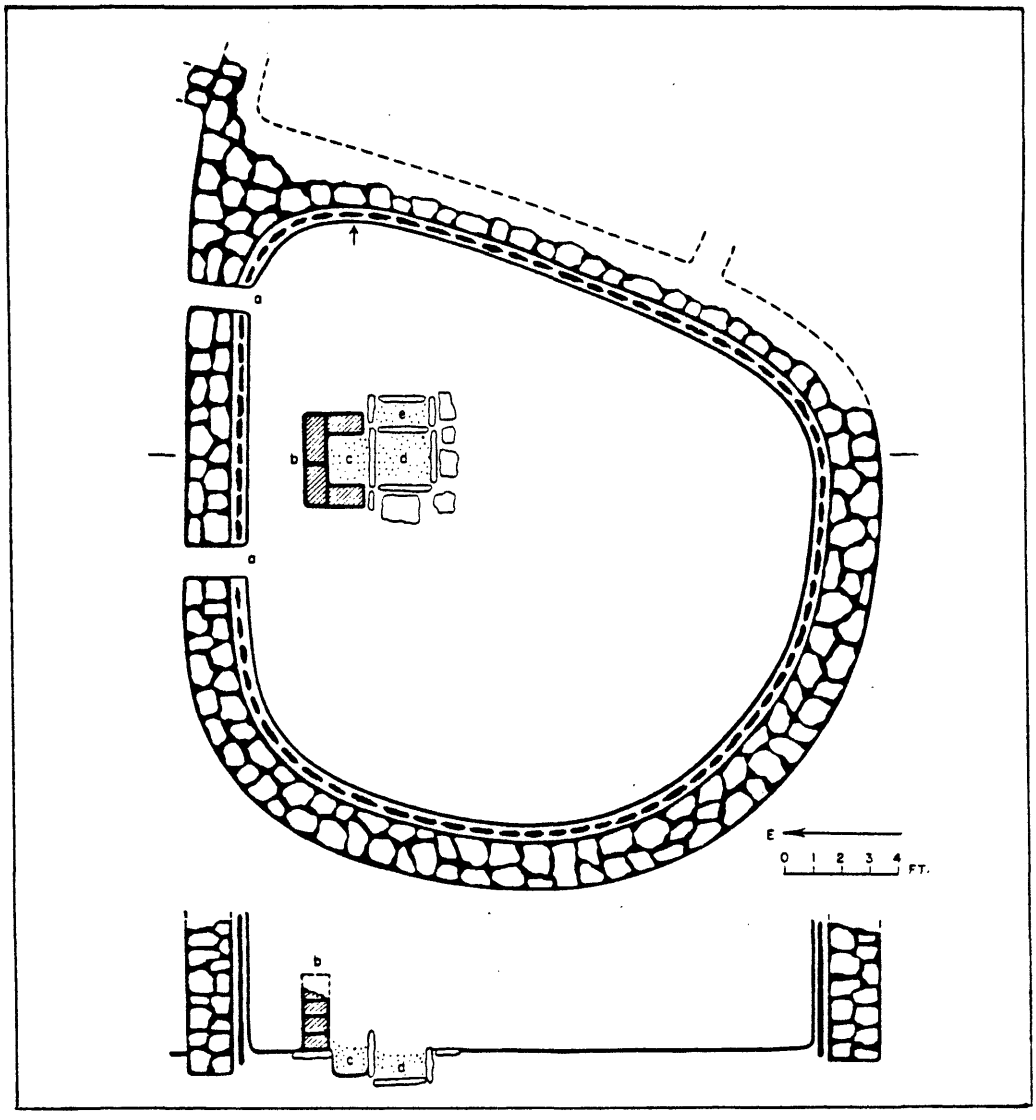
Kiva 6. Only kiva found with multiple ventilators. Built and abandoned during Black-on-white phase (note Skeleton 924). Dark-topped layer of fill deposited prior to Glaze I (note Skeleton 803); x, in section, deepest sherd of that ware found in undisturbed rubbish. Map adapted from Kidder 1958.

