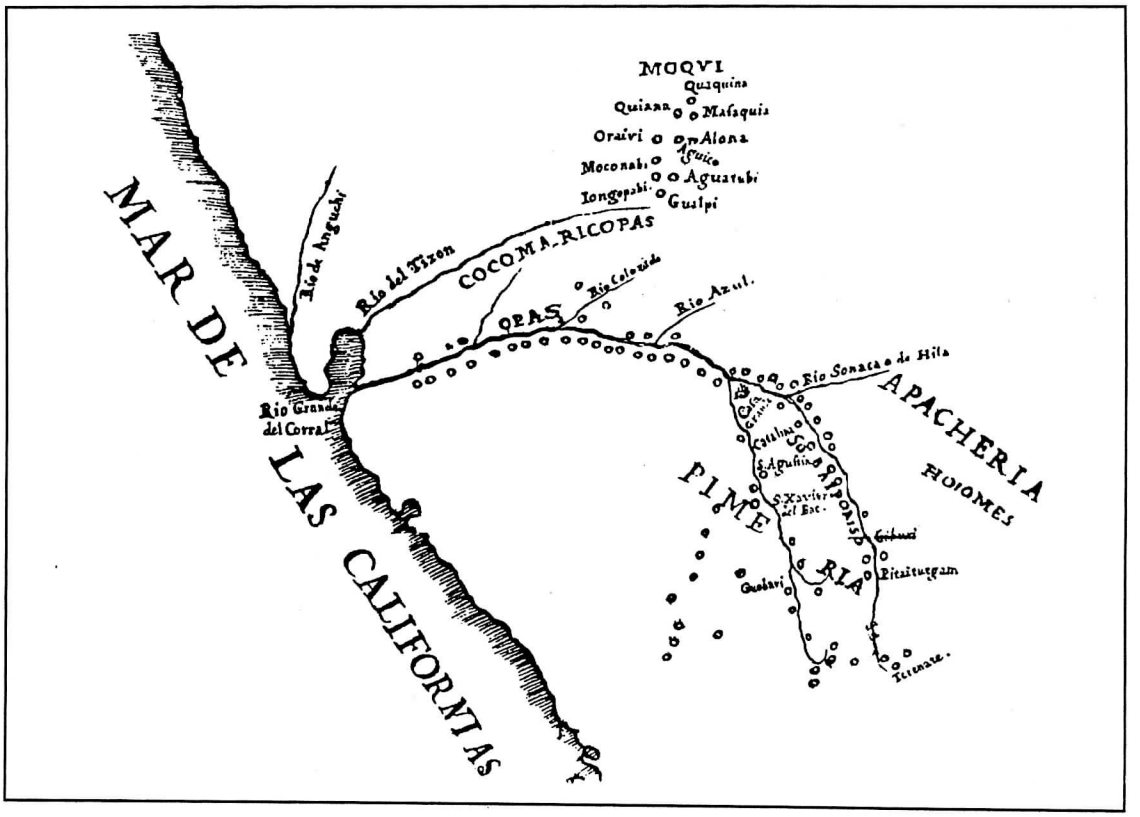
THE PREHISTORIC TO HISTORIC TRANSITION PERIOD IN ARIZONA, CIRCA A.D. 1519 TO 1692



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CHAPTER 1

INTRODUCTION

Sometime near the end of April in 1536, Alvar Núñez Cabeza de Vaca and three companions—the only survivors of 300 men who had debarked on the coast of Florida eight years before—arrived in Sinaloa, having walked across the Gulf Coast and through the American Southwest (Figure 1.1). Along the way they heard of great towns to the north, where the inhabitants mined turquoise and practiced agriculture. In 1539 one of expedition's survivors, Estevan, led Fray Marcos de Niza north to witness the Cibolan empire he had heard about in his earlier journey. Estevan journeyed as far as Hawikuh, one of six or seven Zuni towns, where he was killed. Fray Marcos turned back, probably before sighting any of the Zuni towns, but a year later he would return with an army of exploration commanded by Francisco Vásquez de Coronado.

Cabeza de Vaca traveled through a world wracked with change. The great prehistoric cultures of the Southwest—called by archaeologists the Hohokam, Mogollon, Anasazi, Salado, Sinagua, and Patayan—had been experiencing major transformations for five hundred years. Some of these changes were the result of natural environmental changes, others derived from local cultural and social upheavals. As early as A.D. 1050, roads from Chaco Canyon had extended into what is now Arizona, and Chacoan-style great houses had been built along the Puerco River and its tributaries. With the waning of the Chacoan system, great towns of thousands of people had been built as people from dispersed puebloan communities began to migrate to the Hopi mesas. In the deserts of southern Arizona, people identified archaeologically as the Hohokam and Salado constructed large communities around elaborate systems of canals, but in the 1300s great floods roared down the Salt and Gila rivers, destroying the ancient Hohokam canals and the societies that depended upon them. At about this time, peoples along the lower Colorado River and Lake Cahuilla (a predecessor of the Salton Sea) began to expand into the deserts and mountains of western Arizona, perhaps at least partly as a result of the drying up of the lake. And between about A.D. 1300 and 1700, Athapaskan-speaking ancestors of the Apache and Navajo began to spread into what is now Arizona.

With the coming of the Spaniards, however, perhaps the greatest changes that would affect the local populations of Arizona would result from forces set in motion by the invaders. The first great catastrophe may have been the introduction of disease, and this calamity may have affected the Indians of Arizona even before the arrival of Cabeza de Vaca. Missionizing of the native peoples of Arizona was the first goal of the Spaniards, and they began their efforts with the Zuni and Hopi in 1629. Colonization of Arizona did not begin until the 1700s, after the period under discussion here (1500-1700).

In 1680 the Pueblos of Nuevo Mexico (including Hopi and Zuni) revolted and drove the Spaniards completely out of the Southwest. In 1692 Don Diego de Vargas began the Reconquest.

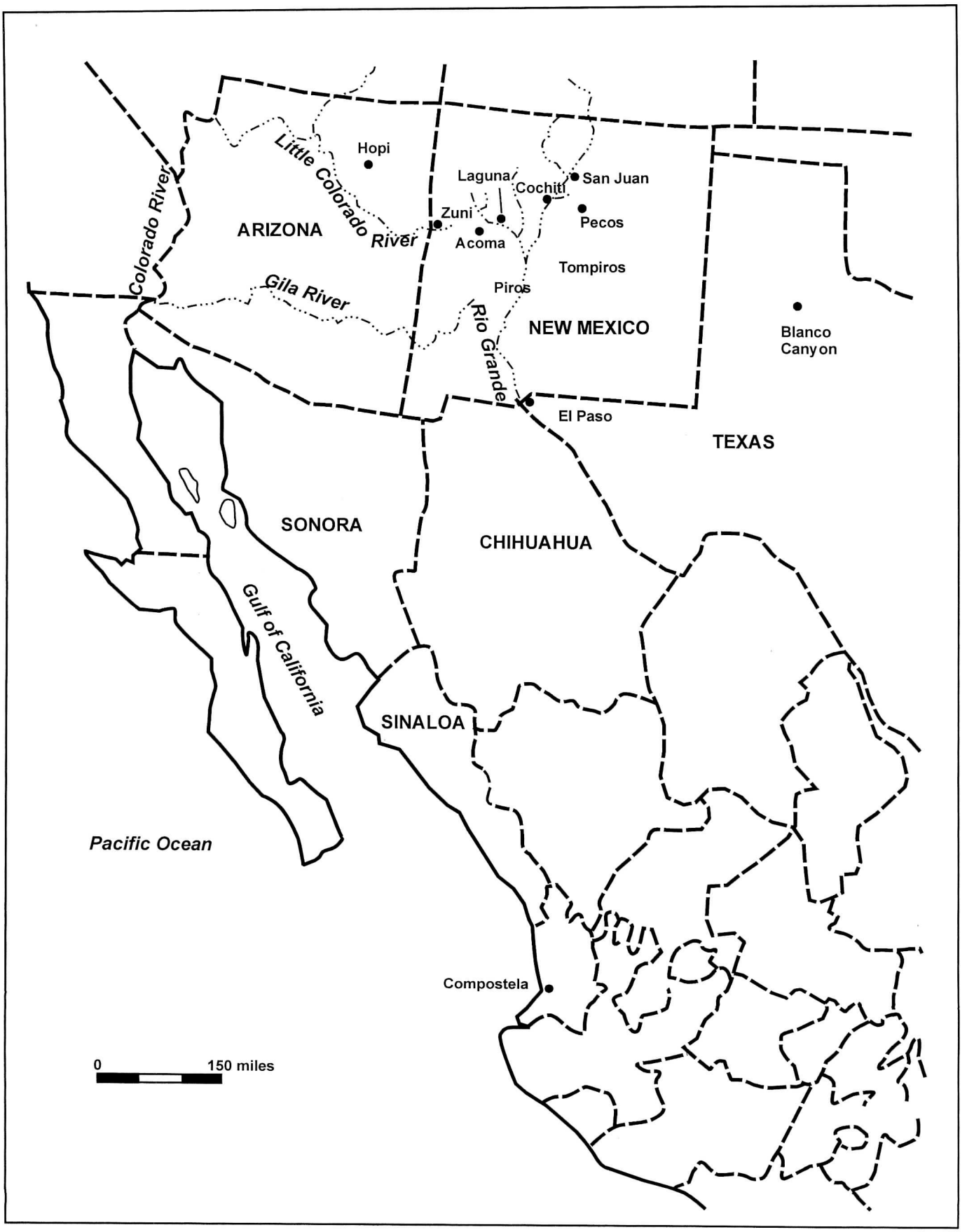

Figure 1.1. The greater Southwest.

Missionization of southern Arizona began at about the same time as the Reconquest with the entry of Father Eusebio Kino into Arizona in 1691, when he got as far north as Tumacácori. By the time of his death in 1711, Kino had explored virtually all of Arizona south of the Gila River and had established a chain of missions and Indian ranches.

Even as Kino began his missionary activities in Arizona, his proselytes were under attack from the Apaches, who were apparently moving into the area from the north. The migrations of other Native American groups into Arizona—the lower Colorado River Yumans, the upland Yumans or Pai, and the Paiute—may have begun as early as the 1300s, but their tribal territories seem to have been fluctuating throughout the transition to history, and scattered warfare led to alliances between tribes.

From all these changes, much of the modern culture of Arizona emerged. The Native American tribes and their traditional cultures, as they are understood today, may have crystallized during this dawn of the Historic period. In the missions to the Native Americans the seeds of Spanish culture were planted as well, although the establishment of presidios, towns, and ranches did not begin until the eighteenth century.

Because the period from A.D. 1519 to 1692 was a time of intermittent European contact with the Native Americans of Arizona, the written documentation of the period is sporadic, and because Europeans were trying to describe a country and people they had never seen before, what writings there are reveal inexact knowledge and confusion alongside the excitement of discovery. Native American groups believe that they have been here since time immemorial, but many of their creation and origin stories may describe events that occurred during the first period of contact with Europeans. Anthropologists who have tried to reconstruct what Native American cultures were like before they were influenced by Europeans began observing the Native Americans of Arizona only in the late nineteenth century, 350 years after Indian-European contact. Archaeologists trying to reconstruct this period have only remnants—ruined towns and farmsteads, long abandoned campsites, artifacts, and other mute remains of the past—to work from. Yet all of these approaches illuminate, however imperfectly, one of the most fascinating, promising, and tragic periods of our history, when vastly different cultures, on colliding trajectories of cultural and historical development, met for the first time.

DEFINITION OF THE PERIOD

Archaeologists typically refer to the time of transition between prehistory and history as the Protohistoric period, but the dates ascribed to this period vary widely. There are two basic ways of defining the Protohistoric. One is to date it from the time when the historically identified tribes of Arizona first become visible in the archaeological record. For example, Harner (1958:96) considered the Protohistoric to date from A.D. 1300 to 1700 in the Patayan area, as does Purcell (Purcell 1996; Purcell and Wright 1996); Rosenthal et al. (1978) date the Protohistoric of the Papaguería from A.D. 1450 to 1700; Wilcox and Masse (1981) use A.D. 1450-1700 for the Protohistoric in the entire

Southwest; and Altschul and Fairley (1989:147) recognize a post-Puebloan, hunter-gatherer occupation of the Arizona Strip (north of the Grand Canyon), which they divide into the late prehistoric (A.D. 1200-1600), the Protohistoric (A.D. 1600-1776), and the Historic (1776-present). The second way to date the Protohistoric is to refer to historical documentation and to associate the Protohistoric with the time of sporadic historical records. Thus, Ferg (1992) considers the Protohistoric to date from A.D. 1539 to 1875. The Ak-Chin Archaeological Data Recovery Project dates the Protohistoric from A.D. 1625 to about 1880 or 1890 (Gasser 1990). The Request for Proposals (RFP) for this project proposed approximate dates of A.D. 1500-1700, leaving the precise definition of the period to be determined by the results of the study.

The period in question is the time when European influences were first being felt in the Southwest but before Europeans were here on a permanent basis. Historically, the key dates are (1) A.D. 1519, when Cortez invaded Mexico, establishing a permanent colony in the New World and introducing diseases to western North America that may have spread quickly northward; (2) A.D. 1536, when Cabeza de Vaca and his three companions passed though southeastern Arizona; (3) A.D. 1539, when Fray de Niza and Estevan explored as far north as Cibola (Zuni); (4) A.D. 1540, when Coronado explored the Southwest; (5) A.D. 1598, when Don Juan de Oñate began establishing colonies in New Mexico; (6) A.D. 1629, when the first missions were established in what is now Arizona (at Hopi); (7) A.D. 1680, the year of the Pueblo Revolt; (9) A.D. 1691, when Father Kino began his missionary activities in southern Arizona; and (9) A.D. 1692, when de Vargas began the reconquest of the Pueblo villages. These years, between the Conquest of Mexico in A.D. 1519 and the Reconquest of New Mexico in 1692, span the period of time from just before the first European influences were experienced by the indigenous peoples of Arizona to the establishment of a permanent European presence.

The spatial parameters of the study are defined as the current boundaries of the State of Arizona, although it is recognized that it will be necessary to understand the history of groups living primarily outside the current state boundaries in order to understand their use of areas within the state. For example, for most of the A.D. 1519-1692 period, Zuni permanent habitation was centered along the Zuni River in New Mexico, but even as late as 1846 the area of Zuni sovereignty extended as far west as the San Francisco Peaks (Ferguson and Hart 1985). Additionally, in order to understand migrations of Patayan culture into western Arizona, one must know something of the culture history of southern California.

The cultural parameters of the study are defined as including the Spaniards and at least 20 Native American groups representing at least six language families (Numic, Southern Athapaskan, Yuman, Uto-Aztecan, Zuni, and others). Tribal groups were not fixed entities, however, and were changing throughout the Protohistoric period. In fact, the changing definitions of cultural affiliation constitute one of the most interesting research questions for the period.

ARCHAEOLOGY, HISTORY, AND ETHNOGRAPHY

The transition to history is not just the march of time, but a change in the way people think about history and about time, culture, and tradition. Students of this period are challenged to reconcile and use historical, archaeological, and ethnographic data.

Archaeologists, historians, and anthropologists have generally used different approaches in classifying cultures of the Protohistoric period. The first approach employs archaeological classifications of prehistoric cultures, such as Anasazi, Hohokam, Mogollon, Sinagua, and Patayan (or Hakataya). The second approach is to discuss the Protohistoric period in terms of historically recognized ethnic groups. Ethnographers, however, have traditionally employed their own construct, the ethnographic present, which describes cultures as static systems. The primary methodological problem in the historic context report on the Protohistoric period is how to reconcile these multiple systems of classification while recognizing that environmental, demographic, and cultural changes were occurring during this time and were contributing to the evolution of the ethnic groups and lifeways that were reported by European explorers and colonists.

ARCHAEOLOGICAL BACKGROUND

Based on such attributes as architecture, ceramics, and mortuary behavior, archaeologists have defined six archaeologically visible cultural groups that occupied Arizona in the late prehistoric period: the Anasazi, village farmers who lived on the Colorado Plateau; the Sinagua, a similar group that lived in the area from the San Francisco Peaks into the Verde Valley; the Mogollon, village farmers of the Mogollon Highlands; the Patayans, semisedentary farmers in western Arizona; and the Hohokam and Salado, irrigation agriculturalists in southern Arizona. The relationships of these archaeologically defined "cultures" to modern populations is an ongoing research topic. The coalescence of archaeologically defined Anasazi, Mogollon, and Sinagua cultures into modern Pueblo cultures is generally accepted (Adams 1981; Anyon 1992; Ferguson 1981; Kintigh 1985; USDA Forest Service [FS] 1996). The archaeologically defined Patayan (or Hakatayan) groups are generally considered ancestral to modern Yuman tribes (FS 1996), although Schwartz (1956) once proposed an alternative explanation. The Hohokam culture appears to have been ancestral to modern Pima and Tohono O'odham groups, but archaeologists have been perplexed by how the relatively complex Hohokam systems of canals, village compounds, great houses, and platform mounds of the fourteenth century evolved into the relatively simple Pima and Tohono O'odham systems of nonirrigated agriculture, heavy dependence on hunting and gathering, and dispersed ranchería settlements of the sixteenth century (Bahr 1971; Ezell 1963a; FS 1996). Furthermore, the archaeological and historical record is replete with examples of biological and cultural exchange between groups (Brugge 1963, 1981a; Carlson 1965).

Archaeologists have identified a number of general changes that were taking place among prehistoric cultural groups in Arizona from about A.D. 1300 into the Historic period. First, long-term, year-round habitation ended in large areas of the Colorado Plateau and the Mogollon

Highlands as population aggregated into the Hopi and Zuni pueblos (Adams 1981; Anyon 1992; Ferguson 1981; Kintigh 1985). Conversely, Hohokam populations dispersed from nucleated settlements to ranchería-style settlements. Even as these changes were occurring, three immigrant groups began to arrive in what is now Arizona. Numic-speaking Paiutes and Utes spread into northern Arizona around A.D. 1300 (Bettinger and Baumhoff 1982). Southern Athapaskans (Apaches and Navajos) spread into northeastern and southern Arizona beginning around A.D. 1575 (Di Peso 1956:33-35; Ferg 1992; Gilpin 1996; Hester 1962; Oakes 1996; Reed 1941). Finally, the Spanish (who may have been preceded by European-introduced diseases and consequent depopulation) began exploring Arizona in A.D. 1540, establishing missions at Hopi in 1629 and missionizing southern Arizona beginning about 1691 (Bolton 1916, 1936; Montgomery, Smith, and Brew 1949; Winship 1896).

HISTORICAL BACKGROUND

The European colonization of the Western Hemisphere began shortly after Columbus's voyages of discovery. Spanish exploration of the Southwest was originally prompted by the stories of Cibola heard by Alvar Nuñez Cabeza de Vaca during his 1528-1536 trek from Florida to Mexico. In 1539 Fray Marcos de Niza and Estevan, a survivor of Cabeza de Vaca's expedition, set out from Culiacan to investigate these reports. Estevan went as far as Zuni, where he was killed, and when Fray Marcos (who was traveling some distance behind) heard of Estevan's death, he retreated to New Spain, spreading tales of the wealth of Cibola. These stories led to the organization of the Coronado Expedition, which explored the Southwest from 1540 to 1542 (Winship 1896:37-57, 1990). The Coronado Expedition demonstrated that little wealth was to be found in the region, and except for the Espejo Expedition of 1582-3, no further exploration was undertaken until Don Juan de Oñate began colonization of Nuevo Mexico. In 1598 Oñate traveled from New Mexico to Zuni and Hopi and sent Marcos Farfán de los Godos from Hopi to investigate mines in the Verde River area (Bolton 1925). In 1604 Oñate led an expedition from New Mexico to Zuni and Hopi, then south and west through the Verde and Bill Williams river valleys to the Colorado River and California. The Spaniards began to missionize the Hopi and Zuni in 1629, but in 1680 the Hopi and Zuni participated in the Pueblo Revolt that drove the Spaniards out of the Southwest. In 1691 Kino began Spanish missionary activities in southern Arizona. In 1692 de Vargas subdued the Hopi and Zuni during the Spanish reconquest of the Pueblo country. Figure 1.2 shows the routes of these expeditions.

Chronology

1536 Alvar Nuñez Cabeza de Vaca and three others pass through the southeastern corner of Arizona (Hallenbeck 1940; Nuñez Cabeza de Vaca 1983)

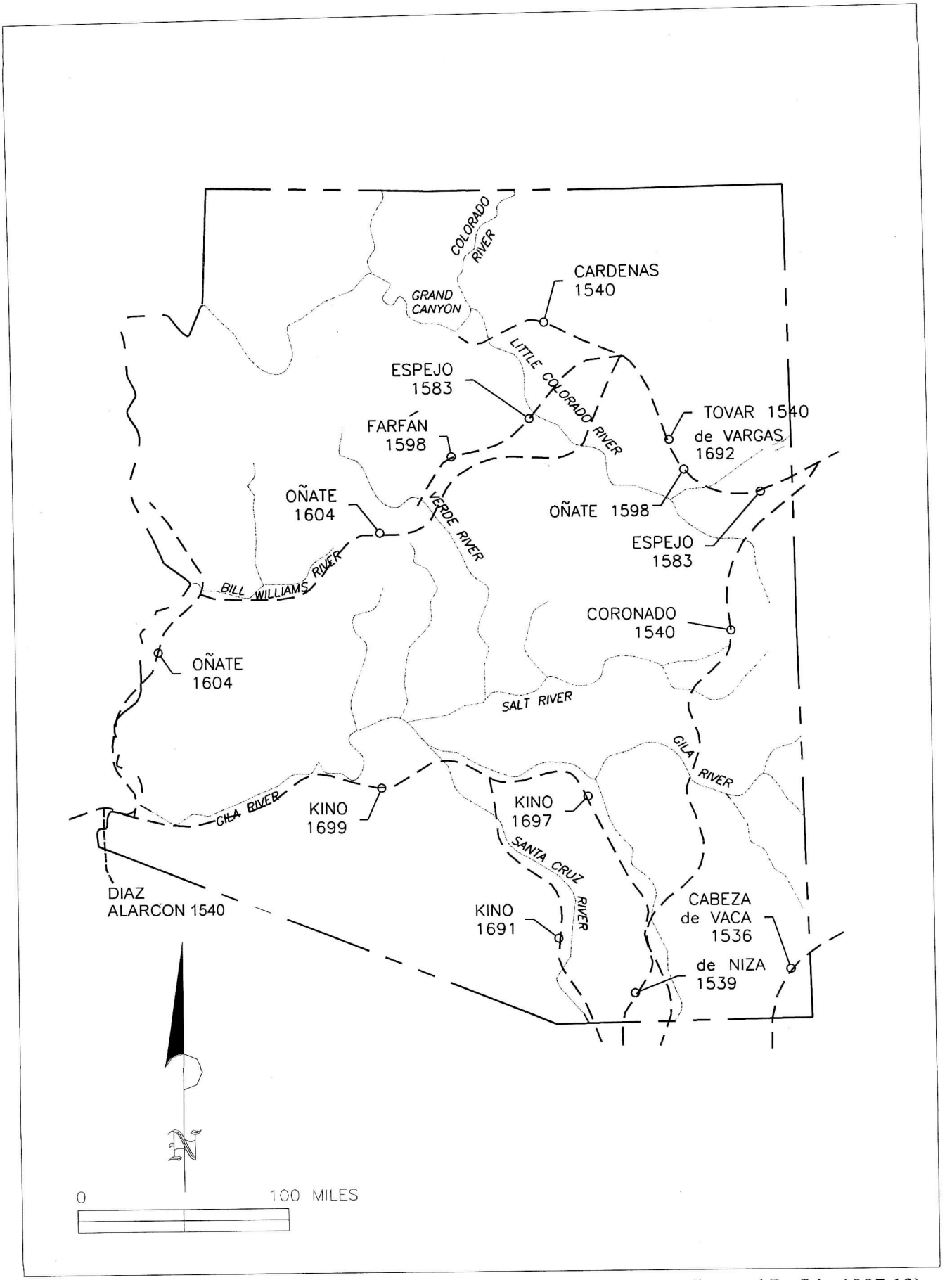

Figure 1.2. Routes taken by early Spanish Explorers in Arizona (after Walker and Bufkin 1997:13).

1539 Fray Marcos de Niza and Estevan the Moor (who had been with Cabeza de Vaca) explore north into Arizona, with Estevan reaching Zuni, where he was killed, and Fray Marcos turning back, possibly before entering Arizona (Hallenbeck 1987; Sauer 1937, 1940)

1539-40 Melchior Díaz, Juan de Zaldívar, and 12 men explore north as far as Chichilticale (a district around a ruin of the same name) near the Gila River in Arizona (Hammond and Rey 1940)

1540 Expedition of Francisco Vásquez de Coronado enters southern Arizona and travels north to Zuni pueblos. Coronado sends Fray Juan Padilla and troops under the command of Pedro de Tovar from Hawikuh to Hopi. Later that year, Captain García Lopez de Cárdenas sent from Hawikuh to Hopi and on to the Grand Canyon (Bartlett 1934:55; Winship 1896:488). The narratives of the Coronado Expedition contain no discussion of the routes followed by these explorers, but in all likelihood they followed the Zuni-Hopi Trail (Bartlett 1940).

1583 Antonio de Espejo travels from Zuni to Hopi to the Verde mines in historic Yavapai territory (Hammond and Rey 1966)

1598 Oñate colonizes New Mexico, reports Apaches at Acoma, travels from New Mexico to Zuni to Hopi, sends Farfán from Hopi to the Verde mines (Bolton 1925)

1604 Oñate travels from Zuni to Hopi to the Verde mines, then west. North of the mouth of the Bill Williams River meets Amacava (Mohave) Indians, who give him maize, beans, and calabashes; he reports that the Amacava also ate mesquite beans (Bolton 1916; Hammond and Rey 1953).

1610 Captain Gaspar de Villagrá's verse history of Oñate's conquest mentions Apaches at Acoma in 1598 (Di Peso 1956:34)

1628 Padre Antonio Peinado goes to Hopi (Bancroft 1889:158, 161; Bartlett 1934:56)

1629 Francisco Porras and two other padres establish missions at Hopi (Adams 1981; Ferguson 1981); Porras poisoned at Awatovi on June 28, 1633 (Bancroft 1889:158, 161; Bartlett 1934:56)

1661-4 Diego Dionisio de Penalosa y Briceño, Governor of New Mexico, apparently visits both Zuni and Hopi; would have taken the Hopi-Zuni Trail (Bancroft 1889:158, 161; Bartlett 1934:56)

1666 Spanish inscription at Hoye Spring (Correll 1979:37; Reagan 1927; Van Valkenburgh 1941a)

1680 Pueblo Revolt (Knaut 1995)

1691 Father Eusebio Kino and Father Juan María de Salvatierra visit San Cayetano del Tumacácori (Bolton 1984; Di Peso 1956:8)

1692 Kino travels to Bac and the San Pedro River (Bolton 1984)

1692 Don Diego de Vargas begins the reconquest, reaching Awatovi on November 18, 1692 (Leonard 1932:80-86).

1692 Captain Francisco Ramírez de Salazar leads expedition to the San Pedro (Bolton 1984; Di Peso 1956)

1693 Kino visits San Pedro River and establishes visitas at Quiburi and Santa Cruz (Bolton 1984)

1694 Lt. Antonio Solis in southern Arizona (Bolton 1984)

1694 Kino visits Casa Grande in November (Bolton 1984)

1695 Captain Juan Mateo Manje and 300 soldiers traverse southern Arizona (Bolton 1984; Manje 1954)

1695 Pima Revolt and destruction of missions in the Altar Valley, Mexico

1695-99 Map (Teatros de los Trabajos Apostólicos) shows two villages in the Tucson area: San Cosmé (near Bac on the west side of the Santa Cruz) and San Agustín (north of Bac on the east side of the river) (Bolton 1936:272-273)

1696 In December Kino travels to Santa Cruz and San Pedro (Bolton 1984)

1697 Kino makes several trips to the Santa Cruz and San Pedro rivers to establish ranches (Bolton 1984)

1697 In November Kino, Captain Christoval Martín Bernal, Captain Manje, and 22 others travel down the San Pedro to the Gila and return via San Xavier del Bac (Bolton 1984; *Di Peso* 1956:8)

1698 Kino travels to Gila River via Santa Cruz River and returns via Sonóita (Bolton 1984; Smith, Woodbury, and Woodbury 1966:44-45).

1698 Jocome and Apache attack Gaybanipitea (a Sobaipuri site) and are repulsed by Coro (Bolton 1948:178-181)

1698 Quiburi abandoned after being razed and burned by the Apache in retaliation for the defeat at Gaybanipitea. Sobaipuris move to Los Reyes, near Sonóita (Di Peso 1953:32).

1699 In February and March Kino, Manje, and Padre Adamo Gilg travel north via Sonóita to the lower Gila and Casa Grande (Bolton 1984; Di Peso 1956:11)

1699 In October Kino, Manje, Father Visitor Antonio Leal, and Padre Francisco Gonzalvo travel to Sonóita and San Xavier del Bac (Bolton 1984; Di Peso 1956:10, 14)

1700 Three friars sent to establish a new mission at Awatovi; Awatovi destroyed by the other Hopi villages at the end of the year (Montgomery, Smith, and Brew 1949)

1700 Mission San Xavier authorized (Cosulich 1953)

1700 Kino explores Papaguería (Bolton 1984)

1701 First priest, Fr. Francisco Gonzalvo, appointed to San Xavier; dies 1702 (Bolton 1936:6)

1701 Governor Pedro Rodriguez Cubero leads retaliatory expedition to Hopi (Bancroft 1889:225; Bartlett 1934:57)

Historic Documentation

In addition to the accounts of the Cabeza de Vaca journey, five Spanish expeditions (those of Coronado in 1540, Espejo in 1582, Oñate in 1598 and 1604, and de Vargas in 1692) and the missionary activities of Father Kino provide the first historical accounts of Arizona and its native inhabitants.

Nuñez Cabeza de Vaca (1536)

There are two accounts of the journey of Cabeza de Vaca and his companions: (1) the "Joint Report," a 30-page summary of the trip written by Cabeza de Vaca, Alonso del Castillo Maldonado, and Andrés Dorantes in 1536 (Hedrick and Riley 1974; Theisen 1972); and (2) the 1542 and 1545 editions of Cabeza de Vaca's *Relación* (narrative) (Nuñez Cabeza de Vaca 1983). Hallenbeck (1940) gives the accepted reconstruction of Cabeza de Vaca's route. Hallenbeck has Cabeza de Vaca entering Arizona through the Peloncillo Mountains and along the west side of the Chiricahua Mountains to the present Mexican boundary. In the late 1600s this area was occupied by the Janos and Jacomes, and it is likely that these groups were there when Cabeza de Vaca came through, but Cabeza de Vaca and his companions mentioned little about this segment of the trip. Hallenbeck

interprets their silence as meaning that their experiences in this area were unexceptional, suggesting that they must have found shelter and food with local peoples at regular intervals. In the Joint Report they wrote that they were provided with plenty of rabbits and dried herbs (plant foods) on this stretch, although the people of the country were suffering hunger (Hedrick and Riley 1974:61; Theisen 1972:253); in the *Relación*, Cabeza de Vaca wrote that the people of the area lived on dried herbs for a third of the year (Nuñez Cabeza de Vaca 1983:118).

Fray Marcos and Estevan (1539)

In 1539 Fray Marcos de Niza and Estevan were sent north to investigate the stories that Cabeza de Vaca had heard about large towns to the north of his route. Estevan traveled ahead of Fray Marcos, eventually reaching Zuni, where he was killed. Although Fray Marcos claimed to have arrived within sight of Zuni just a few days after Estevan died, modern researchers debate his claims. Some (Hallenbeck 1987; Sauer 1937, 1940) argue that Fray Marcos turned back in the northern Sonora Valley near the modern international border, while others (Bandelier 1964; Bloom 1940, 1941; Hartmann 1997; Rodack 1997) support his story.

Melchior Díaz (1539-40)

In the winter of 1539-40, Melchior Díaz and Juan de Zaldívar, along with some 14 horsemen, went north ahead of the Coronado Expedition to explore the territory and may have gotten as far as Chichilticale, a district surrounding a prominent pueblo ruin of the same name. The location of this ruin has been debated by archaeologists and historians (Duffen and Hartmann 1997; Haury 1984; Riley 1985), and no consensus has been reached, but it was almost certainly in present-day Arizona and was likely near the Gila River. Upon his return to Mexico, Díaz reported secretly to Coronado, outlining what he had heard about the pueblos to the north. Secondhand versions of his report were sent by Don Antonio de Mendoza to the King of Spain (Hammond and Rey 1940:156-161) and summarized by Pedro de Castañeda, one of Coronado's chroniclers (Hammond and Rey 1940:204-205).

Coronado (1540)

In February of 1540 Coronado set out from Compostela, Mexico, leading an expedition of over 230 mounted men, 62 foot soldiers, and over 800 Indian allies, to explore what is now the southwestern United States. The expedition's route to Zuni has been variously reconstructed (Bolton 1916, 1949, 1990; Day 1964; Di Peso 1951; Hodge 1933; Hodge and Lewis 1907; Riley 1985; Sauer 1932, 1937; Schroeder 1955, 1956; Winship 1896); for a summary see USDI National Park Service (NPS) 1991a. After entering what is now the United States near the International Four Corners (the area where Arizona, New Mexico, Sonora, and Chihuahua meet), however, the expedition traveled

through a *despoblado* (deserted area) most of the way to Zuni. The location of Coronado's route through southern Arizona is largely dependent on the location of the pueblo ruin of Chichilticale.

The Coronado Expedition entered Hawikuh (one of the six Zuni pueblos) on July 7, 1540. On August 3, 1540, while still at Zuni, Coronado wrote to the Viceroy of Mexico, Don Antonio de Mendoza, describing the progress of the expedition, including the difficulties in traveling through the mountains from the Sonoran Desert to the Mogollon Rim. He then went on to give an account of Zuni (Winship 1990:183).

In the same year Coronado sent two expeditions from Hawikuh to Hopi. The first expedition, under Pedro de Tovar and Fray Juan Padilla, went only as far as Hopi, which was described as a province of warlike people in high villages (Winship 1990:114-115). It is uncertain whether they went to Kawaika'a or Awatovi. Influenced by Hopi stories of a great river beyond Hopi, Coronado sent a second expedition to Hopi later that year. Led by Captain Cárdenas, this expedition succeeded in reaching the Grand Canyon (Winship 1990:116-117).

While Coronado was traveling overland to Zuni, Hernando de Alarcón was sailing up the Gulf of California and the Colorado River, hoping to provide naval support for Coronado. Alarcón boated perhaps as far as the mouth of the Gila River (present-dayYuma), contacting the Cocopa, "Quicama" (Halyikwamai), "Coano" (Kohuana), and "Cumana" (Kamai?). Later that year, Melchior Diaz went seeking news of Alarcón, traveling from Arizpe in the Sonora Valley of Mexico along the present-day international border (scholars are divided as to which side of the border he traveled on) to the Colorado River, where he found letters that Alarcón had left buried at the base of a tree. Diaz went up the east side of the Colorado River at least as far as the mouth of the Gila, then (after thwarting an Indian ambush) crossed the river and descended on the other side. On the way back to Arizpe, Diaz was killed in a freak accident.

There are several accounts of the Coronado expedition. The primary one is the narrative of Castañeda, which is divided into three parts: (1) a history of the expedition as far as the Great Plains and back to Tiguex, Coronado's headquarters on the Rio Grande; (2) a description of the different tribes encountered during the expedition; and (3) a description of the expedition's retreat to Mexico, which largely skips over the return trip from Cibola to Chichilticale. Coronado wrote a letter report from Zuni (and another from the Rio Grande that is not relevant to Arizona), Jaramillo wrote one, and there are two anonymous reports (all are reprinted in Winship 1896, 1990). The various accounts all suggest that the region from Culiacan to Chichilticale was occupied by people who lived much alike, residing in villages of small, round houses made of mats and reeds, growing corn, beans, and melons, gathering prickly pear, mesquite beans, and saguaro fruit, and wearing clothing made from cotton and deer skins. Most of the accounts describe the region from Chichilticale to Zuni (the Mogollon Highlands) as deserted, but Castañeda mentions that occupants of this area lived in separate cabins rather than settlements and that they subsisted on pine nuts, acorns, and wild game. Alarcón's voyage is recounted in Hakluyt (1928). Alarcón interviewed one of the principal chiefs of the Cocopa and learned that the group lived in 23 villages along the lower Colorado River (although some families lived in isolated houses), that they subsisted on maize, melons, squashes,

and fish, and that they were involved in petty wars. The "Quicamas," the next group upstream, were said to live along the river only in the summer, when they planted and harvested their crops, and then move to the mountains (whether east or west of the river was not specified) for the winter. No first-hand account of the Diaz trip is known, only Castañeda's second-hand summary (Winship 1896, 1990).

Espejo (1582-3)

In November of 1582 Antonio de Espejo led an expedition into the Southwest, ostensibly to rescue two friars left at Puaray (the pueblo of Kuaua, across the Rio Grande from Bernalillo, New Mexico [Hammond and Rey 1966:57, 177]) by the Chamuscado-Rodríguez Expedition of earlier that same year. Espejo, fourteen soldiers, and a friar traveled up the Rio Grande to the Piros Pueblos, where they learned that the friars at Puaray had been killed. They then explored east to the Tompiro Pueblos, and north to Puaray, where they heard accounts of Zuni and Hopi, and decided to investigate. They went through Cochiti, past the mouth of the Jemez River, to Zia, and followed the Puerco of the east to the Rio San José, past the lagoon where the Pueblo of Laguna would be established more than a century later, to Acoma. Near Acoma they met Querechos, believed by most scholars to have been Navajos, who "came down to serve the people in the towns, mingling and trading with them, bringing them salt, game (such as deer, rabbits, and hares), dressed chamois skins, and other goods in exchange for cotton blankets and various articles accepted in payment" (Hammond and Rey 1966:224). The group then went along the west side of the lava beds now incorporated within El Malpais National Monument, to El Moro (Inscription Rock) and Halona (a Zuni pueblo across the Zuni River from modern Zuni), which they reached on March 14, 1583. On April 11 Espejo left the friar and five soldiers at Halona and started for Hopi with the remaining nine soldiers and 80 Zuni warriors. On the 11th they traveled six leagues to Laguna de los Ojuelos, a "small lagoon which had some water holes" (Hammond and Rey 1966:187). (A Spanish league was approximately 2.6 miles) [Velez de Escalante 1995:note 17]). On the 12th they went five leagues to El Cazadero, a water hole (Hammond and Rey 1966:187), and on the 13th they went five leagues to "a small marsh where we made some dams with our hands so the horses might drink" (Hammond and Rey 1966:187). They stayed at this spot for two days, and on the 16th traveled six leagues to El Ojo Hediondo, "a small marsh where there was a foul-smelling pool" (Hammond and Rey 1966:188). On April 17, 1583, they traveled six leagues to the ruins of a pueblo (said to have been destroyed by Coronado) located one league from Awatovi (Hammond and Rey 1966:188).

Over the next two weeks they visited the Hopi pueblos. At Oraibi they learned of mines to the south, and on April 30, 1583, Espejo sent five men and all the Zunis back to Halona, while he and four other soldiers headed south. Starting at Awatovi, they went five leagues to a water hole called El Ojo Triste (possibly Comar Spring or Pyramid Butte Spring). On May 1 they crossed the Little Colorado, probably in the vicinity of Sunset Crossing. Diego Pérez de Luxán, the principal chronicler of the expedition, described the river: "We traveled ten leagues today and reached a beautiful and exceptionally fine river, almost as large as the Del Norte, containing many groves of cottonwoods and willow. This river flows from the south toward the north. Its shores are settled

by warlike, mountain people" (Hammond and Rey 1966:195). The little group continued on through the Sunset Tanks and Chavez Pass, past Mormon Lake (where the local "mountain people" approached their camp, but fled when they heard noises) and Rattlesnake Tank, and into Beaver Creek, which they followed to the Verde River. Throughout the Verde drainage, Espejo and his men encountered small groups of mountain people, who lived in rancherías and grew corn. After reaching the mines, which were apparently in the vicinity of present-day Jerome, the five men retraced their steps through country occupied by the mountain people to Halona, where the rest of the expedition waited, arguing about what to do next. Seven of the men returned to Mexico, but Espejo and eight others continued exploring, returning to the Rio Grande, exploring the Galisteo Basin and Pecos Pueblo east of present-day Santa Fe, then heading down the Pecos River to the Rio Grande and returning to San Bartolomé on September 10, 1583.

Oñate, Farfán, and Quesada (1598)

In 1598 Don Juan de Oñate colonized New Mexico and began exploring the Southwest. In the fall of 1598, Oñate left his headquarters on the Rio Grande and traveled through the Galisteo Basin to the Salinas Pueblos of east-central New Mexico and then headed west to Acoma, Zuni, and Hopi. Oñate probably took the Hopi-Zuni trail from Zuni to Hopi (Bartlett 1940), a four-day journey through unpeopled country with isolated water holes. From Hopi, Oñate sent Marcos Farfán de los Godos and eight companions to investigate the mines described by Espejo. Leaving Awatovi on November 17, they crossed the Little Colorado River on November 18 and on November 19 began climbing into the forested Mogollon Rim country, where they found four or five rancherías of a people they called the Jumanas (Bartlett 1942:31; Bolton 1916:241). Dropping into a valley on the south side of the Mogollon Rim, Farfán and his companions came to a ranchería of eight or ten dwellings occupied by "thirty Indians, stained with ores of different colors" (Bolton 1916:242). As word of the Spaniards spread throughout the scattered rancherías of the area, some forty women and as many children arrived within the hour to see the spectacle. Farfán noted that the Indians of the region, who were probably Yavapais, lived on maize, maguey, dates, deer, hares, and partridges and dressed in the skins of deer, beaver, otter, and other animals. At one ranchería, the Indians gave Farfán dates and venison; at another ranchería they saw two lizards hung to dry. Some of these Indians had shell jewelry. Farfán passed one more ranchería before reaching Beaver Creek, which he followed two leagues to the Verde River, only one league from the mines. He described the mine they observed as "an old shaft, three estados in depth, from which the Indians extracted the ores for their personal adornment and for the coloring of their blankets....The mine had a very large dump" (Bolton 1916:244). Ores from the mine were blue, green, aqua, brown, and black. After exploring the Indian mine and staking mineral claims at other veins in the area, Farfán and his companions returned to Zuni, where Oñate was waiting for them.

On the return trip, the Indians of the Verde River valley pointed to the canyon of the Verde and told Farfán that "beyond the gorge the river was extremely wide and copious, and that on the banks on both sides there were immense settlements of people who planted very large fields of maize, beans, and gourds in a very level country of good climate" (Bolton 1916:245). Bolton (1916)

thought that the mines visited by Espejo and Farfán were in the vicinity of the Bill Williams River. Bartlett (1942) argues that the mines were at present-day Jerome, and virtually all modern scholars accept her reconstruction of the Espejo and Farfán journeys to this region.

Oñate (1604)

In 1604 Oñate traveled from the Rio Grande to California. Leaving San Juan on the Rio Grande on October 7, Oñate went west to Zuni and Hopi, then crossed the Little Colorado River and the Verde River on his way to the Bill Williams Fork, thence down the Colorado River to the Gulf of California. Two accounts of the trip have been published, one by Fray Gerónimo de Zárate Salmerón (Bolton 1916:269), the other by Fray Francisco de Escobar (Hammond and Rey 1953:1015). From Zuni to Hopi, Oñate followed the route he had taken six years before. Escobar wrote that Hopi

> has only five pueblos, four of them half in ruins and destroyed, containing not more than five hundred occupied houses....There is very little firewood and still less water. Everywhere in this province there are excellent estufas [kivas] in each pueblo, so that with a small amount of wood they keep very warm the whole winter....They have no temples for their worship, although some of the houses in which they live, it was noticed, were devoted to their ceremonies and worship....I do not think these houses are often visited, and not by all the people, but from what I could gather, only by the leading and oldest Indians [Hammond and Rey 1953:1014-1015].

From Hopi Oñate followed the route of Farfán to the Verde River mines. Zárate Salmerón described the Indians near the mines:

> In this mountain range the Cruzado Indians have their homes. They live in scattered dwellings, the houses being of straw; they plant no crops; they live on the game which they kill, deer and mountain sheep, of which there are many. With the skins both the men and women cover their loins; all go shod, little and big. They also use for food *mescali*, which is a preserve of the root of maguey [Bolton 1916:270].

The Cruzados told Oñate that he would find the Amacava (Mohave) Indians living on the Colorado River and that beyond them were nations that grew maize, beans, and gourds. At the Colorado River Oñate passed through two Amacava rancherías, then reached the Bahacechas, who were described as speaking almost the same language as the Amacavas. Zárate Salmerón wrote, "The dwellings of all those of this river are low, of wood, and covered with earth" (Bolton 1916:273). At the mouth of the Nombre de Jesús (Gila) River, Oñate came to 20 rancherías occupied by the Ozaras (Maricopas?), who dressed in cotton mantas (cloaks). Zárate Salmerón wrote:

> From this river of Nombre de Jesús to the sea it is very thickly settled with more people than had been seen hitherto; but the language is like that of the Bahacecha, and if it is not the same, they differ very little. The dress, the manner of living, and the houses are all the same [Bolton 1916: 275].

The tribes living below the Gila were the Halchidhoma, who lived in eight "pueblos," one of which had 160 houses and 2000 people; the Cohuana (the Yuma?), who inhabited nine "pueblos" and who turned out 600 people to see Oñate's expedition; the Haglli (Halyikwamai), who lived in 100 "pueblos"; the Tlalliquamallas, who lived in six "pueblos" and assembled 2000 people to gape at the Spaniards; and the Cocopas, who occupied nine "pueblos." All told, Zárate Salmerón estimated that 20,000 people lived along the east side of the Colorado River between the mouth of the Gila and the sea. In contrast, Escobar had estimated that 500 houses were occupied at Hopi, suggesting a Hopi population of only 3000 (Whiteley 1988:16).

Missionizing at Zuni and Hopi

The Spaniards established missions at both Zuni and Hopi in 1629 (Scholes and Bloom 1945:81-82), and despite numerous setbacks—the priest at Hawikuh was killed in 1632 (Hodge 1937:91-93), and Francisco Porras was poisoned at Awatovi in 1633 (Bancroft 1889:158, 161; Bartlett 1934:56)—were able to maintain those contacts for over 50 years. Among the Zuni, the Spaniards established missions at Hawikuh and Halona and had visitas at Matsaki, Kiakima, and either Kwakina or Kechipawan (Hodge 1937:100; Woodbury 1979:470-471). Among the Hopi, they established missions at Awatovi, Oraibi, and Shongopavi, and had visitas at Walpi and Mishongnovi (Montgomery, Smith, and Brew 1949). One of the most far-reaching influences of the Spanish presence at Zuni and Hopi was the introduction of livestock. Unfortunately for historians, much of the documentation on the first fifty years of Spanish missions at Zuni and Hopi was destroyed in the Pueblo Revolt of 1680, although some of the history of the missions can be reconstructed from existing documents (summarized in Hodge 1937; Montgomery, Smith, and Brew 1949; Scholes and Bloom 1945). Inscriptions at El Moro (Inscription Rock) east of Zuni, New Mexico, and Hoye (Fear) Spring near Steamboat, Arizona, provide additional fragmentary evidence on this period (Correll 1979:37; Hodge 1937; Van Valkenburgh 1941a).

de Vargas (1692)

In 1680 the Pueblo Indians revolted and drove the Spanish to El Paso. At least three attempts at reconquering the Southwest were made between 1680 and 1692 (Leonard 1932:32). Successful reconquest of the Pueblos was accomplished in the fall of 1692 by Don Diego de Vargas Zapata y Luxán Ponce de Leon. After subduing the Rio Grande Pueblos, de Vargas, 89 Spaniards, and a group of Indian troops left a ruined ranch in what is now the Albuquerque area on October 30 and headed west against Acoma, Zuni, and Hopi (Leonard 1932:77). De Vargas's troops ascended Acoma's steep-walled mesa on November 4 and went up the "impregnable rock of Ciquama" (Dowa

Yallane, or Corn Mountain, to which the Zunis had retreated) on November 11 (Leonard 1932:78). From Dowa Yallane, de Vargas went to the abandoned village of Halona, where he left 25 men in the charge of one of his captains. On November 13 de Vargas, 63 Spaniards, and at least as many Indian troops left for the Hopi pueblos. "Forty leagues with only three waterholes in all that distance lay between Alona and Aguatubí, the chief pueblo of the Moqui province. From the fifteenth to the nineteenth of November this stretch was covered with indescribable hardship" (Leonard 1932:80). De Vargas's chronicler did not describe "this stretch," which probably went from Halona to Jacob's Well, Navajo Springs, and Greasewood Spring.