PECOS PUEBLO



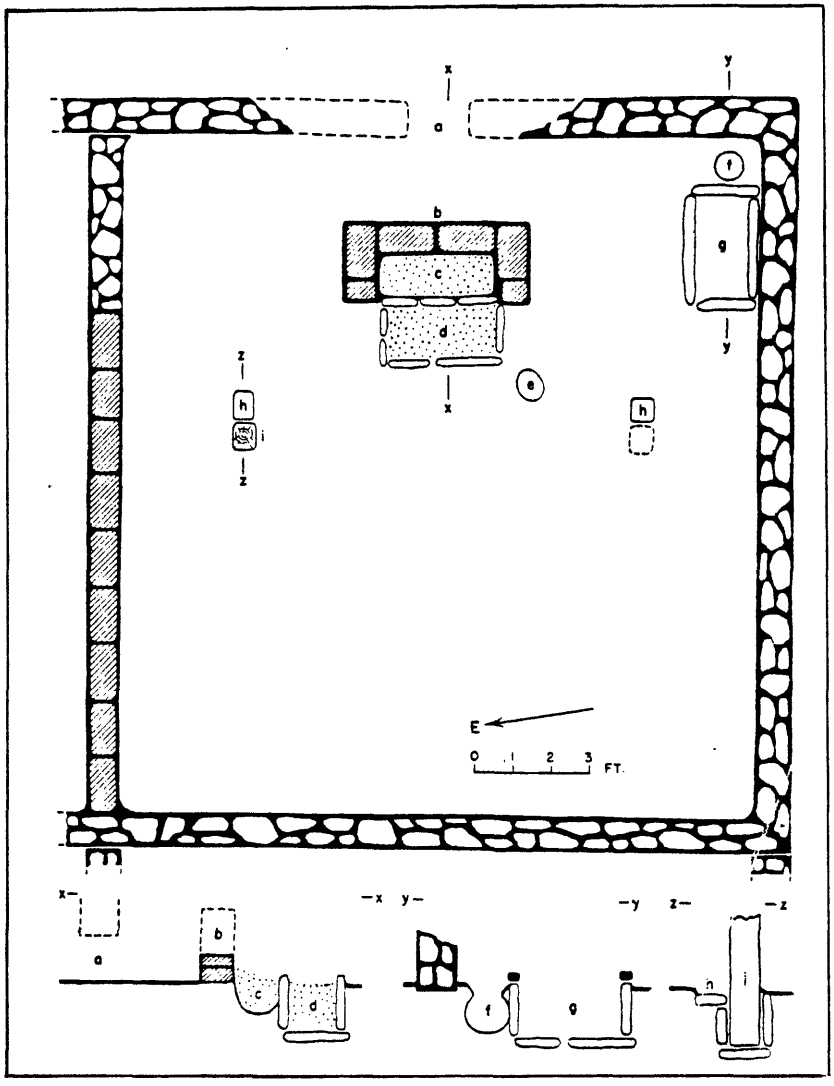
Kiva 12: 1, opening in upper wall, alternative restorations on line C-D, above: left, as a roofed passage, manhole at west end (Vallant); right, as short stair in an open gangway (Kidder); 2, cut across bench; 3, location in fill of waterworn stones; 4, two-story cist containing waterworn stones and idols. Map adapted from Kidder 1958.

PECOS PUEBLO

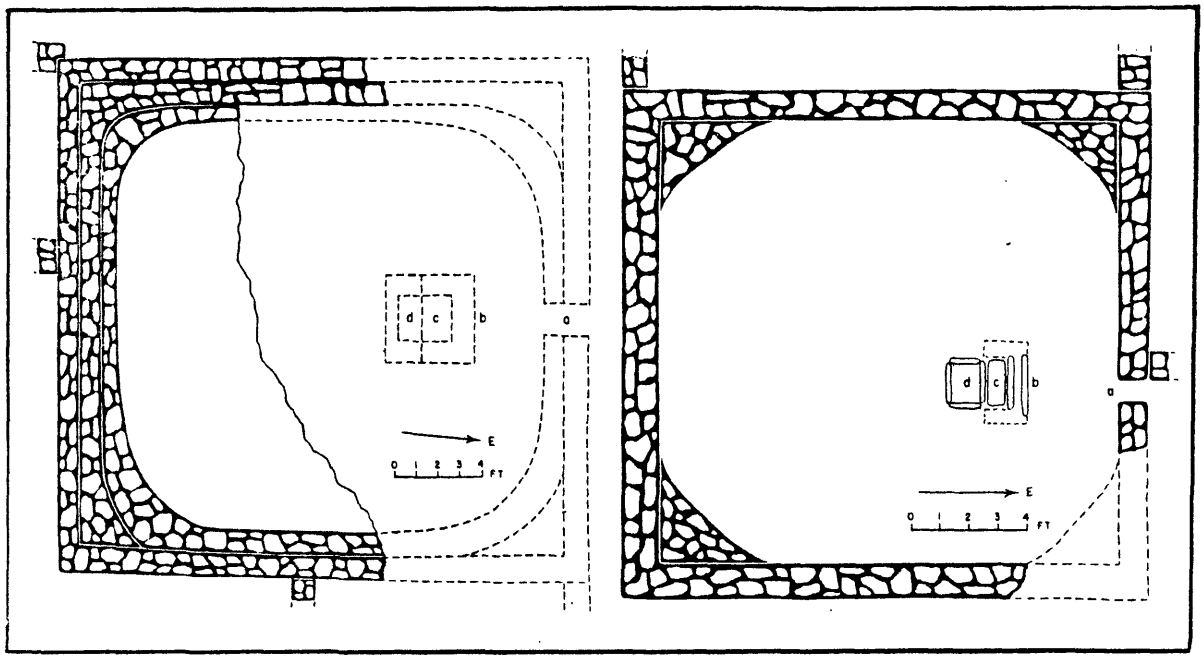


Guardhouse Kiva H: **a**, twin floor-level ventilators; **b**, deflector of moldmade adobes; **c**, ash repository; **d** and **e**, later and earlier firepits. Arrow indicates location of pipes cached behind slats lining wall. Map adapted from Kidder 1958.