Between November 20 and 25, de Vargas entered Awatovi, Walpi, Mishongnovi, and Shongopovi, receiving pledges of allegiance from each. He did not get as far as Oraibi, which nonetheless sent assurances of allegiance (Leonard 1932:83-86). On November 25 he received a message from his troops at Zuni that Apaches were near and set out immediately for Halona (Leonard 1932:87). De Vargas and 30 troops arrived at Halona on the 26th; the remaining troops arrived on the 28th (Leonard 1932:87). On December 1, de Vargas and his entire expedition left for El Paso, arriving there on December 20 (Leonard 1932:87-88).

Kino

In 1687 Father Eusebio Kino established his home mission at Nuestra Señora de los Dolores, approximately 100 miles south of Tucson. From this mission, Kino explored and missionized the entire Sonoran Desert until his death in 1711. Kino entered Arizona for the first time in 1691. As described by his biographer, Bolton (1916:429), Kino

> founded the missions of San Xavier del Bac, Guevavi, and Tumacácori; several times explored the Gila River; and in an attempt to answer the old question of whether California was an island or a peninsula, twice descended the Colorado below the mouth of the Gila, once crossing into California and once reaching the gulf [Bolton 1916:429].

The missionary activities of Father Kino are discussed in many books and articles (Bolton 1936, 1960, 1984; Burrus 1965, 1971; Kessell 1966; Smith, Kessell, and Fox 1966). Kino's descriptions of Native American settlement and culture have been invaluable to historians and archaeologists. Sauer (1935) estimates that Pimería Alta had a population of perhaps 30,000 in Kino's day. Kino recognized four groups of Pimas in Arizona: the Pima proper, the Soba, the Sobaipuri, and the Papago. The Soba lived in what is now Mexico, along the lower San Ignacio and Altar rivers and the Gulf Coast. The Pima proper lived as far north as Tumacácori on the Santa Cruz River and as far north as Babocomari on the San Pedro River. The Sobaipuri lived on the Santa Cruz and San Pedro rivers north of Tumacácori and Babocomari and on the Gila River from Casa Grande to Gila Bend (Bolton 1984:247-248). In addition, Kino missionized the Opa and Cocomaricopa on the lower Gila River and the Yuma, Quiquima, and Cocopa on the lower Colorado River, all of whom spoke Yuman languages. Kino also had encounters with the Apaches, Jocomes, Janos, and Sumas, who occupied Pimería Alta at this time.

On Kino's first trip into Arizona he went only as far as the upper Piman communities at Tumacácori, on the Santa Cruz River, arriving there in January 1691. Subsequently he made at least nine trips to the Sobaipuris along the Santa Cruz and San Pedro rivers. He toured most of the Sobaipuri communities from August to September of 1692, journeyed to the San Pedro River valley in 1693, traveled to Casa Grande in November of 1694, and visited Quiburi in December of 1696. In 1697 he missionized among the western Sobaipuris in January, made another trip to Quiburi in March, and conducted another extensive tour through the Sobaipuri country in November with Padre Adamo Gilg and Captain Juan Manje. He passed through the Santa Cruz River valley on his way to the Papaguería in September of 1698 and visited San Xavier in 1699 (Bolton 1984).

Kino explored the Papaguería in 1698 and 1700, visiting over 20 rancherías with over 4000 inhabitants. In 1699 he explored up the Gila. The lower 50 miles or so were unpopulated, but then he passed through numerous small villages of the Opas and Cocomaricopas (Maricopa) until he got to Pima villages near Gila Bend (Bolton 1984).

During his exploration of the Papaguería, Kino visited over 20 rancherías with over 4000 inhabitants. Rancherías ranged in population from 60 to 500, but Kino attracted huge crowds from neighboring communities. During his 1700 expedition, he was told that 1000 people lived in the vicinity of San Gerónimo (present-day Perigua), a village of 280. Although the Papagos did not practice agriculture as intensively as other Piman groups, Kino observed acequías at Sonóita (Bolton 1984).

Kino also undertook missions to the lower Colorado River tribes. These journeys were limited to visits to the Gila-Colorado River junction in 1700 and 1701 and a trip down the lower Colorado River in 1702 (Bolton 1984).

CHAPTER 2

NATIVE PEOPLES OF ARIZONA

At the time of the Spanish exploration and colonization of the Southwest, Native American groups representing at least five different language families occupied what is now Arizona (Table 2.1; Figure 2.1). The subsistence patterns of these groups ranged from an emphasis on hunting and gathering to an emphasis on agriculture, and their settlement patterns ranged from seasonal camps to ranchería settlements to pueblos of thousands of people. The following section briefly summarizes the ethnohistory, subsistence patterns, settlement patterns, population and demography, ceramics, architecture, and other archaeologically visible material culture of each of the groups.

Table 2.1. Native American Groups in Arizona, A.D. 1519-1692

Language Family	Group
Numic	Southern Paiute
	Ute
Southern Athapaskan	Navajo
	Western Apache
	Chiricahua Apache
Yuman	Havasupai
	Hualapai
	Yavapai
	Mohave
	Maricopa
	Quechan
	Cocopa
Uto-Aztecan	Hopi
	Pima
	Tohono O'odham
Zuni	Zuni
Other	Jocome
	Jano

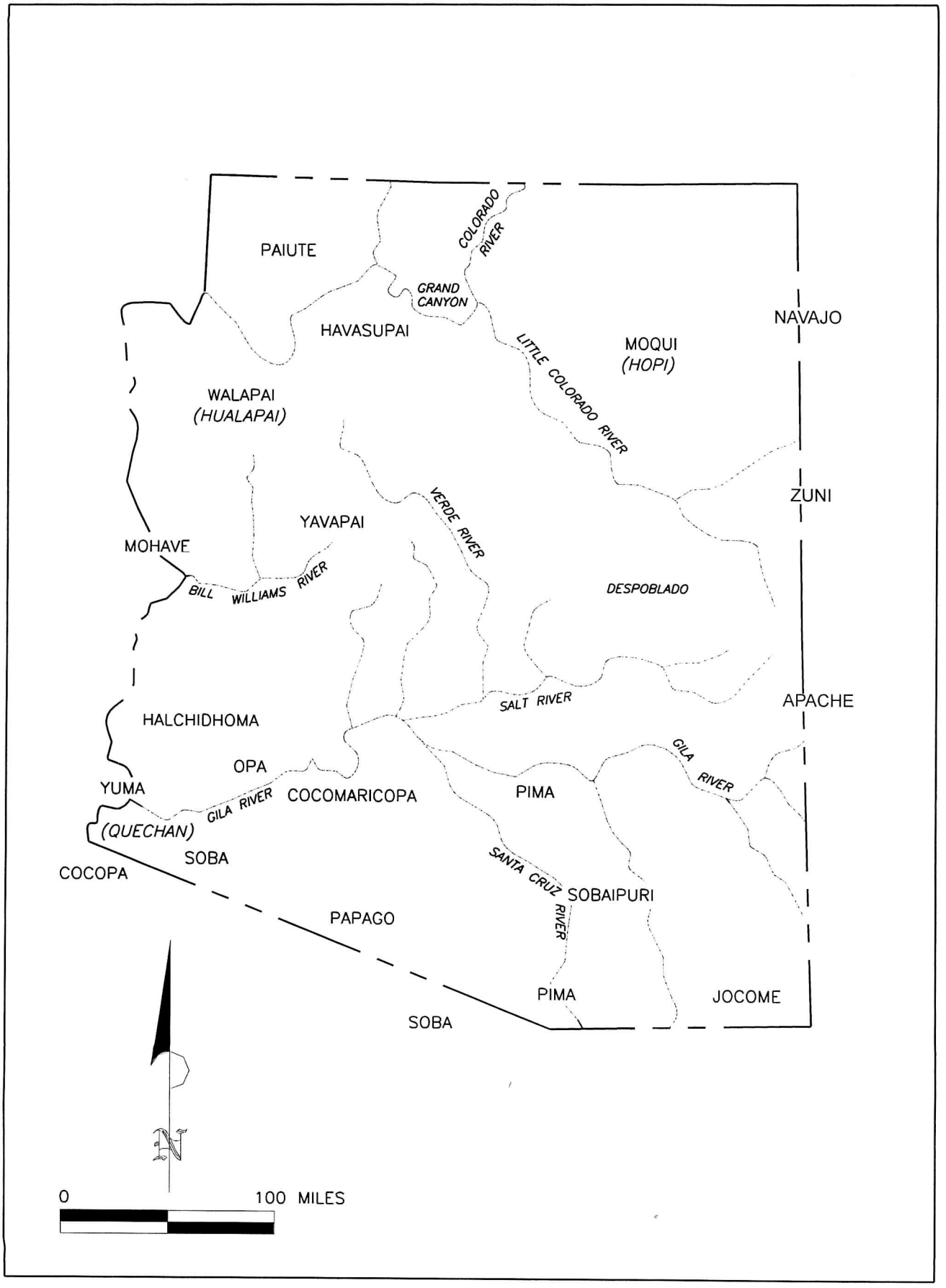

Figure 2.1. Locations of Native American groups in Arizona, A.D. 1519-1692 (after Walker and Bufkin 1979:12).

ZUNI

The Zuni are Puebloan farmers who have lived in western New Mexico historically, although they trace their origins to northeastern Arizona, and their Protohistoric use of northeastern Arizona is evident at farms, hunting areas, trails, shrines, and sacred places. The Zunis say they emerged onto the present earth surface from a sacred lake (Koluala) north of Hunt (at the confluence of Concho Creek and the Little Colorado), where the Zuni River flows between two mesas called the Zuni Mountains (Spier 1917:356) but had migrated to present-day Zuni country by the time of Spanish contact (Roberts 1931:6-8; Stevenson 1904).

The Zuni were the first Arizona tribe to be described in any detail (initially in second-hand reports of Fray Marcos, next in the fairly detailed descriptions of the Coronado Expedition). The Espejo Expedition passed through Zuni in 1583; Oñate followed in 1598 and 1604. The Spaniards established a mission at Hawikuh in 1629, and eventually had missions at both Hawikuh and Halona and visitas at Matsaki, Kiakima, and either Kiannawa or Kechipawan (Hodge 1937:100; Woodbury 1979:470). After the Pueblo Revolt of 1680, the Zunis retreated to the fortress of Dowa Yallane until the Reconquest, when de Vargas pursuaded them to move to the single pueblo they still occupy.

Kintigh (1985) has described the amalgamation of settlements into Zuni beginning in the late 1200s (see also Anyon 1992; Ferguson 1981). The Protohistoric pueblo of Hawikuh—visited by Coronado, Espejo, and Oñate, and later the location of a Spanish mission—was excavated from 1917 to 1923 by the Hendricks-Hodge Expedition. The report on these excavations (Smith, Woodbury, and Woodbury 1966) describes architecture, ceramics, and burials in fairly comprehensive fashion but of course reflects the research issues and archaeological techniques of the early twentieth century. Recent reanalysis of some data from the project demonstrates the research potential remaining in the project documentation (Howell 1996). From 1977 to 1980, the Zuni Archaeology Program conducted archaeological investigations at Zuni Pueblo and Halona in conjunction with the construction of water and sewer utilities (Ferguson and Mills 1982). Analyses of ceramics, ground stone, flaked stone, faunal bone, and botanical specimens using analytical techniques that were not available in the 1910s and 1920s fill in some of the gaps in the Hawikuh report.

The Zuni grew corn, beans, and squash, and after the establishment of Spanish missions in 1629 they began to raise livestock. They lacked cotton but obtained cotton mantas by trade. They had bison hides, which they may have obtained by trade as well, but it is also possible that there was a bison herd on the Plains of San Agustín, 90 miles to the south in western New Mexico.

Each village was independent and led by an assembly of old men, according to the Coronado Expedition accounts. In his August 3, 1540, letter to the Viceroy, Coronado described the "kingdom of Cevola" (Zuni), which contained seven villages of three, four, and even five stories. Three of the villages housed about 500 families each; the other four villages were smaller. Three or four old men commanded "all the other men and the warriors" in each village (Winship 1990:183). Coronado also recognized priests among the Zuni, but he did not attempt to describe the complex relationships between ceremonial and political leadership, which even anthropologists have described as

"bewildering" (Bunzel 1932:511; Eggan 1950:203). Castañeda wrote that most of the seven villages were three or four stories high, but Hawikuh had buildings as much as seven stories high. "They do not have chiefs as in New Spain, but are ruled by a council of the oldest men" (Winship 1990:144). Castañeda also reported that the people of Cibola cremated their dead. He estimated that Cibola and Tusayan (Hopi) together had 14 villages and 3000 to 4000 men (or 12,000 to 16,000 people total).

When the Spaniards first arrived at Zuni, the group was living in six (Coronado said seven) pueblos, all in present-day New Mexico (Anyon 1992:77). The pueblos were Hawikuh (*Hawikku*, the first pueblo to be visited by the Spaniards, Halona (*Halona:wa*, the site of modern Zuni), Kechipauan (*Kechiba:wa*), Kwakina (*Kwa'kin'a*), Kiakima (*Kyaki:ma*), and Matsaki (*Mats'a:kya*). The Zuni had begun amalgamating into these pueblos from more scattered sites (many in eastern Arizona) beginning in the late 1200s, while continuing to use sites in Arizona for ritual, farming, and hunting. Among the most important sites to the Zuni were those of Zuni Heaven. In addition, two major trails to the Hopi pueblos that undoubtedly had been used for centuries continued to be the primary routes between Zuni and Hopi throughout the Protohistoric period. Another trail ran to the Salt River (Wallace 1984:332).

As reconstructed by the Indian Land Claims Commission (which did not recognize overlapping boundaries), the area of Zuni sovereignty in 1846 (when the United States acquired control of the area as a result of the Mexican War) included all of the Puerco River of Arizona and all of the Little Colorado River to the mouth of Cottonwood Wash (Ferguson and Hart 1985:Map 21). From the mouth of Cottonwood Wash to the mouth of Canyon Diablo, the Little Colorado River was the boundary between the areas of Zuni and Hopi sovereignty. Amiel Weeks Whipple, who surveyed a transcontinental railroad route through the area in 1853, referred to the entire area from Zuni to the Little Colorado as Zuni hunting grounds (Foreman 1941:149). Kelley (1987a:31-32) cites Ferguson and Hart (1985) in discussing how the Zunis might have had isolated farms and ranches in the area along the Puerco River in the vicinity of Jacob's Well and Navajo Springs, particularly in the late nineteenth century when water tables were relatively high. Kelley (1987a:32) also states that the Zunis used the area for eagle hunting, gathering plants and minerals, and religious activities. Pine Springs, where Navajos were practicing irrigation agriculture in 1775, had a Zuni name (Kinaituná, Place of Yellow Flowers [Adams 1963:120]) and might have been used by the Zuni during the Protohistoric period (Adams 1963).

Protohistoric Zuni sites previously identified in Arizona include a shrine and rock art site, three other shrines, two cairns, four sites of other function, two camps with hearths, and a rockshelter. Six of the sites (two shrines, one cairn, one hearth, and two features of other function) are associated with the area north of Hunt known as Zuni Heaven, location of the sacred lake Koluala. The Zuni migration story tells of stays at Kiatuthlanna, Pitkiaiakwi, and Hantlipinkia. Hantlipinkia (AZ Q:3:96[ASM]), a canyon containing a shrine and rock art, is another of the sites in the database compiled for this project. Zuni shrines are present along the Zuni River and Hardscrabble Wash, although they apparently have not been recorded as archaeological sites (Roberts 1931; see also Ferguson and Hart 1985). The Zuni also maintained shrines and clan resource-collection areas in much of the upper Little Colorado River basin.

HOPI

The Hopi are Puebloan farmers who trace their emergence onto the present earth surface to the Sipapu, a spring in the Grand Canyon. Hopi oral history describes the migration of various clans to prehistoric pueblos throughout the Southwest and their eventual settlement on the Hopi Mesas. Archaeological studies suggest that from the A.D. 1200s to historic times, Puebloan peoples from the Little Colorado, lower San Juan, and Virgin river basins aggregated into pueblos on the Hopi Mesas.

At the time of Spanish contact in 1540, there were at least five and maybe as many as ten Hopi pueblos on four mesas (Figure 2.2). Awatovi was on Antelope Mesa (as was Kawaika'a, if it was still occupied); Kisakovi (or Ladder House, a predecessor of Walpi) was at the base of First Mesa (as was Sikyatki, if it was still occupied); Old Mishongnovi was on Second Mesa and Old Shongopovi was below Second Mesa, just below its present site; and Oraibi was at its present site on Third Mesa. Two other sites (Chacpahu and Chuckovi) were probably abandoned before 1540 but, according to some researchers, may have been in use into the early 1500s. A tenth site, Kuchaptuvela, was abandoned when its inhabitants moved to Walpi circa A.D. 1700. Around this same time, after the Reconquest, the Hopi established new villages at Shongopovi, Mishongnovi, Shipaulovi, and Walpi, and Tewa and Tiwa refugees from the Rio Grande established the villages of Hano and Payupki, respectively, on Second Mesa. The destruction of Awatovi took place in 1701 (Montgomery, Smith, and Brew 1949).

The Hopi grew maize, beans, squash, and cotton and supplied cotton mantas to Zuni. Agricultural fields were located along the major drainages (Jeddito, Polacca, Oraibi, and Dinnebito washes) that run below the four mesas. Like the Zuni, the Hopi began to acquire livestock after the establishment of Spanish missions in 1629. The Hopi mined coal seams in the vicinity of their villages, using the coal to fire pottery from about A.D. 1300 to 1629 and for heating for an unknown period of time. The Hopi made pilgrimages to salt mines in the eastern Grand Canyon and to the Sipapu, a natural formation near the mouth of the Little Colorado River believed by the Hopi to be the place where their ancestors emerged from the underworld (Eiseman 1959; Schwartz 1965; Simmons 1942; Titiev 1937). Joseph Christmas Ives (1861:117) reported seeing salt springs in the vicinity of Cottonwood Ruin in 1858 and observed a trail running north from these springs toward Hopi.

As described by the earliest Spanish accounts, each Hopi pueblo was an independent polity, governed by a council of the oldest men. Kinship was reckoned according to membership in matrilineal clans and groups of clans (phratries) (Eggan 1950). The Bear clan was the oldest and had the most power, furnishing the *kikmongwi* or chief of each village, who allocated lands. Ceremonial organizations included the katcina ritual, men's societies, and special societies "concerned with rain, war, clowning, and curing" (Eggan 1950:89). The year was marked by an elaborate ceremonial calendar in which "each major ceremony [was] associated with a clan, a society, and a kiva" (Eggan 1950:89). The Spaniards regarded the Hopi as "warlike." As the Hopi participation in the Pueblo Revolt demonstrates, the Hopi villages sometimes acted in concert against a common enemy, but as the destruction of Awatovi illustrates, some villages would sometimes unite against others.

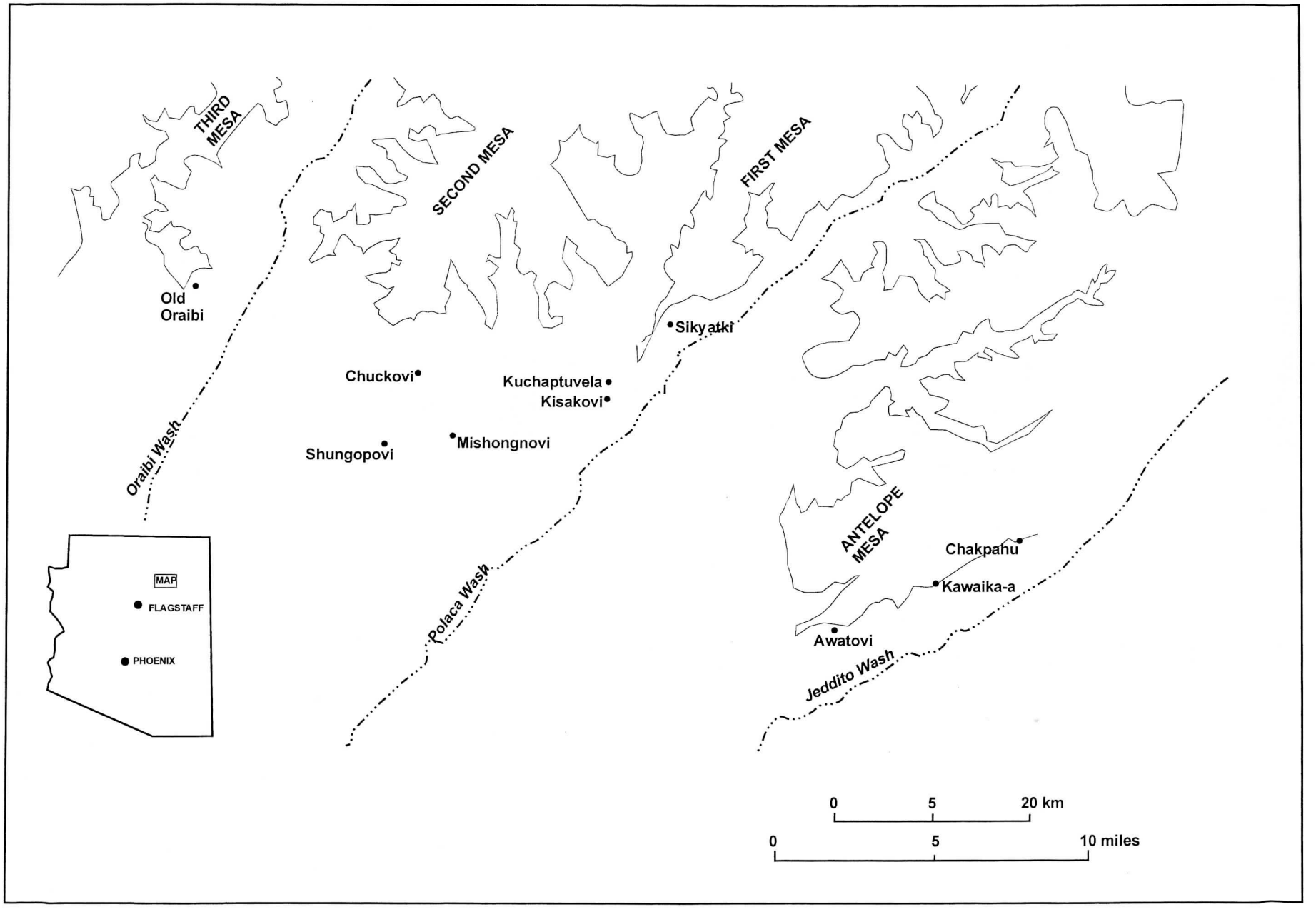

Figure 2.2. Hopi pueblos circa 1540 (after Bishop et al. 1988: Fig.1).

Hopi archaeology is best explicated in a series of reports chronicling the Awatovi Expedition, which from 1935 to 1939 excavated at Awatovi and 20 other, mostly earlier, sites. Awatovi (Figure 2.3), the largest of the Hopi towns during the Protohistoric period, was occupied from about A.D. 1250 to 1700, when it was destroyed by the other Hopi towns. It contained approximately 5000 rooms, although only about one-fourth of those rooms were in use at any one time. Approximately 1000 rooms were excavated during the Awatovi project. No final report was ever prepared on the excavations, and important classes of data (such as prehistoric domestic architecture and human remains) have never been published. However, project director John O. Brew summarized the results of the project in a number of brief statements (Brew 1937, 1939, 1941, 1942, 1952, 1961), and important monographs were published on the environment (Hack 1942a), the architecture of the mission (Montgomery, Smith, and Brew 1949), kiva architecture (Smith 1952, 1972), decorated pottery (Smith 1971), utility pottery (Gifford and Smith 1978), flaked stone and ground stone (Woodbury 1954), and faunal remains (Lawrence 1951; Olsen and Wheeler 1978). Colton (1974) provides a useful summary of the sites that were occupied at Hopi during the Protohistoric period. Adams (1981) summarizes changes in Hopi culture from A.D. 1450 to 1875. Arizona State University conducted research at Awatovi, including mapping of the ruin, during the preparation of a management plan for the site (Redman, James, and Notarianni (1990). Ahlstrom and Hays (1991) compiled an inventory of all sites recorded on the Hopi Indian Reservation, and their final report includes an overview of the archaeology of the region.

Archaeological studies have identified the full range of sites that would be predicted by historical and ethnographic accounts of the Hopi, including villages, farms, mines, trails, and shrines. In fact, one of the most striking characteristics of the archaeological record of the Protohistoric Hopi is that all of the major pueblos have been identified. Thirty-six Hopi sites dating to the A.D. 1519-1692 period were identified as part of this study. They include ten pueblos, two coal mines (Greenwald and Wigglesworth 1988), two Hopi salt mines in the Grand Canyon, four sites along the Hopi Salt Trail, three rockshelters (including a cave with prayer sticks) (Schley 1964), one roasting feature, two artifact scatters, a cache of two worked sticks that may be Hopi, a campsite (Gilpin 1989), a spring, a water catchment, a rock art site, a sacred site (the Sipapu in the Grand Canyon), two shrines, two cairns, the presumed grave of victims of Awatovi (Turner and Morris 1970), and one other site. In addition, Hack (1942a, 1942b) recorded agricultural fields and coal mines in the Hopi country and Byrkit (1988) has described the Palatkwapi Trail without assigning site numbers. A Hopi pot break in the Grand Canyon (Ahlstrom et al. 1993) and isolated Sikyatki Polychrome sherds in the Chinle Valley (Andrews 1983; Lofton 1974) suggest Hopi use of these areas into the Protohistoric period.

Archaeological studies of Hopi material culture have focused on the highly distinctive Hopi Yellow Ware pottery. The principal types that date to the A.D. 1519-1692 period are Sikyatki Polychrome (A.D. 1375-1625), San Bernardo Polychrome (A.D. 1625-1740), and Payupki Polychrome (A.D. 1680-1780) (Wade and McChesney 1981). Hopi Yellow Ware was widely traded throughout the Southwest, and sites with this pottery have been interpreted as Hopi or as representing groups that traded with the Hopi (Adams, Stark, and Dosh 1993; Baldwin 1944; Dobyns 1974a; Euler 1958;

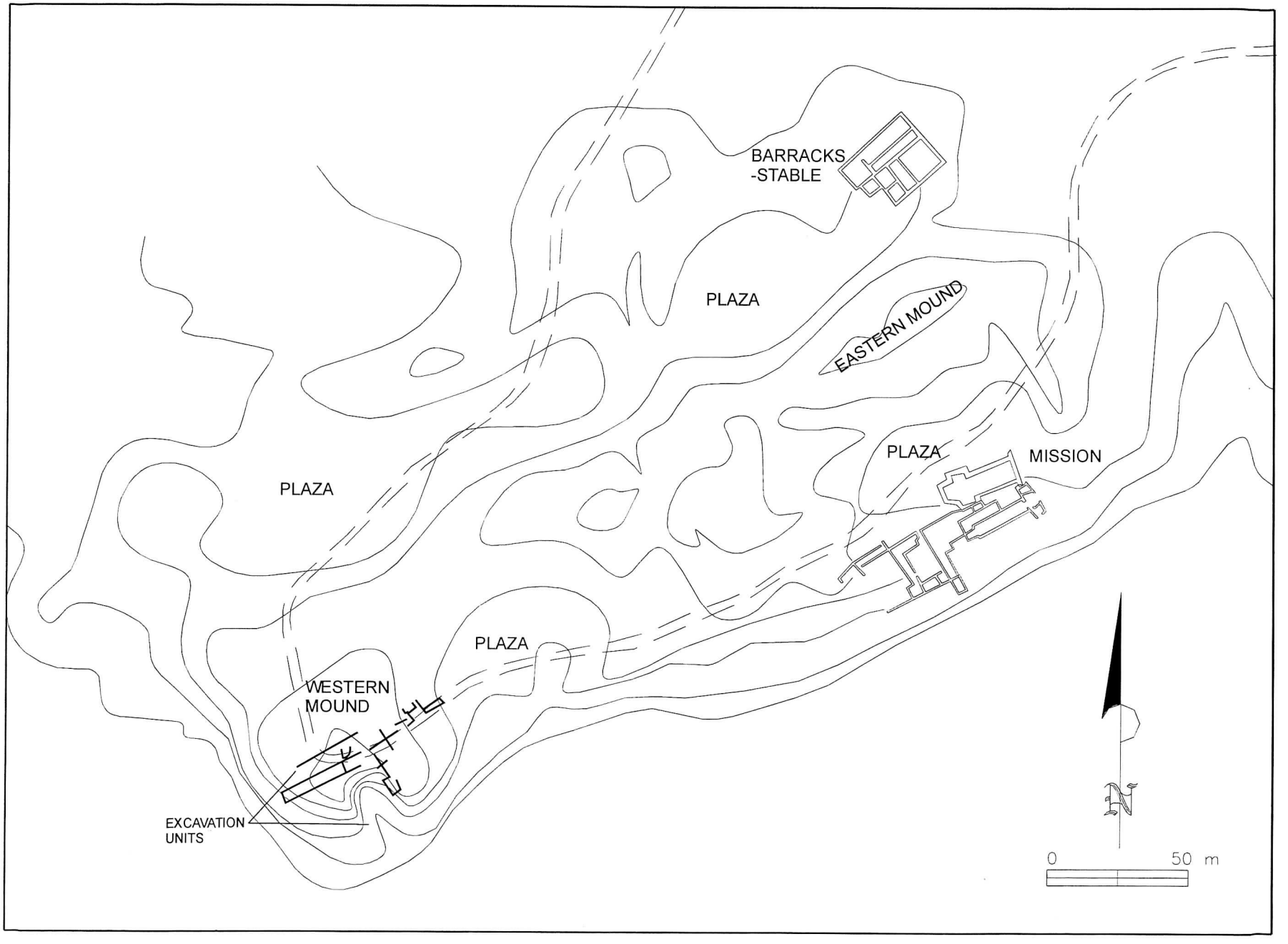

Figure 2.3. Map of Awatovi (after Redman, James &Notariani 1990: Fig.2.8, 3.1; Smith 1971: Fig. 4).

Moffitt, Rayl, and Metcalf 1978; Mueller et al. 1968; Schaefer 1969). Hopi Yellow Ware found on the sites of other groups has been extremely useful in dating the sites. On the other hand, some researchers (see especially Dobyns 1974b) have suggested that Jeddito Black-on- yellow may date later than is commonly believed and would date sites with Jeddito Black-on-yellow to the A.D. 1519-1692 period.

Other archaeological studies of Hopi material culture have included Woodbury's (1954) analysis of lithic artifacts and various descriptions of faunal remains (Lawrence 1951; Olsen and Wheeler 1978) from Awatovi. These studies need to be updated in light of more current research interests. For example, Woodbury's (1954) analysis of flaked stone deals only with tools (and it may be that debitage was not even collected). Faunal remains from Awatovi have been described as a total assemblage (Lawrence 1951; Olsen and Wheeler 1978), but an analysis of how faunal assemblages changed during the transition to the historic period would be useful.

HOPI-ZUNI

At least two sites are claimed by both the Hopi and the Zuni: the Hopi-Zuni Trail and Woodruff Butte, a sacred site. (Woodruff Butte is also considered sacred by the Navajo [Kelley and Francis 1994:110, 178-179]).

The Hopi-Zuni Trail has been described by Bartlett (1934, 1940, 1942) and Colton (1964). As reconstructed by Roberts (1931:10), one trail began at Halona and another at Hawikuh, and the two trails met in the vicinity of Hogan Lake and continued from there to Jacob's Well and Navajo Springs. According to Bartlett (1940), however, the trail from Halona ran northeast to present-day Houck, Pine Springs, and the thirteenth-century ruin of Kintiel (Wide Ruin), then went east to Greasewood Spring on the Pueblo Colorado Wash, where it joined the trail from Hawikuh. As late as 1775 and 1776, Pine Springs retained its Zuni name, but it was occupied by Navajos (Adams 1963; Vélez de Escalante 1995). The trail from Hawikuh went to Jacob's Well, Navajo Springs (on the Puerco River), and Tanner Spring before joining the Halona branch at Greasewood Spring. The combined trails then continued to White Cone Spring, the ruins of Kawaika'a, and the occupied village of Awatovi.

Woodruff Butte (NA2317) was visited by Fewkes (1898a:605, Plate III), who collected blue steatite birds from the site, and by Hough (1903:318-319), who described the site in some detail. Hough visited the site in 1901 and observed stone houses on the summit and some 70 circular platforms on the slopes of the butte. He believed that the circular stone platforms, which were 50 to 75 feet in diameter and bordered by blocks of lava, were garden plots. Hough apparently observed rubble mounds on the slopes as well and reported that burials had been unearthed at the foot of the butte. Woodruff Butte received new attention in the 1990s, when the property owner began mining the site for aggregate, provoking protests from the Hopi, Zuni, and other tribes (*Arizona Republic* 1996; Kelley and Francis 1994:110, 178-179; Kammer 1998a, 1998b; Sowers 1996; Winton 1993a; Yozwiak 1992).

PIMA

In the Protohistoric period, southern Arizona and northern Sonora were home to a number of Piman-speaking groups, known collectively as the Upper Pimans, which only later collapsed into the Akimel O'odham (Pima) and Tohono O'odham (formerly the Papago). In this overview, "Piman" will refer to any Piman-speaking group, while "Pima" will usually refer to the river-dwelling Pimans of central Arizona. We will also discuss the ancestral Pima (referred to by the Spanish as the Gileños) separately from the other Upper Pimans of Arizona and their descendants, the Tohono O'odham. All of these divisions are arbitrary in the sense that all of the Pimans of southern Arizona and northern Sonora saw themselves as closely related, and intermarriage and other forms of population movement must have been common. For example, during the 1500-1700 study period the Anegam village O'odham relocated from Queen Creek to the eastern Papaguería, in effect transforming themselves from "Pima" to "Papago" (Bahr 1983:182-183).

The ancestral Pima occupied the Salt, Gila, and lower Santa Cruz river valleys of central Arizona, ranging west beyond Hassayampa Creek and east beyond Florence (Ezell 1983:150, Figure 1). Despite an extended scholarly dispute[1], the Pima are most likely descendants of the Hohokam culture of the Gila and Salt River valleys of central southern Arizona. Traveling up the Gila River in 1699, Kino and Manje began to encounter Pima villages near Gila Bend (Bolton 1984). San Felipe y Santiago de Oydabuise (at Gila Bend) was occupied by 150 Pima men; San Bartolomé del Comac (a village of some 200) and San Andres de Coata were also Pima villages. According to Ezell (1983:150-152), the Pima lived in at least seven widely spaced rancherías in 1699; one was on the Santa Cruz west of Picacho Peak, five were on the south bank of the Gila downstream from the Casa Grande ruin, and one was on the north bank of the Gila just upstream from its confluence with the Salt. At this time the Pima population was about 3000 (Doelle 1984) and was densest along a section of the Gila where the floodplain was especially broad and fertile (Hoover 1929:46-48). In the next century and a half, however, the Piman settlement area contracted substantially (Hackenberg 1983:169).

Pima rancherías were made up of scattered households of extended families:

> Pima settlements were largely self-sufficient economically and politically. Each settlement had a civil leader...and one or more shamans....Each shaman was credited with only one specialty, different shamans being consulted for curing, control over weather, or success in war....It is unlikely that they had a paramount chief this early [ca. 1700], but there is evidence that one settlement, Shodakson...owing to its size and central location exerted a certain influence over the other through its leader....Dobyns (1974[c]:317-327) [1974b] has adduced evidence to show that, even prior to the first visit of the Spaniards to the Gila, the Shodakson leader had initiated contact between the Spaniards and the northernmost Pimans

[1]For a recent listing of sources arguing for or against Hohokam-Piman continuity, see Hadley and Sheridan (1995:8-10).

by leading a party beyond the mission frontier into Sonora, where he was baptized Juan de Palacios [Ezell 1983:151].

In 1716 Velarde remarked that the Pima lacked leaders "other than the one who incites them to fight...or who gives the signal for the time to hunt" (Di Peso 1953:25-26).

Even before the adoption of winter wheat, the Pima relied on farming for about 60% of their food (Castetter and Bell 1942:57), and they stored large amounts of produce in large pottery jars and basket granaries in their houses. Because of spring runoff in the Gila, the Pima could grow two crops of corn each year. The Pima also grew tepary beans, cotton[2], and devil's claw, the last being used to decorate basketry (Castetter and Bell 1942; Russell 1908). One puzzling aspect of early Pima farming was the apparent lack of irrigation systems (Manje, cited in Burrus 1971:62; Ezell 1961), in sharp contrast to the extensive prehistoric systems of the Hohokam and the 1800s Pima. The most likely explanation is that due to the collapse of the Hohokam culture and the introduction of European diseases, the Protohistoric Pima were few enough to get by with fields in the active floodplain of the Gila River, where sub-irrigation farming was possible. By 1775, with population climbing and winter wheat production in full swing, irrigation ditches were universal (Hackenberg 1983:165, 169).

Important wild plant foods included mesquite and saguaro (the fruit of the latter providing ceremonial wine). Important sources of animal protein included rabbits and fish (Castetter and Bell 1942; Doelle 1981:63-65; Ezell 1983:151; Hackenberg 1983:163; Russell 1908). The Pima occupied their villages year-round (Hackenberg 1983:164), making brief trips in search of seasonal foods and other resources. Hackenberg (1983:161) comments, for example, that "The Gila River Pima did not locate permanent settlements on the Salt River until the 1870s, but fishing parties visiting the area camped there frequently."

To judge from an 1853 watercolor (Ezell 1983:154, Figure 4), Pima rancherías were fairly tightly clustered, which is not surprising, since by then warfare with the Apache and other groups was almost constant. Within rancherías were family compounds (about 50 m apart) that included homes (one per family or unmarried adult), food storage structures, a ramada, a cooking windbreak, and a menstrual hut (Bahr 1983:178-181; Ezell 1961). Pima homes were domed structures built over a square frame of large posts and beams; walls were branches and reeds covered with earth (for an excavated example, see Gladwin et al. 1938:60-61). Rancherías also included community houses, which Bahr (1983) describes:

> The single public structure was the site of nightly council meetings for the men....[T]he meeting area included a round dwelling-type house in which nobody lived. East of it was an open-roofed sunshade and under the shade or a few feet farther to the east was a

[2]Not, however, "Pima Cotton," which is non-native.

> fireplace for the nightly meetings. The meetings were not held inside the house...[which] was used primarily for one ritual, a summer wine feast [Bahr 1983:178-179].

The space east of the public house was kept carefully cleared, as were other ritual spaces on the edge of the village (Bahr 1983:180).

Both pottery and basketry included large forms for the storage of produce. Pots were also used for water transport and storage, preparation and storage of saguaro wine, and cooking. The Pima wove cotton blankets, which became an article of trade (Ezell 1983:151). In historic times the dead were interred, at some distance from the dwellings (Bahr 1983:180).

An important aspect of Piman settlement since prehistoric or Protohistoric times is the close alliance between the Pima and the Maricopa, the latter being a fusion of emigrant and refugee groups of Yuman-speakers from the lower reaches of the Colorado and Gila River valleys. The Maricopa, who are described below, shared a range with the Pima, and since 1700 their fates have become completely intertwined.

According to Schroeder (1954),

> The historic Gila Pima pattern, which contains many elements of the prehistoric San Pedro pattern as opposed to the late prehistoric traits of the Gila Basin, indicates that a group from the east may well have entered the Gila Basin sometime after A.D. 1400 to overshadow the local prehistoric culture, as legend implies (Schroeder 1952*c*) [1952a]. Unfortunately, many of the early historic sites of this region have been leveled by agricultural developments, thus underscoring the need for urgency in investigation [Schroeder 1954:599].

Previously recorded Pima and O'odham sites that possibly date to circa A.D. 1519-1692 number 56 and are located throughout the Gila River valley from present-day Coolidge and Casa Grande to Phoenix. These sites include 2 villages, 19 houses, 33 scatters, one well, and one canal.

Two recent archaeological projects have produced significant data on the transition from Hohokam archaeological culture to modern Pima culture. Site AZ T:7:136(ASM), at Surprise, Arizona, consisted of a shallow pit house, 13 thermal pits, two ash pits, one trash pit, two other pits, two activity areas, and two artifact scatters (Aguila, Larkin, and Giacobbe 1997). Radiocarbon dates range from the A.D. 1100s to the 1400s and archaeomagnetic dates range from the A.D. 600s to the 1600s. The excavators assign the site to the Polvorón phase, from A.D. 1325 to 1450, slightly before the Protohistoric period as defined here, and maintain that the site is the type of settlement one would expect to find after a reduction in Hohokam population size and concentration. Pueblo Salado (AZ T:12:47[ASM]), a Hohokam village on the Salt River, also contained an oval house (Figure 2.4) archaeomagnetically dated between A.D. 1375 and 1750 and a canal radiocarbon dated between A.D. 1443(CAL) and 1955(CAL) (Bostwick, Greenwald, and Walsh-Anduze 1995).

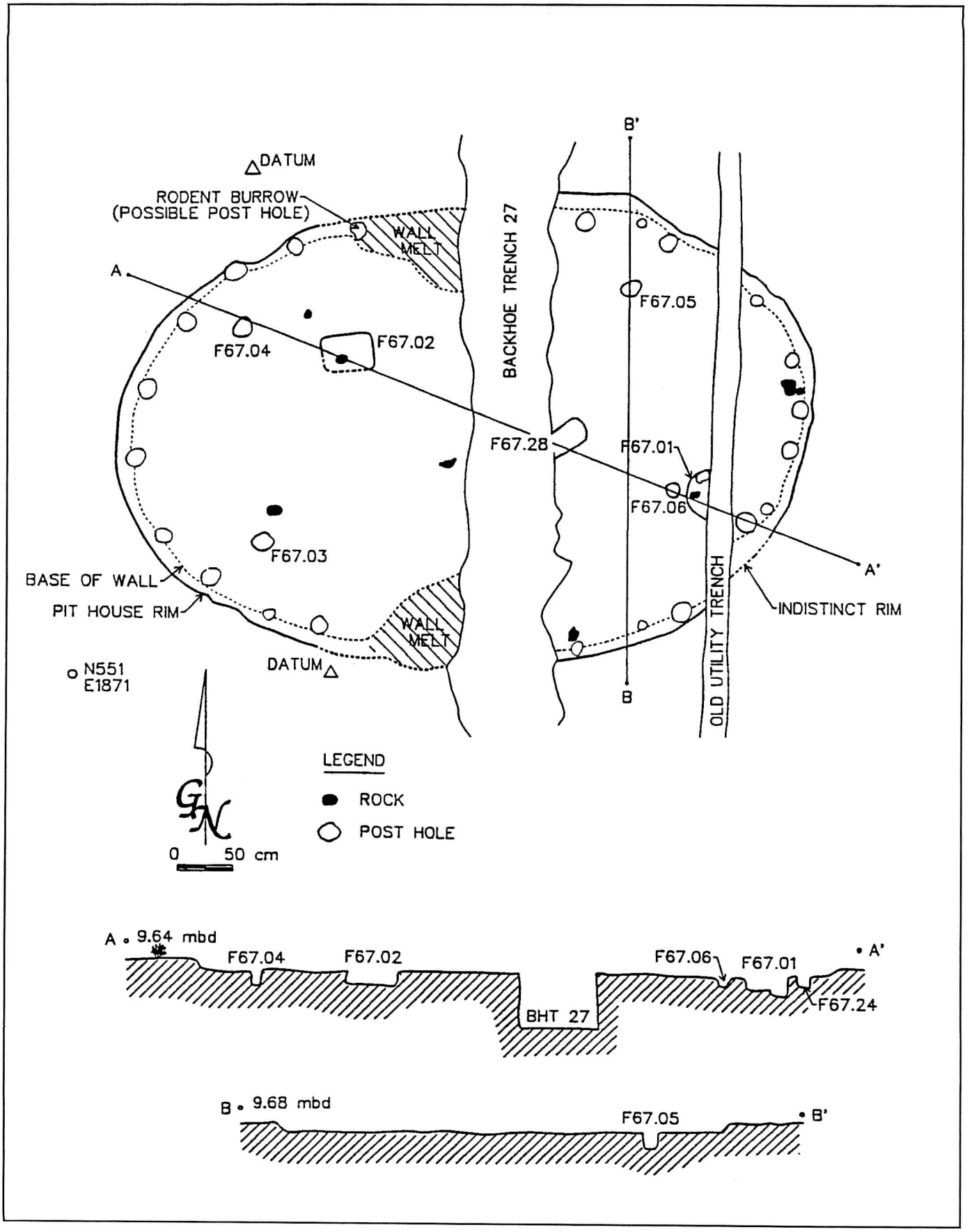

Figure 2.4. Feature 67 in Area 6 of Pueblo Salado (after Wenker, Greenwald, and Anduze 1996: Fig. 3.17).

TOHONO O'ODHAM

In the Protohistoric and early Historic periods, the ancestors of the Piman-speaking Tohono O'odham were known by various names and represented a variety of adaptations to different parts of southern Arizona (Fontana 1983). Because of the 1500-1700 temporal focus of this study, the discussion is broken down by these ancestral groups.

Sobaipuri

The Sobaipuri, the historic Piman speakers of the San Pedro and upper Santa Cruz valleys, most likely descended directly from the Classic Hohokam culture of the Tucson Basin and lower San Pedro valley. In the 1760s the Sobaipuris of the San Pedro River valley came under increasing attack by the Apaches, and in 1762 they moved from there to the Santa Cruz River valley. The Sobaipuri disappeared as an identifiable group around 1770 and are thus known only from a few brief historical accounts (e.g., Bolton 1948, 1960; Burrus 1971) and archaeology (e.g., Di Peso 1953, 1956; Doyel 1977; Seymour 1989, 1993a, 1993b, 1993c, 1997).

When Kino and his fellow explorers first traversed the San Pedro Valley, there were perhaps 1000 Sobaipuri living there and 2300 in the Santa Cruz valley (Doelle 1984)[3], living in villages of as many as 500 people in 130 houses (Kino's estimate) (Bolton 1948, cited by Hadley, Warshall, and Bufkin 1991:38-39). (Other population estimates range from Fray Ignacio Keller's early 1700s estimate of 1800 [Hammond 1929:227, cited by Hadley, Warshall, and Bufkin 1991:39] to Kino's estimate of 2000 [Bolton 1948, cited by Hastings and Turner 1965:26]). The Sobaipuris lived in houses of reed mats (Bolton 1984:366) and had principal chiefs over groups of rancherías: Coro was chief of the Sobaipuri sites on Babocomari Wash; Humari was the chief of the ten villages downstream. Unlike the Pima, the Sobaipuri were practicing irrigation farming when they were first contacted (Burrus 1971), making it possible for them to live in "permanent" villages. Permanence, in this case, means only that villages were occupied year-round; the villages apparently shifted every few years (Seymour 1993c), which may help explain the *im*permanent nature of Protohistoric Sobaipuri houses. The leader of the settlement of Bac seems to have had authority over other villages in the Santa Cruz valley (Doelle 1984:207-208).

The Piman villages in southern Arizona were not large, usually no more than 40 houses and 300 people at each (Bac and San Agustín del Oyaur were two to three times this size, however). Kino's 1695 map (Bolton 1984:300-301) shows six Pima communities (San Luís del Bacoancos, Guevavi, Los Reyes, San Geronimo, San Cayetano del Tumacácori, and San Martín de Aribac) on the Santa Cruz and its tributaries, four Sobaipuri communities (San Xavier del Bac, San Cosmé, San Agustín,

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[3]Although Kino is widely credited with being the first European to travel among the Upper Pima of Arizona, beginning in 1691, he stated that prior to 1680 the Spanish of New Mexico visited the Sobaipuri on trading expeditions (Bolton 1967:453).

and Santa Catarina) on the Santa Cruz, four Sobaipuri communities (San Joachim de Bassosubeam, Santa Ana, Santa Cruz del Pitaitutgam, and San Pablo de Giburi) on Babocomari Wash (a tributary of the San Pedro), and 10 Sobaipuri communities (Gaybanipitea, San Salvador, San Marcos, Tacobac, Muihibai, Bapatcam, Anagam, and three unnamed) on the San Pedro and Aravaipa Creek.

The rancherías along the Santa Cruz and San Pedro visited by Kino in 1697 contained 920 houses in which 4700 people lived (Bolton 1984:377). In 1691 Tumacácori had 40 houses (Bolton 1984:264); in 1697 there were 23 houses and 147 people (Bolton 1984:500). Bacoancos had a population of 90 people in 1697 (Bolton 1984:500); in 1699, there were 40 houses at this location (Bolton 1984:501). In 1699 Guevavi had a population of 90, and even more people lived at Los Reyes (Bolton 1984:501-502); by 1700, 500 Sobaipuris from the San Pedro River had moved to Los Reyes (Bolton 1984:502). In 1697 the Pima village Becadéguache was in the San Rafael valley (Bolton 1984:359). Huachuca (at present-day Babocomari Ranch) was a Pima village of 80 people (Bolton 1984:360).

Bac, the largest community on the Santa Cruz, had 800 people in 1692 (Bolton 1984:268); in 1697 it had 116 houses and 800 people, and there were probably 3000 people in the vicinity (Bolton 1984:503-504). The other Sobaipuri communities on the Santa Cruz in 1697 included San Cosmé del Tucsón (at the base of "A" Mountain across from present-day Tucson) (Bolton 1984:503); San Agustín del Oyaur (3-4 miles north of San Cosmé), with 86 houses and 800 people (Bolton 1984:376-7, 503); Valle de Correa (or San Clemente), at the mouth of the Rillito River, with 100 people (Bolton 1984:376-7, 503); and Santa Catarina de Cuituabagu (near Picacho), with 40 houses and 200 people.

In 1692 Baicatcan (5 miles north of Cascabel) was the largest village on the San Pedro, but it was abandoned by 1697. In 1697 there were 2000 people in 15 villages on the San Pedro below Fairbank (Bolton 1984:387). Quiburi, the largest community on the river, had 100 houses and 500 people and was fortified. Gaybanipitea had 25 houses and 100 people; Santa Cruz was at the mouth of Babocomari Creek, across the San Pedro from the site of Fairbank. Ten villages were in the 35-mile segment of the San Pedro River between El Embudo (south of Reddington) and the mouth of Aravaipa Creek; eight of these villages were in a 20-mile stretch from El Embudo to the 111 Ranch. The ten villages were Cusac, with 20 houses and 70 people; Jiaspi (El Rosario, at Reddington), with 23 houses and 144 people; Muyva (at Markham); three unnamed villages and Aravavia (east of Oracle), with a total of 130 houses and 500 people; Tutóyda, with 100 people; Comarsuta (at Mammoth), with 80 people; and Ojío (at the mouth of Aravaipa Creek), with 70 houses and 380 people. In addition, Busac and Tubo (on Aravaipa Creek) had 85 men and thus approximately 340 people.

Three factors—European diseases, warfare with the Apache, and Spanish colonization—led to the collapse of the Sobaipuri and their fusion with other Upper Pimans. Unlike the Eastern Papago, the Sobaipuri yielded to the Spanish policy of *reducción*—relocation to a few large mission settlements in the Santa Cruz valley, such as Calabasas, Tumacácori, and Bac—where, packed together, they and other recruits quickly died of smallpox and other diseases to which they had no

resistance. The Spanish response was to recruit other Native Americans for the same missions, where, predictably, they also died (Dobyns 1963).[4] The missions became, in effect, "black holes" into which they and other native groups steadily drained; as their numbers dwindled, the Sobaipuri were unable to resist Apache encroachment on their territory. Pressure of a different sort was imposed by the Spanish, who colonized the empty spaces created by their policies and established a presidio at Tubac in 1752 (the presidio was moved to the Sobaipuri village of Tucson in 1775). The Spanish presence meant that the Sobaipuri could melt into the frontier population of soldiers, farm and ranch workers, and miners. In 1762 the Sobaipuri abandoned the San Pedro valley entirely.[5] By the mid 1800s there were not enough Pimans at Tumacácori to maintain that settlement; the inhabitants fled to Bac, the only other surviving Piman settlement of the Santa Cruz valley, to become part of today's Tohono O'odham.

Archaeologists have studied the Sobaipuri more thoroughly than any other Protohistoric group in Arizona except the Hopi. Most of the archaeological work on the Sobaipuri was initiated by Charles Di Peso, who saw in the Sobaipuri a connection between prehistory and history like that explored by Kidder (1924) at Pecos, by Hodge (1937; see also Smith, Woodbury, and Woodbury 1966) at Hawikuh, and by Brew (1937, 1939, 1941, 1942, 1952, 1961) at Awatovi, and proposed by Haury (1950) at Batki. Kino's journals and reports provided a wealth of information about the Sobaipuri, and Di Peso set out to find and excavate representative sites. Di Peso identified three sites as Sobaipuri: Paloparado (Di Peso 1956) (Figure 2.5), Santa Cruz de Gaybanipitea (Di Peso 1953) (now thought to be Santa Cruz del Pitaitutgam [Figure 2.6]), and Quiburi (Di Peso 1953) (now thought to be Terrenate [Figure 2.7]). Di Peso (1956) thought that the Paloparado Site, in the Santa Cruz valley, was the contact village of San Cayetano de Tumacácori, but in fact it was a village of the pre-Classic and Classic Hohokam (Phillips 1992; see also Doyel 1977; Fritz 1977; Wilcox 1987). (Although Brew and Huckell [1987] agree that the Paloparado site is Hohokam, they suggest that the two burials reported by Di Peso could have come from an unidentified Protohistoric site somewhere in the vicinity. Bronitsky and Merritt [1986:251] view the site as a continuous occupation in which the Hohokam houses were located on the western portion of the terrace, Upper Piman structures were on the eastern portion of the terrace, and Spanish artifacts came from the eastern edge of the site.) Most archaeologists agree that Site AZ EE:8:15(ASM), identified as Santa Cruz de Gaybanipitea (Di Peso 1953), is a good example of a Protohistoric Sobaipuri site, but Seymour (1989) makes a convincing argument that the site is actually Santa Cruz del Pitaitutgam (see also Masse 1981 and Williams 1986). Di Peso (1953) thought that the presidio site of Terrenate, in the San Pedro Valley, was built over the contact village of Quiburi, but the site apparently contained only Spanish Colonial remains. Despite new interpretations of these three

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[4]Throughout the Upper Piman area, native acceptance of this and other Spanish policies was reluctant at best, as evidenced by repeated resistance efforts ranging from "witchcraft" to open rebellion. The Sobaipuri had fewer options than the Pima and Papago, given the strong Spanish presence in the Santa Cruz valley and the extreme danger from Apache attack in the San Pedro valley.

[5]Final abandonment of the San Pedro valley may have been forced by the Spanish. In 1770 de Anza reported that some of the refugee Sobaipuri joined the Gila Pima (Dobyns 1976:19-22; Ezell 1983:149).

Figure 2.5. The Paloparado Site, thought by Di Peso to be the contact period site of San Cayetano de Tumacacori, is now believed to be a prehistoric Hohokam village, but along with the sites illustrated in Figures 2.6. and 2.7. is still illustrative of the transition from prehistory to history in southern Arizona (after Di Peso 1986: Fig.83).

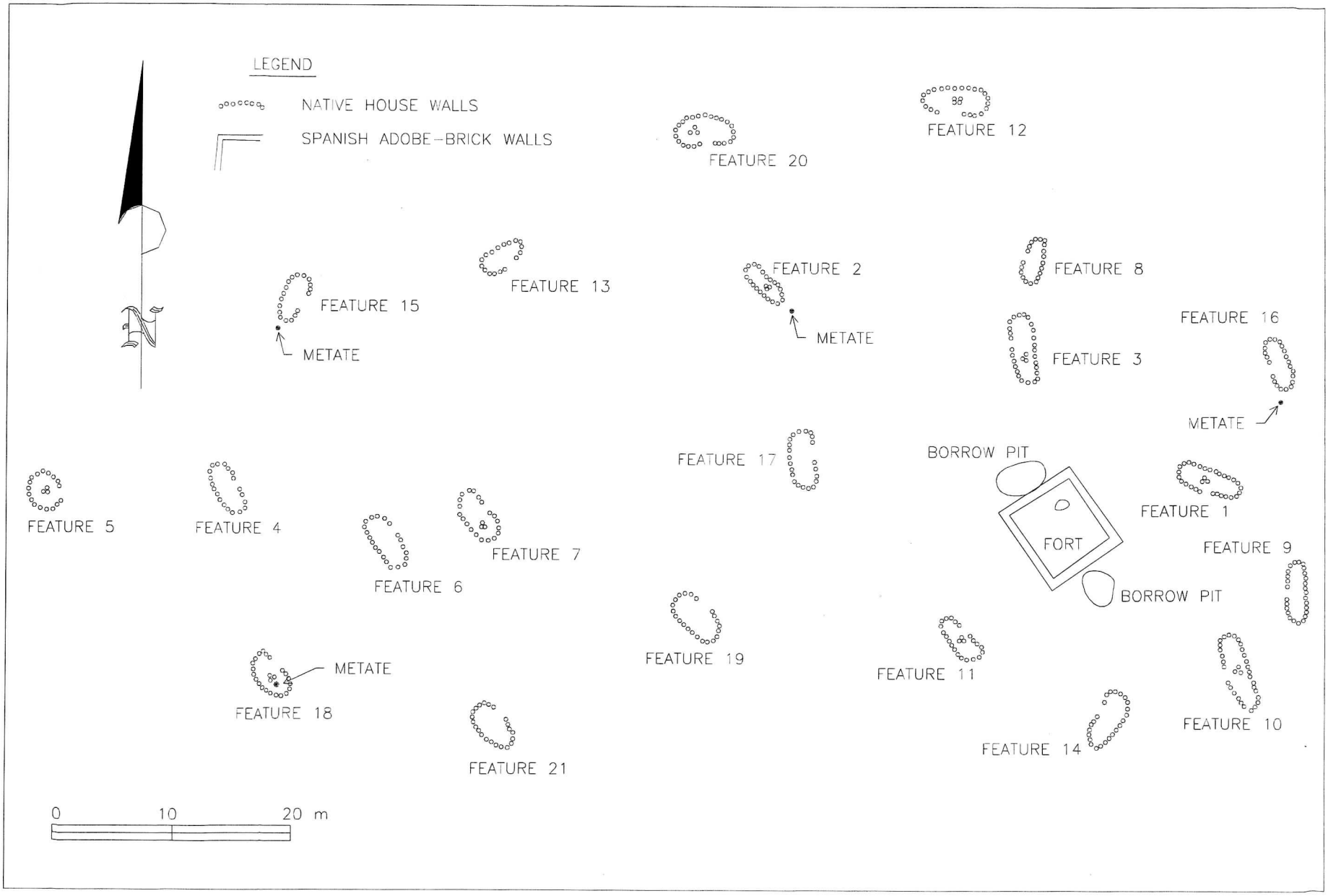

Figure 2.6. Santa Cruz del Pitaitutgam, thought by Di Peso to be Santa Cruz de Gaybeanipitea, is an excellent example of a Sobaipuri rancheria (after Di Peso 1953: Fig.3).

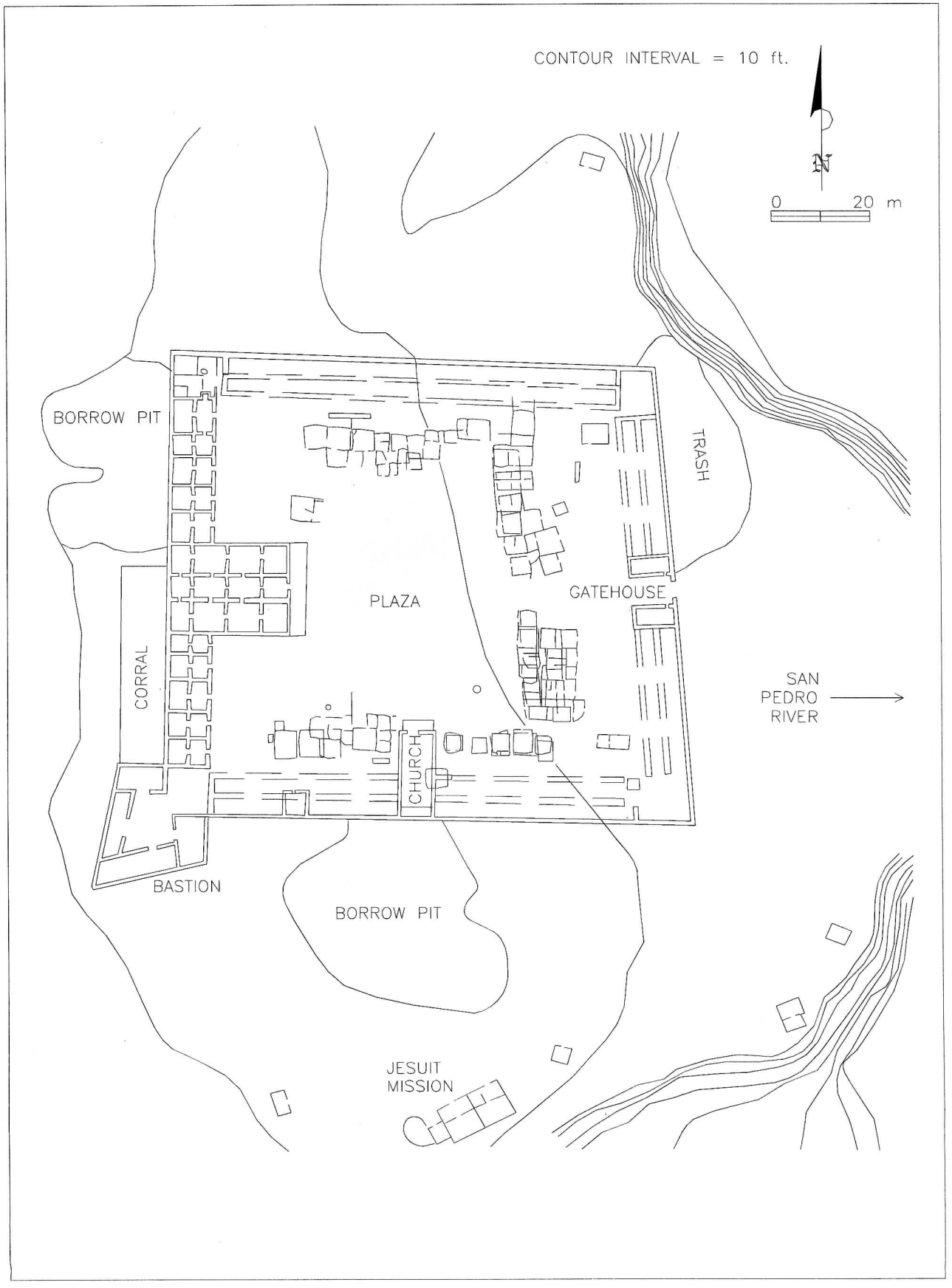

Figure 2.7. The eighteenth-century Spanish presidio of Terrenate, thought by Di Peso to be Quiburi (after Di Peso 1953: Fig.34).

sites, they still constitute a well-documented suite of sites exemplifying the transition from prehistoric to historic settlements in southeastern Arizona.

Subsequently, a number of archaeological studies of Sobaipuri sites have been conducted (Bronitsky 1985:142; Doyel 1977; Fritz 1977; Masse 1981; Seymour 1993c;). The consensus now is that Sobaipuri habitation sites are ranchería-style settlements, mostly on terraces overlooking floodplains, although mountain settlements have also been reported (Bronitsky 1985:142; Fritz 1977; Huckell 1984). Ranchería sites consist of house foundations evident as oval rings of cobbles (Bronitsky 1985:142; Doyel 1977; Fritz 1977; Masse 1981; Seymour 1993c), usually measuring about 4 × 2 m. Other types of features include roasting pits, small rock rings, and flat cobble platforms. Seymour (1993c:10) says, "The Spaniards encouraged the construction of adobe-walled structures to house the visiting missionaries, so such structures might also be expected in the *cabecera* (head mission) and *visita* (secondary location visited routinely) settlements that were frequented by the missionaries." Ceramics are undecorated and unslipped plainware and redware pottery that was sand-tempered in earlier times and organic-tempered later (Bronitsky 1985:142; Seymour 1993c). The plainware pottery includes Whetstone Plain and Sobaipuri Plain, with local differences in temper and thickness. The redwares on Protohistoric Sobaipuri sites may derive from earlier or later occupations. Projectile points are triangular with concave bases, serrated edges, and "fine, often trapezoidal retouch" (Bronitsky 1985:142; Seymour 1993c). "Finely retouched unifacial flake tools of fine-grained materials" are also present (Seymour 1993c), as well as "minimally shaped grinding tools" (Bronitsky 1985:142). "Because many of these sites were occupied at the time of European contact...European artifacts such as majolica and metal are sometimes found on these sites" (Seymour 1993c). *Olivella* shell is also reported (Seymour 1993c). The dead were interred; known Sobaipuri sites include cemeteries and at least one isolated burial (Brew and Huckell 1987; Di Peso 1953; Masse 1981; Seymour 1993c).

Sobaipuri sites identified in our inventory include 17 rancherías, 6 farmsteads, 4 campsites, a rockshelter, 3 roasting pits, one rock art site, 10 artifact scatters, 5 graves or cemeteries, an agricultural field, and a mine. In addition, Doelle (1984) mentions isolated projectile points from three sites: AZ AA:12:18(ASM) (Hodges Ruin), AZ BB:13:3(ASM) (Martinez Hill), and AZ BB:14:141(ASM) (at the headwaters of Tanque Verde Wash in Saguaro National Park).

Four excavated sites are recognized by most archaeologists as Sobaipuri habitations: Santa Cruz del Pitaitutgam, Alder Wash, England Ranch Ruin, and Tinaja Canyon. Site AZ EE:8:15(ASM) (EE:8:5[AF]) (Figure 2.6), Santa Cruz del Pitaitutgam (Di Peso's Santa Cruz de Gaybanipitea), consisted of 21 subrectangular structures with boulder foundations, side entries, jacal and thatch superstructures, and, in 11 structures, stone-lined hearths; one mescal pit was also excavated (Di Peso 1953; Doyel 1977; Fritz 1977). Doyel (1977:133) notes that only a few artifacts were recovered from this site, including Whetstone Plain ceramics, but at England Ranch Ruin (which is roughly contemporaneous), most of the artifacts were recovered from extramural areas.

Alder Wash Pueblo (AZ BB:6:9[ASM]), a habitation site, may have been the late 1600s site of Cusac that was visited by Kino. The site consisted of oval rock outlines, shell, basally indented projectile points, glass, beads, and metal (Breternitz 1978:21; Bronitsky and Merritt 1986:240-241; Hammack 1971; Masse 1985). Doyel (1977) thinks some of the ceramics from this site may be historic Papago sherds, but most of the ceramics look like the material from England Ranch Ruin. This site is on the San Pedro River 10 miles north of Reddington.

England Ranch Ruin (AZ DD:8:129[ASM]), near Calabasas, was a habitation consisting of 6 structures (2 with floor features, 3 with east-facing entrances), 5 extramural hearths, a stone platform, 8287 sherds, 50 projectile points, 9943 flakes, 138 cores, and some ground stone (Figure 2.8) (Doyel 1977). Doyel (1977) says that England Ranch Ruin has an Upper Pima occupation dating from about A.D. 1500 to 1700, although Ravesloot and Whittlesey (1987:90) question this, since no evidence for Spanish contact was found; Cable (1990:23.6) argues that the site dates to about A.D. 1800, based on comparisons with the material from the Ak-chin Project.

Tinaja Canyon (AZ DD:8:128[ASM]) was an Upper Piman lithic raw material procurement site, with two oval outlines of cobbles with east-facing entrances, one projectile point, and no ceramics (Figure 2.9) (Doyel 1977). Three excavated sites in the Santa Rita Mountains (AZ EE:2:80[ASM], AZ EE:2:83[ASM], AZ EE:2:95[ASM]) are much like Pitaitutgam, Alder Wash Ruin, England Ranch Ruin, and Tinaja Canyon, and Huckell (1984) argues that these sites are Sobaipuri but that they date to the 1700s (cf. Seymour 1993c:43).

A number of possible Sobaipuri sites are known from survey, mostly along the Santa Cruz and San Pedro rivers, but from highland areas as well. Danson recorded house-ring sites along the Santa Cruz River (Danson 1948:7, 89) and Papago sites on the upper Santa Cruz River (Danson 1948:10), especially on bluffs overlooking the San Rafael Valley. These sites consisted of from one to seven cobble rings with plainware ceramics, trough and slab metates, flaked stone, burned rock mounds, and hearths (Doyel 1977:132). In the Guevavi area along the Santa Cruz River, Seymour (1997) identified two Sobaipuri sites (AZ EE:9:132[ASM] and AZ EE:9:138[ASM]) and two prehistoric sites (AZ EE:9:126[ASM] and AZ EE:9:133[ASM]) with isolated Whetstone Plain sherds that may represent the pre-Hispanic Sobaipuri population that attracted Spanish missionaries to Guevavi. In the Tumacácori area, Greenberg and Marusin 1976:40) recorded five Sobaipuri habitation sites (AZ DD:8:19[ASM], AZ EE:5:24[ASM], AZ EE:9:2[ASM], AZ EE:9:138[ASM], AZ EE:9:153[ASM]) dating from the pre-Hispanic period to the late 1700s. Site AZ DD:8:19[ASM], previously recorded by Danson (1948), had at least four structures and five other features, AZ EE:5:24[ASM] had one structure and seven other features, AZ EE:9:138[ASM] had one house, and AZ EE:9:153[ASM] had five houses and two other features; all four of these sites could date to the pre-Hispanic period. The Calabasas site (Site AZ EE:9:2[ASM]), a Sobaipuri village, eighteenth-century Spanish visita, and nineteenth-century hacienda, is on the National Register (Bronitsky and Merritt 1986:241; Greenberg and Marusin 1976:40). Organic-tempered pottery on this site indicates that the Sobaipuri component dates to the late eighteenth century (Seymour 1993c). Along the San Pedro River, nearly 40 sites, including perhaps half a dozen of the 20 or so that were visited by Kino, have been recorded

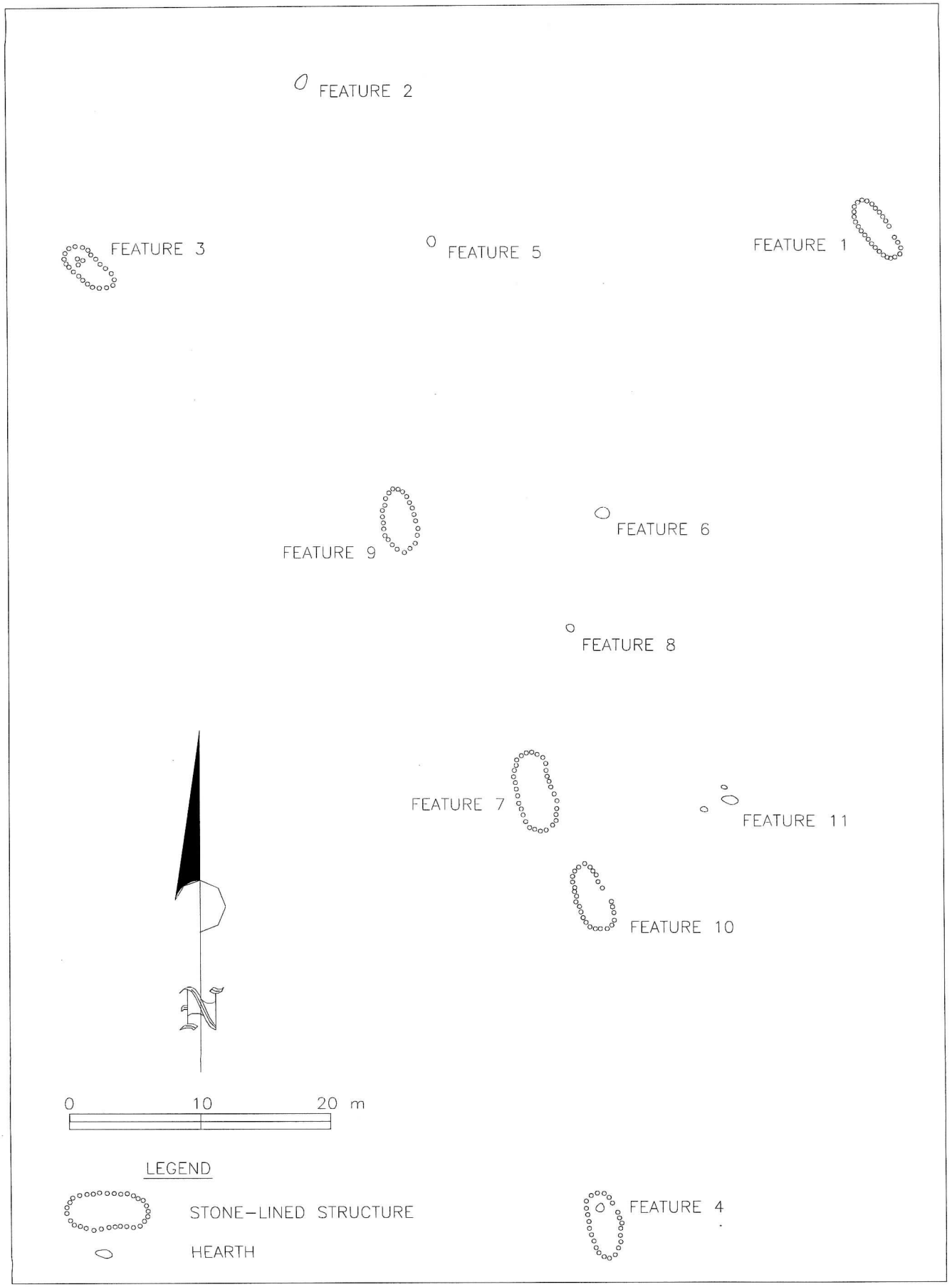

Figure 2.8. England Ranch Ruin (AZ DD:8:129[ASM]) (after Doyel 1977: Fig.9).

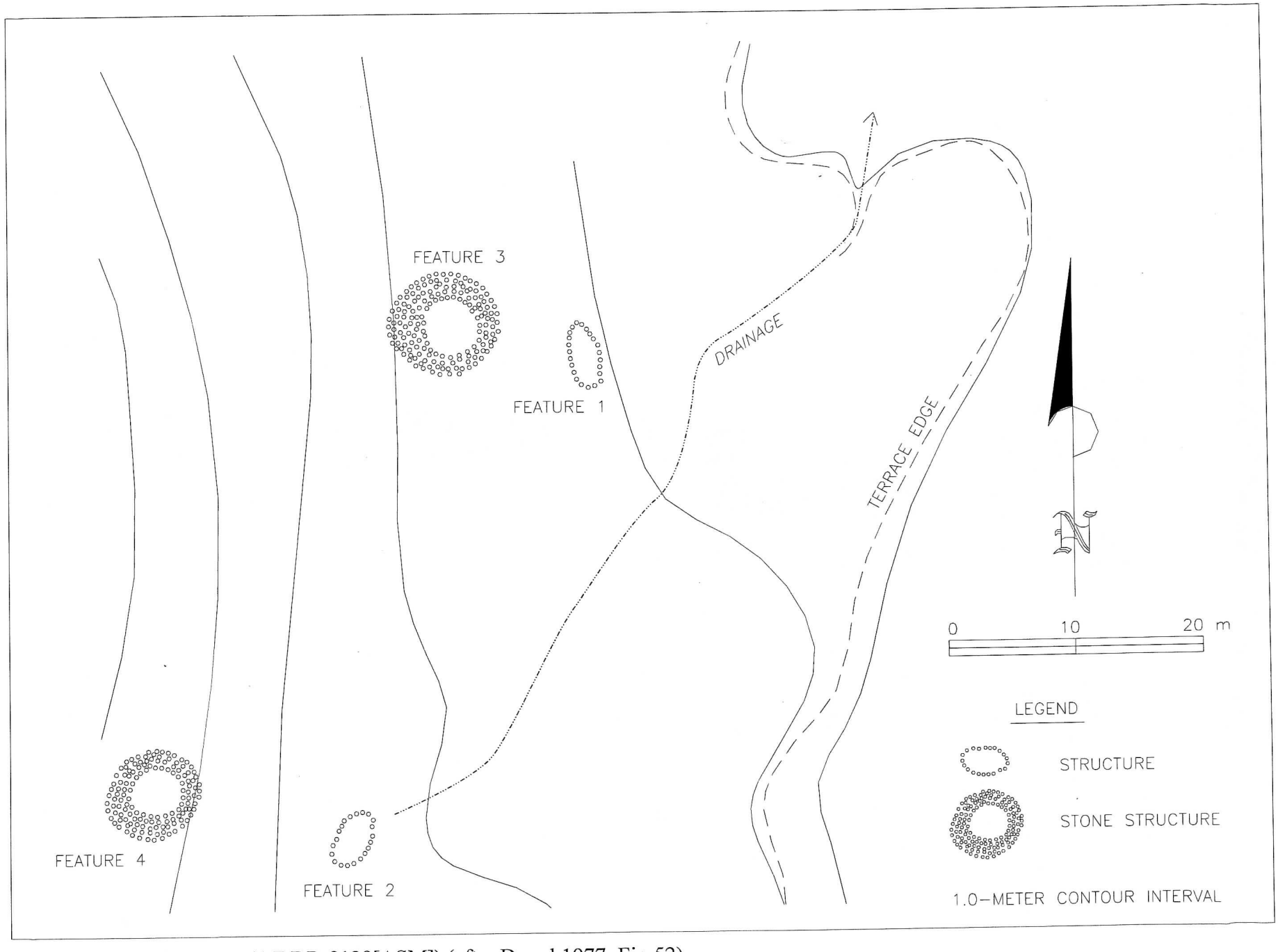

Figure 2.9. Tinaja Canyon (AZ DD:8128[ASM]) (after Doyel 1977: Fig 52).

(Bronitsky and Merritt 1986:241; Di Peso 1953; Seymour 1993c:30, 33). Di Peso hypothesized that Davis Ranch Sites 1 and 2 (AZ BB:11:7[ASM] and AZ BB:11:8[ASM]) could be the sites of Cusac and Rosario. Both are compound sites with Gila Polychrome and thus are probably prehistoric Hohokam, but it is possible that Sobaipuri materials could be located on or near the sites. On the other hand, the Alder Wash site has also been identified as Cusac. Seymour (1989, 1993c:44) has surveyed the San Pedro River from Fairbank to Tres Alamos, recording some 30 Sobaipuri sites (Seymour 1993c:44), identifying the actual locations of Gaybanipitea and Quiburi (misidentified by Di Peso), and demonstrating that Site AZ EE:8:15(ASM) was actually the site of Pitaitutgam. In 1976 Masse also recorded some possible Sobaipuri sites that consisted of stone alignments like those at Gaybanipitea and have Whetstone Plain Ware (Bronitsky and Merritt 1986:241). On the east slope of the Santa Rita Mountains, Fritz (1977) recorded a small number of hilltop sites with one to several stone-ring structures and Whetstone Plain ceramics (Bronitsky and Merritt 1986:254; Doyel 1977:132).

Specialized sites appear to be about as common as habitation sites in the Sobaipuri settlement pattern. Such sites include a number of roasting pit complexes, artifact scatters, burials, a rockshelter, an agricultural field, and a mine. Downum, Rankin, and Czaplicki (1986) recorded several roasting complexes and short-term seasonal camps in the Avra Valley. Second Canyon Ruin has a few hearths that may be early historic Upper Piman or Apache (Franklin 1978). One Sobaipuri rockshelter has been recorded in the Rincon Mountains, but rockshelters were apparently not used as much by the Sobaipuri as by the Pai and Apache.

Sobaipuri burials are relatively common. The Bechtel burial (Brew and Huckell 1987) and the Bac burial (Ayres 1970) have been well reported, as has the San Xavier Bridge site, which contained a few Protohistoric Piman burials (Ravesloot 1987). Apparently the Sobaipuri also frequently buried their dead in prehistoric sites. For example, at Vista del Rio, a Sedentary Hohokam site, a possible Protohistoric Sobaipuri burial was excavated by a nonprofessional (Brew and Huckell 1987; Hemmings 1969), and Di Peso (1956) reported two possible Protohistoric burials at the Paloparado site, which Brew and Huckell (1987) and most other archaeologists believe to be Hohokam, suggesting that the two burials reported by Di Peso could have come from an unidentified Protohistoric site somewhere in the vicinity. Citing the clusters of talus pits reported by Madsen (1993), who believes they were cemeteries of the Kohatk Papago (see below), Brew and Huckell (1987) also suggest that crypt burials may have been used by the Sobaipuri.

Bronitsky and Merritt (1986:255-256) summarize subsistence data from Sobaipuri sites, noting that Padre Leal reported irrigated fields in the Tucson Basin in 1699 (Cosulich 1953:17). One possible field or garden was reported on Peppersauce Wash (Masse 1985), and Seymour (1997) suggests that some of the canals at Guevavi could date to the pre-Hispanic Sobaipuri occupation of this site. Doyel (1977:134) notes that the Papago had a dual village pattern, with permanent villages in the foothills and farming sites along drainages, but most archaeological sites attributed to the upland Pima have been along drainages.

Whetstone Plain and Sobaipuri Plain pottery have both been attributed to the Sobaipuri. Whetstone Plain—which has reddish brown paste, angular and rounded sand temper, and smoothed surface but not polished surfaces—was identified at Santa Cruz del Pitaitutgam. Pottery at Alder Wash Ruin and England Ranch Ruin was described as similar to Whetstone Plain but with black paste, small, angular white (crushed quartz?) temper, and wiped surfaces that sometimes were scored or polished and sometimes finished with a deep red slip. Sobaipuri Plain—which has black paste and large, angular sand temper and is rough or poorly polished—was most common at the eighteenth-century Terrenate Presidio. In addition, Di Peso (1956) identified five pottery types (Ramanote Plain, Paloparado Plain, Ramanote Red-on-brown, Sells Red, and Peck Red) at the Paloparado site as Sobaipuri products, but most researchers now view these ceramics as prehistoric (Seymour 1993c:55-56). Sobaipuri projectile points were apparently triangular with deeply concave bases and serrated edges. The Sobaipuri cultural affiliation of Sobaipuri Plain and triangular, concave-base, serrated projectile points has been questioned by Ravesloot and Whittlesey (1987), however.

Eastern Papago

Although "Papago" has fallen out of use as a designation for the Tohono O'odham, "Eastern Papago" will be used here to indicate the pre-fusion Piman speakers between the Baboquivari Mountains and the Ajo Range. The Eastern Papago lived in an area where permanent streams were lacking but where sustainable agriculture was possible through the use of ak-chin floodwater farming.

The Eastern Papago were organized into villages. Hackenberg (1983) comments,

> It was widely reported by early chroniclers that the Papago were without government, and Underhill (1939) and Drucker (1941) agree that village chiefs of the type found among them in the twentieth century were a Spanish innovation. But, since they were able to mobilize and direct large reserves of manpower...when desired, Papago social organization was not necessarily as dispersed and fragmented as the records... suggest [Hackenberg 1983:164].

Eastern Papago household compounds, meeting houses, and household goods were very similar to those of the Pima and will not be described separately.

The Eastern Papago economy depended primarily on wild plant foods, but farm crops made up about one-fourth of their caloric intake and were important in shaping their lifeway. The local farming technique, known as ak-chin, was a strategy common among prehistoric and Protohistoric peoples throughout the greater Southwest (for detailed ethnographic studies, see Castetter and Bell 1942). Rainfall that collected naturally within a drainage raced down an arroyo until it reached a gradient change (e.g., where the arroyo met a much larger, valley-bottom axial stream); there the water slowed and spread, dumping its nutrient-rich load. The resulting alluvial fan was an

outstanding location for farming, despite being in mid-desert. Associated water control features might include storage ponds, spreader dikes, and ditches at the alluvial fan (along with diversion walls upstream, to channel runoff into the desired arroyo), but these devices did not require a great deal of labor or organization.[6] Beginning about 1700, it was possible to harvest two crops a year: wheat grown using winter runoff, and maize and other native crops using summer runoff.

The most important wild plant resource was saguaro fruit, which was critical as a source of ceremonial wine as well as food. Cholla buds were also important, in part because they were a reliable food source that ripened in May (Fontana 1983:128, Figure 3), a time of scarcity. Other important wild plant foods included prickly pear and barrel cactus fruit, mesquite, and screwbean. Desert dwellers sometimes provided wild foods to river farmers in exchange for produce (Hackenberg 1983:163).

Reflecting the dual nature of their economy, in historic times the Eastern Papago alternated between winter and summer villages; the former were located at springs or other permanent sources of water, the latter at the ak-chin fields (Fontana 1983), where water was obtained from artificial ponds or, by the end of the growing season, carried in jars from the mountains (Bahr 1983:178). In citing this idealized ethnographic image, it is important to remember that Papago settlement patterns shifted repeatedly during the historic period, in response to developments such as the onset and end of Apache raiding and the adoption of livestock (Hackenberg 1983:166-168). Moreover, in bad times the Papago survived in part by removing themselves entirely from their traditional range, sometimes to adjacent river valleys to farm or trade their labor for a portion of the harvest (Hackenberg 1983:163). In 1774 de Anza remarked, "Because of the nearness to our settlements, both of Spaniards and Indians, the Papagos frequently live in them, especially in the winter, in which season they almost completely desert their own country" (cited in Hackenberg 1983:164). The historically documented Papago practice of temporary abandonment almost certainly extends back into prehistory, helping to explain human persistence in an environment that is not just marginal but unpredictable.

Like the Sobaipuri, the Eastern Papago were brought into Spanish society through missions, military service, and mine, ranch, and farm work. Unlike the Sobaipuri, however, the Eastern Papago survived in sufficient numbers to maintain a territorial base, which in any case was not attractive to the Spaniards. In the early 1800s the Eastern Papago temporarily retreated from much of their eastern range in response to Apache attacks (Hackenberg 1983:167). When their territory was cut in two by ratification of the Gadsden Purchase in 1854, the long-term effect was that the Eastern Papago withdrew into the U.S. portion of their range.

McGuire (1982:197-199) has discussed the Protohistoric period in the Papaguería. In 1941 Emil Haury of the University of Arizona began a study of the culture history of the Papaguería through

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[6]Hackenberg (1983:164) maintains that during wet periods, the Eastern Papago developed more elaborate forms of runoff irrigation.

excavations at a number of sites. He selected the site of Batki (Nuestra Señora de la Merced del Batki, a village visited by Kino in 1698) to represent the transition from the prehistoric Hohokam to the historic Tohono O'odham (Papago), but permission to excavate the site was withdrawn by the tribe (Haury 1950:19-20). Haury (1950) believed there was a gap from A.D. 1400 to 1700 between the Hohokam and Tohono O'odham occupations at Ventana Cave (AZ Z:12:5[ASM]), and this gap has never been spanned.

Our inventory of Protohistoric sites identified 30 Tohono O'odham sites that could date to the A.D. 1519-1692 period. These sites include one traditional cultural property (TCP), five villages, three houses (or rock rings), four mounds, three camps, one rockshelter, one roasting pit, three possible cemeteries (clusters of rock cairns or open pit features), one well, seven artifact scatters, and one rock art site.

The traditional cultural property is Montezuma's Head in the Ajo Mountains. Known to the Tohono O'odham as *I'itoi Mo'o*, this sacred site was listed on the National Register of Historic Places in 1994 (Ruppert 1997:36-37).

Haury (1950:19-20) mentions two Tohono O'odham villages or rancherías dating to the late seventeenth century: Batki and Horn-Lying. Kino reported that at Nuestra Señora de la Merced del Batki, 200 residents of this village were joined by 300 more people from surrounding settlements. The village was destroyed by the Apaches about 1850 (Haury 1950:19-20). The site consisted of a number of "burned houses, many with cremated bones of people killed or trapped in them" (Haury 1950:20). Tohono O'odham pottery on the site was glazed, reflecting Spanish influence. An eighteenth-century iron lance blade was present, but china, glass, and other commercially manufactured artifacts were absent. Horn-Lying was "occupied during Kino's day and was abandoned in 1880" (Haury 1950:21). This site was described as so spread out and with such thin cultural deposits that no excavations were undertaken.

Using data from the Hecla Mine data recovery project, Goodyear (1977) reconstructed a portion of the settlement system surrounding Kohatk, a Tohono O'odham village visited by Kino in A.D. 1698. An excavated Protohistoric site (AZ AA:5:4[ASU]) (Goodyear 1977) near Kohatk consisted of a square structure and two outdoor hearths (Figure 2.10) associated with a chocolate-brown pottery similar to Whetstone Plain (Masse 1980:251-252, cited by McGuire 1982:198). A doorpost from the structure was radiocarbon dated to A.D. 1370 or 580±100 B.P. (RL-224). The large number of ceramics and grinding tools from this site suggested that it was a location where people from the Kohatk ranchería processed saguaro fruit and seed. Goodyear (1977) identified 32 other Protohistoric loci (grouped into four sites) in the Slate Mountains with artifact assemblages ranging from one to more than 300 sherds; 18 loci included from one to 38 flaked stone artifacts. Goodyear interpreted these sites as prickly pear–gathering areas for the resident population at Kohatk.

The name Kohatk also refers to a group of Papago that occupied the confluence of Santa Cruz and Gila rivers and an area near Picacho Peak (Cable 1990; Gasser 1990; Madsen 1993). The Ak-chin Archaeological Data Recovery Project excavated 15 "Protohistoric" sites (dating from about

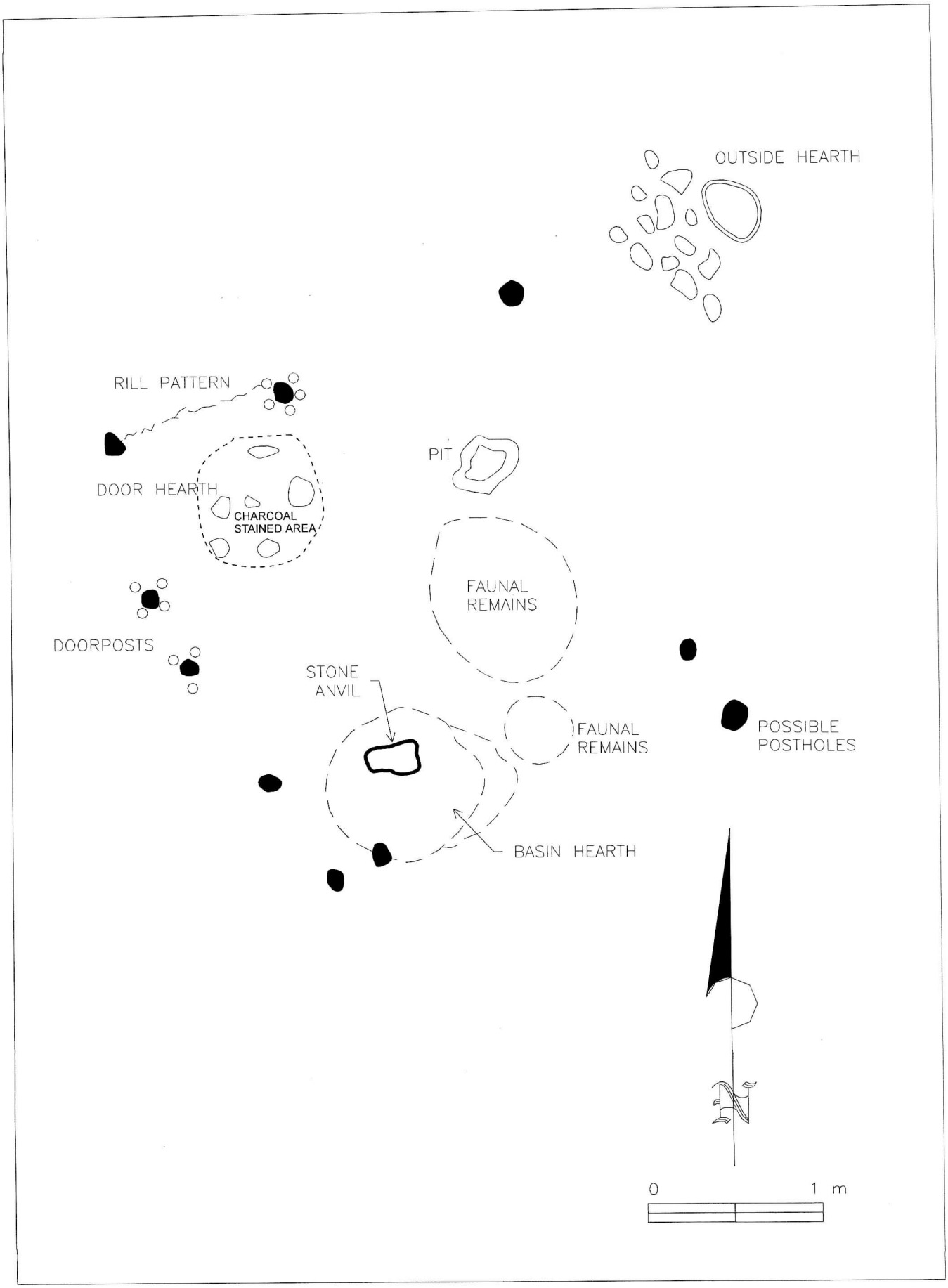

Figure 2.10. AZ AA:5:4:[ASU], Protohistoric Tohono O'odham house near Kohatk (after Goodyear 1997: Fig.8.2).

A.D. 1625 to 1880 or 1890), most of which were ranchería settlements believed to have been occupied by the Kohatk. The earliest securely dated site was Painted Horse (AZ T:16:20[ASM]), which contained 10 to 15 structures and dated from about A.D. 1550 to 1625. The nearby Frog Pot site (AZ T:16:23[ASM]) was similar in size and dated from about A.D. 1625 to 1700. The largest of the ranchería sites excavated during the project was Whimsey Flat (AZ T:16:71[ASM]), which probably contained 25-40 structures (seven were excavated) and dated to about A.D. 1800. Sites that contained only a few structures may have been farmsteads; one site—Va-pak (AZ T:16:85[ASM])—contained a well (Hoffman 1990). Houses were usually amorphous in plan, although a few oval structures and one circular structure were reported, and typically had compacted earth floors, central fireplaces, and postholes variously placed in the center of the structure opposite the ends of the entryways or around the structure's perimeter. Most pottery was a thin-walled, tan-paste plainware or a thick-walled, gray-black plainware with prominent muscovite temper. Rare examples of decorated white-on-buff and black-on-cream sherds were also recovered, as were stuccoed ceramics (stucco treatment of ceramics is characteristic of Lower Colorado River Buff Ware). Madsen (1993) dated three rock cairn or open-pit features (Sites AZ AA:7:158, 187, and 188[ASM]) along the lower Santa Cruz River to the period from A.D. 1450 to 1780 (or even as late as 1860) based on the presence of a thin, rim-banded pottery similar to pottery found at Batki. This pottery lacked the carbon core of Papago pottery produced after about A.D. 1850. Site AZ AA:7:158(ASM) consisted of 38 pits, AZ AA:7:187(ASM) consisted of 56, and AZ AA:7:188(ASM) consisted of 15. Madsen interpreted these talus pits as vandalized burials and suggested that they could be attributed to the Kohatk community of Santa Catarina de Cuituabaga, which was visited by Kino and Manje, although its exact location is not known today. Downum (1993:123-124) further suggested that twelve nearby sites (one habitation, one farmstead, three trincheras features, two rock shelters, two artifact scatters, and three agricultural sites) were also associated with this community because of the presence of a pottery resembling Whetstone Plain.

In the Quijotoa Valley on the Papago Indian Reservation, Rosenthal (1977; Rosenthal et al. 1978) identified four sites that she thought dated to the Protohistoric period. Three, including two that were radiocarbon dated, were Papago; one (see below) was sand Papago. According to McGuire (1982), Mallouf (1980) recorded 40 Protohistoric sites on Ajo Crest, "including rock circles or corrals with walls standing several courses high, similar to features Hayden (1976), Lumholtz (1912:233), and Ezell (1954a, 1954b) reported further west. The ceramics included rim-coiled Patayan III (Chapter 7), Period I Papago Plain (Fontana, Faubert, and Burns 1962:105), and sherds and materials that could not be sorted as either Papago or Patayan" (McGuire 1982:198-199).

Whetstone Plain, the Piman pottery type defined by Di Peso (1953:154-155), or a similar chocolate-brown pottery, appears to be the locally produced Protohistoric pottery of the Papaguería (Goodyear 1977; Haury 1950:345; McGuire 1982:198; Masse 1980:251-252; Seymour 1997:247-249). Patayan II ceramics from the lower Colorado River tribes are also found as trade wares. Modern Papago pottery (Fontana, Faubert, and Burns 1962) was first produced in the 1700s (Seymour 1997:247-249).

The Papago projectile points from Ventana Cave (Haury 1950:Plate 22) are triangular with deeply concave bases. Pictographs at Ventana Cave that Haury (1950:468-472) attributed to the Papago included vertical lines in white, black, and red, a dotted rectangle in white, joined red triangles, a T-shaped figure in black, a red horse and rider, and a group of black figures. Haury felt that geometric designs at the cave could be attributed to either the Hohokam or the Papago.

Sand Papago

In this case, again, the term "Papago" is used to indicate a pre-fusion Piman-speaking group ancestral to today's Tohono O'odham. The Sand Papago, Hia Ced O'odham, or Areneños (to give the English, Piman, and Spanish equivalents) are here defined as Pimans who lived in the area between the Ajo Mountains and the Lower Colorado River Valley, extending south to the Gulf of California. The area was generally too dry to sustain even floodwater farming (there is usually less than 130 mm of rainfall a year); the Sand Papago therefore lived almost exclusively on wild plant foods, supplemented by food obtained from more sedentary neighbors. As a consequence, the Sand People traveled widely, ranging between the Gulf of California and the sedentary villages on the Lower Colorado, Gila, and Santa Cruz rivers. This pattern most likely extends back through the 1500-1700 study period and into prehistory, though in archaeological terms the ethnic identity of the Sand Papago is obscured by their use of Yuman pottery.