PECOS PUEBLO

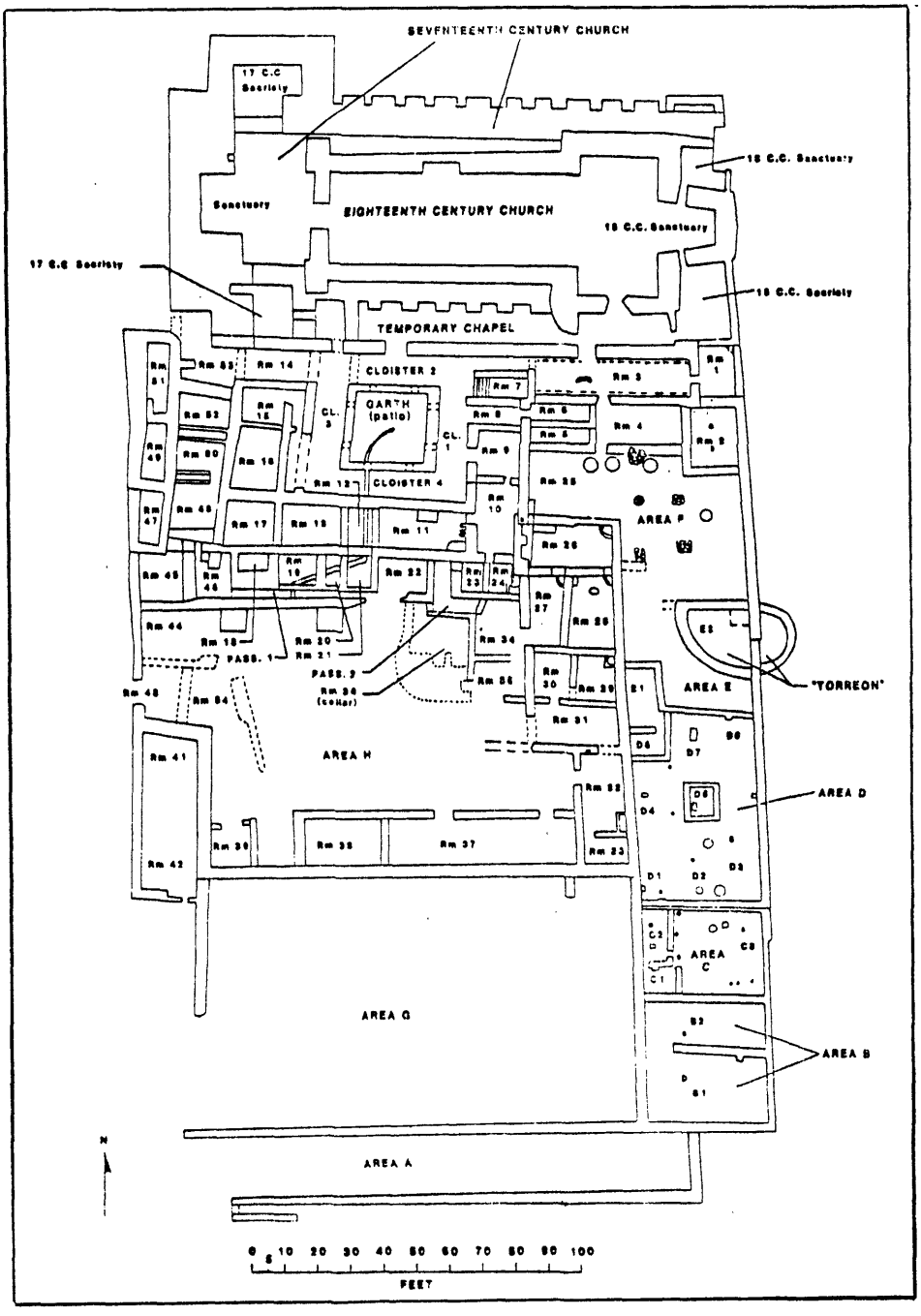


Guardhouse Kiva I: **a**, door or more probably floor-level ventilator orifice; **b**, deflector of moldmade adobes; **c**, ash repository; **d**, firepit (see section x-x); **e**, large sherd set in floor; **f**, cooking-pot sunk in floor; **g**, pit lined and floored with slabs, those of the walls topped by well-shaped lengths of wood (for **f**, **g**, see section y-y); **h**, rectangular stone slabs set in floor south of beams; **i**, remaining one of pair of squared beams (section z-z shows slab setting of beam). Map adapted from Kidder 1958.

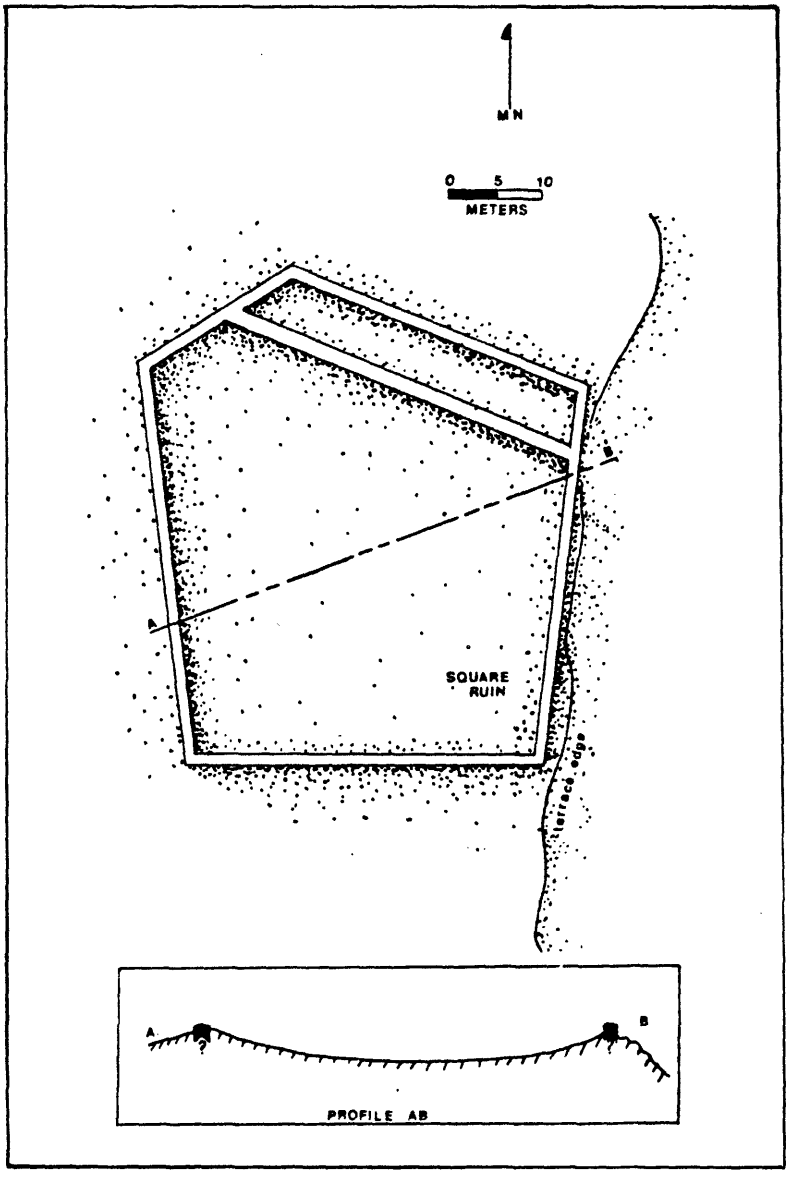


Left: *Guardhouse Kiva K. Missing floor features:* **a**, *floor-level ventilator;* **b**, deflector, probably of adobes with slat reinforcements; **c**, ash repository; **d**, firepit.

Right: Guardhouse Kiva J. Floor features: **a**, floor-level ventilator; **b**, deflector, probably of adobes with slat reinforcements; **c**, ash repository; **d**, firepit. Maps adapted from Kidder 1958.



La Iglesia de Nuestra Senora de los Angeles de Porciuncula (Pecos Church/Convento Complex). Courtesy of Southwest Cultural Resources Center, Branch of Cultural Research. Drawn by Ernesto Martinez.



Sketch map and profile AB of the Square Ruin, made during archeological survey. Map adapted from Nordby 1982.