The Sand Papago were probably a single band of not more than 150 persons (Hackenberg 1983:161). The basic fact of the Sand Papago economy was scarcity; the only reliable water came from a few widely scattered springs and bedrock tanks. The Sand Papago are known to have planted a single field, in the Sierra Pinacate of Sonora (Castetter and Bell 1942:63; Lumholtz 1912). Most of their territory yielded no edible plant foods and only limited amounts of game; not surprisingly, the Sand Papago took fish and shellfish from the Gulf of California. In the dune country near the Gulf, sandroot (a tuber) was an important staple. The low ranges of the area yielded limited amounts of mesquite, cactus fruit, and cholla buds. In bad years, the Sand Papago must have relied even more heavily than the Eastern Papago on neighboring farmers, obtaining food in exchange for farm labor, ceremonies, and seashells and salt from the Gulf (Fontana 1983:127-128; Hackenberg 1983:161).

Material culture was simple. Shelters were probably brush windbreaks, which would survive archaeologically as "sleeping circles." The Sand Papago obtained pottery in trade (including, as noted above, from the Yumans of the Lower Colorado Valley) (Bahr 1983:178; Fontana 1983:131). According to Fontana (1983),

> The nomads of western Pimeria Alta no longer exist....They appear to have died from epidemic diseases and from murder at the hands of Mexicans and Anglo-Americans in the last half of the nineteenth century. Others simply wandered off to lose themselves in mining camps and non-Indian settlements...during the same period. One Piman hermit...continued to live in the Pinacate Mountains until his death early in the twentieth

century, but with his passing the [Sand Papago] disappeared into history [Fontana 1983:131].

Archaeological evidence of the Sand Papago is rare. Gu Vo Waw (AZ Z:14:32[ASM]), a fifteenth- or sixteenth-century sherd and lithic scatter, provided evidence of hunting, gathering, processing, quarrying, tool maintenance, and petroglyph pecking. The site yielded 484 Yuman and Sells Plain sherds, 20 shell items, 3 pieces of bone, 454 tools, 211 cores, 4987 pieces of debitage, and 90 pieces of ground stone (Rosenthal et al. 1978)

Quitobaquito Springs, in Organ Pipe Cactus National Monument, was occupied by Sand Papago from about 1890 to 1945 (Anderson 1986; Bell, Anderson, and Stewart 1980; Brew and Huckell 1987:179). This site is believed to have a Protohistoric component, although it has not been clearly identified. The National Register nomination of this site is pending.

Upper Pimans of Sonora

The Upper Pimans of Sonora deserve mention in this overview. The ancestral archaeological culture for these Pimans was most likely the Trincheras Culture, which was focused in the Altar Valley of Sonora but extended across the border into Arizona. In Sonora, the term "Pima" referred to village farmers who lived in and near the valley of the Rio Magdalena; for the most part these "Pima" were absorbed into the Mexican frontier population, but they are of interest because they are sometimes described as extending into southern Arizona (Di Peso 1953). Archaeologically they may be indistinguishable from the Protohistoric Sobaipuri.

The Soba were also village farmers who lived primarily between Caborca and Sonóita; their range did not extend into Arizona, but in the face of Mexican pressures on their land, many descendants of the Soba joined the historic Eastern Papago, while others survived as detribalized Tohono O'odham. Piatos were apostate Pimans who lived in the Altar Valley (Fontana 1983:125) and whose fate presumably paralleled that of the Soba. Schroeder (1954:599) says, "The late prehistoric development in Papaguería and in the Organ Pipe Cactus National Monument area correlates well with the historic Papago culture of the same area (Withers 1944; Scantling 1940; Haury 1950; Ezell Ms. [1954b])."

JANO AND JOCOME

In Protohistoric times most of the Chihuahuan Desert was occupied by nomads. The most northwestern of these groups, the Jano and Jocome, ranged through portions of northwestern Chihuahua, northeastern Sonora, southwestern New Mexico, and southeastern Arizona. The Jano and Jocome were closely related to a third group, the Manso, and spoke the same language; Forbes (1959) identifies these three groups as early Athapaskans, but, as Beckett and Corbett (1992) demonstrate, the limited linguistic data support a Uto-Aztecan affiliation. Beckett and Corbett

further argue that the Jano-Jocome-Manso were descendants of the El Paso phase (Jornada branch) Mogollon. These three groups may represent three autonomous residential bands: the Manso centered on the Rio Grande near El Paso, the Jano centered on the northern Rio Casas Grandes at Janos, and the Jocome centered in southeastern Arizona. In 1695 the Jocome ranchería was "on a flat somewhere near the Winchester Mountains" (Wilson 1990:27).

In 1697 Kino found the Sobaipuri of Quiburi "dancing over the scalps and spoils of thirteen enemies, Hacomes and Janos, whom they had killed a few days before" (Bolton 1948:168-169). The Jano and Jocome are far more often mentioned as raiding with the Apache, as in the 1698 attack on the Sobaipuri settlement of Santa Cruz de Gaybanipitea (in the San Pedro Valley) by "600 Jocomes, Sumas, Mansos, Janos, and Apaches" (Wilson 1990:29).[7] It appears that when the Apache reached southwestern New Mexico and southeastern Arizona, they stepped into (and eventually took over) an existing feud between the region's village dwellers and nomadic groups.

There are no accounts of Jano-Jocome daily life or material culture. Brief descriptions of their close relatives, the Manso, are available for the 1500-1700 study period; at this time the Manso were foragers who lived in wickiups and relied heavily on fish (from the Rio Grande) and mesquite meal. When first contacted, the Manso used stone knives. Formal band leadership is indicated: in the 1660s the unconverted Manso were led by a "captain"; in 1692 the Jano and Jocome were described as each having a chief; in 1695 these two groups and the Manso were led by individuals referred to as "captain" or "governor"; in 1706 the merged Jano-Jocome were living in a single ranchería, under a single chief (Beckett and Corbett 1992:5-8; Forbes 1959:106-107; Wilson 1990:26-27). A further sense of Jano and Jocome life can be cobbled together from descriptions of the Protohistoric foot nomads of the Chihuahuan Desert as a whole. Autonomous bands of no more than 50 persons covered enormous territories in search of seasonal foods such as agave, cactus fruit, mesquite beans, and grass seeds. Non-perishable items would have included grinding stones and flaked stone arrow points and knives; these groups made no pottery (Griffen 1983:331-333). Early Jano-Jocome campsites would most likely survive as "non-diagnostic" lithic artifact scatters. Moreover, the region's nomads quickly adopted Spanish items (Griffen 1983:333-334), and once they had abandoned the use of flaked stone, their campsites would become virtually invisible to archaeologists.

The last mention of the Jano-Jocome as an independent tribe dates to 1706 (Forbes 1959:107). It is likely that some tribal members joined the Apache, while others were absorbed into the Spanish

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[7]Forbes's (1959) basic argument is that if Spanish documents consistently mention the Jano-Jocome-Manso (and other Chihuahuan Desert groups) as traveling and raiding with the Apache, they must be Apache. But in that case, why are these travelers and raiders always so careful to distinguish the Jano-Jocome-Manso from the Apache, and why are the mission Manso of El Paso never identified as Apache? For example, when de la Fuente (cited in Wilson 1990:28) stated that in the 1690s the "Janos, Jocomes, Mansos, Sumas, Chinarras, and Apaches have united," the implication is that previously they had been separate.

frontier world. Jano were reported among the missionized Manso of El Paso in 1706 (Hackett 1937:377) and again in 1711 (Beckett and Corbett 1992:12-13); a few of the Jano and Jocome were living at the Janos presidio in 1750 (Griffen 1983:330-331). In the 1880s Bandelier (1890:247) found that the mission Indians of El Paso were a mix of New Mexico Pueblo and Chihuahuan Desert tribes, the latter including the Jano.

LOWER COLORADO RIVER TRIBES

Yuman-speaking groups are usually divided into lowland Yumans (living along the Lower Colorado River) and upland Yumans (the Pai groups: Hualapai, Havasupai, and Yavapai). Patayan culture—the archaeological culture that is correlated with Yuman speakers—is summarized by McGuire (1982:216-222). The transition from prehistoric Patayan culture to historic Yuman culture is one of limited cultural change that is difficult to document, let alone to date. Rogers (1945) and Schroeder (1952b, 1961a) were the only researchers to propose cultural chronologies for the Patayan Root (McGuire 1982:216-222). Gladwin and Gladwin (1930) and Rogers (1945) describe prehistoric ceramic complexes ancestral to Yuman pottery. Rogers (1945) emphasized (1) continuity from prehistory to history and (2) expansion, defining three phases for Patayan ceramic chronology: Patayan I (A.D. 700-1000), Patayan II (A.D. 1000-1500), and Patayan III (A.D. 1500-present). Waters (1982) supports Rogers's original ceramic chronology, agreeing that the Protohistoric Patayan III ceramics developed quite gradually and subtly out of Patayan II ceramics.

Historical accounts of the lower Colorado River Yumans are rather sporadic until Kino's travels to the region beginning in 1699, consisting of the brief accounts of Alarcón and Diaz in 1540 and by Oñate in 1604-5. Therefore, we have little information on these groups during the Protohistoric period. Historically, however, the lower Colorado River Yumans have been characterized by relatively unstable tribal territories and warfare. Based on archaeological data, Schroeder (1952b:57) suggests that the Maricopa moved from the Colorado River to the Gila after A.D. 1300. Reconstructing lower Colorado River Yuman territories on the basis of archaeological data, Euler and Dobyns (1985:84) state, "Some of our ceramic data point to at least a temporary occupation by riverine Yumans (Halchidhoma), at least as far east as the Santa Maria-Big Sandy junction." Reconstructing lower Colorado River Yuman territories on the basis of the historical accounts by Alarcón in 1540 (Hakluyt 1928:262-289), Oñate in 1604-5 (Bolton 1916:271-276), Kino in 1699 and 1700 (Bolton 1948), Sedelmayr in 1744 (Ives 1939:104, 108), Garcés in 1775-6 (Coues 1900), and later writers, Schroeder (1952b:6) concluded that the Cocopa and Mohave were sedentary but the Halyikwamai, Comeya, and Hagiopa came to the river seasonally from the southwest. The Kohuana were in all reports prior to Kino. Unless the Bahacecha reported by Oñate were Yuma, the Yuma may have moved into the area during Kino's time. The Halchidhoma were first reported at the mouth of the Gila and in Kino's time were moving north, perhaps displaced by the Yuma. The Kohuana were below the Yuma in 1775, when they moved north to join the Halchidhoma. After 1826 the Kohuana and Halchidhoma moved to the Gila to join the Maricopa. Colton (1945) noted that the Maricopa, Halchidhoma, Kohyana, and Halyikwamai settled on the Gila Trail, the Yavapai settled

on the Bill Williams River, and the Hualapai and Havasupai settled on the Northern Trail, all in an attempt to control territory and the movement of other tribes.

Mohave

According to Schroeder (1961a), the prehistoric ancestors of the Yuman-speaking Mohave were hunters, foragers, and traders who roamed between the Mohave Desert and the lower Colorado River; by A.D. 1100, these people had moved south and southeast into the Lower Colorado Valley. (Williams [1983:100] argues that the prehistoric Mohave settled the Colorado River Valley by A.D. 1, shifted to the shore of Lake Cahuilla between A.D. 900 and 1500, then shifted back to the Colorado.) In Protohistoric times, the Mohave occupied portions of both banks of the Colorado River in parts of what are now Arizona, California, and Nevada but were concentrated in the Mohave Valley north of Topock. From Topock south to the mouth of the Bill Williams River lived the Mohave's allies, the Chemehuevi (but only after about 1800, and apparently only on the California side of the river).[8] The Protohistoric Mohave may have had settlements as far south as Blythe, since they were found in that segment of the Lower Colorado River valley in the early 1600s (Stewart 1969). They shared this part of the valley with the Halchidhoma, whom they expelled in the late 1820s. There were at least three bands within the tribe: Northern, Central, and Southern (Stewart 1983:55-62).

The Mohave lived in rancherías that might be from about one mile to two miles in linear extent, separated from the next ranchería by 3-4 miles. Each ranchería had a local leader, whose powers were hortatory; several rancherías answered to a subchief (there were eight in all: one northern, five central, and one southern), and the tribe as a whole was under a paramount chief. Chiefly authority was minimal, however, and leadership was shared with war leaders and religious leaders (Stewart 1983:62-64).

The Mohave relied on cultigens for half their food (Castetter and Bell 1951:74). The Colorado River was too wild to allow irrigation farming, but after the spring floods began to recede in June it was possible to plant crops in the damp, rich silt left by the river. The ranchería settlement pattern was undoubtedly a reflection of the scattered nature of suitable farmland. Native crops included maize, tepary beans, squash, gourds, tobacco, and sunflowers; European crops included wheat, barley, melons, and black-eyed peas. The Mohave also encouraged the growth of wild grasses for their seeds. Wild plant foods included mesquite, screwbean, cactus fruit, and various seeds. In the fall, the temporary surplus was stored in large basketry granaries. For animal protein, the Mohave relied far more heavily on fish from the Colorado than they did on the scarce game of the local desert (Castetter and Bell 1951; Stewart 1947, 1957, 1965, 1983).

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[8]The Chemehuevi are perhaps best glossed as a Southern Paiute subtribe that adopted Mohave ways (cf. Kelly and Fowler 1986:370).

Since homes were usually built on low rises in the floodplain, most habitation sites have been destroyed or buried by major floods. During most of the year the Mohave slept under open ramadas; during cold spells they retreated to their winter homes, which were low, rectangular pit houses with four large cottonwood support posts and roofs of vertical and sloping poles, brush, and sand and mud. Protohistoric and early Historic period material culture remains otherwise largely unknown, but it appears to have been fairly simple. The dead were cremated, along with their possessions and homes (Kroeber 1925:726-780; Smith 1966; Stewart 1983).

The Mohave were first contacted by Oñate in 1604; they were visited in 1776 by Garcés, who estimated the tribe at 3000. In historic times the Mohave adopted wheat and a few horses but otherwise apparently changed little until the mid 1800s.

Maricopa

The Maricopa represent an amalgam of Yuman speakers who moved into and shared a territory with the Pima. In historic times the two groups ranged along the Gila River as far downstream as Mohawk, as far upstream as the mouth of the Verde, north to New River, and southeast up the Gila to the Florence area. Based on archaeological data (Rogers 1945), linguistic evidence (Law 1961), and oral accounts (Harwell and Kelly 1983:73), Yuman-speaking groups first moved up the Gila from the lower Colorado River Valley in late prehistoric or Protohistoric times (cf. Schroeder 1961b). Schroeder (1954:598) says, "A recent survey conducted along the lower Colorado River by the National Park Service brought out factors that indicate that the downriver groups began around A.D. 1150 to take on traits which foreshadow those of the historic Yuman tribes along the river, and that the ancestral Maricopa moved from the Colorado to the Gila River by an overland route in late prehistoric times (Schroeder 1952*a*) [1952b]." By the time of the first Spanish account of the Gila River settlements in 1694 (Bolton 1936; Ezell 1963b), the Maricopa seem to have been well established on the Gila River. At the time, the Maricopa were probably divided into the Opa, living upstream from Gila Bend, and the Kavechadom, who lived downstream from that point (Ezell 1963b). In the 1800s the Yuman-speaking Halchidhoma, Kahwan, and Halyikwamai left the lower Colorado and joined the existing settlements. Today's Maricopa remain aware of these finer-grained ethnic distinctions (Dobyns, Ezell, and Ezell 1963; Harwell and Kelly 1983:74-76).

Kino's 1695 map (Bolton 1984:300-301) shows 25 villages along the Gila, most of them attributed to the Opas and Cocomaricopas (the Maricopa today). During Kino's 1699 exploration of the Gila River, he found that the lower 50 miles or so were unpopulated, but then he passed through numerous small villages of the Opas and Cocomaricopas (Maricopa) until he got to Pima villages near Gila Bend. The women and children in the Maricopa villages hid from the Spaniards, but individual villages contained 50 to 120 men, suggesting that each village had a total population of perhaps 200 to 600 people. The Maricopa fished using nets and traps. "Larger ones [traps], water-tight, were used for boats, in which two men paddled back and forth across the river, using their hands for oars" (Bolton 1984:420).

Early Maricopa settlements probably consisted of loose clusters of households whose location and composition were highly fluid. Each of these clusters had a headman, and subchiefs and a paramount chief also existed, but the authority of these individuals was limited. Men met in the local meeting house to arrive at decisions. Additional leadership was provided by specialists, among them war leaders, curers, and historians, the latter keeping calendar sticks (Harwell and Kelly 1983:79-82).

By the early 1800s the Maricopa had adopted the Pima practice of raising two crops each growing season, using canal irrigation. Crops included corn, wheat, beans, squash, and cotton. When they were still in the Gila Bend area, however, the Maricopa were probably raising a single crop each year, using floodwater farming (Winter 1973). Mesquite beans were an important wild food; in midsummer they were gathered, dried on roofs, and ground into flour (Spier 1933:48-53).

The Maricopa lived and worked under ramadas except in the coldest weather, when they retreated to their houses. The houses consisted of four mesquite or cottonwood posts supporting a rectangular frame, with bent-willow ribs covered with arrowweed thatch packed with earth. Other structures included large, central meeting houses; sweat lodges, built near dwellings; small, oval pit structures for storing squash and melons; basket-like granaries on raised platforms; and brush huts used to seclude women during menarche and childbirth or warriors during purification (Bartlett 1854; Spier 1933). Some baskets were made locally, others were obtained in trade from the Pima. The Maricopa wove cotton on both belt and horizontal looms. Pottery was made by the paddle-and-anvil method (Spier 1933:104-110). Food was ground using slab or trough metates and manos (sometimes recycled from archaeological sites) or crushed using stone pestles in log mortars. The dead were cremated, along with their houses and belongings, and the homesites were then abandoned (Harwell and Kelly 1983).

Quechan

The ethnographic Quechan are known from accounts dating from 1780 onwards. In historic times the Yuman-speaking Quechan lived at the confluence of the Gila and Colorado rivers and in both Arizona and California, but they may not have arrived in the area until the end of the 1500-1700 study period. The group is not mentioned in Alarcón's 1540 account, and Quechan oral history says that the tribe originated in the Needles area (Forde 1931:214). In a possibly conflicting interpretation, Williams (1983:100) states that about A.D. 900 the Quechan shifted from the Colorado River to Lake Cahuilla but shifted back by A.D. 1500 as that lake dried up. The Quechan were present in their approximate range by the late 1600s. On the Colorado, settlement extended about 18.5 miles upstream from the confluence and downstream to about the California-Baja California

Norte boundary. On the Gila, settlement extended about 25 miles upstream from the confluence (Bee 1983:86-87).[9]

In the late 1800s the Quechan lived in four to six rancherías of several hundred people each; the largest known settlement had a population of 800. During the growing season, families dispersed to locations near their fields. During the winter and spring flood seasons, people clustered more tightly in areas out of the floodplain. Specific homesites shifted fairly frequently. The basic social and economic unit was the extended family, though several families might join in farming tasks. Each ranchería had one or two leaders, whose houses were more substantial than those of other Quechan. Families often donated a portion of their harvest to a reserve maintained by the leaders, who distributed the surplus to persons in need. Tribal identity emerged in times of war, harvest feasting, and mourning ceremonies. Tribal leadership was provided by a civil chief and a war chief, who seem to have led more by example than by command (Bee 1983; Forde 1931).

The Quechan relied primarily on agricultural crops and wild plant foods. Small plantings were made in the late winter; as the water receded from the annual flood of the Colorado and Gila Rivers, the main crops were planted in the moist silt. Native crops included corn, tepary beans, and squash; introduced crops included wheat, watermelons, black-eyed peas, and muskmelons. Seeds of wild grasses were planted on less fertile ground. The most important wild foods were mesquite and screwbean pods, the sweet pulp of which could be crushed and consumed immediately or dried and ground into flour. The beans of these plants were also ground and consumed, especially in times of crop failure (Castetter and Bell 1951; Forde 1931).

The Quechan lived in dome-shaped shelters of arrowweed or under ramadas; these features were built at both the field homes and the winter homes. Each ranchería also included one or two earth-covered houses with log posts and beams, which were the homes of the leaders. At death, a person's home and other possessions were destroyed (Bee 1983; Forde 1931; Trippel 1889).

Cocopa

The Yuman-speaking Cocopa were the occupants of the delta of the Colorado River, in modern Mexico; in the 1870s Cocopa apparently began settling on both banks of the Colorado River in territory of the United States, from Yuma downstream. The Cocopa may thus have been entirely absent from Arizona during the study period, or at best occupying a tiny sliver of the state.

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[9]One outlying group lived on the Colorado about 60 miles upstream of the confluence with the Gila but moved to the main settlement area in the 1800s. Possibly this group colonized the upstream area only temporarily, after the Mohave and Quechan pushed the Halchidhoma out of the Colorado River Valley (cf. Bee 1983:87, 93).

Williams (1983:100) believes that the Cocopa were forced into the delta from upstream about 1500, as the Mohave and Quechan returned to the Colorado River from the dying Lake Cahuilla. For the Cocopa, at least, we have documentary information for the 1500-1700 study period. The first European contact with the Cocopa was in 1540. According to accounts by Alarcón and Diaz, the Cocopa may have numbered over 7000; they grew maize, built large, open-ended pit houses, and used shell ornaments. In 1604-1605 Escobar estimated that there were 5000 to 6000 Cocopa in nine rancherías (Bolton 1916; Hammond and Rey 1953). In 1702 Kino visited the Cocopa and found them growing corn, beans, and pumpkins (Williams 1983:100).

The Cocopa lived in rancherías; during the visits of Garcés between 1771 and 1776, the rancherías had about 200 or 300 inhabitants apiece. The rancherías were, in turn, organized into politically autonomous territorial "bands," each with its own leader; in 1900 McGee identified seven such bands, as well as a paramount chief (Williams 1983:100-109). Leaders were selected on the basis of ability and experience in military, religious, and social matters.

Once floodwaters receded in the summer, the Cocopa planted corn, squash, beans, and grass seeds in the damp silt. Low earthen dikes were sometimes used to impound floodwater for later release. The most important wild plant foods were mesquite and screwbean pods, which were ground into flour. Other wild plant foods included cattail pollen, tule roots, and grass seeds. Fish were an important source of animal protein, but large and small game (both mammals and birds) were also plentiful in the delta (Williams 1983:104). Despite their reliance on agriculture, the Cocopa traveled seasonally in search of wild plant foods. In the early months of the year, when food supplies were low, the Cocopa shifted to desert uplands in search of *bisnaga* (cactus) and agave. In the spring, they rafted to the lower delta to harvest wild rice (Williams 1983:104).

Winter homes were rectangular pit houses built in two-post and four-post patterns, with smaller posts at the edges. The walls were covered with sticks, arrowweed, and earth. A hearth was present in the floor. Summer homes consisted of ramadas, domed huts with bent-pole frames and brush cover, or both. Semicircular or circular windbreaks were built as kitchens or temporary dwellings, and food was stored on platforms. Food-preparation equipment included large wooden mortars, plus manos and metates of various shapes. Other tools included clamshell and stone knives and bone awls. Cooking was usually done in pottery vessels (made by the paddle-and-anvil method) on stone or clay pot rests, while seeds were toasted on pottery trays. Other pottery artifacts included storage vessels and canteens. Earth ovens were sometimes used. Stone arrow points were used as late as 1900. Pictographs were painted in the mountains during a male's induction into manhood. The dead were cremated, along with their homes and possessions (Williams 1983:105-107, 110).

As indicated above, the Cocopa experienced only sporadic contact with Europeans in the Protohistoric period. In the 1700s and the first half of the 1800s, the Cocopa continued to live in their traditional fashion (see Hardy 1829; Pattie 1833). The Cocopa then began to interact more and more with Europeans, especially through the Colorado River steamboat trade of the late 1800s, but they apparently continued to maintain a large amount of autonomy. In the early 1900s there were still four bands of Cocopa living in the Colorado delta.

Protohistoric Patayan/Lower Colorado River Yuman Archaeology

As mentioned above, the Patayan archaeological culture (see McGuire 1982; Rogers 1945; Schroeder 1952c, 1961a; Waters 1982) developed gradually and without interruption into modern Yuman culture. Because cultural change was so gradual among the lower Colorado River tribes, chronologies for lower Colorado River Yuman history are not as precise as for other Protohistoric groups. In addition, despite the instability of tribal territories and endemic warfare among the lower Colorado River Yumans, archaeologically visible ethnic markers have not been identified, so that archaeologists are unable to distinguish between sites occupied by different tribes. Given this lack of tribal markers in the archaeological record, Protohistoric Yuman archaeology will have to be discussed all at once here, rather than tribe by tribe. Few Patayan or Yuman sites can be dated with precision to the Protohistoric period, primarily because of the gradual rate of change in Patayan ceramics, but also because the major habitation sites, which were along the Colorado River, have been buried or flooded. For all of these reasons, only 12 sites in our inventory (five campsites, a cache, four artifact scatters, a walk-in well, and a quarry and trail) represent Lower Colorado River tribes during this time period.

On the other hand, the large numbers of Patayan and Yuman sites recorded in western Arizona reflect the range of site types that compose the lower Colorado River Yuman settlement system. For example, the AZSITE records list over 350 Yuman sites, including 145 artifact scatters, 41 trails, 34 house rings, 32 stone features (mostly roasting pits), 30 rockshelters, 10 roasting pits, 9 campsites, 8 rock art sites, and other sites that often represent combinations of functions. Rogers (1966:173-177) published a map and brief descriptions of Patayan sites in western Arizona. A number of his sites would probably be subdivided into multiple smaller sites today. Fifteen of the 24 sites were Yuman, and they included one mountain pass with caves and rockshelters, camps, trails, a shrine, and rock art; one group consisting of caves, camps, a quarry, and petroglyphs; one set of open camps, trails, and rock art sites; one site with cobble-lined rectangular house rings, cobble hearths, and rock art; one site with camps and rock art; three campsites; three caves or rockshelters; one trail; and three rock art sites. Yuman rock art included both petroglyphs and pictographs. Waters (1982:Figure 7.6) also published a map of Rogers's site locations of Patayan III period sites showing about 34 sites and 5 possible sites in western Arizona. Not all of the Patayan III phase sites would date to A.D. 1519-1692, however.

In his survey of the lower Colorado River, Schroeder (1952c) identified a number of site types: farm camps, permanent settlements (north of Needles, between Parker and Paloverde, at the mouth of the Gila, and at Painted Rock on the Gila), farm camps, trail camps (overnight stops, specialized gathering sites, or shrines), trail breakage (isolated sherds, pot breaks), trails, and intaglios. Stone (1986) devised a classification of sites for west-central Arizona (artifact scatters, rock rings, trails, rock art, caves and rockshelters, stationary grinding features, quarries, intaglios, cleared circles, wells, and burials and cremations) that does not include the large rancherías that ought to be present in the area, based on historical and ethnographic data. In fact, the absence of this type of site in the archaeological record has long been problematic for archaeologists. Colton (1945:120-121)

hypothesized that Yuman villages were located on floodplains and would therefore have been covered by alluvial and fluvial sediment; he thought that steam shovels should be used to find and expose sites. McGuire (1982:219), like Colton, believes that Patayan and Yuman village sites should be present along the Colorado and lower Gila rivers. McGuire (1982:220) also believes that many of these villages could be buried under alluvial silt deposits and that finding such sites would require exploratory strategies that have not been tried in the area.

Harner (1958) excavated a walk-in well in the town of Bouse, Arizona, that apparently was used throughout Patayan history, including the Protohistoric period, which Harner (1958:96) considered to date from A.D. 1300 to 1700. Although McGuire (1982:197) says that only one historic Indian site (AZ T:14:6[ASM]) has been reported in the Gila Bend area, some Patayan sites in this area may date to the Protohistoric period (Wasley and Johnson 1965).

Additional studies on the distribution and content of previously recorded Patayan and Yuman sites would undoubtedly provide new insights about subsistence patterns, settlement patterns, territoriality, alliances, and exchange. In surveys of upland environments in the Yuma area, Marmaduke and Dosh (1994) identified 236 sites with 750 cleared circles (and their tally of existing site records indicated that previous researchers had recorded 1800 cleared circles at 588 sites). Careful analysis of the structure and content of these sites allowed Marmaduke and Dosh to conclude that

> Cleared circles represent campsites, probably fitted with a wobbly superstructure to hold screens against the sun and wind in place, that were inhabited on a short term basis predominantly by groups of women, protected by a few men, gathering upland products [Marmaduke and Dosh 1994:158].

Furthermore, Marmaduke and Dosh found that the amount of infilling of the few cleared circles that could be dated by ceramic associations could be used as an indicator of date, which allowed them to reconstruct upland gathering settlement systems for different periods, including the Protohistoric (Patayan II-III, A.D. 1500-1700) (Figure 2.11).

Boma Johnson (1985) has described 144 sites along the lower Colorado River that have earth figures (geoglyphs, rock alignments, and mounds [Figure 2.12]) and recorded some 473 features on these sites. Based on ethnographic accounts of the lower Colorado River tribes and on the oral traditions of these and neighboring tribes (including the Pima, Tohono O'odham, and Hopi), Johnson maintains that these features were associated with dances, healing ceremonies, commemoration of tribal origin stories, commemoration of creation stories, and special purposes. Johnson believes that these sites may have been constructed in the last 500 years.

The lower Colorado River tribes manufactured Lower Colorado River Buff Ware, which seriates continuously with Yuman ceramics. It is made with sedimentary (riverine) clay, constructed by coiling and shaped by paddle and anvil. Waters (1982) describes this ware as highly variable and recommends classifying it on the basis of vessel form. Schroeder (1952c) proposed dividing it into

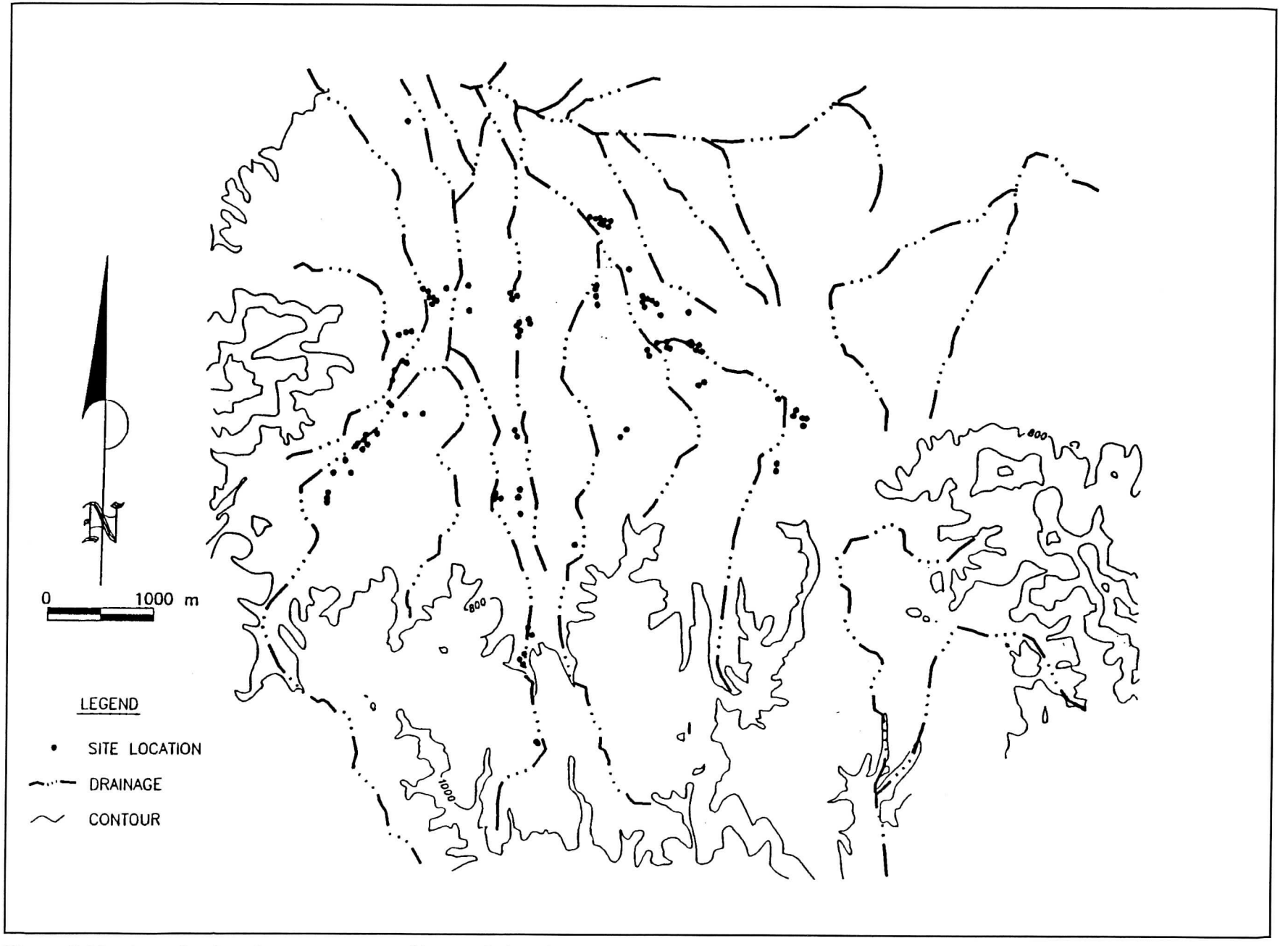

Figure 2.11. An upland settlement system of lower Colorado River Yumans (after Marmaduke and Dosh 1994: Fig. 5.4).

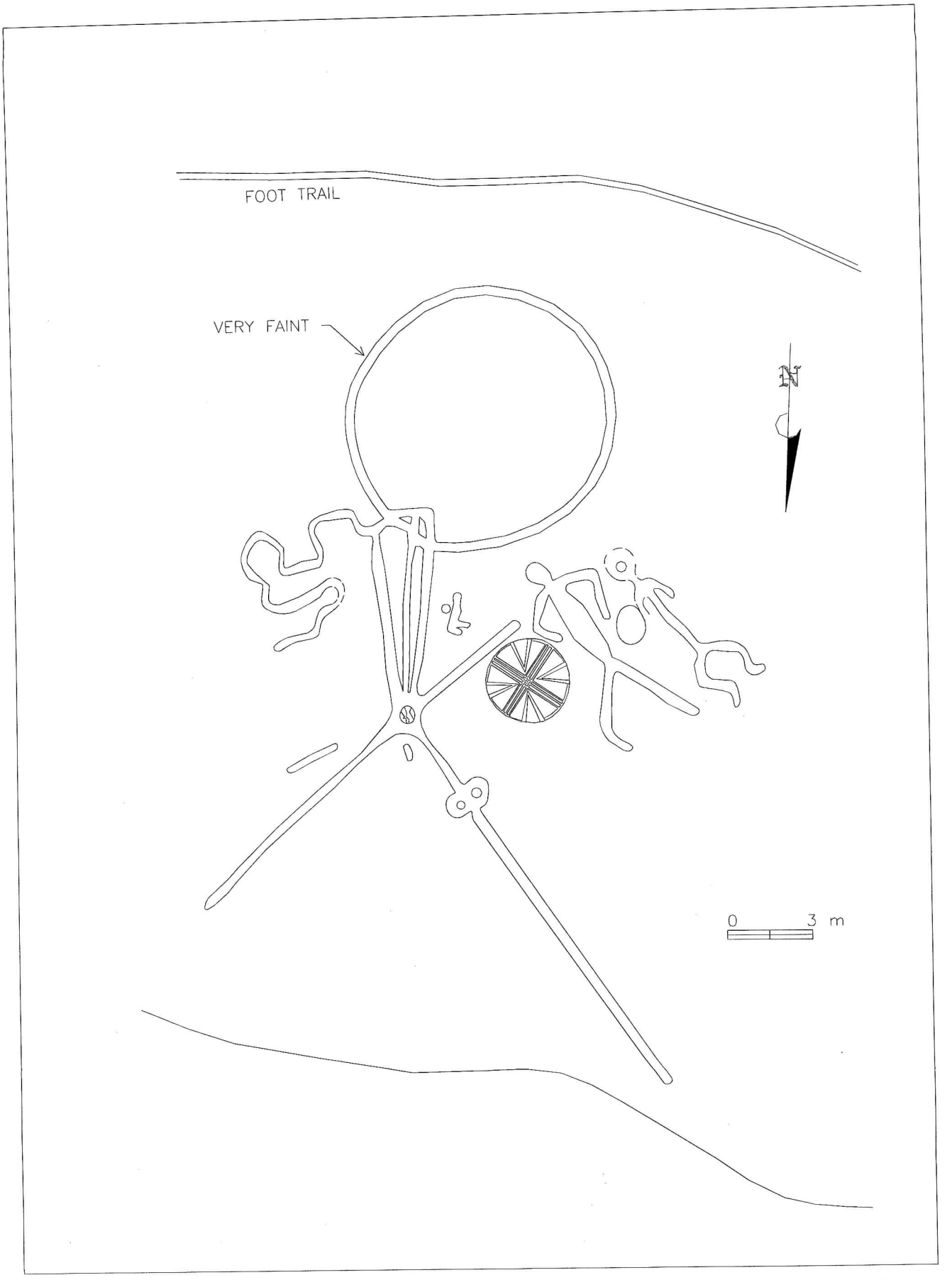

Figure 2.12. Lower Colorado River geoglyphs. These are a portion of the Ripley Geoglyph Complex which is listed on the National Register of Historic Places (after Johnson 1985: Fig.21).

six series, which he attributed to specific groups. Lower Colorado River Buff Ware exhibits little change and cannot be dated with precision. Ezell (1954a, 1954b), Hayden (1976), and Rosenthal et al. (1978:121-126, 130) classified a number of sites with Patayan II ceramics as Protohistoric, but Patayan II ceramics date from A.D. 1000 to 1500, so these classifications are not conclusive.

PAI

Pai speakers include the Hualapai, Havasupai, and Yavapai. The Havasupai and Hualapai are linguistically and culturally a single group of Yuman speakers. Schwartz (1956), however, believed that the Cohonino developed into the Pai, while Euler (1958) held that the Pai developed out of a group that migrated from the Colorado River between about A.D. 1150 and 1300. Simonis (1996) maintains that from A.D. 1300 to the present, the Cerbat developed into the Hualapai and Havasupai. Citing the Meriwitica Canyon Site (Euler 1958), Simonis suggests that the Cerbat came from the Colorado River and mixed with the Prescott Culture. About A.D. 1500 Prescott Plain, the pottery of the Prescott Culture, ceased to be produced, and people in the region began living in wickiups and pit structures. According to Simonis, the Pai developed out of the Prescott Tradition.

The archaeology of the Pai has been described by Euler (1958), Heuett (1974), Linford (1979), Matson (1971), and Schwartz (1955, 1956, 1959). Pai groups used Desert Side-notched projectile points and used the paddle-and-anvil technique to manufacture an oxidized pottery called Tizon Brown Ware (Dobyns and Euler 1958). Because pottery types in this ware were manufactured from prehistoric to historic times, it is usually not possible to date Pai sites with any precision unless trade sherds are present on the surface of the site or excavations produce radiocarbon-dated materials.

The AZSITE files list 166 Pai sites, including 48 camps, 33 rockshelters (one with a roasting feature and one with rock art), 31 artifact scatters, 20 houses (eight with sweat lodges), and a wide range of specialized sites, including roasting features, stone features of indeterminate function, mounds, bedrock grinding features, sweat lodges, and other features. Pai site types identified in the Grand Canyon (Ahlstrom et al. 1993) include habitations, temporary shelters, a cave, rockshelters, roasting features, granaries, rock art, a sweat lodge, a cremation, and artifact scatters. Habitation sites typically consisted of wickiup foundations or cleared areas, roasting features, flaked stone tools and debitage, ground stone, ceramics, and bone. The Pai made extensive use of rockshelters for habitations, granaries, mescal roasting, and other activities. Rock art was also common in rockshelters. Agave-cutting sticks, firewood, food, and seven phragmites reeds (which may have been arrow shafts, since one was cut and notched) were cached in rockshelters. Roasting features typically consisted of concentrations of burned rock, often in association with flaked stone, ground stone, ceramics, and burned bone. Rock art was predominantly pictographs, but petroglyphs were also reported.

Our inventory identified 17 Pai sites that may date to the A.D. 1519-1692 period. They include 5 rockshelters, one roaster complex, a roasting pit, 9 artifact scatters, and a site of indeterminate function.

Havasupai and Hualapai

The Havasupai and Hualapai are linguistically and culturally a single group of Yuman speakers. The reservations of the Pai groups are in the western part of the Grand Canyon, and that is where their sites are concentrated, but historically they also used territory far to the east. For example, the Dominguez and Escalante Expedition in 1776 came across a Cosnino (Pai) agricultural camp in what is now called Pasture Canyon, near Tuba City (Bolton 1950). Both the Havasupais and the Hualapais depended on agriculture, hunting, and gathering. Both farmed irrigated fields, the Hualapais on the Big Sandy and Bill Williams rivers and their tributaries, as well as along Cataract Creek and Diamond Creek (McGuire 1983:33), and the Havasupais in Havasu Canyon, on Meriwitica Creek, on Diamond Creek, at Indian Gardens, on various creek deltas in the inner canyon, and on Moenkopi Wash (Hughes 1978:14). They also collected agave, which they roasted in rock-lined ovens, and the seeds of blazing star. They lived in brush wickiups and made Tizon Brown Ware pottery.

Hualapai

The Yuman-speaking Hualapai occupied a territory between the Black Mountains (near the Colorado River) on the west and the Aubrey Cliffs on the east, and between the Colorado River on the north and the Bill Williams River on the south. In the 1800s three subtribes and a series of local bands were distinguishable. The Middle Mountain subtribe included the Red Rock and Cerbat Mountain bands; the Plateau People subtribe included the Clay Springs, Grass Springs, Hackberry, Milkweed Springs, Peach Springs, Pine Springs, and Cataract Canyon (Havasupai) bands; and the Yavapai Fighter subtribe included the Hualapai Mountain, Big Sandy River, Mahone Mountain, and Juniper Mountain bands (Dobyns 1956; Dobyns and Euler 1970; McGuire 1983).

Euler (1958) and Dobyns (1974a) maintain that the prehistoric ancestors of the Hualapai were the Cerbat branch Patayan (see Schwartz 1956 and Linford 1979 for dissenting opinions). The hallmark of the prehistoric group was Tizon Brown Ware, which may have been made as late as the 1800s. Under this reconstruction, the late prehistoric Hualapai expanded onto the Coconino Plateau after the plateau was abandoned by the Cohonina about A.D. 1150.

The basic Hualapai spatial unit was the camp, which consisted of several families under a headman (male leader). Several camps shared the same geographic area; during brief periods of abundance the camps were able to coalesce into a single settlement under the leadership of one of the headmen. McGuire (1983:31) states, "Bands from one subtribe were welcome in the territory of another subtribe during periods of abundant food resources," which implies that subtribes maintained exclusive foraging areas in ordinary times. The subtribes had chiefs, who were equals; there was no paramount chief (Dobyns and Euler 1970).

Most Hualapai bands lacked the reliable irrigation source enjoyed by the Havasupai in Cataract Canyon—and farming was completely disrupted as Euroamericans entered Hualapai territory—but

agriculture was important enough to figure in the Hualapai creation story (Ewing 1961). Farms were maintained along the tributaries of the Bill Williams River, in lower Diamond Creek, at springs, and in ak-chin settings (Dobyns and Euler 1976:10-12). The wild plant food cycle focused on agave in the spring, cactus fruits in the summer, and piñon nuts in the fall. Small game was usually hunted in drives; large game was hunted by drives or by stalking (Kroeber 1935:48-143).

According to McGuire (1983:32), "winter camps were larger and more sedentary," but the demands of the subsistence round meant that all camps were fairly small and seasonal; given the subsistence technology and the environment, the camps usually stabilized at about 25 persons (Martin 1973). The preferred locations for extended-use base camps were rockshelters near springs; open-air base camps included brush wickiups that have survived as rock circles. Brush shelters in temporary camps often incorporated the living branches of trees (Euler 1958; Linford 1979:38). The Hualapai also built small sweat lodges (Kroeber 1935:77-79). Basketry and other perishable items were important components of Hualapai material culture; pottery was plain brownware. Until the 1800s, the Hualapai cremated their dead (Kroeber 1935).

Although the Spaniards explored the Hualapai area as early as the 1500s, the first clearly documented contact with the Hualapai was in 1776, by a Franciscan missionary who called them the "Jaguallapais" (Coues 1900:316). Thus, our first documentary knowledge of the Hualapai postdates the 1500-1700 study period. The Hualapai lived fairly undisturbed lives until the mid 1800s, but they were crushed as an independent group in the late 1860s (Dobyns and Euler 1970).

Euler's (1958) dissertation describes the archaeology of the Hualapai. He conducted excavations at twelve sites, nine of which were rockshelters, ranging in date from prehistoric times (Prescott and Cohonino cultures) to the early twentieth century. Two of the sites were probably occupied during the A.D. 1519-1692 period. Euler (1958) describes the excavation of several rockshelters that demonstrated the continuity between prehistoric groups and the Hualapai. Both groups used Tizon Brown Ware.

The Bill Williams River has usually been seen as the boundary between the lower Colorado River tribes and the Hualapai. Lower Colorado River Buff Wares are the most common ceramics south of the Bill Williams River; to the north of the river, archaeological sites of the A.D. 700-1800 period typically consist of rockshelters, wickiups, and wattle-and-daub structures, with Tizon Brown Ware pottery, triangular basal-notched and side-notched projectile points, grinding slabs, and coiled and twined basketry.

Our inventory identified 16 Hualapai sites that could date to the A.D. 1519-1692 period: one village, two rockshelters, one cache, eleven scatters, and one other site. In addition, two Hualapai sites radiocarbon dated to the eighteenth and nineteenth centuries suggest what many sites dating from A.D. 1519 to 1692 should look like. Site BIA/HUIR 1(4)1 consisted of a rock-filled fire pit, 63 Tizon Brown Ware sherds, 32 projectile points and blades, 11 manos, 5 metates, 2 ground stone fragments, 3 scrapers, 13 obsidian flakes, 1 serpentine pendant, 7 bones, and 1 sherd abrader. The fire pit provided two radiocarbon dates: 70±70 B.P. (BETA-68662); and 100±60 B.P. (BETA-68663)

(Crozier and Cantley 1994). Site AZ G:13:6 (BLM) consisted of a roasting pit, a bedrock metate, two stone knives, one Aquarius Brown sherd, and flakes. The roasting pit was radiocarbon dated 180±50 B.P. (A-3306) (Navarre and Taylor 1983).

Rogers (1966) recorded Protohistoric Hualapai materials at a site in Rawhide Canyon west of Alamo Lake and at a large scatter along Signal Wash, north of Alamo Lake (Jones, Altschul, and Van Dyke 1990:10). Rogers's Site A-12 was a quarry site 1 mile long and 0.5 mile wide, on Signal Wash; his Site A-17 was a cave dwelling and an open campsite in Rawhide Canyon. Both of these sites had been used by prehistoric groups as well as the Hualapai (Rogers 1966:173). A campsite recorded by Jones (1990) consisted of an artifact scatter, grinding surfaces, and petroglyphs; a second protohistoric site recorded by Jones was only an artifact scatter. In their survey of Alamo Lake, Jones, Altschul, and Van Dyke (1990:29) found lithic scatters, trails, trail markers, rock cairns and alignments, a vegetable-processing site (roasting pit), a temporary habitation site, and a cache in a rockshelter. None of these sites could be dated. They found two types of rock rings: sleeping circles as described by Hayden (1976) and basket supports for saguaro-fruit gathering as described by Goodyear (1977).

Havasupai

The Havasupai, another Yuman-speaking tribe, occupied a territory from the Aubrey Cliffs on the west to the Little Colorado River on the east, and from the Colorado River on the north to the vicinity of Bill Williams Mountain on the south. In Protohistoric times the Havasupai probably were a band of the Yavapai; they first developed a separate identity in the 1800s (Dobyns and Euler 1970; Schwartz 1983:14). The first known reference to the Havasupai, as the Coninas, dates to 1665. Loss of traditional culture probably was minimal to the late 1800s (Schroeder 1953a:46).

Schwartz (1956, 1983:14) believes that the prehistoric Cohonina "holed up" in Havasu Canyon between about A.D. 1200 and 1300, then emerged to become the Havasupai (but see Schwartz 1989:38). Euler (1958) argues that the Cohonina abandoned the area about A.D. 1150, to be replaced by Yuman speakers who expanded east from their prehistoric territory (see under Hualapai, above). In either case, the Havasupai probably occupied their known historic range between 1500 and 1700.

The Havasupai consisted of a number of independent families. Ad hoc leadership was provided by a head chief and lesser chiefs, but many decisions were based on consensus among adult males (Schwartz 1983:15-16). The Havasupai spent the warm months in the Grand Canyon, tending their irrigated fields. (Schwartz [1983:15] mentions only the main settlement at Cataract Creek, but there probably was a series of farm locations, such as at Indian Gardens.) At some point the Havasupai added European domesticates, most notably peaches, to the traditional crops of corn, beans, and squash. Crops and wild plant foods not consumed in the summer were put into storage. In the fall, families dispersed to camps scattered over the Colorado Plateau, in juniper-piñon thickets where firewood was available. From there, families obtained winter foods such as game, piñon nuts, and agave (Schwartz 1983:15).

Anthropological understanding of the relative importance of cultivated and wild foods among the Havasupai has shifted through time, indirectly affecting our understanding of Havasupai origins. Spier (1928) saw the Havasupai as primarily agricultural, reinforcing the sense that this group was substantially different from the Hualapai and thus that the Havasupai derived from the "agricultural" Cohonina (see also Martin 1985). In fact, the Havasupai relied heavily on the wild resources of the Coconino Plateau (Weber and Seaman 1985), thus resembling the Hualapai and therefore more plausibly having a common ancestry with them, as McGuire (1986) points out.

The Havasupai built conical brush or mud structures in both their summer and winter camps. Summer structures also included rectangular brush structures and brush shades. Sweat lodges, which served as the social focus of male life, were shallow pit structures about 6.5 feet deep; historically, the frames were covered either with earth or with blankets. Stone grinding slabs or mortars were used to prepare seeds; pottery was plain brownware. Personal ornaments were few (Schwartz 1983:16-17).

Like the Hualapai, the Havasupai made Tizon Wiped pottery (Dobyns and Euler 1958). Therefore, it may not be possible to distinguish Havasupai sites from Hualapai sites on the basis of archaeological evidence alone. Not surprisingly, only six Havasupai sites were listed in our inventory of sites dating to the period from A.D. 1519 to 1692. These sites included three rockshelters, two roasting pits, and one other site. These six sites are all within the Grand Canyon, the modern home of the Havasupai, although in historic times the Havasupai exploited a much wider range.

Yavapai

The Yuman-speaking Yavapai occupied a territory extending nearly to the Colorado River on the west, to Ash Fork and Flagstaff on the north, to the Verde Valley and the Pinal Mountains on the east and southeast, and to the Gila Bend Mountains on the south. The Yavapai were divided into four subtribes: the Tolkapaya, Kewevkapaya, Wipukpaya, and Yavepe (Khera and Mariella 1983:38). Ferg (1992:5) says that the Spaniards recognized the three divisions of the tribe identified by Gifford (1932, 1936): Cruzados (Northeastern Yavapai), Tejuas (Western Yavapai), and Nijores (Southeastern Yavapai).

Pilles (1981:172-177) summarizes the two basic theories about the origins of the Yavapai: (1) they are representatives of an indigenous tradition (Hakataya, Prescott, or Southern Sinagua) (Schroeder 1975); or (2) they are Yuman migrants who moved into the area from California between A.D. 1100 and 1300, displacing local cultures (Dobyns and Euler 1970; Rogers 1945:190). The latter hypothesis is more consistent with the linguistic evidence (see Kendall 1983) and oral traditions (Ewing 1961), which indicate that the Yavapai split off from the Hualapai in recent centuries. In that scenario, the Yavapai had colonized their new range by 1582 (see Schroeder 1952c:112), and possibly much earlier (Pilles 1981). (In fact, Pilles and McKie [1998] have suggested that in the Tuzigoot phase [A.D. 1300-1425], the Yavapai were living on the west side of the Verde River,

opposite the Sinagua pueblos.) Yavapai movement and expansion is undoubtedly tied into their hostile relationships with the Hualapai-Havasupai, Pima, Maricopa, and Papago. On the other hand, once the Western Apache came into contact with the Yavapai (probably after about 1700), the two groups often cooperated and sometimes intermarried (Khera and Mariella 1983:40). Schroeder (1954:598-599) hypothesized that "With the withdrawal of the Sinagua from the Verde Valley around A.D. 1400, the cultural pattern of the original occupants could well have developed into that of the historic Northeastern Yavapai of the same area, but again we lack sites which might demonstrate a continuum."

The basic Yavapai social unit was the camp, which was somewhat fluid in nature but could contain up to 10 families that lived and traveled together. As resources allowed, larger camps (of up to 100 families) might briefly form (Gifford 1932, 1936). Each camp had a war chief, whose authority extended only to his own camp; if other camps accepted an invitation to join a raid, each camp fought under its own leader. In times of peace, a war chief's powers were purely hortatory (Khera and Mariella 1983:48). There were no subtribe or paramount chiefs.

In historic times some Yavapai practiced casual farming, but the economy was based on wild plant foods. In the spring, if food stores were exhausted, families relied heavily on wild greens. In the summer the fruits of saguaro and other cactus were available. The peak season was the fall, when piñon nuts, sweet acorns, walnuts, and sunflower and grass seeds could be harvested and cached. Game was hunted in drives, with blinds, or by stalking. Food was variously cooked in pots, stone-boiled, or parched in baskets (Khera and Mariella 1983:45-46). Agave may have been saved for times when other foods were unavailable (Gifford 1936). It seems likely that, except for winter camps, the locations of Yavapai campsites shifted over large areas in response to the availability of wild plant foods (see Gifford 1932).

Given Yavapai mobility, it is not surprising that material culture was generally simple (Khera and Mariella 1983; Pilles 1981). The winter camps were often in dry caves at lower elevations, in part because food could be cached there. Cave features included fires and partial walls of rock and mud. In other locations, winter camps consisted of domed brush huts ringed by rocks (brush-and-dirt huts or mud-covered houses may sometimes have been used); brush shades and windbreaks were used in the summer. Men used sweat lodges. Basketry was important in many ways, including for caching food in caves. Trough metates, basin metates, and bedrock mortars were all used to grind seeds. Pottery was used to cook or cache food; Yavapai pottery was usually plain brown, though red or decorated pottery is known (Corbusier 1886; Gifford 1932, 1936; Khera and Mariella 1983:49; Pilles 1981:168-170). Stone arrowheads were pressure flaked from chert or obsidian and were often side-notched (Pilles 1981); thrusting lances with larger points were used in warfare. Beads were used as ornaments. Agave was roasted in large roasting pits (Gifford 1936). The dead and their belongings were cremated in the house where the individual died or, in the case of the Tolkapaya Yavapai, in a shallow pit. The camp was then abandoned (Gifford 1932, 1936; James 1903).

Although Yavapai contact with Euroamericans may have begun with the Coronado expedition, extensive contact probably did not occur before a gold rush in the 1860s; in a few years, the Yavapai were eliminated as an independent people. The disruption of Yavapai life may have begun earlier, however, since the Protohistoric Yavapai may have relied more heavily on farming than did their historic descendants (Khera and Mariella 1983:46).

We identified 22 Yavapai sites that may date to the A.D. 1519-1692 period. They include three wickiup or house sites, six rockshelters, one camp, one rock feature and alignment with bedrock grinding stone, one roasting feature, one water catchment, eight scatters, and one rock art site. Yavapai house sites consist of wickiup foundations and associated artifacts. A site at Lake Pleasant consisted of a scatter of basalt bifaces, utilized flakes, two projectile points (triangular with side notches and base notch), and 16 metates (nine near a hearth). Four use areas could be identified at this site: a habitation evident as a rock foundation and ceramics, a tool manufacturing area, and two food processing areas (Telles 1996).

The campsite is Kohl Ranch, an "early historic" Yavapai site. Excavation of a 1 × 1-m grid exposed a use surface and a straight-sided pit 28 inches in diameter and recovered 18 sherds (2 Aquarius Brown, 6 Cerbat Brown, 10 Tizon Wiped), flakes, shatter, 17 cutting tools, 13 gravers, 11 scraping tools, 4 spokeshaves, 2 cutting spokeshaves, and 1 scraping-graver (but Ferg [1992] believes that half of the flaked stone items are noncultural) (Dittert 1976:20; Reichenbacher and Smith 1976; see also Euler and Dobyns 1985:88).

Rockshelters range in function from special-activity sites to habitations such as Orme Ranch Cave (Breternitz 1960). Rock art is often associated with rockshelters. Roasting features also may be associated with rockshelters, although they often occur alone. A site in Jacks Canyon consisted of 2 roasting pits—one of which was radiocarbon dated 30±50 B.P. (Beta-75540) and 220±80 B.P. (Beta-75541)—44 Yavapai Plain sherds, and 3 re-worked Archaic projectile points (Logan and Horton 1996). Scatters range from only a few sherds and flaked stone artifacts to sites with ceramics, flaked stone, and ground stone suggestive of habitation sites.

It is believed that some of the Yavapai made Tizon Brown Ware, like the other Pai groups, but Breternitz (1960) identified a pottery type called Orme Ranch Plain at Orme Ranch Cave, and other researchers have found this pottery type on sites identified as Yavapai. Logan and Horton (1996:108) argue that Yavapai lithic technology is based on production of informal expedient tools using local materials. Logan and Horton (1996:109) also suggest that reuse of Archaic projectile points is characteristic of Yavapai lithic technology. Logan and Horton (1996:109) further suggest that the Yavapai ground stone assemblage is distinctive. Breternitz (1960), however, says that the manos and handstones from Orme Ranch Cave are not distinctive, although twined and coiled basketry from the cave may be Yavapai.

YAVAPAI/APACHE

Euroamericans historically had difficulty distinguishing between the Yavapai and the Apache, and archaeologists have had no easier time distinguishing between sites of the two groups. Thus, the site records of Coconino National Forest include eight sites (six rockshelters and two artifact scatters) that may date between about A.D. 1519 and 1692 and could be either Yavapai or Apache.

Ferg (1992) loosely dates the Protohistoric period in the Rye Creek area between 1539 and 1875. Two sites investigated during the Rye Creek project yielded materials dating to the Protohistoric period. The Deer Creek site (AZ O:15:52[ASM]) included a Western Apache pot break, three roasting pits that contained Yavapai pottery, and seven additional Western Apache sherds from the surface of the site (but Yavapai sherds were also found). Ferg (1992:16) dates the pot break between A.D. 1750 (based on Schroeder's reconstruction of the Apachean entry into the area) and 1875 or 1900 (when the Apaches stopped making pottery). Feature 15 at the site, a surface scatter of fire-cracked rock, may be either Apache or Yavapai. Feature 43 was a roasting pit dug into a prehistoric pit house, and Feature 44 was a rock cluster that may have been discarded rock from Feature 43. These features could be either Yavapai or Apache, but no artifacts were associated with them, and they were not radiocarbon dated. Site AZ O:15:71(ASM) included an ephemeral masonry structure and a slab-lined cist, but no Western Apache or Yavapai pottery.

SOUTHERN ATHAPASKANS (NAVAJO AND APACHE)

Most archaeologists and anthropologists believe that the Southern Athapaskans are relatively recent arrivals in the Southwest, but the exact date of their arrival is the subject of a continuing debate. Historical data document the presence of Apaches in Arizona in the late 1600s, and limited archaeological data provide some information on the lifeways of the Apaches at this time.

The Apaches and Navajos all speak mutually intelligible dialects of a single language in the Athapaskan language family. Most other speakers of Athapaskan languages live in western Canada, thought to be the homeland of Athapaskan speakers. Estimates for the date of entry have ranged from about A.D. 1000 (Jett 1964; Kluckhohn and Leighton 1962:33) to about A.D. 1550 (Gunnerson 1956, 1972, 1974). Hypothesized routes into the Southwest have included the Great Basin (Butler 1986; Huscher and Huscher 1943; Steward 1936:62; Wilmeth 1977), the Rocky Mountains (Opler 1971, 1975; Perry 1980; Wright 1984), and the Great Plains (Gunnerson 1956, 1972, 1974; Gunnerson and Gunnerson 1971; Wilcox 1981). Early reconstructions of Southern Athapaskan entry into the Southwest (Kluckhohn and Leighton 1962:33) suggested that they could have arrived as early as A.D. 1000. More recent interpretations have tended to favor a later arrival date, prompting J. O. Brew to lament in 1954 that "the arrival of the Athabascans in the Southwest has been getting later and later until one sometimes finds oneself wondering whether they have really arrived yet" (Brew 1954:601). Students of language change have argued that the Southern Athapaskans split from the northern Athapaskan speakers about A.D. 1000 (Hoijer 1956).

In 1956 Dolores Gunnerson published a reconstruction of the Southern Athapaskan arrival in the Southwest that argued for an arrival date between A.D. 1542 and 1583. Gunnerson (1956, 1974) emphasized that when Coronado passed through the Southwest between 1540 and 1542, he did not record meeting any groups of people in the Southwest that can be identified as Southern Athapaskans, but when he explored the Great Plains, he observed nomadic bison hunters who lived in conical skin tents that they transported on dog-drawn travois. Coronado's Pueblo informants reported that these people had begun raiding the easternmost pueblos adjacent to the Southern Plains about 16 years before, or about 1525. In 1583 the Espejo Expedition reported Querechos near the Pueblo of Acoma (Bandelier 1890:28), who are believed by many scholars to have been Southern Athapaskans. The term Apache was first used by Oñate in 1598. Fray Gerónimo de Zárate Salmerón first used the term Apaches de Nabajú (Apaches with the big fields) in 1626 to describe Indians living west of the Chama River in northwestern New Mexico. Fray Alonso de Benavides (1945), writing in 1630 and 1634, but describing the 1620s, mentioned the Apaches de Gila (perhaps the Warm Springs Apaches) (Di Peso 1956:33-35) and the Apaches de Navajú. Gunnerson (1956, 1974) therefore suggests that although the Southern Athapaskans had arrived on the Southern Plains by about 1525, they had not yet migrated into the Southwest in the 1540s. By 1583 the Southern Athapaskans were living in the Southwest and by the 1620s were differentiated into groups with slightly different subsistence strategies, thereby establishing the tribes mentioned in more recent history.

Countering Gunnerson's reconstruction are anthropologists and archaeologists who continue to argue for an earlier arrival date for the Southern Athapaskans. Cole (1988:2-3, cited in Roberts 1994:150) said that according to Chiricahua traditional history the Chiricahua stayed hidden in the mountains during the early Spanish explorations, observing the intruders for "the lifetime of one man." Beams from hogans in northwestern New Mexico have produced cutting dates of 1542 (Hancock 1997), suggesting Athapaskan presence in the Southwest at the time of Coronado.

Once in the Southwest, the Athapaskans practiced agriculture to varying degrees, with the Apaches de Nabajú (Navajo) distinguished by their large fields, the Western Apaches less dependent on agriculture, and the Chiricahua Apaches lacking agriculture (in Spicer's [1962] description, but practicing some agriculture prior to their conversion to raiding for subsistence). The Navajos lived in conical log structures called hogans; wickiups provided shelter for the Apaches, although rockshelters were also commonly used. Both Navajos and Apaches resided in loosely organized bands of related families under the guidance of a headman who led by means of his personal influence rather than by ascribed authority.

Apache

The key issues in Protohistoric Apachean history and archaeology are (1) the spread of the Apaches through Arizona, and (2) Apache lifeways as evident in site types, settlement systems, subsistence remains, and material culture.

The spread of the Apaches through Arizona can be traced through historical records and archaeological studies. Historical records document their presence in Arizona in the late 1600s; archaeological data are problematic because of a limited number of ambiguous dates. In 1672 Apaches sacked and burned the mission at Hawikuh, killing the priest (Hodge 1937:99; Smith, Woodbury, and Woodbury 1966:100). In 1687 Janos and Apaches de Gila were allied against Opata and the Spanish (Di Peso 1956:33-35). In 1697 Manje observed Apaches de Gila at the junction of the Gila and San Pedro rivers (Di Peso 1956:33-35). In the late 1600s and early 1700s, Apaches were north of the Gila River and were distinct from Apaches living to the east in southwestern New Mexico (Ferg 1992:5). Brugge (1965:367-368) hypothesized that the Western Apache split from the Navajo after the Pueblo Revolt (1680) and Reconquest (1692-1696). Citing unpublished radiocarbon dates and Spanish artifacts at early Apache sites on the Tonto National Forest, Wood, McAllister, and Sullivan (1989:29) date the arrival of the Western Apache and Yavapai in the Forest to about A.D. 1700, plus or minus 20 years. Schroeder (1952a, 1960, 1974:155) thought that the Yavapai controlled the Tonto Basin until about A.D. 1750, when the Western Apache moved into the basin from the San Carlos area (Ferg 1992). At Site AZ O:15:52(ASM), Yavapai sherds were found only in subsurface contexts and Apache sherds only in surface contexts, providing support for an earlier date of occupation for the Yavapai in the Tonto Basin (Ferg 1992:25).

Apaches may have been the primary group responsible for taking horses from the Spaniards and transmitting them to other Southwestern and Plains tribes (Haines 1938a, 1938b), a role that redefined Apachean culture during the last half of the Protohistoric period. As early as 1608, Viceroy Valasco reported attacks on Spanish and Pueblo villages in New Mexico by Apaches, "who destroy and burn their pueblos, waylay and kill their people by treachery, steal their horses and cause other damages" (Hammond and Rey 1953:1059). The 1672 Apache raid on Hawikuh (Hodge 1937:99) places the Apaches on the border of present-day Arizona well before A.D. 1700. The Apaches were raiding Sobaipuri settlements on the San Pedro River at the time of Kino, but Apachean attacks became especially severe in the 1760s, and in 1762 the Apaches succeeded in driving the Sobaipuris out of the valley for good. Thereafter, the Apaches occupied the San Pedro valley. Even though the Apaches did practice horticulture, and approximately 1000 of them were estimated to be living in the San Pedro valley (Officer 1987:39-40), the subsistence pattern of the Apaches included a heavy reliance on raiding and warfare, unlike that of the Sobaipuris. The warfare that occurred throughout the Apachean occupation of the valley prevented the Apaches from establishing permanent villages. Did the acquisition of horses and the adoption of raiding make possible the Apachean expansion into Arizona, or did Apaches who were already present in some parts of Arizona become more visible raiders in the years immediately following the Pueblo Revolt? The answer to this question will require more data on the spread of the Apaches into Arizona and the lifeways of the Apaches in the Protohistoric period. Apachean lifeways of the Protohistoric period can be reconstructed on the basis of site types, settlement patterns, subsistence remains, and material culture.

Apachean sites in Arizona include stone rings, rockshelters, hearths and roasting pits, isolated sherds, rock art, graves, ceremonial caves, and traditional cultural properties. Most Apachean sites have not been dated, and many sites that have been dated (usually on the basis of commercially

manufactured artifacts) are nineteenth century or later. Radiocarbon-dating analysis of charcoal from seven roasting ovens and one hearth has produced dates within (or just before or after) the Protohistoric period, but even these dates are ambiguous because of large date ranges and multiple dates derived from calibrating radiocarbon assays to tree-ring dates. Our inventory identified 25 possible Apache sites that could date to the A.D. 1519-1692 period: 3 houses, 2 rockshelters, 2 camps, 14 roasting features, an artifact scatter, 2 rock art sites, and one traditional cultural property. In addition, sacred sites such as Mount Graham and Bow Cave, reported in the press (Genrich 1992; Hoye 1992; *The Phoenix Gazette* 1993; Winton 1993b; Yozwiak 1996) could date to A.D. 1519-1692.

Most of the Apache wickiup sites that have been archaeologically excavated date to the nineteenth and twentieth centuries (Brandes 1957; Gerald 1968; Hohmann and Redman 1988; Longacre and Ayres 1968; Tuohy 1960; and Vivian 1970). Ferg (1992) hypothesized that a semicircular structure and slab-lined cist (at Site AZ O:15:71[ASM]) excavated during the Rye Creek Project were Protohistoric Apache, but he dates the Protohistoric period as late as 1875. Similar rock-ring structures reported on the Fort Apache Indian Reservation (Asch 1960; Donaldson and Welch 1991; Hrdlička 1905:483; Lange and Riley 1970:93, 101, 113) have been interpreted as complete structures, supports for windbreaks, game blinds, and defensive fortifications (Ferg 1992:22-24). Although slab-lined pits have not been reported in the Apachean ethnographic literature, Ferg (1992) also noted that a rock-lined conical pit and sotal-stalk pestle were used to pound cooked mescal, and large storage pits were sometimes lined with grass, clay, or stones and/or covered with a stone. In addition, Brandes (1957) recorded circular features in the Globe area, three of which were Apache but three of which could be either prehistoric Salado or historic Apache (Ferg 1992:23).

Apaches are known to have used rockshelters, but only a few examples of Apachean rockshelters have been recorded archaeologically. At Horton Rock Shelter near Payson, a roasting pit outside the rockshelter, which contained ceramics classified as Rimrock Plain (Apache Plain, Rimrock Variety in Ferg's suggested classification), was radiocarbon dated A.D. 1579-1699 (Hohmann and Redman 1988). In 1939 Grenville Goodwin surveyed Aravaipa Canyon and recorded 15 rockshelters, including one (AZ BB:3:7[ASM]) that contained possible Apachean sherds (Gilman and Richards [1975:12, 19], cited by Bronitsky and Merritt [1986:259]). These sherds have not been described.

Roasting pits were the most common type of site attributed to Apaches of the A.D. 1519-1692 period and have provided virtually all of the chronometric dates from Apachean sites (including the rockshelter mentioned above). Agave roasting is described in Castetter, Bell, and Grove (1938). Ferg (1992:21-22) summarizes the ethnographic descriptions and photographs of Western Apache roasting pits and concludes that these features exhibit a wide range of variability depending on the size of the group that used them and the number of times they were used. Therefore, in Ferg's opinion, the morphology of roasting pits may not be diagnostic of particular ethnic groups or time periods. Ferg notes that slab-lined roasting pits, known from prehistoric sites, have not been

mentioned in the ethnographic literature on the Western Apache, but have been reported among the Chiricahua and Mescalero (Castetter and Opler 1936:36; Opler 1965:357).

Roasting pits at seven prehistoric pueblos (Fools Hollow Ridge Ruin, La Piedra House, the Black Hole Site, Mazatzal House, Pinto Creek, Scorpion Ridge Ruin, and Ta-e-wun) have yielded radiocarbon dates suggesting that these sites were reused during the Protohistoric period. A roasting pit on the prehistoric site of Fools Hollow Ridge Ruin (Site NA18,343, near Show Low) produced an uncalibrated radiocarbon date of A.D. 1710±60, which corresponds to tree-ring-calibrated dates of A.D. 1500-1675, A.D. 1715-1805, and A.D. 1930-1950 (Dosh 1988:66-67). In the Ord Mine project area, south of the Rye Creek project (Mazatzal House, a prehistoric masonry compound, is less than a mile and a half south of Site AZ O:15:71[ASM], on the Rye Creek project), Ciolek-Torrello (1987) excavated three roasting pits that produced historic period radiocarbon dates: (1) two sherds of Apache Plain pottery were present on the surface of La Piedra House (NA16,487), and a roasting pit in front of the room block was radiocarbon dated A.D. 1620±80 (Ciolek-Torrello 1987:62, 74, 77); (2) the Black Hole Site (NA16,928), a roasting pit with no associated artifacts, produced a date of A.D. 1785±70 (Ciolek-Torrello 1987:258-262); and (3) a roasting pit dug into the plaza of Mazatzal House (NA16,486), which was associated with Apache Plain pottery, was radiocarbon dated A.D. 1845±70 (Ciolek-Torrello 1987:4, 42-44, 49). However, another roasting pit from the plaza was radiocarbon dated A.D. 1390±80 (Ciolek-Torrello 1987:36), which could be interpreted as evidence of later prehistoric use of the site, a contaminated sample, or use of old wood by Apaches. Ferg (1992:23) mentions this A.D. 1390 roasting pit as an example of how difficult it may be to distinguish multicomponent prehistoric use of a site from Apache reoccupation of the site. On Pinto Creek, Windmiller (1972, 1973, 1974a, 1974b) recorded seven roasting pits and excavated several of them, radiocarbon dating three roasting pits from two sites. A roasting pit in the plaza of Scorpion Ridge Ruin was radiocarbon dated A.D. 1660±190 (290±190 B.P.) (Windmiller 1974a) or 140±120 B.P. (Long and Muller 1981:216). Two roasting pits at Ta-e-wun returned prehistoric radiocarbon dates (Ferg 1992:21).

Apachean roasting pits that have not been dated include Goodenough Tank (AR-03-04-01-256, NA19288) on Coconino National Forest, an earth oven at the Ringo site (Johnson and Thompson 1963:469), three roasting pits on lower Cherry Creek and Pinal Creek (Gregory 1979:237-239), and a large mound of fire-cracked rock in the Grasshopper area (Gregory 1981:259-261). At least two of the roasting pits reported by Gregory (1979) were on top of prehistoric room blocks.

Further evidence of Protohistoric Apachean presence in Arizona comes from hearths and fire pits. At Scorpion Rock Ruin near Payson, a campfire in the fill of a prehistoric masonry room was associated with Rimrock Plain ceramics and was radiocarbon dated A.D. 1673-1793 (Hohmann and Redman 1988). (Ferg [1992:16] cautions that these ceramics could be Tizon Wiped.) Site AZ O:15:67(ASM), between Payson and Rye, included two Protohistoric (A.D. 1539-1875) loci, one Apachean and the other possibly Yavapai. Locus 3 was an ashy, possibly burned area that yielded a partial vessel of Apache Plain, Rimrock Variety and two arrow points. Locus 2 yielded a sherd of Orme Ranch Plain, two basalt projectile points, and a "pressure-worked flake" (Ferg 1992:26).

Also, as mentioned above, Second Canyon Ruin has a few surface hearths that may be early historic Upper Piman or Apache (Franklin 1978).

Scatters and isolated finds of Apachean artifacts may prove to be important sources of data on Apache subsistence, social organization, territoriality, and history. Ferg (1992:25) quotes Brugge (1981b):

> [Western Apache] sites are generally small, inconspicuous and individually productive of limited data, which indicates that large numbers of such sites will be required to provide the kinds of quantifiable data needed to allow recognition and confirmation of patterns....Unless the workers in contract archaeology are attuned to the questions important in Apachean archaeology, however, a great deal of potentially useful information may well be lost....[T]he careful accumulation of data from many of the less impressive sites will be necessary to provide solutions to the problems of population movements and composition [Brugge 1981b:288-289].

On the Miami Wash project Doyel (1974, 1978) found evidence (in the form of Apache Plain sherds and white chert) of Apachean use at the Shurban and Columbus sites. Gladwin and Gladwin (1930) and Peck (1956:24-27) conducted surveys in the Upper Tonto Basin and upper Verde River areas and recorded Apache and possibly Yavapai sites. Forest Service surveys have also recorded Apache and Yavapai sites (Ferg 1992:7-8). Huckell (1978) and Ciolek-Torrello (1987) excavated some features that may be Apachean or Yavapai. Schroeder (1960) mentions Apachean sherds from the Verde Valley (in Bronitsky and Merritt 1986:259). Site AZ U:9:57(ASM) (Tonto Basin) yielded ceramics that Doyel (1976) identified as Apachean (in Bronitsky and Merritt 1986:258-259). Gifford (1957) reports that Apache sherds have been found in the Point of Pines area and that a Western Apache horizon is present in Pine Flat Cave on the San Carlos Apache Indian Reservation (cited in Breternitz 1960; Bronitsky and Merritt 1986:259; Gunnerson 1979:168). It is unclear if any of these ceramics date as early as A.D. 1519-1692, but they and other examples of Apachean ceramics point to areas where additional research might find datable sites.

No Apachean graves dating to the Protohistoric period have been recorded. Ferg (1977) reports a probable Chiricahua burial on the east side of the Chiricahua Mountains. Based on associated artifacts, this burial probably dates to the nineteenth century.

Examples of Apachean rock art include panels at the Malapais Hill Pictograph site (AZ BB:2:16[ASM]) near the San Pedro River south of Winkelman (Schaafsma and Vivian 1975:6), the Circle I Hills near Willcox (Schaafsma and Vivian 1975:6), and a man on a horse (in red pigment) at Site AZ EE:9:49(ASM) in the San Cayetano Mountains (Danson 1948:18). The Malapais Hill Pictograph site and the Circle I Hills site are the only two known Western Apache ceremonial rock art sites in southern Arizona (Bronitsky and Merritt 1986:259). One Apachean sherd was found at the Malapais Hill Pictograph site.

Western Apache lithic technology has been described or illustrated by Basso (1971:231), Ferg (1987:Figures 5.3, 5.23, 1992), Gifford (1940:120), and Tagg (1992). Ferg (1992:11) cites Goodwin (1969:63) and Reagan (1930:303) on Apachean flaked stone, and Martin et al. (1952:481), Gifford (1980:13), and Buskirk (1986:201) on Apachean ground stone. Among the characteristics that may be diagnostic of Apachean sites are the use of white chert (Doyel 1974; Hohmann and Redman 1988:52), salvaging of prehistoric flaked stone (Goodwin 1969:63; Reagan 1930:303) and ground stone (Buskirk 1986:201; Gifford 1980:13; Martin et al. 1952:481), and reflaking of prehistoric flaked stone artifacts (Bradley and Ferg 1980:11, Figure 2i); Ferg 1992:11; Huckell 1978:41, 57-58). According to Peter Pilles (personal communication), Apachean points are triangular and long.

Apache Plain pottery was originally described by Gifford in 1957, but the description was not published until 1980. In the meantime, Schroeder (1960:141-142) described Rimrock Plain. At a 1985 conference on Southern Athapaskan ceramics held at the University of Colorado, Boulder, a classification of Southern Athapaskan ceramics was devised (Baugh and Eddy 1987). Western Apache and Navajo ceramics were classified as Quemado Gray Ware, with a Navajo Series (manufactured by the Navajo) and a Pine Flat Series (manufactured by the Western Apache). Chiricahua Apache ceramics were represented only at the series level (Oscuro Series) because only five whole pots are represented in museum collections. Within the Pine Flat Series was one type, Apache Plain, with three varieties: Apache, Rimrock, and Strawberry. Ferg (1992) has published descriptions of some of these types. Ferg (1992:19) concurs with Wood (1987:115-116), however, in noting that Yavapai and Western Apache pottery are difficult to differentiate in sherd form. Ferg (1992:17-19) says that Yavapai pottery has larger and more abundant temper than Apache pottery, with the temper making up as much as half of the clay body. Yavapai pottery is also thicker than Apache pottery, with shorter necks and flattened lips, while Apache pottery has taller, outflaring necks and rounded lips. Cerbat Brown is wiped, then smoothed, and so is smoother than Apache Plain. Bowls are a common form of Cerbat Brown.

Navajo

As for the Apaches, migration into the state is the key issue in understanding Navajo use of Arizona during the Protohistoric period. Hester's (1962) reconstruction of Navajo migrations suggested that the Navajos were in Canyon de Chelly as early as about A.D. 1650 and had begun using the Puerco and Little Colorado river valleys and reached Black Mesa by about A.D. 1700. This reconstruction was based largely on tree-ring dates collected by the Navajo Land Claims Commission, which included a number of early beams in hogans that had tree-ring dates clustering somewhat later. In his reanalysis of these tree-ring dates, Kemrer (1974) emphasized the clusters rather than the earliest dates from each structure and concluded that the Navajo moved into the area around Hopi in the early 1800s. The earliest unequivocal Navajo archaeological sites in northeastern Arizona date to the mid 1700s. Gilpin (1996) has classified these sites as pueblitos, defensive sites, habitation sites, and specialized sites. Even at this early date, Navajo sites exhibited the spatial patterning prescribed in Navajo ritual, in which the dwellings are hogans that open to the east, and trash and floor sweepings are placed in ash piles northeast of the hogan entrance. Pottery includes

Dinetah Gray (Brugge 1963, 1981a), Gobernador Polychrome (Brugge 1963, 1981a), and tradewares, primarily from Hopi and Zuni. In 1759 a Navajo Indian leader named Jihal established a series of fortresses and other sites running 32 miles from Wide Ruins (18 miles north of the Puerco River) north to Nazlini. In 1775 Escalante reported that Navajos were practicing irrigation agriculture at Pine Springs (10 miles north of the Puerco River) (Adams 1963). In 1823 Vizcarra attacked groups of Navajos west and north of Hopi (Brugge 1964), and Navajos were living in the Gray Mountain area, west of the Little Colorado River, in the 1820s (Roberts 1990). Given the above reconstruction of Navajo migration into Arizona, it is not surprising that only one site (AZ D:13:10[ASM], a Navajo hogan) in the database compiled for the present study has been dated to the prehistoric to historic transition period, and no exact date is given for this site. Nonetheless, oral traditions and documentary evidence do point to a Navajo presence in Canyon de Chelly at least as early as about A.D. 1650. Begay and Roberts (1996) maintain that archaeological data collected for the Navajo Land Claims cases in the 1950s and 1960s and oral history collected for the Glen Canyon Environmental Study/Navajo Cultural Resources Program indicate that the Athapaskan ancestors of the Navajos were using the Grand Canyon and surrounding areas by the late 1600s (see also Roberts, Begay, and Kelley 1995). Most ethnohistorical research, though, suggests a much later date; when the Carson Campaign drove the Navajos out of their traditional homeland in 1863 and 1864, some of those who escaped may have fled to the Grand Canyon. Euler (1974:309-320) dates the beginning of Navajo use of the canyon even later, to the 1880s. If Navajo sites dating prior to the 1700s exist in Arizona, current evidence suggests that they will be found in the Redrock Valley of extreme northeastern Arizona, in Canyon de Chelly and on the Defiance Plateau, in the Chinle Valley, and on Black Mesa.

SOUTHERN PAIUTE

In Arizona the Numic-speaking Southern Paiute ranged across the Arizona Strip and east of the Colorado River between the Little Colorado and the San Juan, as far southeast as the base of Black Mesa. The ranges of many local subtribes—the Moapa, Shivwits, Saint George, Uinkaret, Kaibab, Kaiparowits, and San Juan—included portions of Arizona, although none of their territories fell entirely within the state. The San Juan Paiute lived east of the Colorado River; the Arizona Strip was divided between the other six subtribes (Kelly and Fowler 1986:369, Figure 1).

The Southern Paiute probably originated in the southern Great Basin and began spreading onto the Colorado Plateau after A.D. 1100 or 1200; they were "in situ" by A.D. 1400 (see Bettinger and Baumhoff 1982; Euler 1964; Fowler and Fowler 1981; Gunnerson 1962; Madsen 1975). Each subtribe consisted of small bands—the actual unit of economic and political cooperation—which in turn consisted of a few small camps, usually of up to 10 households (the range was from a single individual to 20 households) (Kelly and Fowler 1986:380). Paiute subtribes were independent and ranged within a defined territory, though they "visited, hunted, and gathered in one another's territory, occasionally intermarried and, on a small scale, traded" (Kelly and Fowler 1986:368).

Southern Paiute economy was based on seasonal foraging, with stored foods to survive the winter and starvation foods for bad years. In effect, anything that could be eaten, was eaten. Plant foods were most important, especially piñon nuts, seeds of grasses and other plants, and agave. Small game was the chief source of animal protein; rabbits were hunted individually and in drives. Some bands of the Southern Paiute practiced limited farming, but cultivated plants never became an important source of food (Kelly and Fowler 1986:370-371). The seasonal cycle depended on the local supply of piñon nuts. If they were plentiful, the camp wintered in upland areas near stored nuts and firewood. In other areas, the camp wintered in lower, protected settings, possibly caves, near agave. In the spring, as stored nuts and seeds ran out, groups moved out in search of wild foods, culminating in the fall effort to cache as much food as possible for the cold months ahead. Even as the camp moved about in a seasonal pattern, side trips were made to hunt or to take advantage of other specific resources (Kelly and Fowler 1986:371).

Southern Paiute material needs were simple. Winter camps were in rockshelters or consisted of conical structures of branches and brush. Archaeologically, the open-air winter camps would, at best, survive as "sleeping circles" associated with discarded artifacts.[10] In warm weather, groups often slept and worked under trees. Plant-food gathering and cooking were done primarily with perishable items such as baskets. Nuts and seeds were ground on simple manos and metates (Kelly and Fowler [1986:370] describe the latter as a "flat stone"). Agave hearts were cooked in roasting pits, after the leaves were cut off with a stone knife. Boiling with stones was practiced but not universal. Pottery was not made by the San Juan (i.e., east of the Colorado River), and elsewhere it could consist of unfired pieces.[11] Hunters used stone points (of the Desert Side-notched and Cottonwood Triangular forms) but also points of glass, metal, and wood; antler and horn tools were used to make arrows and points, and sharpened cannon bones were used to scrape hides. Personal adornments were few. Traditionally the dead were cremated, but burial was practiced after contact with the Mormons (Fowler and Fowler 1981; Kelly and Fowler 1986:370-380).

During the 1500-1700 study period, European impacts on the Southern Paiute were minimal. By about 1800 the tribe had become a target of the Spanish Colonial slave trade, which disrupted Southern Paiute life (Brugge 1968; Euler 1966). As the Mormons entered the area about 1850, they put an end to the slave trade, but their presence slowly transformed the Southern Paiute from seasonal nomads to farm workers (Kelly and Fowler 1986:386-387).

Fairley (1989:142) says that few Paiute "structural sites have been recorded on the Arizona Strip to date," and most of the ones that have been recorded were "relatively recent Navajo or Paiute piñon nut gathering camps with brush shades." However, Fairley (1989:152) hypothesizes that "some of

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[10]See McClellan and Phillips (1978:62-66) for a possible archaeological example of a Moapa Paiute structure, consisting of a semicircle of rocks associated with a piece of ground stone and a series of thinning flakes.

[11]Prehistoric pots were sometimes used (Fowler and Matley 1979:84), which could result in a Paiute camp being identified as an Anasazi limited-use site.

the undated sites with rock rings recorded in the BLM site files" may be Paiute. Although some of these rock rings may be tipi rings (which date after the late 1800s), most are probably wickiup foundations. Paiute sites that have been recorded in the Arizona Strip "include open and sheltered camps, mescal pits, caches, and isolated pot drops. Many of the undated mescal roasting pits recorded on the benches and in the lower canyons along the north rim of Grand Canyon probably date to the Neo-Archaic period also." Fairley (1989:147, 151) cites Baldwin (1944), Moffitt, Rayl, and Metcalf (1978), Mueller et al. (1968), and Schaefer (1969) as documenting Jeddito and Awatovi yellowware sherds at sites on the Shivwits, Kaibab, and Paria plateaus, possibly the result of trading with the Paiutes. Ahlstrom et al. (1993) state that

> Southern Paiute sites reported in the Grand Canyon include habitations, a cave, numerous rockshelters, mescal pits, a hearth, and artifact scatters. Habitation sites typically consist of cleared areas marking the locations of shelters or dwellings, roasting features, and artifact assemblages that include flaked stone, ground stone, ceramics, and burned bone. Desert Side-notched projectile points, bifaces, drills, manos, and metates are typical tools. Rock art is primarily pictographs, although petroglyphs have been reported [Ahlstrom et al. 1993:94].

We identified only four specific sites that are likely to have been used by Southern Paiutes during the A.D. 1519-1692 period: Willow Beach and three sites in Grand Canyon. In 1936, 1947, and 1950, the National Park Service conducted excavations at Willow Beach, on the Arizona side of the Colorado River south of Hoover Dam (Schroeder 1961a). The excavations revealed a series of occupations radiocarbon dated from 2200±250 B.P. to 500±250 B.P. Horizon 3, which produced the 500±250 B.P. date, included the surface and upper subsurface levels and contained late prehistoric and Paiute materials. Among the Paiute materials were a burned oval brush shelter (excavated during the 1936 season), Paiute Brown Ware, and Paiute projectile points. Artifacts found on the floor of the structure included four sherds (two Pyramid Gray, one Aquarius Brown, and one Paiute Brown), a broken projectile point, a flaked stone knife fragment, an obsidian scraper, a broken metate, a calcite cylinder, three pieces of hematite, turquoise, olivella beads, a tortoise shell rattle, a notched bone, small animal-bone fragments, and burned cloth. Paiute Brown Ware from the site was brown to gray-black, paddle-and-anvil-thinned, with a conical base and sometimes decorated with fingernail indentations. Eight sherds came from near the surface and one came from the structure. Projectile points were base notched with or without side notches and corner tangs.

Jones (1986) reports a radiocarbon date of approximately A.D. 1285 from a Paiute midden at the mouth of Whitmore Wash. The site was a rockshelter with upright slabs and a coursed masonry wall, five pictograph panels, six roasting pits, and two ash lenses. Tuna Creek, approximately 90 miles upstream, a site with five roasting pits and Jeddito Black-on-yellow and Paiute ceramics, yielded radiocarbon dates of A.D. 1348±150 and A.D. 1372±50 (Jones 1986). The A.D. 1372 date "was derived from a Paiute midden overlying Anasazi debris" (Jones 1986). Site AZ B:09:027(ASM), also in Grand Canyon, was a Virgin Anasazi/Southern Paiute rockshelter with mescal pits that also yielded a Protohistoric/historic radiocarbon date (Ahlstrom et al. 1993). Farther

to the east, in the central Glen Canyon region, a wickiup within a cave was radiocarbon dated to A.D. 1380 (Agenbroad et al. 1986:89-90). Schroeder (1954) says:

> Excavations conducted in the Lake Mead and Zion National Park areas have revealed that a pueblo-like culture existed in this western region until about A.D. 1150 and, at this time or slightly later, was replaced by a pattern exhibiting conical-based paddle-and-anvil pottery, lateral and base notched points, cave shelters and round brush huts, suggestive of the historic Shoshonean culture. This new pattern occurs over a wide area, where it evidently replaced a Pueblo-II-like culture in several instances, aspects of it having been reported from various prehistoric sites in Utah, the Arizona Strip, western Colorado, southern Nevada and southern California (Harrington, Hayden and Shellback 1930; Steward 1937; Lister and Dick 1952; Schroeder 1952*a* [1952b]; 1953*a* [1953b]). It appears to represent the initial entry of the Shoshoneans into this portion of the Southwest, and involves the same area occupied by these people in historic times [Schroeder 1954:598].

Pottery and projectile points are the most archaeologically visible and ethnically distinct items of Paiute material culture. Southern Paiute Brown Ware has been described by Baldwin (1950), Euler (1964), Fowler and Matley (1978), and Hunt (1960). Desert Side-notched projectile points (Fowler and Matley 1979; Holmer and Weder 1980) are associated with Southern Paiute sites. Fairley (1989:151) says these points date from A.D. 1150-1300 in southeastern Nevada and southwestern Utah, but after A.D. 1300 in Arizona.

UTE

Ute territory never extended into Arizona (Callaway, Janetsky, and Stewart 1986:336), but in historic times the Utes raided into the state at least as far as the Hopi Villages (Schroeder 1965). Ute raiding was horse-based, and the Ute presence in Arizona was probably limited to mounted, rapidly moving bands of warriors. As a consequence, this group is probably archaeologically invisible within the state.

CHAPTER 3

INVENTORY OF KNOWN PROPERTIES

One of the key objectives of this study was to compile an inventory of known sites that were occupied during the prehistoric to historic transition period. An important aspect of the project was a critical analysis of the type of archaeological and documentary evidence used to identify the presence, function, and cultural affiliation of Transition Period properties.

SWCA first consulted the literature, checked site files, and contacted federal, state, and private agencies to find sites that had been previously identified as Protohistoric. Thus we compiled a list of some 375 sites that previous researchers had at least tentatively dated to the A.D. 1519-1692 period (Figure 3.1). The second step was to look at how these sites were dated, and the third step was to look at how they were classified.

Out of approximately 100,000 archaeological sites that have been recorded in Arizona, perhaps 1000 to 2000 sites *could* date between A.D. 1519 and 1692 based on the types of data that are routinely recorded during archaeological survey. Most of these sites have been identified as Piman, lower Colorado River Yuman, Pai, and Paiute-Ute based on ceramics, projectile points, and absence of commercially manufactured artifacts, but they cannot be dated specifically between A.D. 1519 and 1692 based on surface artifacts alone. Out of these 1000 to 2000 sites, only 375 seemed likely to date to this period, and only 94 of these site dates were based on reliable, precise dating techniques. Twenty-eight of the 94 were dated primarily by historical records, 25 by chronometric methods, 23 by Hopi and Zuni pottery, one by commercially manufactured European trade goods, one by rock art style, and 16 by Native American oral traditions. (A few sites were dated by more than one line of evidence; the date yielded by the most accurate technique is used in this list). Even these techniques often yield ambiguous dates, and many of the sites listed as well dated are, in fact, controversial as to temporal assignment.

The first part of this chapter discusses the problems of identifying, dating, and determining the cultural affiliation of sites dating from A.D. 1519 to 1692. The second part of the chapter describes the inventory of sites dating from A.D. 1519 to 1692, focusing on the classification and distribution of these sites.

IDENTIFYING AND DATING PROTOHISTORIC SITES

The ultimate goal of most researchers studying the transition to history in the Southwest is to identify and explain changes that occurred from prehistoric times to historic times. Explanation generally involves determining which changes resulted from the arrival of Europeans and which changes would have occurred without the arrival of Europeans. However, researchers using

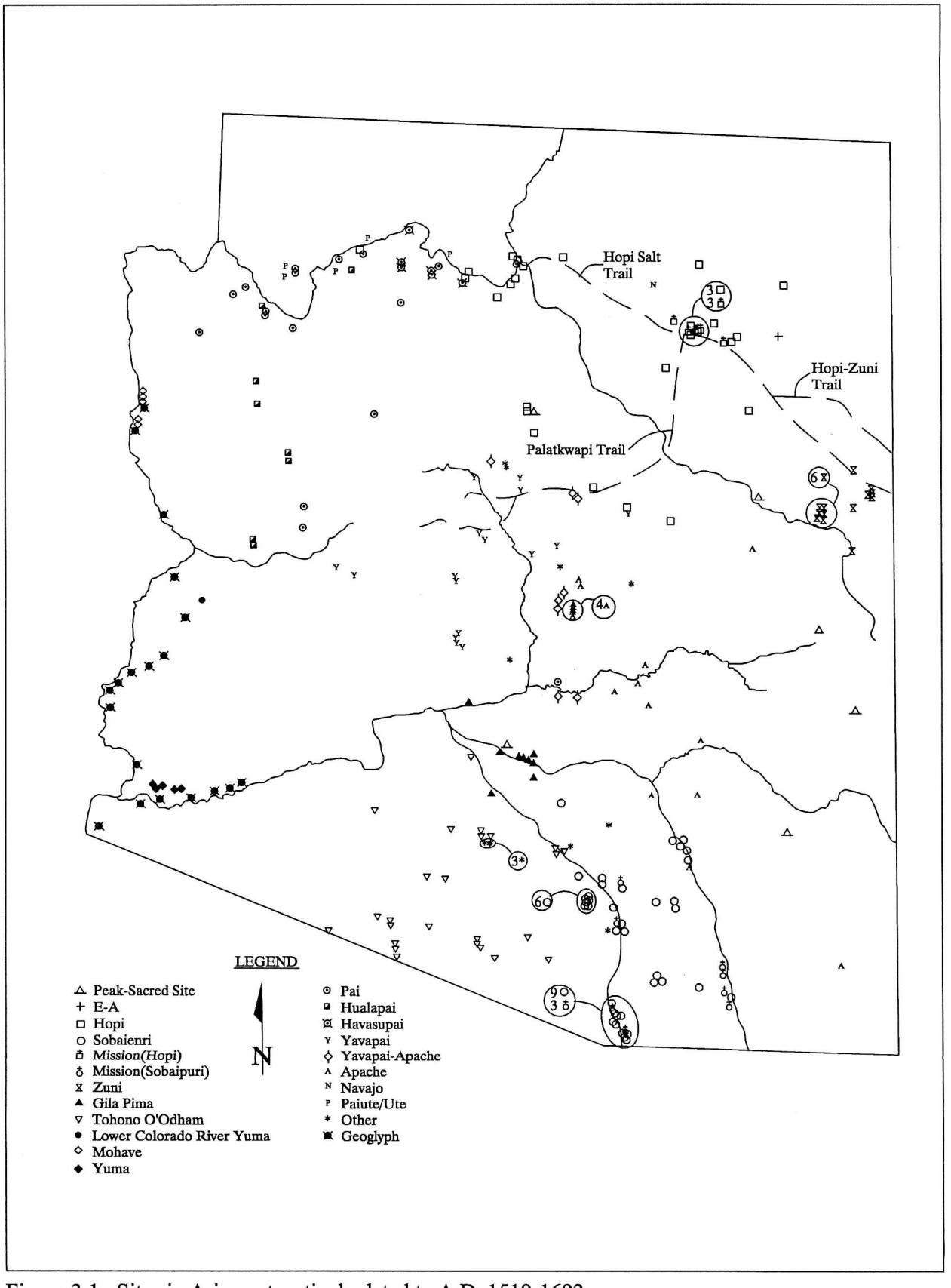


Figure 3.1. Sites in Arizona tenatively dated to A.D. 1519-1692.

archaeological data must first select a sample of sites that represent the period. The selection of a sample involves identifying sites in the field, dating them, and determining their cultural affiliation.

Identification of Sites

Many of the people contacted during the preparation of this report emphasized the problem of identifying sites of the A.D. 1519-1692 period. Researchers have often found that because sites of rancherías and bands are so small and consist of so few artifacts, they are either missed or misinterpreted. Also, the plainware ceramics that characterize most sites of this period are often misidentified as prehistoric. Large numbers of Protohistoric Pima and Apache sites are components of multicomponent sites, suggesting that the Protohistoric component is often so hard to see that it is identified only in conjunction with recording and analysis of a more highly visible prehistoric site. Goodyear (1975) has suggested that clusters of three or four rocks could have functioned as supports for baskets used in gathering saguaro fruit. It may not be possible to date these features, but they may be the primary source of information on an entire lifeway. Hopi Yellow Ware was widely traded, and small sherd scatters may be interpreted as representing Hopi gathering sites or as tradewares on the sites of less sedentary people. It may not be possible to determine the cultural affiliation of these sites, but they may still provide the only information we are likely to get on an important economic activity of Protohistoric groups. Among the markers that have resulted in the identification of "Protohistoric" sites have been radiocarbon dates, stratigraphic relationships, and lithic technology (use of white chert may be diagnostic of Western Apache sites in the Tonto Basin, and retouched and reused prehistoric artifacts may signal Apache and Yavapai components).

In recent years, a number of archaeologists have been developing procedures for understanding gathering strategies and the inconspicuous archaeological evidence of these activities. Hack's (1942a, 1942b) studies of fields and coal mines at Hopi were early examples of landscape archaeology. Hack did not record fields and coal mines as sites; instead, he mapped their locations over the entire region. In his survey of the lower Colorado River, Schroeder (1952b:42-44) classified isolated sherds and pot drops as "trail breakage," recognizing that some activities result in widely scattered artifacts and features and may not be recognized on the basis of limited surveys. Goodyear's (1977) study of the Papago settlement pattern in the Slate Mountains is an early example of Protohistoric landscape archaeology performed under contract. The goal of Jones, Altschul, and Van Dyke's (1990) study of the hunting-and-gathering settlement pattern at Alamo Lake on the Bill Williams River is similar to Goodyear's but deals with largely undated (and undatable) properties. Ferg (1992) used practically every scrap of evidence he could find, including numerous isolated artifacts and features, to reconstruct the early Apachean occupation of the Payson region.

The above examples suggest a number of measures that might improve the identification of Protohistoric sites during archaeological survey. These include (1) more detailed recording of flaked stone material types, (2) noting reworked flaked stone artifacts, (3) wider recognition of Protohistoric ceramics generally and particularly of wares (such as Hopi Yellow Ware and Navajo Gray Ware) that can be classified into dated types, (4) attention to superimposed features, and (5) consideration

of isolated artifacts as part of larger cultural landscapes. Because so many of these indicators are culturally and regionally specific, recognition of them and implementation of procedures to record them would have to based on communication and cooperation among agency archaeologists and fieldworkers.

On the other hand, the site files contain no dearth of sites that *could* date to the A.D. 1519-1692 period. For example, pueblos are easy to find, and large numbers of mescal roasting features and artifact scatters have been recorded. For the overwhelming majority of identified sites that could date between A.D. 1519 and 1692, the problem is trying to date them.

Dating Protohistoric Sites

Historical documentation provides dates for a number of sites in the Pueblo world and the southern desert. Certainly the changing locations of the Hopi pueblos from Coronado's time (A.D. 1540) to the present have been well documented. In southern Arizona, many archaeologists have attempted to identify the sites visited by Kino, although the debates over Di Peso's identification of Bacatcan and the Paloparado site and his interpretation of Quiburi illustrate the difficulties involved. Accounts of the Espejo, Farfán, and Oñate excursions into Yavapai country do not seem to provide enough detail to identify specific sites. Nonetheless, the identification of sites named in historical records remains one of the best approaches to finding datable sites with which to construct chronologies.

A number of chronometric dating techniques are available to students of the Protohistoric period, and virtually all of them have been used. Dendrochronology or tree-ring dating is probably the most precise of these techniques, although its use has been limited mostly to the Mogollon Highlands and the Colorado Plateau. Over 100 beams from Awatovi were tree-ring dated (Bannister, Robinson, and Warren 1967), but they provide little information about the sequence of construction and room use at the site, because the provenience of the beams is not that good, and beams were being reused throughout the occupation of the site. Ahlstrom, Dean, and Robinson (1991) have done a study of the dendrochronology of modern Walpi, which was established after the Reconquest (1692) and therefore dates to the very end of the period discussed here. Nonetheless, many of the beams in Walpi were originally in Kuchaptuvela, occupied from about A.D. 1400 to 1700, and so provide information on climate prior to A.D. 1700 and some information on wood use at Kuchaptuvela. Navajo Land Claims researchers collected nearly 1500 samples from Navajo sites in northeastern Arizona (Stokes and Smiley 1964, 1966), but the earliest well-dated sites date to the mid 1700s, and Kemrer's (1974) excellent critical analysis of tree-ring dates from Navajo sites in the Hopi country suggests that none of these sites dated before about A.D. 1800. Apparently no dendrochronological studies have been done of Apache and Pai sites in the Mogollon Highlands or on the Colorado Plateau.

Radiocarbon analysis is the most frequently used chronometric dating technique, despite the problems of old wood and calibration. Ravesloot and Whittlesey (1987:Table 7.4) list the

radiocarbon dates from putative Protohistoric sites in southern Arizona and note that if one accepts these dates at face value, many sites that have been classified as Protohistoric may be prehistoric. In the 1970s and 1980s (Reynolds, Cella, and Caballero 1984), charcoal from Navajo sites in northwestern New Mexico was radiocarbon dated to the 1500s and before, leading a number of researchers (Brown 1998; Hancock 1992; Hancock and Reed 1988; Hill 1991; Hogan 1989; Kelley 1987b; Marshall 1985; Reed and Horn 1991; Winter 1986; Winter and Hogan 1992) to argue for an earlier arrival date for the Southern Athapaskans. Similarly, Oakes (1996) presents information on five sites near Reserve and two sites near Datil (both in western New Mexico) that produced radiocarbon dates ranging from the early 1400s to the early 1800s. The sites near Reserve yielded little or no Apachean pottery; both of the Datil sites yielded Athapaskan Utility. Fetterman (1996), however, reports on Navajo sites where radiocarbon dates from charcoal averaged around A.D. 1200, but maize from the same sites was radiocarbon dated to the A.D. 1600s. Fetterman's results tend to support Gunnerson's reconstruction of Athapaskan entry into the Southwest and underscore the value of radiocarbon dating of annual plants.

Ferg (1992:20) echoed Gregory (1981:267-268) in saying that dating roasting pits would be one of the simplest and most straightforward approaches to documenting Apachean migrations through the Southwest. Ferg further applauded the ongoing collection of radiocarbon data on this problem by numerous unrelated contract projects. The Coconino National Forest has an ongoing project to date more roasting pits, conducting tests of four large pits and three smaller ones in the Sedona area (Davenport and Pilles 1995). (In addition, Paul and Suzanne Fish excavated two roasting pits on Beaver Creek.) A trench through one of the Sedona roasting pits yielded prehistoric artfiacts, but no Yavapai artifacts were found, even though a Yavapai camp is nearby. On the other hand, eight Pai projectile points were recovered from a 1 × 1-m test unit in a roasting pit near Palatki. Together, these excavations have begun to document the chronological range of roasting pits and have suggest that an identifiable tool kit may be associated with roasting pits (Davenport and Pilles 1995).

Archaeomagnetic dating has been little used at A.D. 1519-1692 sites, although Bostwick, Greenwald, and Walsh-Anduze (1995) report archaeomagnetic dates between about A.D. 1375 and 1750 from an oval structure at Pueblo Salado, and Aguila, Larkin, and Giacobbe (1997) report archaeomagnetic dates from a Polvorón phase (A.D. 1325-1450) site that extend into the Protohistoric period as defined here. Obsidian hydration of reworked tools has indicated Protohistoric Yavapai reuse of prehistoric tools (Peter Pilles, personal communication 1996; Weaver 1995). Studies of Navajo sites in New Mexico dating to the 1700s have involved use of tree-ring dating, radiocarbon dating, obsidian hydration, and thermoluminescence of pottery.

Pottery

Each of the major language groups represented in Arizona during the Protohistoric period produced its own pottery ware. The Hopi produced Jeddito and Hopi yellowwares; the Zuni produced a number of polychrome types and Zuni Black Ware; Pima speakers (including the Sobaipuri and Papago) produced Sonora Brown Ware; the lower Colorado River Yumans produced

Lower Colorado River Buff Ware; the upland Yumans (Hualapai, Havasupai, and Yavapai) produced Tizon Brown Ware (although the Yavapai may also have produced Orme Ranch Plain, a type not associated with any ware); the Apache and Navajo produced Quemado Gray Ware; and the Southern Paiute produced Paiute Brown Ware. Only Hopi and Zuni pottery is well dated. The other wares consist primarily of undecorated types that changed little from about A.D. 1300 to 1900.

The relatively well dated Hopi and Zuni pottery was widely traded and has been used by archaeologists to date Protohistoric sites of other groups (Adams, Stark, and Dosh 1993; Baldwin 1944; Dobyns 1974a; Euler 1958; Moffitt, Rayl, and Metcalf 1978; Mueller et al. 1968; Schaefer 1969). For example, Dobyns (1974a) and Euler (1958) were able to date a number of Pai sites based on the presence of Hopi sherds. In addition, Fairley (1989:147, 151) cites Baldwin (1944), Moffitt, Rayl, and Metcalf (1978), Mueller et al. (1968), and Schaefer (1969) in documenting Jeddito and Awatovi yellowware sherds at sites on the Shivwits, Kaibab, and Paria plateaus, possibly the result of trading pottery to the Paiutes. Gilpin (1996) and Lee (1966) dated early Navajo sites in northeastern Arizona based on the presence of Hopi and Zuni sherds.

After A.D. 1300 the Hopi manufactured the distinctive, coal-fired Jeddito Yellow Ware (A.D. 1300-1625) and manure-fired Hopi Yellow Ware (A.D. 1625-present). Wade and McChesney (1981) have described historic Hopi ceramics. The types produced during the A.D. 1519-1692 period were coal-fired Sikyatki (A.D. 1375-1625) polychromes and manure-fired San Bernardo (A.D. 1625-1740) and Payupki (A.D. 1680-1780) polychromes. Sikyatki Polychrome, in addition to being untempered and highly fired, is distinguished on the basis of elaborate black and red designs in assymetrical layouts on a yellow surface with undecorated rims. San Bernardo Polychrome, in addition to being manure-fired, is characterized by red rims, less elaborate designs than Sikyatki, and Spanish vessel forms. Payupki Polychrome has a slipped orange surface painted with black and red paint. The Hopi also manufactured plainware pottery during this period, but it has never been well described. Wade and McChesney (1981:44) note, however, that at the same time San Bernardo Polychrome was being manfactured, plainware pottery from Awatovi exhibited a number of Tewa characteristics, including gray-cream and black surfaces.

Kintigh (1985) has proposed new dates for Zuni pottery types. Table 3.1 lists the types he suggests would have been produced in the A.D. 1519-1692 period.

The Pima produced Sonora Brown Ware, which is poorly described and classified. Ezell (1954a) shows Sonora Brown Ware distributed over most of the Papago Indian Reservation and south along the east side of the Sonoyta River to the Gulf of California; Lower Colorado Buff Ware is distributed west of the Papago Indian Reservation. Within Sonora Brown Ware a number of proposed types are thought to have been produced by the Sobaipuri and other upper Pimans.

Sobaipuri pottery was apparently highly variable, and a number of different types have been proposed, although Whetstone Plain and Sobaipuri Plain are the most widely recognized. Whetstone Plain has a reddish brown paste with no carbon streak, both angular and rounded sand temper, paddle-and-anvil construction, beaded rims, smoothed but not polished interior and exterior

Table 3.1. Dates for Zuni Pottery Types Proposed by Kintigh

Ware/Type	Date (A.D.)	Characteristics*
Kwakina Polychrome	1275-1630	red outside, white inside, black glaze paint inside
Pinnawa Glaze-on-white	1350-1630	white slip, black to green glaze paint
Pinnawa Red-on-white	1375-1630	white slip, red matte paint
Kechipwan Polychrome	1375-1630	white slip, matte red and black to green glaze paint
Matsaki Brown-on-buff Matsaki Polychrome	1400-1680	buff or cream slip, brown, black, or reddish-brown paint
Hawiku Glaze-on-red Hawiku Polychrome	1630-1680	brownish-red and white slips, matte red and glaze black paint
Black Ware	1375-1700	gray to brown paste, sherd temper, smudged and polished interior
Zuni types	1680-1900	red and white slip, matte red and black paint

From Kintigh 1985
*See Ferguson and Mills 1982; Smith, Woodbury, and Woodbury 1966

surfaces, globular jars, and shallow bowls. Sobaipuri Plain has black paste with carbon streak, large, angular sand temper, paddle-and-anvil construction, coiled, straight, and recurved rims, buff to brown to black, rough, poorly polished surfaces, deep jars, and shallow bowls and plates. Di Peso argued that Whetstone Plain was most common at Santa Cruz del Pitaitutgam (which he thought was Santa Cruz de Gaybanipitea, attacked by Apaches in 1698) and Sobaipuri Plain was most common at Terrenate Presidio (an A.D. 1700s site that he identified as Quiburi). Plain and red pottery found at England Ranch and Alder Wash ruins may represent a variety of Whetstone Plain. The England Ranch plain pottery has black paste, small, angular, white (crushed quartz?) temper, paddle-and-anvil construction, and wiped surfaces that are sometimes scored or polished; jars have straight necks and rims, bowls have rounded or flaring rims. This type or variety, which also occurs at Alder Wash, is similar to Whetstone Plain. The England Ranch red pottery is similar, except the wiped surfaces are polished, then covered with deep red slip. This type is also like San Carlos Red, but San Carlos Red is always smudged, and like Papago Red (Di Peso 1956), but Papago Red is tempered with manure. Di Peso also proposed that five types present at the Paloparado site (Ramanote Plain,

Paloparado Plain, Ramanote Red-on-brown, Sells Red, and Peck Red) were made by the Sobaipuri, but most archaeologists do not believe that Paloparado had a Sobaipuri occupation.

Whetstone Plain, or a similar chocolate-brown pottery, is the locally produced Protohistoric pottery of the Papaguería. Goodyear (1977) thought that the thin, chocolate-brown pottery found by Haury (1950:345) in the upper levels of Ventana Cave and also present on sites in the Slate Mountains (including AZ AA:5:4[ASU], with a radiocarbon date of A.D. 1370 or 580±100 B.P. [RL-224]) was Protohistoric Papago and dated from about A.D. 1400 to 1850. This pottery was light brown to dark grayish-brown, 2.5-6.5 mm thick, and tempered with feldspar, quartz, and schist, but never mica (Goodyear 1977:n.2). Masse (1980:251-252, cited by McGuire 1982:198) thought that this pottery should be classified as Whetstone Plain. Madsen (1993) classified as Papago Plain a thin, gray to brown, wiped or smoothed, rim-banded pottery tempered with quartz-feldspar, micaceous schist, and possible granite found at sites near Picacho Peak along the lower Santa Cruz River. Madsen thought that this pottery, which closely resembled pottery from the Protohistoric Tohono O'odham site of Batki (AZ Z:16:6[ASM]), dated from about A.D. 1450 to 1780 or 1860 and further noted that the rim banding characteristic of this pottery could also be seen on contemporaneous Sobaipuri pottery and Lower Colorado River Buff Ware. Seymour (1997:247-249) argues that during the 1700s Upper Pimans ceased making plain, sand-tempered Whetstone Plain pottery and began making organic-tempered, red-slipped, and decorated pottery. At the Protohistoric Kohatk Papago sites excavated on the Ak-Chin Archaeological Data Recovery Project (Cable 1990; Gasser 1990), most pottery was a thin-walled, tan-paste plainware or a thick-walled gray-black plainware with prominent muscovite temper. Decorated white-on-buff and black-on-cream sherds were rare.

Historic Papago pottery has a brown or reddish-brown paste and sand temper (sometimes micaceous or organic) and is constructed with a molded base to which coils are added and shaped with paddle and anvil (Fontana, Faubert, and Burns 1962). Fontana, Faubert, and Burns (1962) trace Papago pottery as far back as A.D. 1700, when Papago Plain, Papago Red, Papago Red-on-brown, and Papago White-on-red or brown were probably made. Papago Plain is smoothed and sometimes polished. Papago Red is lightly slipped or washed and lightly polished; this type is essentially the same as Sells Red, a prehistoric type, except that it lacks polishing striations and an indented base. Papago Red-on-brown is unslipped or slipped with a cream-colored slip and painted with broad red lines. Papago White-on-red or brown is painted with a fugitive white paint. Rosenthal et al. (1978:Fig. 36, 123) describe and illustrate a bean pot "that appears to be transitional between Tanque Verde Red-on-brown and Papago Red-on-brown" (McGuire 1982:198).

The lower Colorado River tribes all manufactured Lower Colorado River Buff Ware. Waters (1982) describes this ware as highly variable and recommends classifying it on the basis of vessel form. It is made with sedimentary (riverine) clay, constructed by coiling and shaped by paddle and anvil. It is wiped or smoothed and covered with a scum coat or with stucco for cooking. Waters lists six types that could have been produced during the A.D. 1519-1692 period: Parker Buff (A.D. 1000-1900), tempered with feldspar; Parker Red-on-Buff (A.D. 1000-1900), tempered with feldspar and decorated with dark red to brown paint; Palomas Buff (A.D. 1000-1900), tempered with feldspar and

quartz; Palomas Red-on-Buff (A.D. 1000-1900), tempered with feldspar and quartz and decorated with dull red paint; Colorado Buff (A.D. 1500-1900), self-tempered; and Colorado Red-on-Buff (A.D. 1500-1900), self-tempered and decorated with bright red ochre paint. As mentioned above, Madsen (1993) suggests that rim banding may be a characteristic of Lower Colorado River Buff Ware produced from about A.D. 1450 to 1860.

Schroeder (1952b) proposed dividing Lower Colorado Buff Ware into six series, which he attributed to specific groups: (1) Parker Series (Mohave); (2) La Paz Series (Halchidhoma and Kohuana); (3) Palo Verde Series (Yuma); (4) Salton Series (Kamia); (5) Gila Bend Series (Maricopa); and (6) Lower Gila Series (Kaveltcadom). These ethnic affiliations are not generally accepted. (Schroeder [1958] subsequently added a seventh series, Barstow.) Schroeder (1952b) noted that Maricopa pottery is very "un-Yuma-like" and mentions that Bandelier (1890:257) said that Pima and Maricopa pottery were similar, while Curtis (1908:106) said that the Pima taught the Maricopa to make pottery. Rogers (1945, 1966) and Spier (1933) also note the Pima-Maricopa pottery connection. Fontana, Faubert, and Burns (1962:119) say that Maricopa pottery is "Papago Black-on-red brought to perfection," and suggest that after the railroad arrived (in 1880) and created a demand for Indian pottery, the Maricopa borrowed Pima and Papago pottery techniques. Fontana, Faubert, and Burns (1962) say that Mohave pottery is entirely coiled and unslipped. Yuma and Cocopa pottery are the same as Mohave pottery.

The Hualapai, Havasupai, and Yavapai generally made Tizon Brown Ware pottery, tempered with decomposed granitic rock (feldspars, quartz, and mica). This pottery had a smooth but not highly polished surface that was light to dark brown or reddish brown. Dobyns and Euler (1958) define three types of Tizon Brown Ware: Aquarius Brown, characterized by coarse temper; Cerbat Brown, with finer paste and temper; and Tizon Wiped, with distinct wiping marks. Euler and Dobyns (1985) suggest that the Havasupai made Tizon Wiped (see also Dobyns and Euler 1958); the Yavapai may have made Cerbat Brown and/or Aquarius Brown. Breternitz (1960) proposed a new type, Orme Ranch Plain—black (occasionally brown), calcite and pyroclastic temper, coiled construction, exteriors roughened or indented, interiors scraped—that he thought was probably made by the Yavapai, and this affiliation has generally been accepted. Schroeder (1959:85-86, cited by Breternitz 1960) says that Wingfield Plain is Western Yavapai pottery and was used into historic times.

At the 1985 conference on Southern Athapaskan ceramics (Baugh and Eddy 1987), Western Apache and Navajo ceramics were classified as Quemado Gray Ware, with a Navajo Series (manufactured by the Navajo) and a Pine Flat Series (manufactured by the Western Apache). Chiricahua Apache ceramics were represented at only the series level (Oscuro Series) because only five whole pots are represented in museum collections. Within the Pine Flat Series was one type, Apache Plain, with three varieties: Apache, Rimrock, and Strawberry. Apache Plain has a gray core; a tan to light brown surface that is light gray to black in fire-clouded areas; subrectangular granitic sand temper; coil construction; surfaces wiped (with grass?), leaving striations; and lips that are sometimes notched with fingernails (as in prehistoric and Protohistoric lower Colorado Buff Wares, but never on Yavapai pottery) or sometimes tooled. Forms are mostly jars; bowls are rare (Ferg

1992:13-14). Strawberry Variety has fingernail indentations over the entire surface of the vessel. Rimrock Variety is distinguished by one or more rows of fingernail indentations around the neck of the vessel. Rimrock Variety occurs primarily in Northern Tonto territory, but Wood (1987:115) has also identified it in Southern Tonto territory. Although Gifford described Apache Plain in his dissertation, the description was not published until 1980 (Gifford 1957, 1980), by which time Schroeder (1960:141-142) had published a description of Rimrock Plain. Ferg (1992:27) argues that Gifford's Apache Plain was described before Schroeder's Rimrock Plain and that Gifford provides a better general description of Western Apache pottery. Therefore, Ferg recommends that Rimrock Plain be considered one of three varieties of Apache Plain.

As discussed in Chapter 2, Ferg (1992:19) cites Wood (1987:115-116) as saying that Yavapai and Western Apache pottery are difficult to differentiate in sherd form.

> A much more detailed study of purported Yavapai and Apache ceramics will be needed to determine whether the two can be differentiated with any consistency. Surface treatments, vessel form (when discernable), temper type, quantity and size, and in some cases, color, may prove sufficiently distinct to separate the two. Manufacturing techniques will probably not help. It can be difficult to distinguish coil-and-scrape from paddle-and-anvil-thinned pottery, particularly on small sherds, and the pottery traditions of both the Western Apache and Yavapai were so informal that both may have been used (Wood 1987:115) [Ferg 1992:19-20].

Navajo ceramics have been described by Brugge (1963, 1981a), who defines five basic types: Dinetah Gray (A.D. 1550-1800), Navajo Gray (A.D. 1800-present), Pinon Gray (A.D. 1800-present), Gobernador Polychrome (A.D. 1690-1800), and Navajo Painted (A.D. 1800-present). All of the Navajo pottery types are manufactured using the coil-and-scrape technique. Dinetah Gray is sand tempered and wiped with a corn cob or corn husks, leaving fine striations. It is often decorated with a rim fillet. It usually has a charcoal black core, but the surface ranges from brown to dark gray. Navajo Gray and Pinon Gray, the graywares made today, are similar to Dinetah Gray except for being tempered with sherds. Navajo Gray, which is made east of the Chuska Mountains, has fine sherd temper; Pinon Gray, made west of the Chuska Mountains, has large sherd fragments as temper. Gobernador Polychrome has buff to orange paste containing reddish shale inclusions and is sand tempered. Black and red designs are painted on a yellow background. Navajo Painted is essentially a smoother variety of Navajo Gray with a few painted designs. The 1985 Southern Athapaskan Ceramics Conference (Baugh and Eddy 1987) recognized only Dinetah Gray, Navajo Gray, Pinon Gray, and a new type (description not yet published), Gobernador Indented.

All Paiute ceramics are Southern Paiute Brown Ware (Baldwin 1950; Euler 1964; Fowler and Matley 1978; Hunt 1960), which has highly variable temper (including sand, sherd, crushed igneous rock, olivine, and mixed sherd and olivine) and was made using the paddle-and-anvil technique. It was decorated with fingernail impressions in horizontal bands just below the rim and poorly fired in an oxidizing atmosphere, resulting in a black to reddish-brown surface and a dark core. Paiute

Brown Ware from Willow Beach was brown to gray-black, paddle-and-anvil-thinned, with a conical base, sometimes decorated with fingernail indentions (Schroeder 1961a).

The above discussion should demonstrate that (1) different Protohistoric ceramic wares, to say nothing of types, are difficult to distinguish; (2) most Protohistoric ceramic wares and types are poorly dated; and (3) there is often no correspondence between particular cultural groups and specific ceramic wares and types (this is especially true of the Yavapai). Therefore, the use of ceramics to date sites and assign cultural affiliation to sites is problematic at best.

Flaked Stone

Projectile points (Figure 3.2) also have often been used to date and assign cultural affiliation to sites. Many of the projectile points found on Protohistoric sites are small side-notched points with deeply concave bases and serrated edges, with or without basal notching, often classified as Desert Side-notched. Kearns (1996) notes that Desert Side-notched projectile points and the small side-notched points used by the Navajo are similar to the Washita, Harrell, and Plains side-notched points that were in use on the Great Plains in the late prehistoric and Protohistoric periods. Kearns sees the widespread use of this style of projectile point as being a regional horizon marker, not evidence of the spread of any particular culture from the Great Basin to the Great Plains or vice versa.

Protohistoric Pueblo projectile points have not often been described. Projectile points from Awatovi were side-notched (Woodbury 1954); projectile points from Hawikuh were not described.

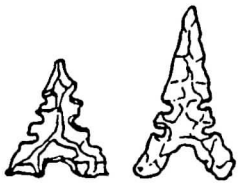
The Sobaipuri points from the Bechtel Burial (AZ AA:12:98[ASM]) were triangular, with deeply concave bases and serrated edges (Brew and Huckell 1987). Similar points were recovered from Una Cholla (AZ BB:6:18[ASM]) (Masse 1985); AZ EE:2:95(ASM) in the Santa Rita Mountains (Huckell 1984); Alder Wash Ruin, England Ranch Ruin (Doyel 1977), and Terrenate (Di Peso's [1953] Quiburi); Second Canyon Ruin (Franklin 1980); Los Guanacos (Haury 1945); and the San Xavier Bridge Site (AZ BB:13:14[ASM]) (Ravesloot and Whittlesey 1987). Most people think that these are Sobaipuri points, but Ravesloot and Whittlesey (1987:96) believe that triangular points with deeply concave bases were being produced in the Classic period. Huckell (1984:118) notes, "Of interest is Pfefferkorn's assertion that these serrated points were used exclusively on war arrows; arrows used for hunting game bore only fire-hardened, wooden points (Pfefferkorn 1989:202-203)." Ravesloot and Whittlesey (1987:94-95) question whether small triangular points with deeply concave bases and serrated edges are really Sobaipuri, citing Whittaker (1984), who says that the "Sobaipuri" points from Alder Wash Ruin are highly standardized and were probably produced by only a few individuals.

Brew and Huckell (1987:171) say that Papago projectile points are triangular and have deeply concave bases but lack serrated edges, and they cite as examples Papago projectile points from Batki (Haury 1950:Figure 56), Tat Momolikat (Canouts, Germeshausen, and Larken 1972:Plates 19 and 20), and Tubac (Huckell and Huckell 1982:Figure 8c; Shenk and Teague 1975:Figure 52a-b). Haury

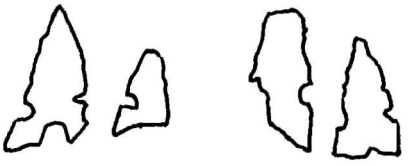
SOBAIPURI POINTS, ALDER WASH RUIN
(RAVESLOOT & WHITTLESEY 1987: FIG. 7.2)

PAPAGO POINTS, VENTANA CAVE
(HAURY 1980: FIG. 56)

PAPAGO POINTS, VENTANA CAVE
(HAURY 1980: FIG. 56)



YAVAPAI POINTS, ORME RANCH CAVE
(BRETERNITZ 1960: FIG. 4)



PAIUTE POINTS, WILLOW BEACH
(SCHROEDER 1961a: FIG. 20)

NAVAJO POINTS, CEDAR WASH, NEW MEXICO
(GILPIN 1993: FIG. 4.5.)

Figure 3.2. Projectile points associated with Protohistoric sites.

(1950:Plate 22) recovered similar triangular projectile points with deeply concave bases from Ventana Cave. At least one of the obsidian projectile points illustrated in Rosenthal et al. (1978:Figure 45) is triangular with a deeply concave base and serrated edges. Brew and Huckell (1987:171) say that the Gila River Pima may have produced a projectile point similar to that of the Papago. In addition to projectile points, the Sobaipuri may have produced leaf-shaped, percussion-flaked bifaces (Brew and Huckell 1987:71).

The Pai used Desert Side-notched projectile points with serrated edges. Paiute projectile points from Willow Beach were base notched with or without side notches and corner tangs (Schroeder 1961a). The Utes used Desert Side-notched or Cottonwood Triangular projectile points (Kearns 1996).

Peter Pilles (personal communication 1996) says that Apache projectile points tend to be triangular and long. The Navajos used small, unnotched triangular projectile points and small side-notched projectile points with straight, concave, or notched bases (Kearns 1996). The Navajo projectile points from the Cedar Wash sites on Gallegos Mesa, New Mexico, were triangular and usually side-notched (Reynolds, Cella, and Caballero 1984).

Relatively few analyses of Protohistoric flaked stone assemblages have been conducted. Henderson (1988) summarized the distribution of Yavapai projectile points in the Coconino National Forest, identifying 18 sites and 37 locations with Yavapai points. Cameron (1977) did a study of the flaked stone from the England Ranch site (Sobaipuri or upland Piman). Ferg (1992) notes that Doyel (1974) and Hohmann and Redman (1988) report that the Western Apache of the Tonto Basin used white chert, and a number of researchers have noted reuse of prehistoric artifacts by Apaches (Bradley and Ferg 1980:11; Buskirk 1986:201; Ferg 1992:11; Gifford 1980:13; Goodwin 1969:63; Huckell 1978:41, 57-58; Martin et al. 1952:481; Reagan 1930:303) and Yavapai (Logan and Horton 1996:109). Similarly, Ravesloot and Whittlesey (1987) have suggested that projectile points attributed to the Sobaipuri may have been collected from prehistoric sites. In his study of Red Rock State Park, Weaver (1995) argues that obsidian hydration analysis demonstrates reuse of older projectile points.

Spanish Artifacts

Bronitsky (1985:141) lists European-manufactured artifacts recovered from precontact contexts: a majolica bowl from University Indian Ruin (Hayden 1957) and an iron knife blade, a piece of iron, a bronze spoon, Spanish ceramics, and glass from Paloparado (Di Peso 1956:345). It now appears that sites of the Coronado Expedition can be identified by the presence of crossbow bolts (Figure 3.3). The Coronado Expedition was the only Spanish expedition into the Southwest that carried crossbows. By the time other explorers entered the Southwest, some 40 years after Coronado, muskets had rendered crossbows obsolete (Hartmann and Hartmann 1996:7; Rhodes 1997). Other artifacts that have been found at Coronado Expedition campsites in New Mexico and Texas include chain mail fragments, nails, Mesoamerican pottery, and obsidian from central Mexico (Blakeslee,

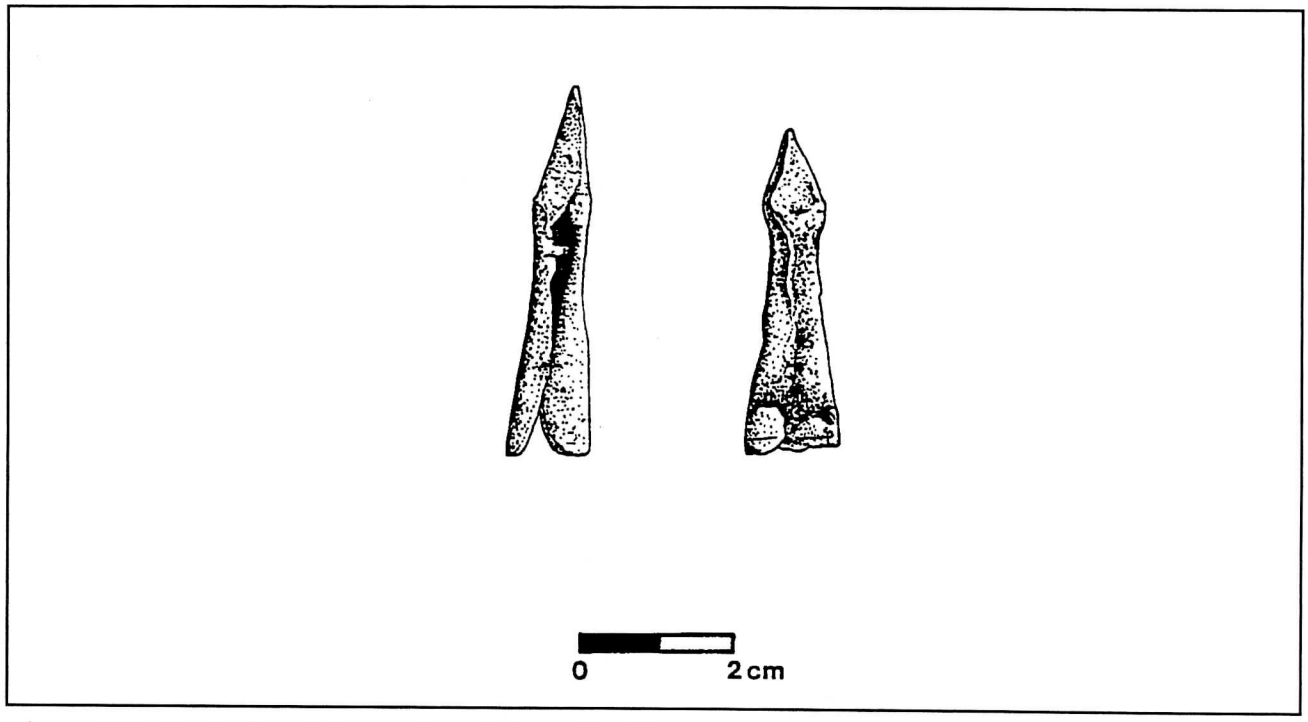


Figure 3.3. Early Spanish crossbow bolts (after Hartman and Hartman 1996: 1).

Flint, and Hughes 1997; Hartmann and Hartmann 1996:7). Metal, glass beads, and cow bones were recovered from Pitaitutgam (Di Peso 1953). Copper spectacles with one glass lens, a bronze collar shaft guard, an iron hinge key, an iron horseshoe nail, a lead disk, another piece of lead, an iron knife, an iron link, and a piece of bronze were recovered from Terrenate (Di Peso 1953:118-119). Spanish glazewares and metal were found at Paloparado (Di Peso 1956). Based on his work at Pitaitutgam and Terrenate Presidio, Di Peso (1953:128) says that European ceramics did not enter southern Arizona until after 1704.

Huckell (1984) found a glass bead, a knife, and a tinkler at Site AZ EE:2:83(ASM) and a glass bead dated A.D. 1650-1690 at Site AZ EE:2:95(ASM), both in the Santa Rita Mountains. Haury (1950:19-20) reports finding an eighteenth-century iron lance blade and glazed pottery manufactured by the Papago at Nuestra Señora de la Merced del Batki, which was destroyed by the Apaches about 1850.

Stratigraphy

A few archaeologists have identified Protohistoric components on the basis of superposition of features. Ciolek-Torrello (1987), Ferg (1992), Franklin (1978), Gregory (1979:237-239), and Windmiller (1972, 1973, 1974a, 1974b) have argued that features on the surface of prehistoric ruins could be Apachean. Ferg (1992:25) suggests that Apachean features are superimposed on Yavapai

features on some Tonto Basin sites, confirming historical indications that the Apache displaced the Yavapai from the area about A.D. 1750.

AN INVENTORY OF PROTOHISTORIC SITES IN ARIZONA

In order to compile an inventory of previously recorded Protohistoric sites in Arizona, we checked the records of AZSITE and the Coconino National Forest and contacted Forest Service and Bureau of Land Management (BLM) offices, but the best sources of data were actually regional overviews and site reports. Sources of information on the Protohistoric period include overviews of different areas of the state. Southeastern Arizona is described by Bronitsky and Merritt (1986). The Arizona Strip is described by Altschul and Fairley (1989). The Little Colorado River basin is described in Plog (1981). The lower Colorado River is described in Stone (1991) and Swarthout (1981). West-central Arizona south of the Bill Williams River and the area north of the Bill Williams River are described by Stone (1986, 1987). SWCA prepared an overview of the cultural resources of the Hopi Indian Reservation in 1991 (Ahlstrom and Hays 1991) and the Grand Canyon in 1993 (Ahlstrom et al. 1993). Greenberg and Marusin (1976, 1978) and the National Park Service et al. (1994) were consulted for listings and descriptions of Protohistoric sites on the National Register of Historic Places.

Our initial sort of old AZSITE records was by culture—Apache, Navajo, Yaqui, Zuni, Yuman, Pai, Paiute, Mexican-Spanish, and Piman—and retrieved 1522 records. The 366 Apache, Navajo, Yaqui, and Zuni records listed only 10 sites, all Zuni, that seemed to date to the A.D. 1519-1692 period. Lee Terzis looked at 766 Arizona State Museum (ASM) site cards on the ASM computer sort by Yuman, Pai, Paiute, Mexican-Spanish, and Piman cultures and found that 96 (12.5%) were identified as Protohistoric, 459 (59.9%) were possibly Protohistoric, and 211 (27.5%) were not Protohistoric. Sites in our inventory were classified by site type as well as cultural affiliation.

Site Classification

Classification by Site Types

Researchers have used two types of site classification, descriptive (see Stone 1986) and functional (see Wood et al. 1989), most of them fairly ad hoc. In one of the more explicitly descriptive site classifications, Stone (1986) devised a set of twelve classes for Hualapai, Yavapai, and Mohave sites in west-central Arizona: (1) artifact scatters; (2) rock features ([a] rock rings, [b] rock concentrations, [c] rock alignments) (3) trails; (4) rock art; (5) caves and rockshelters; (6) stationary grinding features; (7) quarries ([a] chipped stone, [b] ground stone, [c] quarries for clays, ceramic temper, minerals, etc.); (8) intaglios; (9) cleared circles; (10) wells; (11) burials and cremations; and (12) other. Wood et al. (1989) defined six types of Protohistoric sites on the Tonto National Forest in terms of functional classifications: (1) permanent habitations; (2) temporary habitations; (3) subsistence sites (including procurement/processing sites, such as roasting features);

(4) special-activity sites (including sites where communication is evident as rock art); (5) other sites; and (6) sites of indeterminate function (small artifact scatters were often classified here).

Ezell (1954a, 1954b) classified sites in southwestern Arizona as house remains, rockshelters, camp sites (usually with hearths, roasting pits, pottery, stone tools and flakes, and shell), quarry workshops, and trail sites (isolates). On the Coconino National Forest, Pilles (personal communication) suggests that several types of sites are typical of the Protohistoric period: wickiup rings, caves, roasting pits, sherd scatters, trails (Palatkwapi Trail, Crook Road), trail crossings (Hopi sherds have been found at the crossing of East Clear Creek), springs and water holes, shrines, rock art, and the clay mine at Chavez Pass (which is still being used). Gilpin's (1996) summary of the types of sites used by Navajos of the eighteenth century in Arizona describes pueblitos, defensive sites, habitations, limited-activity sites, and rock art sites.

For this inventory, we developed a list of site types directly from site forms and reports, where the possibilities are constrained somewhat by the categories in the site forms. We collapsed certain categories (such as pueblos, villages, and rancherías, or various types and combinations of roasting features) and came up with the 23 site types listed in Tables 3.2a and 3.2b, where they are ranked by the intensity of use represented. One advantage of a looser classification is that it recognizes the number of special-activity sites associated with ranchería settlement systems and that these sites are often reused.

The 23 defined site types include all of the site types mentioned in the various classifications listed above (except the stationary grinding features mentioned by Stone) and virtually all of the sites listed in the inventory. Moreover, the "Other" category is not large (only 2.2% of the total number of sites). Habitation sites (pueblos/villages/rancherías and farmsteads/houses/ranchos) are well represented in the database, especially among the Hopi and Pima, but no sites of this type have been reported for the lower Colorado River Yumans. The absence of Zuni habitation sites is expected, based on historic accounts that place all the Zuni pueblos between A.D. 1519 and 1692 in New Mexico. Few habitation sites have been identified for the Pai and Apache, but many of the artifact scatters attributed to these groups may represent habitations. Presidios postdate the A.D. 1519-1692 period by a few years but were often built at or near Sobaipuri villages. Rockshelters have variable functions, including dwellings, campsites, roasting areas, rock art sites, caches, etc. Campsites are defined as having one or more hearths, usually with associated artifacts. Like rockshelters, artifact scatters represent a variety of functions. Mines and quarries exhibit digging, whereas lithic raw material procurement sites would be classified as artifact scatters. Rock art sites have been recorded for most groups except the Gila Pima, the lower Colorado River Yumans, and perhaps the Pai. Graves and cemeteries dating between A.D. 1519 and 1692 have not been commonly reported, except for those attributed to the Sobaipuri.

Table 3.3, which lists the site types in rank order by frequency, shows that nearly 80% of the sites can be accounted for by the seven most common site types, all of which are indigenous: artifact scatters, farmsteads/houses/ranchos, pueblos/villages/rancherías, roasting features, rockshelters, campsites, and intaglios.

Table 3.2a. Identified Protohistoric Site Types by Cultural Affiliation

Site Type	Cultural Affiliation									
	Spanish	Zuni	Hopi	Hopi/Zuni	Pima/O'odham	Sobaipuri	Papago/ Sand Papago	Mohave/Yuma	Pai	Hualapai
Mission	12									
Pueblo/Village/Ranchería			10		2	17	5			1
Farmstead/House/Rancho					19	6	3		1	
Mound							4			
Rockshelter		1	3			1	1		5	2
Campsite		3	1			4	3	5		1
Roasting Feature			1			3	1		2	
Scatter	1		2		33	10	8	4	8	10
Cache			1					1		1
Spring			1				1			
Water Well/Catchment			1		1		1	1		
Field/Garden						1				
Canal					1					
Mine/Quarry			4			1		1		
Trail/Trailsite			4	1						
Rock Art	1	1	1			1	1			
Intaglio										
Sacred Site/TCP			1	1			1			
Shrine		2	2							
Cairn		2	2							
Grave/Cemetery			1			5	3			
Other		4								
Unknown			1						1	1
Total	**14**	**13**	**36**	**2**	**56**	**49**	**32**	**12**	**17**	**16**

TCP=traditional cultural property

Table 3.2b. Identified Protohistoric Site Types by Cultural Affiliation

Site Type	Cultural Affiliation								Total	Percent
	Havasupai	Yavapai	Yavapai/ Apache	Apache	Navajo	Southern Paiute	Paiute/ Ute	Other		
Mission									**12**	**3.2**
Pueblo/Village/Ranchería								2	**37**	**9.9**
Farmstead/House/Rancho		4	1	3	1			8	**46**	**12.3**
Mound									**4**	**1.1**
Rockshelter	3	6	6	2		2		2	**34**	**9.1**
Campsite		1		2		1			**21**	**5.6**
Roasting Feature	2	1	1	14		1		10	**36**	**9.6**
Scatter		8	2	1			2	6	**95**	**25.3**
Cache									**3**	**0.8**
Spring									**2**	**0.5**
Water Well/ Catchment		1							**5**	**1.3**
Field/Garden									**1**	**0.3**
Canal									**1**	**0.3**
Mine/Quarry									**6**	**1.6**
Trail/Trailsite									**5**	**1.3**
Rock Art		1		2				1	**9**	**2.4**
Intaglio								20	**20**	**5.3**
Sacred Site/TCP				1					**4**	**1.1**
Shrine								4	**8**	**2.1**
Cairn									**4**	**1.1**
Grave/Cemetery									**9**	**2.4**
Other								4	**8**	**2.1**
Unknown	1							1	**5**	**1.3**
Total	**6**	**22**	**10**	**25**	**1**	**4**	**2**	**58**	**375**	**100.0**

TCP=traditional cultural property

Table 3.3. Identified Protohistoric Site Types by Frequency

Site Type	Frequency	Percent	Cumulative Percent
Scatter	95	25.3	25.3
Farmstead/House/Rancho	46	12.3	37.6
Pueblo/Village/Ranchería	37	9.9	47.5
Roasting Feature	36	9.6	57.1
Rockshelter	34	9.1	66.2
Campsite	21	5.6	71.8
Intaglio	20	5.3	77.1
Mission	12	3.2	80.3
Rock Art	9	2.4	82.7
Grave/Cemetery	9	2.4	85.1
Shrine	8	2.1	87.2
Other	8	2.1	89.3
Mine/Quarry	6	1.6	90.9
Trail/Trailsite	5	1.3	92.2
Water Well/Catchment	5	1.3	93.5
Unknown	5	1.3	94.8
Mound	4	1.1	95.9
Cairn	4	1.1	97.0
Sacred Site/TCP	4	1.1	98.1
Cache	3	0.8	98.9
Spring	2	0.5	99.4
Field/Garden	1	0.3	99.7
Canal	1	0.3	100.0
Total	**375**	**100.0**	

TCP=traditional cultural property

Classification by Cultural Affiliation

Sites were assigned cultural affiliation on the basis of historical documentation, ceramics, projectile point styles, and geographical location. The use of historical records to identify, date, and interpret sites dating from A.D. 1519 to 1692 has already been discussed.

Previous discussions of ceramics have alluded to the problems involved in using pottery as a marker of ethnicity. The primary problem is that although pottery can sometimes be associated with ethnicity, this is not always the case. For example, much of the well-made and highly decorated Jeddito Yellow Ware was probably produced for trade and was part of a trend toward craft specialization. Although yellowware is generally recognized as Hopi, we still do not know how many villages produced Sikyatki Polychrome (certainly Awatovi, Kawaika'a, and Sikyatki did, but we do not know about Second Mesa or Third Mesa). Also, we do not know if Sikyatki Polychrome was produced by a few families or most people in each village. In any case, with the establishment of Spanish missions at Hopi, most surplus was taken by the Spanish missionaries, and pottery specialization could no longer be supported. After the Pueblo Revolt, refugees from the Rio Grande Keresan pueblos established Payupki, and as newcomers they would have been allowed to farm only the most marginal lands. To supplement their income, they became pottery specialists, producing Payupki Polychrome (A.D. 1680-1780). Still later (A.D. 1780-1900), after the Payupki refugees returned to the Rio Grande, Hopi (Polacca Polychrome) pottery production was practiced by lower-status clans who were assigned the least productive farmland and who had to take refuge at Zuni during times of famine. In the Hohokam area, the general movement away from villages to a ranchería settlement system reduced the need and the support for craft specialization and production.

A second problem with using pottery as a marker of ethnicity is whether to interpret ceramic distributions as evidence of migration or of trade. As mentioned above, Hopi (and, to a lesser extent, Zuni) ceramics were traded throughout the region during the A.D. 1519 to 1692 period (Adams, Stark, and Dosh 1993; Baldwin 1944; Dobyns 1974a; Euler 1958; Moffitt, Rayl, and Metcalf 1978; Mueller et al. 1968; Schaefer 1969) and have been found on and used to date sites identified as Hopi, Sobaipuri, Pai, and Paiute. Hopi and Zuni ceramics have also proved useful in dating Gobernador Phase Navajo sites in northeastern Arizona (Gilpin 1996; Lee 1966). The widespread trading of Puebloan ceramics, however, sometimes makes it difficult to distinguish between Hopi sites and sites of other groups. For example, Begay and Roberts (1996) argue that Hopi ceramics in the Grand Canyon are evidence of early Navajo use of an area most scholars think was not colonized by Navajos until about A.D. 1800.

A third problem with using pottery as a marker of ethnicity is that in many cases the cultural affiliation of pottery types has not been determined. The question of whether Sobaipuri Plain was manufactured by the Sobaipuri (Masse 1981) has already been mentioned, as has Schroeder's (1952b) hypothesis that different series of Lower Colorado Buff Ware were manufactured by different cultural groups. This problem, at least, could be dealt with in a conference (or conferences) on Protohistoric ceramics that should focus on ceramic classification, production, and exchange.

Projectile points have also been assumed to be ethnic markers. On the other hand, as mentioned above, most of the projectile points used from A.D. 1519 to 1692 were small triangular side-notched points: Desert Side-notched projectile points or variants thereof. And, as pointed out above, Ravesloot and Whittlesey (1987) question whether small triangular points with deeply concave bases and serrated edges are really Sobaipuri.

In many cases the geographical location of a site has been the key factor in assigning cultural affiliation, although tribal migrations, recognized in many Native American traditions, often confound the use of geographical location as an indication of what ethnic group is represented at a site. As was discussed in Chapter 2, Schroeder (1952b:57) suggests that the Maricopa moved from the Colorado River to the Gila after A.D. 1300. Furthermore, using historic accounts, Schroeder (1952b) demonstrated substantial movements of the lower Colorado River tribes from A.D. 1540 to about 1830. One of the great problems in trying to distinguish between the Yavapai and Apache is that they occupied the same territory. Acknowledging the problems of attributing cultural affiliation on the basis of geography, Ravesloot and Whittlesey (1987) criticize the tendency to call all Protohistoric sites in southern Arizona Sobaipuri.

Distribution of Sites by Cultural Affiliation and Site Type

We compiled a list of 375 sites that seemed to be the most likely candidates for dating to the A.D. 1519-1692 period (Tables 3.2a and 3.2b). We were able to find examples of sites for 21 of the 25 cultural groups listed as having been present in Arizona in the A.D. 1519-1692 period.

Different subsistence strategies and settlement systems result in different types of sites for individual cultural groups or related groups. The wide range in subsistence patterns of the Protohistoric period resulted in settlement systems that included large nucleated settlements (such as pueblos), dispersed rancherías, and seasonally occupied camps.

Fourteen European sites (12 missions and visitas, one artifact scatter, and one rock art site) (Table 3.2a) probably date to the A.D. 1519-1692 period. The missions and visitas included five missions established in the period (three at Hopi, two among the upper Pimans), two visitas at Hopi, and five houses built for missionaries at Sobaipuri sites (Fontana, Faubert, and Burns 1962; Montgomery, Smith, and Brew 1970; Seymour 1989, 1993c; Smith 1970). Spanish rock art included possible inscriptions at Hoye Spring near Steamboat, Arizona (the possible Spanish inscription at Inscription House in northern Arizona probably reads "Chas Arnod 1861," not "Anno D 1661" [Ward 1975]) (Correll 1979; Reagan 1927; Van Valkenburgh 1941a). In addition, several trails—including the Coronado Route, the Hopi-Zuni trail, and the Palatkwapi Trail—were used by the Spaniards. European sites are among the best dated in the entire inventory, since virtually all of them were mentioned in historic documents. Presidios and Mexican-Spanish habitations and other sites probably postdate A.D. 1700, when colonization, as opposed to missionizing, began.

We identified 13 possible Zuni sites (Table 3.2a), most of which fall into the category of traditional cultural properties. Zuni pottery is distinctive and relatively well dated, but the sites identified in Arizona were mostly used for traditional purposes over many years and therefore are not associated with ceramic assemblages dating to discrete periods. None of these sites has been excavated.

Thirty-six sites are Hopi (Table 3.2a). Hack (1942a, 1942b) also recorded agricultural fields and coal mines in the Hopi country without giving them site numbers. Hopi sites are generally well dated because of historical documentation and the relatively precise dating of highly distinctive Hopi pottery. Over 100 tree-ring dates have come from Awatovi, and one radiocarbon date has been obtained from the Polacca Wash burial site.

At least two sites are claimed by both the Hopi and Zuni (Table 3.2a). Like the Zuni sites, these sites were used for long periods and are not well dated.

Pima sites are difficult to date and are equally hard to attribute to a specific Piman group. The best-dated Pima sites are those that can be identified as sites reported by Kino, and even this type of historical identification is often uncertain. It seems likely that eight sites along the southernmost reach of the Santa Cruz River in Arizona, including such famous "Sobaipuri" sites as Tinaja Canyon, England Ranch, and Guevavi, could be Pima in Kino's classification. Because these sites are usually considered Sobaipuri, however, they are listed as such below, with the caveat that a reappraisal of archaeological classification of Piman materials, ideally by a conference, is greatly needed.

Our inventory of possible A.D. 1519 to 1692 sites included 56 Pima and O'odham sites (Table 3.2a) in the Gila River valley from Coolidge and Casa Grande to Phoenix. The best dated of these sites is a Protohistoric component of Pueblo Salado (AZ T:12:47[ASM]) (Bostwick, Greenwald, and Walsh-Anduze 1995).

Forty-nine Sobaipuri sites are identified in our inventory (Table 3.2a). At least nine Sobaipuri sites have been dated by historical documentation; other sites have been dated by the presence of European trade goods (at least two sites) or Hopi or Zuni ceramics (at least two sites). Radiocarbon dates have been derived from five sites.

Our inventory identified 30 Tohono O'odham (Papago) and two Sand Papago sites that could date to the A.D. 1519 to 1692 period (Table 3.2a). Three villages were dated by historical documentation (that is, they were reported by Kino), and one of them (Batki) yielded an eighteenth-century Spanish lance head. Two villages, Painted Horse (AZ T:16:20[ASM]) and Frog Pot (AZ T:16:23[ASM]), were radiocarbon dated to the Protohistoric as defined here (Cable 1990; Gasser 1990). Features from two other sites also produced radiocarbon dates, a roasting pit at MaikuD (SON C:2:20[ASM]) and a hearth at Ge Aki (SON C:2:22[ASM])(Rosenthal et al. 1978). Madsen (1993) argues that archaeological and historical contexts suggest that the pottery on Sites AZ AA:7:158(ASM), AZ AA:7:187(ASM), and AZ AA:7:188(ASM) dates between A.D. 1450 and 1780. Montezuma's Head, a traditional cultural property that is on the National Register, was dated by tradition. Only one site

dating to the A.D. 1519 to 1692 period was identified as Sand Papago: Gu Vo Waw (AZ Z:14:32[ASM]) (Rosenthal et al. 1978). In addition, Quitobaquito Springs, in Organ Pipe Cactus National Monument, was occupied by Sand Papago from about 1890 to 1945 (Anderson 1986; Bell, Anderson, and Stewart 1980; Brew and Huckell 1987:179; McGuire and Schiffer 1982:83-84) and is hypothesized to have a Protohistoric component, although none has been clearly identified.

As mentioned in Chapter 2, large numbers and many types of Patayan sites have been recorded in Arizona: house rings, rockshelters, roasting pits, stone features (mostly roasting pits), farm camps, campsites, trail camps (overnight stops, specialized gathering sites, or shrines), artifact scatters, quarries, trails, trail breakage (isolated sherds, pot drops), rock art sites, intaglios, and other sites that often represent combinations of functions (Rogers 1966:173-177; Schroeder 1952b; Waters 1982:Figure 7.6). However, few can be assigned to the A.D. 1519-1692 period with any confidence because of problems with dating Patayan ceramics. Therefore, it is not surprising that only 12 sites in our inventory represent Lower Colorado River tribes (Table 3.2a), including five sleeping circles of unspecified cultural affiliation, one well of unspecified cultural affiliation, four Mohave artifact scatters, one Mohave cache, and a quarry and trail attributed to the Yuma. This small number of A.D. 1519-1692 period sites thus represents only a portion of the range of site types that have been identified in the lower Colorado River Yuman settlement system and only a small sample of the site types that are represented. Of greatest significance, though, is the absence of rancherías, described both historically and ethnographically, but lacking in the archaeological record for the Protohistoric period.

Pai sites are extremely common in northwestern Arizona, but few have been chronometrically dated, and it is often not possible to distinguish between sites dating to the A.D. 1519-1692 period and earlier or later sites. Furthermore, it is often difficult to distinguish the sites of particular Pai groups. Our inventory identified 17 Pai sites that may date to the A.D. 1519-1692 period (Table 3.2a). Nine of these sites had Hopi sherds that allowed the sites to be dated at least to A.D. 1300-1625. Our inventory also identified 16 Hualapai sites that could date to A.D. 1519-1692 (Table 3.2a). One of the Hualapai sites had Hopi pottery on it that indicated a date of A.D. 1375-1625. Only six Havasupai sites were listed in our inventory (Table 3.2b). All are within the Grand Canyon, the modern home of the Havasupai, although in historic times the Havasupai exploited a much wider range. Two Havasupai sites were radiocarbon dated; a third site had Hopi pottery that allowed it to be dated to A.D. 1300-1625. Yavapai sites are difficult to distinguish, not only from Apache sites but from other Pai sites as well. The Yavapai probably made Tizon Brown Ware, Orme Ranch Plain, and possibly Wingfield Plain, and both Tizon Brown Ware and Orme Ranch Plain can be difficult to distinguish from Apachean ceramics. We identified 22 Yavapai sites that may date to the A.D. 1519 to 1692 period (Table 3.2b); one has been radiocarbon dated.

Ten sites in the inventory that may date between about A.D. 1519 and 1692 could be either Yavapai or Apache (Table 3.2b). These sites include six rockshelters, one house, one roasting pit, and two artifact scatters. None of these sites are well dated.

Our inventory identified 25 possible Apache sites that could date to the A.D. 1519 to 1692 period (Table 3.2b). Seven of these sites have produced radiocarbon dates, six from roasting pits and one from a campfire. In addition, sacred sites such as Mount Graham and Bow Cave that have been reported in the press (Genrich 1992; Hoye 1992; *The Phoenix Gazette* 1993; Winton 1993b; Yozwiak 1996) could date between A.D. 1519 and 1692.

AZSITE files contain one Navajo site classified as Protohistoric (Table 3.2b), although the exact date of this site is uncertain. Hester's (1962) research, as well as research by Kemrer (1974), Gilpin (1996), and others, suggests that the Navajos could have occupied portions of northeastern Arizona—particularly the Red Rock Valley, the Chuska and Lukachukai mountains, Canyon de Chelly, and the Defiance Plateau—as early as the Reconquest (A.D. 1692).

We identified only four sites that are likely to have been used by Southern Paiutes during the A.D. 1519 to 1692 period: Willow Beach and three sites in the Grand Canyon (Table 3.2b). All of them were radiocarbon dated, but four of the five dates suggest that three of the sites could date before A.D. 1500. The cultural affiliation of 58 sites considered to be within the A.D. 1519-1692 study period could not be identified (Table 3.2b).

Estimating Protohistoric Site Numbers

Given these data, how many Native American Protohistoric sites should we *expect* to find in the State of Arizona? One way to approach this question would be to determine how much of the state has been archaeologically surveyed and how many Protohistoric sites have been found in these surveys, then to project the total number of sites that would be expected if the entire state were to be investigated. Another approach would be to make the same kind of estimates based on a sample of large archaeological surveys scattered around the state. In the absence of a statewide archaeological database, neither of these approaches is feasible at this time. Therefore, we will use a third approach, working from population estimates and settlement patterns. As will be discussed more fully in Chapter 4, in about A.D. 1700, at the end of the study period, the population of what is now Arizona was probably between about 50,000 and 60,000, including perhaps 10,000 Hopi, 4700 Sobaipuri, 5000 Papago, 2500 other upland Pima, 5000-6000 Gila Pima, 20,000 lower Colorado River Yumans, 2000 Pai, and 5000 Apache and Navajo (with the Pai and Southern Athapascans the most undocumented populations). The Hopi were living in seven pueblos. The 2000 Sobaipuri of the San Pedro River valley were living in 15 villages; five villages on the Santa Cruz held another 2000 or more. The 10 Hopi habitation sites in this inventory probably represent the total number of pueblo sites that were occupied between A.D. 1519 and 1692. Ranchería settlements may have been less permanent than pueblos, and Kino mentions the abandonment of a number of Sobaipuri rancherías, but most abandonment was due to Apache raids that apparently had been fairly recent. The rancherías, ranchos, and camps of the Pai and Apache would be the least permanent of all, with many habitations used seasonally, year after year. Certainly the best sites would have been used for more than one generation.

Table 3.4 summarizes hypothetical values for population, average village size, village use life, and total number of expected habitation sites over a 200-year period. These hypothetical statistics suggest that approximately 2330 habitation sites would be expected during the A.D. 1519-1692 period. Obviously, changes in any of the values would result in changes in the hypothesized number of habitation sites. In addition, the degree and timing of the population decline almost certainly brought about by European diseases remain uncertain.

Table 3.4. Hypothetical Statewide Protohistoric Habitation Site Frequencies Derived from Population Estimates

Group	Population	Average No. of Houses per Site	Contemporaneous Sites	Site Use Life	Total Sites
Hopi	10,000	200	10	200 years	**10**
Sobaipuri	4700	37.5	25	50 years?	**100?**
Papaguería	5000	20?	50?	50 years?	**200?**
Upland Pima	2500	20?	25?	50 years?	**100?**
Gila Pima	5000-6000	20?	50?	50 years?	**200?**
Lower Colorado River Yuma	20,000	50?	80?	50 years?	**320?**
Pai and Apache	7000?	10?	140?	20 years?	**1400?**
Total	**55,200?**	**N/A**	**440?**	**N/A**	**2330?**

Note: Assumes that each dwelling houses five people.

Table 3.4 suggests that there should be about 2500 habitation sites in Arizona dating between A.D. 1519 and 1692. Our inventory further suggests that the overall Protohistoric settlement pattern consisted of four special-activity sites for every habitation site, which would result in perhaps 10,000 additional sites. On the other hand, many of the artifact scatters, rockshelters, roasting features, and so forth may represent habitation sites. Therefore, this estimate of the number of sites that might be expected is only an exercise to illustrate the variables that need to be considered if we are ever to learn the size of prehistoric and Protohistoric populations and how their settlement systems worked. On the other hand, the estimate illustrates the extent to which Protohistoric sites are a finite resource.

The above discussion also points out the major gaps in our knowledge of the period from A.D. 1519 to 1692. Table 3.5 compares the number of expected sites with those actually observed. For example, it appears that all of the Hopi habitation sites dating between about A.D. 1519 and 1692 have been identified, and one would expect additional special-activity sites to be identified, but this would result in a higher ratio of special-activity sites to habitation sites than is typical for other settlement patterns of the period. Perhaps one out of four Sobaipuri habitation sites and 6.5% of

Table 3.5. Expected and Observed Numbers of Protohistoric Sites in Arizona

Group	Habitation Sites			Special-Activity Sites		
	Expected	*Observed*		*Expected*	*Observed*	
Hopi	10	10	(100.0%)	40	26	(65.0%)
Sobaipuri	100	23	(23.0%)	400	26	(6.5%)
Gila Pima	200	21	(10.5%)	800	35	(4.4%)
Papaguería	200	12	(6.0%)	800	20	(2.5%)
Pai and Apache	1400	11	(0.8%)	5600	86	(1.5%)
Upland Pima	100	0	(0.0%)	400	0	(0.0%)
Lower Colorado River Yuma	320	0	(0.0%)	1280	12	(0.9%)
Total	**2330**	**77**	**(3.3%)**	**9320**	**205**	**(2.2%)**

Note: Intaglio sites, which are probably lower Colorado River Yuman sites, are not included in the special-activity sites for this group.

expected Sobaipuri special-activity sites have been recorded, making the Sobaipuri the second best known Protohistoric group. The third best known group would be the Gila Pima; 10.5% of expected habitation sites and 4.4% of expected special-activity sites have been recorded. For the sites of the Papaguería, 6.0% of the expected habitation sites and 2.5% of the expected special-activity sites have been recorded. The Pai and Apache were not well known to the Spanish in the A.D. 1519-1692 period, and it is difficult to make projections of site numbers based on existing historical data; therefore, the poor match between the hypothetical projections and the existing archaeological database is not surprising. The lower Colorado River Yumans are the most woefully underrepresented groups in the database, possibly because most of the large habitation sites reported historically have been buried, inundated, or plowed. The poor state of knowledge about upland Pimas other than the Sobaipuri and the Papago may be the result of all their sites having been classified as representative of the latter groups. Zuni sites are not shown in Tables 3.4 and 3.5 because none of their A.D. 1519-1692 habitation sites were in Arizona, and it is therefore not possible to project the number of Zuni special-activity sites of the period that should be expected within the state.

Agricultural fields and gardens have probably been underreported. Hack (1942a) recorded virtually the entire field system at Hopi, but as a landscape, not individual sites, and he did not date fields. Only one Protohistoric canal is recorded as a site, but Bostwick, Greenwald, and Walsh-Anduze (1995) report that a canal at Pueblo Salado (AZ T:12:47[ASM]) was radiocarbon dated between A.D. 1443(CAL) and 1955(CAL).

Traditional cultural properties are almost certainly underrepresented in the inventory, for three reasons. First, TCPs have been recorded only in the few years since the National Park Service published the *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990). Second, Native American groups sometimes prefer that a TCP not be recorded. Third, TCPs are often difficult to date to specific historical periods because Native Americans view them as dating to "time immemorial." Among the TCPs that have been recorded are shrines, sacred peaks, and other use areas. Cosgrove (1947), Ellis and Hammack (1968), Gifford (1980), Greenwood and White (1970), Hough (1907, 1914), Morris (1982), and Welch (1997) have described shrines at caves, springs, and mountaintops in the Mogollon country. Welch (1997) mentions that an Apache *gaahń* impersonator's mask was found in a cave in the Pinaleño Mountains. Artifacts at mountaintop shrines include "ceramics, sherd discs, tiny cylindrical stone beads, and occasional ceramic animal effigy fragments, stone pipes, projectile points, crystals and flakes" (Morris 1982). Hough (1907, 1914) described "a shrine with a historic sandpainting on the summit of White Mountain Baldy." "Beads and arrows were being collected on this site as early as 1881" (Hunt 1881). Greenwood and White (1970) mention this site and describe the nearby cave, as well as an additional shrine site close to Site AZ W:2:2(ASM). Morris (1982) has described 10 mountaintop shrines in Arizona and New Mexico. On the basis of ceramics, Morris (1982) dates five of these shrines to the A.D. 1-1200 period; the other five (four in Arizona and one in New Mexico) were probably in use "from perhaps the same early age up until historic times at least as recently as A.D. 1906." In addition, Morris found five sites near mountaintop shrines, which she interprets as campsites/staging areas for the people visiting the shrine.

Condition of Sites

Sites of the Protohistoric period face all of the threats that disturb and destroy archaeological sites generally, primarily vandalism and development. Some threats, however, are specific to Protohistoric sites, most notably the high visibility of Hopi sites in the Jeddito area, the low visibility of most other Protohistoric sites, the location of lower Colorado River Yuman sites in areas suitable for agriculture and reservoirs, and political reasons for vandalism of some types of rock art sites.

Accounts of destruction of Protohistoric sites by development are all to easy to document. Mission San Agustín was destroyed by development in Tucson. Site AR-03-04-01-797, an Apache Camp on Wet Beaver Creek recorded by Grenville Goodwin and E. B. Sayles (Coconino National Forest sites files), was covered by mobile homes in 1995. Traditional cultural properties have been extremely susceptible to destruction by development, as has been documented in news accounts about the mining of Woodruff Butte (*Arizona Republic* 1996; Kelley and Francis 1994:110, 178-179; Kammer 1998a, 1998b; Sowers 1996; Winton 1993a; Yozwiak 1992) and the construction of an astronomical observatory on Mount Graham (Genrich 1992; Hoye 1992; *The Phoenix Gazette* 1993; Winton 1993b; Yozwiak 1996).

Sites that are highly visible face the threat of pot hunting. An example of the ongoing nature and extent of this problem would be the spectacular sites of Antelope Mesa on Hopi and Navajo Nation

lands in the Jeddito area. These sites are pothunted because they are so well known and so large, and some of them contain Sikyatki Polychrome, a pottery type that is one of the most sought-after by collectors. On the other hand, these sites are on Tribal Trust lands and are protected by federal law as well as by local residents. Another example of looting that is specific to Protohistoric sites is the use of metal detectors in the search for "Spanish gold." One Arizona Site Steward has been monitoring a web site that offers stories and suggests possible site locations to search for Spanish treasure, and the Forest Service and the National Park Service have received requests to search and dig for gold on their lands (Carol Griffith, personal communication 12 March 1998). Such digging has the potential to destroy extremely rare and valuable data. Elsewhere in this report we have mentioned the great importance of trying to reconstruct the route of Coronado, which could be illuminated by recovering a crossbow bolt or a piece of chainmail, but only if the location and context of these artifacts were to be fully documented. A seeker of gold with a metal detector might toss aside a bit of metal that would alert an archaeologist or historian to the solution to one of the great historical mysteries of Arizona.

The other side of the coin is that because of the low visibility of many Protohistoric sites, particularly those of ranchería and band peoples, they are often identified only during archaeological surveys and excavations for construction projects that end up destroying the sites. Given the rarity of these sites and the tendency for them to be destroyed almost at the time of their discovery, few are left to be researched outside the context of contract archaeology. In fact, some of the best examples of sites of the period have been identified during archaeological surveys conducted for the Section 106 process and then almost immediately destroyed by excavation. Examples include England Ranch Ruin and Alder Wash Ruin (both Sobaipuri sites) and a number of Protohistoric Apache sites in the Payson area (see Ciolek-Torrello 1987; Ferg 1992).

The use of charcoal in the rock art of Yavapai, Apache, and other Protohistoric groups constitutes another example of how the low visibility of some Protohistoric sites endangers them. Charcoal rock art may appear to be quite recent and of course is easily disturbed or obliterated, and people who do not recognize the significance of the charcoal drawings may intentionally or unintentionally impact or destroy them. Faint scratching is another Protohistoric rock art technique that is also susceptible to damage or destruction because its significance is too often unrecognized.

The dearth of lower Colorado River Yuman rancherías in the site files has already been discussed. Lower Colorado River Yuman sites are perhaps the least well known of all the cultural groups. As mentioned in Chapter 2, Colton (1945) and McGuire (1982) both argue that many of these sites have probably been buried by floods, and both recommend using heavy equipment to find sites in this area. Since Colton's recommendation, however, large portions of the lower Colorado River and lower Gila River have been inundated and plowed.

The Navajo-Hopi conflict has generated another threat to sites of the Protohistoric period, as documented by Carmichael (1993). Carmichael notes that conflicts between Navajos and Hopis over eagle gathering occurred as early as the first decade of the twentieth century. More recently, Navajos have desecrated a number of Hopi sacred sites. At the site of *Nah ah tii*, in the Hopi Buttes, a

borrow pit for aggregate was developed without first going through the Section 106 process, and a Hopi eagle gathering site was destroyed. The Navajo Nation did go through the Section 106 process when improving Tse Chizzi Spring near Low Mountain but did not comply with the monitoring requirements, and a clan petroglyph and two willow trees considered sacred by the Hopis were damaged. Willow Springs, a stop on the Hopi Salt Trail where clan symbols are carved on the rocks, has been repeatedly vandalized, in some cases maliciously, in other cases because of a belief that the rock art is causing illness (Carmichael 1993). Pueblo IV period petroglyphs depicting Hopi katsinas at Homol'ovi II Ruin in Homolovi Ruins State Park have also been destroyed (Cole 1992:86).

CHAPTER 4

SCIENTIFIC AND EDUCATIONAL VALUES

In this chapter we address the values and significance that different groups attach to sites of the prehistoric to historic transition period. The Section 106 process is designed to take into account the significance of a site to different groups of people, including the general public, scholars of various disciplines, specific local communities (such as Native Americans), and avocational archaeologists and historians.

NATIVE AMERICAN PERSPECTIVES

It should come as no surprise that Native Americans in Arizona have a strong interest in the identification, interpretation, and management of Native American sites dating to the A.D. 1519 to 1692 period. What may be surprising to some is the extent to which recent legislation gives Native Americans in Arizona greater involvement in the study and protection of historical and cultural properties. In recent years, partly encouraged by new legislative mandates, Arizona tribes have published statements, guidelines, open letters in newspapers, and so forth, declaring their views on the values of Protohistoric sites. Probably the core value that has been expressed, and the primary concern associated with this value, is the value attached to large numbers of prehistoric, Protohistoric, and historic sites that are considered to be monuments to events in the traditional histories of the tribes. Of secondary importance is the pragmatic concern that historic and cultural properties can and have been used to validate land claims. Many, if not most, Native Americans in Arizona have expressed concern about using up and destroying cultural and historic properties through archaeological research. On the other hand, Native Americans may view erosion and deterioration of sites as a good and natural process that should not be artificially interfered with. In addition, many Native Americans are reluctant to see some types of information about sites or obtained from sites published or otherwise disseminated. Although some tribes have recognized the possible recreational and educational value of archaeological and historic properties, this use of sites is regarded with ambivalence. Furthermore, Native American communities in Arizona are living societies of individuals who hold diverse and sometimes conflicting opinions about any given issue, including historic preservation.

New Laws, New Mandates

Who controls the past? Until recently, it seemed to many Native Americans that the public viewed historians, anthropologists, and archaeologists as the "experts" on Native American culture and history. Many Native Americans felt that this attitude made them the passive subjects of scholarly research, with little to say about what the researchers concluded or how the results were used. Furthermore, it also seemed that historic preservation laws recognized the authority of credentialed experts over the concerns of other groups, including Native Americans. In recent years,

the *Guidelines for Evaluating and Documenting Traditional Cultural Properties*, the Native American Graves Protection and Repatriation Act (NAGPRA), and amendments to the National Historic Preservation Act (NHPA) have increased the involvement of Native Americans in decision making about the interpretation and disposition of sites.

Although the NHPA did not prevent Native American historic sites from being placed on the National Register of Historic Places (NRHP), neither did it encourage their nomination. In 1990, however, the National Park Service published the *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990), which showed how sites important in Native American traditional histories could be considered eligible to the NRHP. Because many of these types of sites were called sacred places by Native Americans and others, concern was expressed in some quarters that nominating such sites to the National Register would violate the separation of church and state. To emphasize that these sites have secular significance as well, Parker and King used the term *traditional cultural properties* to designate sites, places, or properties that are important in the traditional histories of Native American groups. This term now has such currency that it is often referred to by its acronym, TCP.

Partly in response to these legislative changes, Native American tribes and individuals have published increasing numbers of statements about the significance of archaeological sites to Native Americans. For example, Lomatuway'ma, Lomatuway'ma, and Namingha (1993) recount Hopi stories about ruins, including Old Shongopovi, Sikyatki, and Awatovi. Leigh Jenkins (Hopi) and Edmund Ladd (Zuni) present Hopi and Zuni perspectives on the old archaeological problem of what became of the Anasazi (in Judge et al. 1991; see below). Ferguson et al. (1995a, 1995b) discuss the objectives, operations of, and challenges to the Hopi Cultural Preservation Office. The Navajo Nation Historic Preservation Department contacted Navajo chapters (the local level of government) to obtain their views and concerns regarding properties of this period (Downer 1989; Kelley and Francis 1994). Various chapters expressed concern about a wide range of properties, from prehistoric sites to historic federal facilities, but they most often proposed protection for places that would be classified as TCPs. Anyon et al. (1996) discuss the use of oral traditions in archaeological research, providing Hopi, Zuni, Navajo, and Hualapai perspectives.

Footprints of the Ancestors

Jenkins and Ladd describe the Hopi and Zuni belief that archaeological sites stand as monuments to the travels of their ancestors as they searched for "the center place" (Judge et al. 1991). Ferguson et al. (1995a:12) talk about the Hopi search for the center place, during which they established "ritual springs, pilgrimage trails, shrines, and petroglyphs" and "left behind the graves of their ancestors, ruins, potsherds, grinding stones, and other artifacts to pay the mother earth for use of the area, and as evidence that they had vested the land with their spiritual stewardship." Ferguson et al. (1995a:12) add, "These archaeological sites today constitute monuments by which Hopi verify clan histories and religious beliefs, and provide physical proof that they have valid claims to a wide region." Ferguson et al. (1995a:14) further state that "shrines, sacred sites, springs, resource

collection areas, and geographical landforms with place names that commemorate prehistoric or historic events" are traditional cultural properties. "In the Hopi perspective, every ancestral archaeological site is also a traditional cultural property, because they are tangible monuments validating Hopi culture, history, and the Hopi's covenant with *Ma'saw*" (Ferguson 1995a:14).

In a talk given to the Arizona Archaeological Council, Loretta Jackson (1996) said that the Hualapai view archaeological sites as traditional sites and traditional use areas. For example, a set of metates was interpreted as having been purposely left as a family landmark, and it is recognized that personal possessions are sometimes left to mark the place where someone died. Pictographs and petroglyphs are believed to be maps showing the locations of springs, directions for doing certain things, or reminders of significant events. Thus many Native Americans emphasize that sites were not so much abandoned as purposely left as monuments to mark the passage of the ancestors. Such monuments cannot be destroyed, whether by economic development or archaeological research, without the loss of much of their meaning and feeling for Native Americans.

Native Americans, Archaeology, and Historic Preservation

Given their traditional interpretations of archaeological sites, Native Americans often have different views than historians and archaeologists about what constitutes historic preservation. Moreover, Native Americans hold a variety of opinions on the subject.

In general, the Hualapai would prefer that archaeological sites be avoided (Jackson 1996). It is permissible to repair damage to archaeological sites caused by human activities, but deterioration and erosion are natural processes that should not be interfered with. Some people are reported to have broken metates and knocked down standing walls to protect the sites from archaeologists, who are viewed as wanting to dissect them. Many elders have bad memories about the past, particularly about events associated with the Euroamerican intrusion, such as the boarding school system in which children were taken from their parents and taught to reject their culture. As a result of such memories, historic buildings are often not respected. Oral history refers to the geographical landscape and to archaeological sites. Hualapai oral history includes origin stories that describe how the animals talked and taught people how to live. The Hualapai believe that they have always been here and do not need to justify their presence. On the other hand, the 1950s land claims research collected much information on the Hualapai, although there are, of course, some errors of fact and interpretation that people would like to see corrected. Like many Indian and non-Indian people, the Hualapai often complain that there are too many laws that are too restrictive, but NAGPRA and the Section 106 process also give the Hualapai important powers.

John Welch (1996) notes that the Apaches are ambivalent about the past in general and about the dead in particular, viewing them with a respect that involves both awe and reverence. Welch summarized Apachean attitudes: (1) archaeological sites should not be disturbed; (2) if an archaeological site must be disturbed, it should be completely excavated; (3) interpretive teams of Apachean elders could be useful to archaeologists—the Apaches have a long-term familiarity with

the Southwest; (4) the White Mountain Apache tribe has a greater interest in projects near the reservation than farther away but occasionally expresses interest in projects that are as far away as central New Mexico, reflecting their past use of and current knowledge about far-flung areas of the Southwest; (5) Apaches disdain archaeologists for historical and cultural reasons and interpret many actions in light of historical injustices; (6) Apaches claim cultural affiliation to sites and artifacts that are clearly Apachean, although they recognize the cultural and genetic contribution of Puebloan groups through intermarriage and interaction, and they also recognize the Pueblos as a source of wisdom; (7) Apaches see history as continuous and believe they have been present in the Southwest since time immemorial. The inability of archaeologists to find Apachean sites dating to the same time as ancient Pueblo and Archaic sites is viewed as the result of the inadequacy of archaeological methods. The notion of prehistory seems like a non sequitur: if an event occurred before history, how would it be possible to know about it?

Navajos have a number of viewpoints about their origins and their relationship with the Anasazi. Many Navajos believe that the Anasazi became extinct and were not the ancestors of either the modern Pueblo groups or the Athapaskans. One story says that the Anasazi used a pottery design belonging to the Wind, and the Wind retaliated by burying the Anasazi and their villages under piles of windblown sand (Begay 1990). Other stories, however, describe Navajos (or Navajo supernaturals) living among the Anasazi. For example, it is said that Changing Woman and her twin sons were once traveling past Kintiel (or Wide Ruins, a site dated archaeologically to the A.D. 1200s) and were invited by the Kintiel residents to spend the night. Suspecting treachery, Changing Woman fled and hid herself and the twins in the pool of water at Taylor Springs, breathing through reeds until it was safe (Hays-Gilpin and van Hartesveldt 1998:43). Awatovi is mentioned in the Navajo Windway chant (Van Valkenburgh 1941b:6). Kelley and Francis (1994) recount a number of stories that refer to Pueblo ruins, although they conceal actual site names and locations. Some Pueblo clans have Navajo counterparts, and other Navajo clans are said to be derived from Pueblo immigrants. It has long been recognized that after the Pueblo Revolt and Reconquest, Puebloan refugees fled to Navajo country and undoubtedly intermarried with the Navajo and influenced Navajo culture (Carlson 1965; Kidder 1920). In recent years, the Navajo Nation Historic Preservation Department and the Hopi Cultural Preservation Office have engaged in a public and sometimes acrimonious debate over whether these relationships justify Navajo or Hopi control over prehistoric Puebloan sites and human remains (Downer 1994).

Woodruff Butte, south of Holbrook, is considered sacred to the Hopi, Zuni, Navajo, and other tribes. In the 1990s, the private owner of the butte began mining it for aggregate, provoking protests from various Indian tribes (*Arizona Republic* 1996; Kammer 1998a, 1998b; Kelley and Francis 1994:110, 178-179; Sowers 1996; Winton 1993a; Yozwiak 1992). Both Woodruff Butte and the debate over Navajo and Hopi cultural affiliation with prehistoric Puebloan sites and human remains illustrate the value and significance of historic properties to diverse peoples.

Uses of Native American Oral Traditions

As early as the late nineteenth century, archaeologists and anthropologists from the Bureau of American Ethnology began collecting Hopi migration stories as possible historical accounts of the gathering of clans (Cushing 1896; Mindeleff 1989; Stevenson 1904). Jesse Walter Fewkes made the most extensive and elaborate use of Hopi traditions as a way of reconstructing culture history (Fewkes 1893, 1900). He excavated sites important in Hopi traditions and tried to show the link between ceramic types and Hopi culture history. In one case, Fewkes was able to show that the Mindeleffs had probably mistaken two small Pueblo II period sites on top of First Mesa for the Sikyatki mentioned in Hopi legend; he excavated a large Pueblo IV period pueblo at the base of First Mesa, which is probably Sikyatki. In cases of other sites, however, Hopi reconstructions of their history have not been confirmed by archaeological methods, and most archaeologists after Fewkes followed the research strategy of Kidder, classifying archaeological sites by archaeological attributes and then ordering the sites chronologically, first by seriation, then by chronometric analysis.

In reaction to professional excesses at the turn of the century, the past few generations of anthropologists have avoided using traditional Native American accounts of their history, on the assumption that "myths" are functional rather than historical in nature. By doing so, we are denying ourselves a fourth source of historical data, in addition to historical records (which can be used only by assuming that culture is conservative, until forced to change), ethnographic descriptions, and archaeological data. The potential depth of oral history is indicated by the fact that the Zuni still have a tribal recollection of Coronado's arrival at Hawikuh (E. Ladd, personal communication to D. Phillips). As an example of an application to Arizona protohistory, Teague (1993) has interpreted Piman oral tradition as indicating that Pimans from outside the Salt and Gila River valleys attacked a series of Hohokam Classic period platform mound sites, eliminating the priestly leadership. Bahr (1971) also has discussed the Pima-Papago association with the Hohokam. Bronitsky (1985) discusses Papago oral history regarding the Hohokam-O'odham transition and cites several sources. Hays (1994) has traced historic Puebloan symbols into the past, documenting when and in what contexts these symbols appear on pottery and in rock art. Based on the co-occurrence of certain symbols with human figures whose sex is clearly depicted, Hays argues that these sets of symbols are gendered and, further, that the gender complementarity emphasized in historic Pueblo culture is evident in prehistoric rock art.

Johnson (1985:21-22) found that the Mohave, Hopi, and Quechan all have origin stories about intaglios near Blythe, California. The Mohave say that some of the images represent the Creation God, Mustamho, and a spirit helper and that they were made by the Mohave to obtain Mustamho's help against an evil giant. The Quechan say they constructed the images to thank the God of the Sea, Kumustamho, for destroying an evil giant. Johnson cites Waters (1971) as saying that the Hopi clans established a village at Homowala (Round Top Cap) near present-day St. George, Utah. From there they went to the Parker Valley, where the Fire Clan expelled the Water Clan and constructed "a giant representation of one of their clan deities on the west bank of the river to keep the water clan from returning" (Johnson 1985:21). The Lizard Clan went from Parker Valley to Gila Bend, where they were joined by the Snake Clan, and held foot races on a race track. (Johnson notes that near Sears

Point is a hilltop village site made of masonry, with a nearby racetrack). The Hopi clans then continued on to Sacaton, Casa Grande, and the Verde Valley, then dispersed to villages at Chuaka, Homol'ovi, Tigueovi, Canyon de Chelly, Wupatki, and Mesa Verde before gathering at Hopi (Johnson 1985:31).

The different stories of the Mohave, Hopi, and Quechan may not ultimately explain the intaglios, but they demonstrate how farflung tribes can be familiar with cultural and natural features on the landscape and how they can attach their own cultural significance to these sites. Johnson consulted Pima and Tohono O'odham traditions to interpret the Evil Giant intaglio. Yuma, Kamia/Kumeyaay, Mohave, Halchidhoma, Chenchuevi, Luiseño, and Diegueño creation stories also provided information. In similar fashion, Woodruff Butte is significant to Navajos, Hopis, and Zunis. Di Peso (1958) cites Hopi and Zuni stories in his report on Reeve Ruin, a Maverick Mountain Phase site constructed by migrants from northern Arizona in the A.D. 1200s. As mentioned above, Ellis and other researchers have interpreted shrines at caves, springs, and mountaintops in the Mogollon country in light of modern Pueblo Indian religious practices (Cosgrove 1947; Ellis 1969; Ellis and Hammack 1968; Gifford 1980; Greenwood and White 1970; Hough 1907, 1914, 1932; Morris 1982; Parsons 1933).

Bronitsky and Merritt (1986:258) describe Apachean oral histories recorded in Goodwin (1969). For example, Goodwin (1969:65) reports that Western Apache oral history describes north to south movement of the people, but three of the 60 Western Apache clans are said to have come from the west or south (Goodwin 1969:616-617, 625-629). Goodwin (1942:63) also recounts an Apache story about contact with a large prehistoric site at Dewey Flats, whose occupants were said to have moved to the Salt River to become the Pima.

Native Americans often believe that some information should not be published or disseminated (Anyon et al. 1996:16; Ferguson et al. 1995b). Anyon et al. (1996:16) state, "the Pueblo of Zuni does not encourage the use of oral traditions in scholarly research, except in a very limited fashion by researchers employed directly by the tribe." In discussing Hopi attitudes, Ferguson et al. (1995a:13) note that "report restriction created a tension between the professional ethics of the CPO [Cultural Preservation Office] anthropologists who are expected to disseminate the results of their work to other scholars, and the cultural ethics of Hopi tribal members to not divulge information." Clemmer (1995) describes the Hopi Tribe's objections to a proposed book on the Hopi Salt Journey, which included locational information on the sites along the Hopi Salt Trail. The Hopi Tribe was concerned that publication of this information would result in desecration of the sites along the trail and that information that should be known only to initiates would be made public. Eventually the author of the book agreed not to publish it. Hopi management of occupied pueblos and the site of Awatovi illustrates Native American concerns with their heritage and the educational and economic values of cultural resources of the Protohistoric period. Kelley and Francis (1994:209-220) and Begay and Roberts (1996) attempt to reconcile archaeological data and Navajo oral traditions. In their book on Navajo sacred places and landscapes, Kelley and Francis (1994) deleted locational information from the stories they recorded. Anyon et al. (1996) urge archaeologists to respect the

wishes of each tribe in using their oral traditions. Most tribes in Arizona now have cultural and historic preservation offices, providing points of contact for archaeologists and other researchers.

There are no avenues of research without problems; oral traditions are no exception. But by combining oral traditions, while respecting the concerns of Native American groups, with written records and archaeological data, we have three completely independent lines of evidence that we can apply to the understanding the Protohistoric period. Used in combination, critically, these sources may be our best chance of understanding the culture of Protohistoric peoples.

SCHOLARLY RESEARCH

The period from A.D. 1519 to 1692 has long been of interest to scholars, particularly historians, anthropologists, and archaeologists, for at least three major reasons. First, this is the period for which we have the earliest, albeit very imperfect, European descriptions. Although at times archaeologists and historians seem to have implicitly believed that these early records provided the best picture of what Native Americans were like before they were affected by European culture, researchers have long acknowledged that epidemic diseases may have reduced Native American populations and radically changed Native American societies before any direct contact. Second, sites of the A.D. 1519-1692 period are our best direct evidence for the extent of such demographic and social changes. Finally, sites of the Protohistoric period are important to archaeologists and historians because they tell us about the effects of the first European intrusions on Native Americans in the Southwest.

The primary research focus has always been the transition itself, trying to match up archaeological cultures with historic societies. A closely related question deals with changes that occurred during the Protohistoric period and their causes. Possible causes of cultural change during the transition from prehistory to history include (1) environmental changes, (2) internal factors independent of Spanish influence, and (3) Spanish exploration, missionization, and colonization.

Many issues of the period (environmental change, subsistence strategies, social organization, settlement pattern, ideology, and so forth) are similar to those investigated by social and behavioral scholars for any time and place; other issues (the migrations of particular groups of people into the Southwest) are specific to the Protohistoric period. In order to address these issues, scholars must first address the issues raised in Chapter 3 regarding the identification, dating, and classification of sites.

The Origins of Modern Ethnic Groups

We have already alluded to the problem of comparing archaeological cultures with ethnographic and historical societies. Archaeological cultures are defined on the basis of similarities in architecture, pottery, burial practices, and other material remains. Ethnographic and historical

societies and ethnic groups are defined on the basis of ethnic markers, which are socially constructed and therefore can be virtually any characteristic or form of behavior. Obviously, trying to find out what characteristics or forms of behavior were significant ethnic markers prior to the existence of written records is a daunting task, and archaeologists have almost never attempted it, preferring instead to define archaeological cultures. Furthermore, ethnicity is important only in competitive relationships between different groups. Within a society or among societies that are not in competition, differences in backgrounds are often overlooked. The Hopis recognize that they are an amalgamation of different groups, and archaeological findings and historical accounts are consistent with these Hopi traditions. The Hopi accord some clans more power and prestige than others, based on oral traditions that recount which clans arrived first. Moreover, the Hopi-Tewa of Hano, who immigrated to Hopi after the Pueblo Revolt and Reconquest, are still recognized as a distinct group. In similar fashion, the Maricopa are an amalgamation of several lower Colorado River Yuman groups. On the other hand, the Hualapai and Havasupai were probably a single group until the nineteenth century, but the Yavapai, who share the same language, have been at war with the Hualapai and Havasupai since they were first documented. Thus, although archaeologists may classify particular sites according to ethnic groups for particular purposes (see Chapter 3 and the discussion below), the study of ethnicity in the Protohistoric period is still an important research question. Future studies on this topic should focus on power and inequality within and between different groups of people, whether these groups are recognized as ethnically separate or not.

Despite the above caveats, archaeologists have discerned some possible relationships between prehistoric archaeological cultures and historic tribes. The development of modern Pueblo culture out of the Anasazi archaeological culture has already been mentioned. Many archaeologists have felt that a gap exists between the Hohokam archaeological culture and the Pima culture, which becomes archaeologically visible about A.D. 1700. Multiple hypotheses have been proposed for the origin of the Pima: (1) that the Pima developed out of the Hohokam archaeological culture (Bandelier 1892:462-464; Ezell 1963a; Haury 1945:211-212, 1976; Hayden 1957:191-201; Riley 1987:104); (2) that the Pima were indigenous to southern Arizona and ultimately overthrew the invading Hohokam (Di Peso 1956:19, 1958:175); and (3) that the Pima moved into southern Arizona after the Hohokam left (Masse 1981; Sauer and Brand 1931:117-119). Most archaeologists believe that the Patayan archaeological culture evolved into the modern Yuman-speaking tribes—the Yuma, Mohave, Cocopa, Maricopa, and Pai groups—but Schwartz (1956) has suggested a Coconino origin for the Havasupai. The Paiute, Apache, and Navajo are thought to be such recent arrivals in Arizona that no prehistoric archaeological cultures antecedent to these modern groups have been defined in the state.

The need to settle the question of control of human remains and funerary objects as required by the Native American Graves Protection and Repatriation Act (NAGPRA) forced federal agencies to come to some conclusions about the transition from prehistoric archaeological cultures to modern Native American cultures. In order to comply with this requirement, in 1996 the Southwest Region of the U.S. Forest Service compiled a set of summaries of what was known about the relationships between prehistoric archaeological cultures and modern Native American Indian tribes (FS 1996). Each summary was prepared by a professional archaeologist from the Southwest Region of the

Forest Service, the Arizona and New Mexico state offices of the BLM, or the ASM. The author of each assessment summarized "geographical, kinship, biological, archeological [sic], anthropological, linguistic, folkloric, oral traditional and historical evidence or other relevant information or expert opinion" as well as information provided by Indian tribal governments (FS 1996:iii). Table 4.1 presents the conclusions of the studies with regard to archaeological cultures in Arizona.

Of interest is how one fairly diverse group of prehistoric cultures coalesced into the O'odham and another set coalesced into the Hopi, while the Athapaskans diverged into distinct cultures. Archaeologists and anthropologists have long been fascinated by the adaptive capabilities of cultural groups, and the study of cultural adaptation was the focus of the cultural ecology movement of the 1950s and 1960s, in large part founded by Julian Steward, who had done archaeological research in the Southwest. Cultural ecologists argued that the environment included not only the natural conditions but also the social and cultural context. Spicer's (1962) *Cycles of Conquest* is perhaps the premier study of the effects of social and cultural relationships in Southwestern cultural change.

Cultural Change and Stability

The second major research issue for the transition from prehistory to history in Arizona involves documenting cultural stability and change and explaining why it occurred. Among the broadest patterns of stability and change were the following:

(1) Puebloan groups had aggregated prior to the start of the period (by about 1450), but some researchers (Dobyns 1963, 1976, 1983; Ramenofsky 1987; Ubelaker 1988; Upham 1982, 1986) think that diseases introduced by Europeans greatly reduced Puebloan populations prior to the arrival of the Coronado expedition, raising the question of how subsistence, settlement, and social organization may have changed during the period immediately before the arrival of the Europeans.

(2) The Hohokam and Saladoan archaeological cultures were transformed into historic Piman culture, involving a shift from irrigation-based, centralized communities (see the Paloparado site plan in Figure 2.5) to dispersed ranchería settlements, with concomitant changes in subsistence, social organization, architecture, and other aspects of material culture, although the timing, causes, and specifics of these changes are poorly understood.

(3) The lower Colorado River Yumans are thought to have been relatively stable in terms of general location, subsistence practices, settlement patterns, and social organization, but individual tribal territories appear to have been fairly fluid, and warfare was common, for reasons that are not known.

(4) The upland Yumans (Pai), who exhibited little cultural change, appear to have been expanding into regions formerly inhabited by Puebloan peoples, although the causes and timing of this expansion are still largely hypothetical.

Table 4.1. Relationships between Archaeologically Defined and Historically Recorded Cultures in Arizona

Archaeological Culture	**Geographic Area**	**Date Range***	**Historic Culture(s)**
Phoenix Basin Late Archaic, Hohokam, Salado	Phoenix Basin	500 B.C.-A.D. 1540	O'odham**
Virgin Anasazi	Arizona Strip	300 B.C.-A.D. 1200	Hopi
Upland Mogollon	northern Mogollon Highlands	200 B.C.-A.D.1400/1450	Zuni, Acoma, Hopi
Lowland Mogollon	southern Mogollon Highlands	200 B.C.-A.D.1400/1450	unknown; possible association with early historic groups in northern Chihuahua, Piro association with Jornada Mogollon
Hohokam	upper Santa Cruz	1-1400	O'odham**
Hohokam and Salado	Tonto Basin and Globe Highlands	100-1450	O'odham**
Verde Hohokam	lower Verde and Agua Fria	100-1450	O'odham**
Papaguería Hohokam	Papaguería	300-1400	Hohokam: O'odham** Patayan-Mohave: Quechan, Cocopah, Colorado River Tribes
Gila Bend/Lower Gila Hohokam and Patayan	lower Gila	300-1450	Hohokam: O'odham** Yuman-Mohave: Quechan, Cocopah, Colorado River Tribes
San Pedro Basin Hohokam	San Pedro Basin	300-1450	O'odham**
Tucson Basin and Upper Santa Cruz Hohokam	upper Santa Cruz	300-1540	O'odham**
Payson Tradition	Payson Basin	600-1300	O'odham**
Kayenta Anasazi	northern Black Mesa, Shonto Plateau	600-1300	Hopi
Tusayan Anasazi	southern Black Mesa	600-1400	Hopi
Sinagua	central Arizona	650-1400	Hopi
Cohonina	San Francisco volcanic field	700-1150	Hopi

Table 4.1. Relationships between Archaeologically Defined and Historically Recorded Cultures in Arizona, continued

Archaeological Culture	Geographic Area	Date Range*	Historic Culture(s)
Eastern Anasazi	Cibola area	700-1300	Zuni, Acoma, Hopi
Cerbat	northern Arizona/ Grand Canyon	700-1850	Hualapai, Havasupai, Yavapai
Anchan Tradition	Sierra Ancha	800-1400	unknown
Prescott Tradition	central Arizona highlands	900-1300	unknown
Winslow Anasazi	middle Little Colorado	1000-1400	Hopi
Hohokam/Anasazi	lower San Pedro	1150-1400	O'odham**; Hopi
Lowland Patayan/ Maricopa	lower Colorado and Gila	1200-1900	lower Colorado River: Yuman (Ft. Mojave, Colorado River Tribes, Cocopah, Ft. Yuma-Quechan) lower Gila River: Maricopa (Salt River, Ak-Chin, Gila River) desert: Yavapai
Great Basin/Numic/ Southern Paiute	Great Basin	1200-present	Paiute Tribes: San Juan Southern Paiute, Paiute of Utah, Kaibab Paiute
Sobaipuri	San Pedro and Santa Cruz	1450-1700	O'odham**
Navajo	Dinétah	1500-1760	Navajo Nation

*A.D. unless otherwise noted
**Tohono O'odham, Salt River Pima-Maricopa, Ak-Chin, Gila River

(5) The Paiute, who exhibited little cultural change, were expanding into the Arizona Strip, although the causes and timing of this expansion are not well documented.

(6) Adopting a subsistence strategy based on raiding for livestock, the Southern Athapaskans were expanding into eastern Arizona, although the cultural changes that accompanied the shift in subsistence and the timing of subsistence change and expansion are vigorously debated.

Virtually all of these generalizations have been contested and need to be better documented archaeologically. Most researchers working with the Protohistoric period have focused on changes in or stability of individual tribes or groups of linguistically related tribes, but the complex relationships between different groups of people and among different aspects of culture within any

particular group of people constitute a general research theme in studies of the transition from prehistory to history. Spicer's (1962) *Cycles of Conquest* describes (as the subtitle says) the impact of Spain, Mexico, and the United States on the Indians of the Southwest from 1533 to 1960. After describing each Southwestern Native American culture at about A.D. 1600, Spicer shows how characteristics of Spanish, Mexican, and United States colonial culture created different contact situations with different Native American groups, resulting in different patterns of acculturation.

One way of summarizing the study of cultural stability and change in the Protohistoric period—looking at individual tribes and simultaneously considering relationships between different tribal groups—is to phrase research questions in terms of major arenas and causes of cultural change: environment, subsistence, settlement, demography, social and political organization, and alliances and exchange.

Environment

Environmental change is often hypothesized as a cause for cultural and historical change. Reconstructions of past environmental changes have grown increasingly sophisticated in recent years, but questions remain about specific changes and their effects on different groups of people.

Euler et al. (1979) reconstructed the paleoenvironmental record for the Colorado Plateau by plotting data from tree-rings, pollen records, and alluvial sediments. Dean et al. (1985) used similar data to identify periods of stress for human populations practicing floodwater farming and those practicing irrigation. Periods of aggradation or stability were seen as generally favorable for agriculture, while low water tables and channel entrenchment would be deleterious for floodwater farming, and high effective moisture would be advantageous for agriculture in lowland areas. Using dendrochronological data, Graybill (1989) reconstructed the streamflow in the Salt and Verde rivers from about A.D. 740 to 1370. These reconstructions suggest that major floods in the late 1300s could have severely damaged the Hohokam canal system. Using Graybill's reconstructions as proxies, Van West has reconstructed the streamflow of the Little Colorado River from A.D. 572 to 1370 (on the middle Little Colorado River) and 572 to 1540 (for the upper Little Colorado River), which includes only the beginning of the Protohistoric period, and only for the upper Little Colorado (Van West 1993, 1994, 1996; Van West and Huber 1995). Waters (1987) has reconstructed environments along the Santa Cruz and suggests that the channel filled during the Protohistoric occupation of the San Xavier Bridge site. Studies of Patayan/Yuman culture history have focused on the filling and drying up of the Blake Sea and other lakes in the Salton and Mohave sinks in California. Rogers (1945) dated the filling of the sea to the Patayan II period (A.D. 1050-1500) but believed that by A.D. 1450 it had dried up completely or had become so salty that it would no longer support human occupations. The lacustral history of Lake Cahuilla in the Salton Sink has important ramifications for the Yuman archaeology of western Arizona, because when the lake was full (around A.D. 700 and from about A.D. 950 to 1580 [Waters 1982:289]), it had attracted Yuman settlements, and when the lake dried up (after about A.D. 1580), the Yumans were displaced.

On the other hand, we still do not know to what extent the aggregation into pueblos in northern Arizona and the dispersal into ranchería settlements in southern Arizona were driven by environmental changes. Furthermore, was the expansion of upland Yumans (Pai), Paiute, and Southern Athapaskans into areas previously inhabited by Puebloan groups influenced by environmental changes? That is, did Puebloan groups aggregate into villages because environmental changes rendered some of their territory insufficiently productive, and did Pai, Paiute, and Southern Athapaskans then move into that territory because it was sufficiently productive for their smaller populations and less agriculturally based subsistence strategies, or because environmental conditions improved?

Subsistence

Prehistorically, groups in the Southwest depended to various degrees on hunting wild animals, gathering wild plants, and cultivating domesticated crops using techniques ranging from dry farming to irrigation agriculture. As described above, environmental conditions, including stability and change, probably had profound effects on subsistence practices, even in the absence of Spanish influences. The introduction of new domesticated plants and animals by the Spaniards, though, resulted in complex changes in all aspects of native culture, from subsistence practices and settlement systems to prehistoric patterns of specialization and exchange (see below).

How dependent were different groups on agriculture? The Castetter and Bell (1942, 1951) figures on reliance on cultigens versus wild foods appear to be "guesstimates." The methodological question of how to reconstruct hunting and gathering from artifact scatters and isolates is discussed in Chapter 3.

When were European domesticated plants and animals first adopted by each group? Wheat, for example, greatly increased agricultural productivity in southern Arizona, but it is not clear how it was disseminated to different groups. In some cases wheat may have been introduced by Kino (Forbes 1965:124)[12], but in others it may have spread in advance of direct Spanish contact. For each species, we need to identify the first historically documented use, recognizing that archaeological studies may reveal that the actual first use may have been decades earlier. Finally, what was the timing of introduction of Euroamerican cultural attributes (such as horses, cattle, sheep, military technology, etc.), and what were their effects on Native American populations?

Although the Coronado Expedition brought horses and other livestock into the Southwest, the unfamiliarity of native populations with these animals would probably have prevented them from breeding any livestock they could have acquired at that time (Haines 1938a, 1938b). Instead, the

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[12]Other species spread by the tireless Jesuit include chickpeas, lentils, black-eyed peas, cabbage, lettuce, onions, leeks, garlic, anise, pepper, mustard, mint, melons, watermelons, cane, grapevines, roses, lilies, plums, pomegranates, figs, cattle, horses, burros, goats, sheep, and chickens (Hackenberg 1983:166).

acquisition of horses and livestock by native Southwestern groups seems to have occurred, and remarkably quickly, after the colonization of New Mexico in 1598. As mentioned in Chapter 2, Apachean theft of horses from Spanish and Pueblo villages was reported as early as 1608 (Hammond and Rey 1953:1059), and Hawikku was raided in 1672 (Hodge 1937). The Pueblo Revolt made even more livestock available to Southwestern tribes (Haines 1938a, 1938b). The selection of different species of livestock by different tribes and the dates at which different tribes acquired livestock was a complex process. For example, Puebloan sedentism encouraged acquisition of sheep, goats, and burros, which reinforced sedentism. Horses encouraged Apache raiding and gave the Apaches the military advantage to displace the Sobaipuri.

Settlement Systems

As discussed by Kirchoff (1954), previous researchers have identified two different settlement systems in the Southwest, variously called Pueblos versus nomadic (Goddard 1913), pueblo and village dwellers versus camp dwellers (Goddard 1921), pueblo versus Western Ranchería (Spier 1929), agricultural versus non-agricultural (Beals 1932), or pueblo versus Sonora-Gila-Yuma (Kroeber 1939). Kirchoff (1954) proposed that these lifeways might be considered adaptations to "Oasis America" and "Arid America."

This overview has suggested that three distinct types of settlement systems can be recognized: (1) the centralized pueblos of the Hopi and Zuni; (2) the dispersed ranchería settlements of the Pimans and lower Colorado River Yumans; and (3) systems of seasonally occupied camps. The three types of systems are unevenly documented and understood. The major Puebloan village sites are all well known. Puebloan use of hinterlands has not been well documented archaeologically, however, and understanding these uses is important in reconstructing both Puebloan subsistence and territoriality in the Protohistoric period, as well as Pai, Paiute, and Southern Athapaskan migrations into the Puebloan hinterlands during this time. Studies of Piman settlement systems have focused on identifying sites, particularly the Sobaipuri rancherías visited by Kino, resulting in a strong and improving understanding of these settlement systems. In contrast, almost no archaeological data exist for lower Colorado River Yuman rancherías, although a number of researchers have documented upland portions of the settlement system of these groups. Recorded Pai, Paiute, and Southern Athapaskan sites document the range of site types that occur in the settlement systems of these groups, and some attempts have been made to reconstruct localized settlement systems.

In addition, settlement systems in Arizona during the transition from prehistory to history exhibit both stability and change, both of which need to be documented and explained. Puebloan aggregation was apparently completed prior to A.D. 1450, and thereafter the locations of major pueblos remained relatively stable until the Pueblo Revolt and Reconquest. The dispersal of Hohokam nucleated settlements into ranchería settlement systems constitutes one of the most important, long-standing, ongoing research issues in the history of southern Arizona. Although the ranchería settlement system among lower Colorado River Yumans is assumed to have remained relatively stable from late prehistoric to historic times, no Protohistoric ranchería sites have been

archaeologically recorded in that area. Although Pai, Paiute, and Apachean sites have been recorded, and a number of studies of settlement systems have been conducted, much more work needs to be done to understand stability and change in these systems.

A substantial amount of adaptation in the Protohistoric Southwest involved migration. Migrations included the gathering of the clans to Hopi throughout the late prehistoric and Protohistoric period, the movement of the Paiutes into the Southwest after about A.D. 1300, the expansion of some riverine Yuman groups into Arizona after Lake Cahuilla dried up about A.D. 1580, the arrival of the Apaches in the Southwest (discussed in Chapter 2), the spread of Navajos into Arizona beginning perhaps as early as the late 1600s, the settlement of Rio Grande Puebloans at Hopi after the Pueblo Revolt (resulting in the establishment of Hano by Northern Tewa speakers and Payupki by Sandia Pueblo Southern Tiwa speakers, both from the Rio Grande in New Mexico), and the substantial tribal movement by the lower Colorado River Yuman tribes from A.D. 1540 to about 1830 (Chapter 2), including the movement of the Halchidhoma from the Bill Williams River area to join the Maricopa on the Gila River in the late 1820s.

The perceived "abandonment" of much of the Southwest between about A.D. 1250 and 1450 may be more apparent than real. We have already discussed the Native American view that their ancestors were searching for the center place and left monuments to their searches in the form of archaeological sites. The development of modern Pueblo (Hopi and Zuni) culture out of the Anasazi archaeological culture was demonstrated by Bandelier (1890-92) and Mindeleff (1989), but the theme of the "mysterious disappearance" of the Anasazi still has popular appeal. Explanations for abandonment of the upper Salt River include the Apachean invasion (Gladwin 1957) and depopulation as a result of disease, environmental degradation, and collapse of an unstable social system (Wood 1989:29). Increasingly, archaeologists have also viewed abandonment not as a single event but as a continuing adaptation to changing environmental conditions.

Demography

Population figures for Arizona during the transition from prehistory to history are contingent on two major issues: (1) what was the population of Arizona in the Protohistoric period, and (2) did population decline (and if so to what extent) during the Protohistoric period as a result of diseases introduced by Europeans? James Mooney (1910, 1928) estimated the aboriginal population of the entire Southwest (Arizona and New Mexico) at 60,000 (Table 4.2), a figure also used by Alfred Kroeber (1939). Documentary sources consulted for this study suggest that Native Americans in Arizona numbered about 50,000 to 60,000 in Kino's day. The Hopi may have numbered about 10,000 (Rushforth and Upham 1992; Whiteley 1988). Bolton (1984, citing Sauer 1935) estimated about 30,000 in upper Pimería, although Zárate Salmerón reported 20,000 people on the lower Colorado River (Bolton 1916), and Kino's itineraries suggest 4700 Sobaipuris on the Santa Cruz and San Pedro rivers, 5000 people in the Papaguería, 5000 or 6000 Pimas and Maricopas on the Gila,

Table 4.2. Mooney's Population Estimates for Indian Groups in Arizona circa 1680

Group	Population Estimate
Yuman	
Havasupai	300
Yavapai	600
Walapai	700
Mohave	3000
Maricopa	2000
Quigyuma (Jalliquamay)	2000
Cajuenche (Cawina)	3000
Halchidhoma	3000
Piman	
Sobaipuri	600
Pima	4000
Papago	6000
Athapascan	
Apache	5000 (New Mexico and Arizona)
Navajo	8000 (New Mexico and Arizona)
Hopi	2800
Zuni	2500 (New Mexico)
Total	**43,500**

From Mooney 1928:22

and several thousand other upland Pimans. No counts exist for the upland Yumans (Pai) and Apaches during this period, but one should allow perhaps 7000.

Many historians and archaeologists, however, have argued that the population in Kino's time was greatly reduced from the population that existed prior to the conquest. These researchers believe that introduced diseases greatly reduced the aboriginal population. Moreover, it is possible that some diseases could have spread north even before the Coronado entrada, rendering even the earliest

accounts of Southwestern native cultures unrepresentative of prehistoric Native American lifeways. For the Piman speakers of southern Arizona,

> It can be argued that disease did not wait upon Spanish explorers but preceded them...and that one or more epidemics had struck Pimeria by 1524. Proceeding on that assumption...the Spanish met in 1694 a society reeling under the onslaughts of repeated epidemics over a period of approximately 170 years [Ezell 1983:150].

Recently, Roberts and Ahlstrom (1995) have taken an even more provocative stance, arguing that the Hohokam Classic period may have lasted until the 1520s, at which point it collapsed catastrophically due to European epidemic diseases. Whether or not this hypothesis stands, it underscores the supposition that epidemic disease could have led to major changes in tribal distributions and practices during the 1500-1700 study period.

Dobyns (1983) argues that the population of the Southwest prior to the spread of European diseases was 600,000 (compared to Mooney's 60,000) and suggests that the discrepancy between the two numbers results from Mooney's failure to take into account massive depopulation caused by the introduction of European diseases. Ubelaker (1988) estimates that Pueblo population declined by 91%. Dobyns (1963) estimates that between A.D. 1700 and 1800, nearly 96% of the Native American population of the Santa Cruz River valley disappeared.

Using medical studies of the course of epidemic diseases in previously uninfected populations, a number of researchers have attempted to reconstruct how diseases introduced by Europeans might have spread through Southwestern groups and caused widespread depopulation (Dobyns 1963, 1983; Ramenofsky 1987:6-21; Rushforth and Upham 1992; Upham 1982, 1986). Based on descriptions of epidemics in Mexico, Dobyns (1983) argues that a smallpox pandemic spread across North America between about A.D. 1520 and 1524, although it is not certain that the disease described was really smallpox (Dobyns 1983:28-29; Gibson 1964:449; Sauer 1935). Dobyns further hypothesizes that smallpox pandemics would have occurred every generation. Upham (1982) estimates that the Hopi numbered approximately 30,000 in A.D. 1520 and that they were reduced by 30% in the hypothetical smallpox epidemic of A.D. 1520-1524 and by another 30% in a hypothetical smallpox epidemic between the Coronado Expedition in 1540, when no population estimate was made, and the Espejo Expedition in 1582, when Luxán estimated 3000 men at Hopi, and thus a population of perhaps 12,000. In fact, the first unequivocal occurrence of smallpox in the Southwest was in A.D. 1780-1781 (Bancroft 1889:266; Rushforth and Upham 1992:91; Stearn and Stearn 1945:48).

Demographic studies of Protohistoric groups need to document the amount, chronology, and differential effects of depopulation. Dispersed populations may have been less affected than more concentrated populations. If so, depopulation may have leveled the population differences among Protohistoric societies, providing new military advantages to dispersed groups.

Obviously, archaeology can contribute much data on the aboriginal population of the Southwest. In fact, this issue was recognized by A. V. Kidder. Struck by the large number of prehistoric sites in the Southwest, he wrote:

> The immense number of the ruins, however, and the vast territory which they occupy make it certain that one of three conditions, or some combination of two or more of them, must have obtained: either the population was formerly very much larger than it was in 1540; or the country was inhabited for a tremendously long time; or the ancient Pueblos occupied their villages for very brief periods [Kidder 1924:159].

Kidder was stymied by the inability to date the sites. "It will be noticed that the time element is the unknown quantity which prevents our choosing between these three possibilities. If we knew the relative date of the founding and the abandonment of every ruin in the Southwest, it would be a comparatively simple matter...to visualize the entire history of the Pueblo peoples" (Kidder 1924:159). The generations of archaeologists between Kidder and ourselves largely solved the difficult problem of dating. It remains for future generations of archaeologists to mop up the "comparatively simple matter" of resolving the population paradox. "Our task...is...to locate all the ruins and record their size...the length of their occupancy, and their age relative to each other; and...to establish their age...according to the years of our own calendar" (Kidder 1924:159). It is not quite so simple as that, however. In order to estimate population based on archaeological evidence, archaeologists must consider numerous variables associated with site use. The estimate of population based on pueblo room counts must take into account (1) the number of people who occupied a room or suite of rooms, (2) how long the rooms were occupied, and (3) the portion of a site that was occupied at any one time. Settlement systems of rancherías and seasonally occupied camps present even more interpretive difficulties. Nonetheless, Kidder's recommendation that archaeologists need to identify sites, record their size, establish their date, and determine their length of occupancy remains valid advice in terms of evaluating wildly varying estimates of the prehistoric population of Arizona.

Social and Political Organization

One of the key questions about the transition from prehistory to history is the extent of the difference between prehistoric and historic social and political organization. Many interpretations of prehistoric Native American social and political organization are based on historic accounts. Such interpretations need to take into account (1) Spanish hegemony and interference with native traditions, (2) the possibility that depopulation reduced political and social complexity, and (3) the accuracy of early observations. The Spanish mission system, which reached Puebloan groups first, Piman groups second, and other groups hardly at all, forcefully took control of both economic production and political organization, which would have indirectly affected even non-Puebloan and non-Piman groups through disruption of trade relationships and alliances. And even if European diseases did not depopulate Native American groups in Arizona, such processes as the aggregation of population into large Pueblo towns and the shift from Hohokam village settlement systems to

O'odham ranchería settlement systems would have been accompanied by social and political changes.

Again and again, ethnographic statements about early historic tribes in Arizona state that chiefs and other leaders had limited roles and that they did not command, they merely exhorted. The odd thing about this apparent lack of power is that evidence of powerful leadership is everywhere: in villages held together, battles fought with other tribes, revolts attempted against the Spanish, irrigation systems built, ceremonies organized, and so on. Dobyns (1974b), for example, notes that one historic leader of Kohatk organized warriors to help fight nomads in the San Pedro valley and went there to trade food; Dobyns goes so far as to compare early Piman leaders to ethnographic "big men" whose power, though based on voluntary support, is quite real. McGuire and Schiffer (1982:92) also raise the "big man" analogy in discussing Yuman leadership.

It is important to remember that social hierarchies always involve an *ideology* of hierarchy, which is the set of beliefs that leaders assert (and followers accept) to justify the hierarchy. For leaders in Protohistoric Arizona, part of the necessary ideology may have been a degree of self-effacement that was in contrast to actual power, and the normative statements provided earlier in this study about the limits of such power may be misleading. The problem, of course, is that where the ideology of power involves leaders not setting themselves above followers, the leaders become difficult to distinguish in both documentary and archaeological terms. We have no easy answers to provide, but wish to indicate that the presence or absence of formal leadership in a society is not determined simply by the presence or absence of individuals who live in more elaborate homes, order lackeys about, consume more prestige goods, and get buried with more offerings. When the Protohistoric period yields evidence of large, effectively organized populations, that evidence should lead us to expect the existence of formal leadership even when such leaders are not immediately apparent.

Alliances and Exchange

The way Cabeza de Vaca traveled from tribe to tribe and the way news of the Coronado expedition spread throughout the Southwest both suggest just how much interaction peoples of the Southwest had with each other in the prehistoric and Protohistoric period. Coronado reported that the people of the Chichilticale area traveled to the sea (the Gulf of California) to fish (Winship 1990:178). At the mouth of the Colorado, Alarcón met a man who had just returned from Zuni and who knew that Estevan had been killed. A day later, two men returned from Cibola and reported that white men like Alarcón, who had "things which shot fire," had arrived at Zuni (Winship 1990:58-59). The Spaniards disrupted prehistoric alliances and exchange systems. Many utilitarian items and subsistence goods were replaced by Spanish products; the Puebloans especially no longer obtained meat through hunting or trade with the more nomadic groups, but instead began to raise livestock, which would have disrupted trade relations between the Puebloan groups and other tribes. Cotton was replaced by wool, so the cotton exchange would have been disrupted. Exchange in ritual items such as copper bells, macaws, and turquoise appears to have diminished in early historic times.

On the other hand, the large amount of obsidian at Awatovi and accounts of agave exchange suggest that some utilitarian items continued to be traded. In fact, Shackley (1997) conducted X-ray fluorescence analysis to identify sources of obsidian found at ancestral Hopi pueblos, including Awatovi. Pai sites with Hopi pottery and Navajo sites with Hopi and Zuni pottery provide further evidence of continued trade between different groups. Bishop et al. (1988) have shown that neutron activation analysis of Hopi Yellow Ware can often trace sherds, not just to Hopi generally, but to the specific village where they were manufactured.

Stone (1986, 1987) cites White's (1974) description of alliances among the different groups of western Arizona and southern California during the early historic period (Figure 4.1). These alliances may be archaeologically visible in the distribution of Hopi pottery on prehistoric and Protohistoric sites. Nine of the 37 Pai, Hualapai, and Havasupai sites in our inventory have prehistoric and Protohistoric Hopi pottery on them; none of the 22 Yavapai, 10 Yavapai/Apache, or 25 Western Apache sites do. Hopi and Zuni pottery are common on Gobernador Phase Navajo sites in northeastern Arizona (Gilpin 1996; Lee 1966). On the other hand, the destruction of Awatovi by the other Hopi pueblos dramatically illustrates that "tribes" as defined historically did not necessarily function as integrated polities. (Similarly, during the Gobernador Phase, a band of Navajos allied themselves with the Spanish against other Navajos, becoming known as "Enemy Navajos.")

The role of warfare during the Protohistoric period has received greatest attention with respect to the lower Colorado River Yuman tribes, where warfare was extremely common in historic times (Stone 1986, 1987). Emphasizing the role of warfare and an expanding population on settlement locations, Colton (1945) noted that the Maricopa, Halchidhoma, Kohyana, and Halyikwamai settled on the Gila Trail, the Yavapai settled on the Bill Williams River, and the Hualapai and Havasupai settled on the Northern Trail. Although the Hopi were described as warlike in the earliest Spanish documents, many defensive structures and much of the warfare in the Protohistoric Southwest date to the period of the Reconquest and later, when the Hopi relocated pueblos from the bases to the tops of mesas, Apaches attacked Sobaipuri communities (1690s and later), Spanish missions (1690s and later) and presidios (1700s) were established in southern Arizona, and Navajo pueblitos and other defensive sites began to be constructed in Arizona (circa 1759-61).

Ideology

The formation of and changes in ethnic groups have been discussed throughout this report as perhaps the single most important research question pertaining to the A.D. 1519 to 1692 period. Ethnic groups are united and distinguished from others by ideology. In recent years, scholars have begun exploring how ideology is manifest in the archaeological record, particularly in pottery and rock art. Much work on ideology as it is expressed in rock art and pottery has focused on Hopi traditions, particularly katsinas (Adams 1991; see also Cole [1992] for katsinas in rock art and Hays (1994) for katsinas on pottery). Michaelis (1981) describes the significance of Tutuveni (Willow Springs), a Hopi rock art site associated with the Salt Trail. Hantlipinkia, a rock art site that figures in Zuni migration stories, was mentioned by Cushing (1896) and Stevenson (1904), but has never

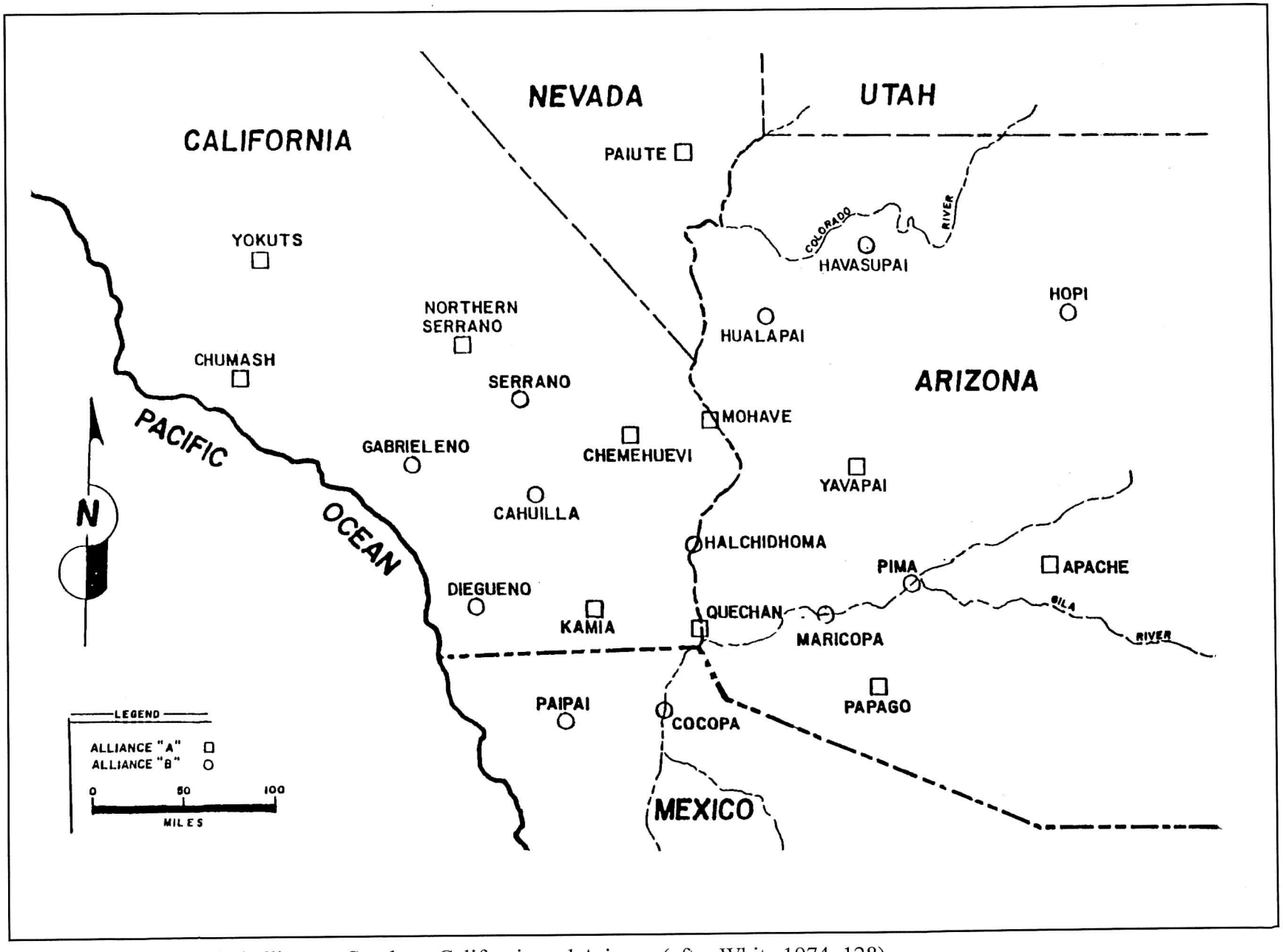

Figure 4.1. Historic tribal alliances, Southern California and Arizona (after White 1974: 128).

been fully described. Johnson (1985) shows how geoglyphs represent the ideology of lower Colorado River Yuman tribes. Pai rock art has been reported in the Grand Canyon (Ahlstrom et al. 1993:94) and elsewhere, and Coconino National Forest archaeologist Peter Pilles has accumulated extensive data on Yavapai rock art (Peter Pilles, personal communication 2 May 1998; Pilles and McKie 1998). Paiute rock art also has been reported in the Grand Canyon (Ahlstrom et al. 1993:94; Bungart 1994:93). Although an extensive literature on Navajo rock art exists (Schaafsma 1992), none of it deals with any examples in Arizona that date before the 1700s. Traditional cultural properties and place names also can provide important information on ideology and territorial boundaries, but some of this information may be considered sensitive by the tribes. Migration stories and other traditional histories reference specific landmarks (Cushing 1896; Johnson 1985; Kelley and Francis 1994; Stevenson 1904). As will be discussed in the next chapter, traditional cultural properties may be nominated to the National Register of Historic Places without revealing sensitive or proprietary information (although the overall significance of the site must be documented).

Defining Material Culture

What was the material culture of various groups during the Protohistoric period? The usual archaeological approach is to identify the early material culture of historic Native American groups in order to identify such groups at Protohistoric sites, but in many cases (such as the Hualapai) the documentary or ethnographic evidence on material culture dates to well after the abandonment of traditional technologies such as stone flaking or even pottery making. In such cases, archaeologists must *build* an understanding of Protohistoric material culture from scratch, and then compare their Protohistoric data to those from historic or ethnographic accounts in order to document the timing and nature of displacement of Native American by Euroamerican technology.

EDUCATIONAL AND RECREATIONAL VALUES

All of these research questions are potentially of interest to the general public. Moreover, sites of the Protohistoric period are of special concern and interest to Native Americans (as well as others) because they relate to the origins of modern cultures. Perhaps the greatest benefit that could be derived from educating the public about the Protohistoric period is demonstrating the connections between archaeological cultures and historic Indian societies. Such a program would show that the architectural and artistic achievements of prehistory were not the work of vanished civilizations, as they are often presented to the public, but were instead the creations of ancestors of living peoples. Although some sites are preserved well enough to be easily interpreted to the public, the overwhelming majority are probably too ephemeral for public visitation and education. Interpreting the sites that are highly visible presents two challenges: (1) interpreting them in ways that are sensitive to Native American concerns and (2) protecting them from vandalism.

One problem with public interpretation of sites of the Protohistoric period is that, with rare exceptions, the sites lack the standing architecture that is relatively easy to understand and interpret and that is therefore preserved in most national, state, and local parks and monuments. Exceptions include the Hopi pueblos and Protohistoric ruins. The Hopi tribe has at times in recent years considered developing the site of Awatovi for public visitation. In 1980 Arizona State University prepared a management plan for the site, which is on the National Register of Historic Places (Redman, James, and Notarianni 1990). Certainly one of the critical issues facing the Hopi with regard to public visitation at Awatovi concerns Hopi ambivalence about its destruction. In addition, Hopis (and most Native American groups) are ambivalent about tourism generally, seeking to balance the economic benefits against the intrusions of tourism. Currently occupied pueblos at Hopi, several of which date to the Protohistoric period, are open to public visitation with restrictions (see Clemmer 1995).

The Spanish missions of southern Arizona date to the historic period but were generally built at older rancherías. These sites, several of which are already preserved as parks and monuments (e.g., Tumacácori, Tubac, Guevavi), are tourist destinations and probably offer the best opportunities to interpret the rancherías of southern Arizona.

Rock art sites have become increasingly popular with the public. Although rock art of the Protohistoric period is not well known, some sites are quite spectacular. The challenges of public education at these sites are, as mentioned above, interpreting them in ways that are sensitive to Native American beliefs and protecting them from vandalism. For example, Willow Springs (Michaelis 1981) is on the Hopi Salt Trail, and the Hopi may prefer that it not be interpreted for fear of revealing knowledge that should not be public and not be visited for fear of vandalism, which has already occurred (Carmichael 1993; Clemmer 1995:284). That this site is on Navajo Nation lands further complicates its management and preservation. The intaglios of southwestern Arizona, many of which are on public land, are open to public visitation, which has resulted in their degradation.

One of the greatest challenges facing archaeologists is expunging the popular myth that prehistoric societies, represented by archaeological cultures such as the Hohokam and Anasazi, simply disappeared. This notion is not only incorrect but harmful, as it denies a long-term Native American history in the Western Hemisphere, it implies that the Native Americans encountered by the European explorers and colonists were incapable of the cultural, artistic, and architectural achievements of prehistory, and it discounts the interest of Native Americans in their own history. The belief that Native Americans could not have constructed the prehistoric monuments of the present-day United States has a long history, from the moundbuilder myth to beliefs that Aztecs constructed the ruins of the Southwestern United States. In the late nineteenth century, Cyrus Thomas's study of the mounds of the eastern United States demonstrated that they were built by Native Americans, and Lewis Henry Morgan initiated a program (Lange, Riley, and Lange 1984)—carried out by Adolph Bandelier (1890) and the Mindeleff brothers (C. Mindeleff 1895, 1896a, 1896b, 1897a, 1897b, 1897c, 1897d, 1898a, 1898b; V. Mindeleff 1989)—to demonstrate the similarity of prehistoric and historic Native American architecture in the Southwest. (Morgan's program would not be seen as entirely benign today, as he was trying to show that all of the Native

American architecture in North America exemplified the stage of Barbarism [Morgan's term] in social evolution.) Despite more than a century of debunking, these myths persist, most often in popular presentations, but all too often reinforced by museum displays and statements by archaeologists.

By requiring museums and federal agencies to identify and acknowledge cultural affiliations between past and present Native American societies, the Native American Graves Protection and Repatriation Act (NAGPRA) may go a long way in discounting the myth that archaeologically identified prehistoric cultures disappeared. The recent volume by the Southwest Region of the U.S. Forest Service on cultural affiliations between prehistoric archaeological assemblages and modern southwestern Indian tribes (FS 1996) is an example of this process.

The ongoing trend for Arizona's Indian tribes to establish and strengthen their own historic preservation departments should also result in a greater emphasis on continuity between the past and the present. The increasing involvement of Indian tribal governments in commmenting on and approving archaeological research has resulted in greater recognition of the meaning of archaeological sites to Native Americans. Public archaeology at Elden Pueblo by Coconino National Forest and at Homolovi Ruins State Park by the Arizona State Museum are examples of excavations that explicitly recognize the sites as ancestral Hopi.

Additional work needs to be done. (1) In talking to the news media, archaeologists should emphasize the difference between archaeological cultures and living cultures and note that the difficulty in making the transition from prehistory to history is in large measure a difficulty in synthesizing different kinds of information, not evidence for cultural discontinuity. (2) Involve Native Americans. As Loretta Jackson (1996) has remarked, the work of the Land Claims archaeologists, anthropologists, and historians was good, but there are some errors that need to be corrected. (3) Educate the public on sites and archaeological projects that exemplify continuity. Historically, archaeologists picked sites to bridge the gap: Pecos in New Mexico, Hawikuh at Zuni, Awatovi in northern Arizona, the Sobaipuri sites of southern Arizona excavated by Di Peso, Haury's attempt to excavate Batki. These sites could be highlighted during Arizona Archaeology Month activities, discussed in books or articles about some of the classic projects, and presented in literature for schools and scout groups. (Brochures such as the Landmarks at Risk brochure on Awatovi [NPS n.d.] could fill a number of needs in historic preservation, from alerting the public to preservation needs to helping scouts complete the literature search required for the archaeology merit badge [Skinner et al. 1998]).

CHAPTER 5

EVALUATING NATIONAL REGISTER ELIGIBILITY

As noted in Chapter 1, the National Historic Preservation Act (NHPA) of 1966 established the framework for most historic preservation activities in the United States: the National Register of Historic Places, the Advisory Council on Historic Preservation, state historic preservation programs, and the Section 106 process, whereby federal agencies are directed to take into account the effects of their actions on historic properties and archaeological sites. In this chapter, we will discuss how to evaluate the identified Protohistoric sites with respect to their eligibility to the National Register. Key issues include the small number of sites dating to this period and the values associated with these sites.

WHAT THE LAW SAYS

The federal regulations for the NRHP were elaborated in 36 CFR Part 60. In order to be eligible for the NRHP, districts, sites, buildings, structures, or objects have to possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of four criteria:

(a) association with "events that have made a significant contribution to the broad patterns of our history";

(b) association with "the lives of persons significant in our past";

(c) embodiment of "the distinctive characteristics of a type, period, or method of construction" or being representative of "the work of a master" or possess[ing] "high artistic values" or... represent[ing] "a significant and distinguishable entity whose components may lack individual distinction"; or

(d) "hav[ing] yielded, or...be[ing] likely to yield, information important in prehistory or history" [36 CFR 60.4].

This chapter follows the National Register Bulletin entitled *How to Apply the National Register Criteria for Evaluation* (NPS 1991b) in both its recommendations and its organization. The Bulletin itself should be consulted for more information about how to apply the criteria for evaluation.

WHAT THE INVENTORY SHOWS

Nine sites that may have components dating to the study period are already on the National Register:

(1) Awatovi, Navajo County, a Hopi pueblo dating from A.D. 1200 to 1700, named a National Historic Landmark in 1964, eligible under Criterion D (Greenberg and Marusin 1976:39; NPS et al. 1994:31);

(2) Old Oraibi, Navajo County, a Hopi pueblo dating from A.D. 1300 to present, a National Historic Landmark eligible under Criterion D (Greenberg and Marusin 1976:39; NPS et al. 1994:31);

(3) Tutuveni, Coconino County, a Hopi rock art site, eligible under Criterion D (NPS et al. 1994:26);

(4) Quiburi, Cochise County, occupied from A.D. 1200 to 1780, a seventeenth-century Sobaipuri site and an eighteenth-century Spanish presidio, eligible under Criteria A, C, and D (Greenberg and Marusin 1976:37; NPS et al. 1994:24);

(5) Tumacácori, Santa Cruz County, a Spanish mission established in A.D. 1691 at the site of a Pima village and abandoned in 1844, eligible under Criteria A, C, and D (Greenberg and Marusin 1976:40; NPS et al. 1994);

(6) Guevavi, Santa Cruz County, a Pima village and Spanish mission established in A.D. 1701 and apparently re-established in 1751, abandoned by 1775, a National Historic Landmark eligible under Criteria A, B, and D (Bronitsky and Merritt 1986; Greenberg and Marusin 1976:40; NPS et al. 1994:34);

(7) San Xavier del Bac, Pima County, a Spanish mission established in A.D. 1700 at the site of a Pima village and still in use, a National Historic Landmark eligible under Criteria A and C (Greenberg and Marusin 1976:40; NPS et al. 1994:32);

(8) Montezuma's Head, Pima County, Tohono O'odham traditional cultural property, eligible under Criteria A and B (Ruppert 1997).

(9) Ripley Intaglios, Yuma County, A.D. 1540 to 1850, eligible under Criterion D (Greenberg and Marusin 1976:30; NPS et al. 1994:36).

Of these sites, only Awatovi dates primarily to the prehistoric to historic transition period.

Two sites are listed on state and local registers:

(1) Babocomari, in the Fairbanks area, a Sobaipuri site (Bronitsky and Merritt 1986:402);

(2) Salero Mine, in the Santa Rita Mountains near Tumacácori, dates from the 1600s to the 1800s (Bronitsky and Merritt 1986:437).

In addition, a National Register Nomination is still pending for Quitobaquito Springs, Organ Pipe Cactus National Monument, Pima County, a pond and water source with Archaic, Patayan, and Mission period material (Kino visited the site), occupied by Sand Papago from about 1890 to 1945 (Anderson 1986; Bell, Anderson, and Stewart 1980; Brew and Huckell 1987:179). The National Register form states, "Protohistoric Material: A.D. 1450-1700, not yet identified but expected" (National Register Nomination Form 1996, pending).

EVALUATION OF SIGNIFICANCE

Sites or properties may be nominated to the NRHP based on local, state, or national significance. According to *How to Apply the National Register Criteria for Evaluation* (NPS 1991b:9), prehistoric (and presumably, in this case, Protohistoric) sites are usually not considered to be of statewide significance, because such sites date before states were established. Instead, Protohistoric sites would normally be considered to be of local or regional significance. Most of the Protohistoric sites in Arizona relate to the history of particular Native American groups who have occupied a portion of Arizona and sometimes portions of neighboring states. Therefore the significance of most Protohistoric sites in Arizona should be evaluated in the context of local or regional cultural development and history. In practice, however, archaeological sites that are related to an important historic theme for the state—in this case, the transition to history—will usually be nominated under the state level of significance. This would be true even if the property or properties, and the region they represent, extend beyond the boundaries of the state. Furthermore, precedents exist for considering many Protohistoric sites in Arizona to be of national significance. Prehistoric and historic units of the National Park System (such as Tumacacori National Monument) and National Historic Landmarks (which include Awatovi, Oraibi, Guevavi, and San Xavier del Bac) are considered to be of exceptional significance in illustrating the heritage of the entire United States. Sites that are associated with such broad themes as the European exploration and colonization of the United States (for example, the routes of Coronado, Oñate, and de Vargas, the Awatovi mission, or the missions of Father Kino) or that constitute an exceptionally valuable resource for the study of a style or period (Awatovi again, as well as perhaps some of the Sobaipuri rancherías) may also be considered of national significance. To nominate a site to the National Register as nationally significant, the guidelines in NPS (1987) and NPS (1991b:50-52) need to be followed.

Criterion A

To be eligible under Criterion A, a site or property must be "associated with events that have made a significant contribution to the broad patterns of our history" (36 CFR 60.4). To nominate a site to the NRHP under Criterion A, then, the major considerations are (1) to identify the event, (2) to explain the historical significance of the event, (3) to identify the site and its boundaries, and (4) to demonstrate the association of the site with the event. The significant events in the Euroamerican written history of the Southwest, described in Chapter 2, include: (1) the exploration of the Southwest by Cabeza de Vaca, Fray Marcos de Niza, the Coronado expedition and Alarcón, the Espejo expedition, the journey of Oñate to Hopi and of Farfán to the Verde Valley mines, and the Oñate expedition to California; (2) the missionization of Hopi and Zuni; (3) the Pueblo Revolt; (4) the Reconquest by de Vargas; and (5) the missionization of southern Arizona by Kino. Sites or properties associated with these historical events, processes, and patterns have commonly been considered eligible to the NRHP under Criterion A, although for sites dating to the prehistoric to historic transition period, perhaps the greatest challenge is demonstrating association. Previous chapters (especially Chapter 2) have discussed the conflicting interpretations of whether certain Sobaipuri sites can be identified as specific locations visited by Kino and Manje. Unless these conflicting interpretations can be resolved, these sites would not be considered eligible to the National Register under Criterion A. On the other hand, the location of Awatovi is not in dispute, and it is on the National Register (although it was nominated under Criterion D, not A).

It is less common to consider archaeological sites or properties to be eligible to the NRHP based on their association with events that are not documented in written history. Both the archaeological research values and the Native American values discussed in Chapter 4 reference such events, processes, and patterns that nonetheless occurred and contributed to the broad patterns of our history. For example, the effects of diseases introduced by Europeans on Native American populations in Arizona are not specifically mentioned in historical documents of the A.D. 1500s and 1600s and are not even well understood, but archaeological and historical data do suggest that this depopulation occurred and contributed to the broad patterns of our history. The same could be said for any of the research topics discussed in Chapter 4. In practice, however, it is difficult to nominate properties by reference to such broad patterns and processes, because of the difficulty of demonstrating integrity of association. The Sobaipuri living at a seventeenth-century site might well have experienced early contacts with the Apaches—unarguably a significant event in Southwestern history—but the National Register would require substantial evidence of this contact, perhaps in the form of trade goods or archaeological evidence of conflict with Apaches.

On the other hand, Native American groups have oral traditions that describe the search for the center place. (As a specific example, the Hopi Tribe has argued that since archaeological sites were monuments to the search for the center place by Hopi ancestors, the sites should be considered for eligibility under Criterion A [Ferguson et al. 1995a]). *How to Apply the National Register Criteria for Evaluation* (NPS 1991b:13, 26-27) and the *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990) recognize that places that figure in a

community's oral history may be eligible to the NRHP under Criterion A, if their importance has been ethnographically documented and if these sites can be clearly defined.

In addition to retaining integrity of association, a property nominated under Criterion A must visually convey its significance. Integrity of location, design, setting, materials, workmanship, and feeling all contribute to the ability of the property to convey its significance visually. A rock art site that is significant because it marks a historically significant pilgrimage route conveys that significance visually if it retains integrity of location (that is, it is in its original location), design (individual glyphs and their relationships to each other have not been altered), setting (topographic features, vegetation, and views of the surrounding landscape have not changed), materials and workmanship (glyphs have not been chalked, repecked, painted, or otherwise vandalized), and feeling (the other qualities of integrity convey the historic sense of the property). In similar fashion, a shrine on a prehistoric site might visually convey the long-term recognition of that site as a monument to a migration story in a way that a newly recorded archaeological site lacking such a shrine would not. Awatovi in its ruined state might convey a sense of its destruction and thus might be considered eligible under Criterion A (although it was actually nominated under Criterion D). On the other hand, a Sobaipuri site visited by Kino, but currently buried and evident only as an artifact scatter, would lack integrity of design (relationships between structures would not be visible), setting (relationships between the cultural and physical environment would no longer be visible), materials and workmanship (the original materials used in the structures and the ways they were combined in construction no longer exist), and feeling (because of the lack of the other qualities of integrity, the site would no longer visually convey the sense of an occupied village of potential converts). Therefore, this site would not visually convey its historical significance and would probably not be eligible under Criterion A.

In evaluating whether a site retains integrity under Criterion A or B, it is common to ask whether the participants in the historic event would recognize the site today. Integrity of location, design, and material are critical to eligibility of properties under A and B, and integrity of feeling and setting add to a property's "recognizability." For example, Montezuma's Head, a peak in the Ajo Mountains, is a traditional cultural property listed on the National Register of Historic Places under Criteria A and B for its significance in Tohono O'odham traditional history and for its association with a particular supernatural being. Integrity of association with the events described in Tohono O'odham traditional history is supported by undeniable integrity of location, setting, and materials, and by the affirmation of the Tohono O'odham that the location retains integrity of feeling. Neither Zuni Heaven (classified above as a Zuni traditional cultural property) nor Hantlipinkia (classified above as a Zuni rock art site) is on the National Register, but each would appear to have well-documented association with events in Zuni traditional history (Beeson 1966; Cushing 1896; Roberts 1931; Stevenson 1904). On the other hand, the mining of (a Zuni and Hopi traditional cultural property) may have so altered the materials and overall shape of the butte that it may not pass the "recognizability" test. Moreover, the features described by Fewkes (1898b) and Hough (1903) have apparently been destroyed, eliminating integrity of design, materials, and workmanship. Despite the damage to Woodruff Butte, though, the Hopi Tribe still considers it significant and has persisted in

efforts to prevent its total destruction. Thus, although the butte retains essential qualities of integrity to the Hopi, it may not necessarily meet the criteria needed for listing on the National Register.

The Keeper of the National Register has recently attempted to clarify the guidelines for nominating traditional cultural properties and archaeological sites under Criterion A (Shull 1997). She reiterated the need to identify the event, identify the place and define its boundaries, and demonstrate that the association between the event and the place is at least 50 years old. Recognizing that the significance of many traditional cultural properties relates to sacred and confidential knowledge, she reaffirmed that documentation on such properties may provide the minimal amount of information needed to understand the cultural significance of the property. She further pointed out that sites need to be evaluated individually and requested that state historic preservation offices (SHPOs), federal agencies, and Indian tribes involve the National Register staff in discussions about applicable criteria, integrity, and level of documentation *for specific properties*. Finally, she emphasized that (a) not all archaeological sites are eligible under Criterion A, (b) not all traditional cultural properties are eligible to the National Register, and (c) a determination that a property is not eligible is not a judgment about particular cultural values or beliefs.

Criterion B

Eligibility under Criterion B requires that a site or property be "associated with the lives of persons significant in our past" (36 CFR 60.4). The National Register Bulletin entitled *Guidelines for Evaluating and Documenting Properties Associated with Significant Persons* (NPS 1990) provides guidelines for evaluating properties associated with significant persons. This criterion is most commonly applied when it is possible to demonstrate (1) that a site or property is associated with a named individual and (2) that the site or property is where a significant event in the life of that individual occurred. Moreover, the event that occurred at the site must be significant in terms of the events that make an individual significant in history. Thus, birthplaces, schools attended, wedding sites, and other such places that are associated with significant people but that are not relevant to a person's historical significance are not usually considered eligible to the National Register. In the case of the earliest Spanish inscription in Arizona (at Hoye Spring near Steamboat), an individual (P. Montoya) is named, but neither his significance in history nor the significance of Hoye Spring in his life is known, and thus this site would probably not meet Criterion B. As was true for Criterion A, one of the greatest challenges to nominating a site of the prehistoric to historic transition period to the National Register under Criterion B would be demonstrating association. For example, it seems unlikely that it would ever be possible to identify an Arizona site that is clearly associated with Cabeza de Vaca, although a recently discovered site in the Texas Panhandle may have such an association (Hartmann and Hartmann 1996). On the other hand, it may be possible to identify campsites of the Coronado Expedition, and these could be nominated to the National Register under Criterion B, because the expedition is the most significant event in the lives of such individuals as Fray Marcos de Niza and Coronado. Father Kino and his associates visited and mentioned numerous communities in southern Arizona. In nominating any of these sites to the National Register, key issues would be (1) demonstrating the significance of Kino's activities at the site in relation to the

significance of his ministry and exploration, and (2) demonstrating association. As was mentioned in the discussion of Criterion A, disagreement about the identification of Santa Cruz de Gaybanipitea—associated with Kino, Manje, and the Sobaipuri headman Coro—would prevent any archaeological site identified as Gaybanipitea from being placed on the National Register under Criterion B until such problems of association could be resolved.

Sites associated with individuals mentioned in Native American oral traditions might be considered eligible to the NRHP if the significance of the individual to the Native American community could be demonstrated. Parker and King (1990:11) argue that both individuals who had a human existence and supernatural beings important to a community qualify under Criterion B. For example, Montezuma's Head is listed on the National Register under Criterion A, for the events that occurred there according to Tohono O'odham traditional history, and under Criterion B, for the supernatural being who is associated with the mountain. Some Native American groups have criticized the insistence on restricting Criterion B to named individuals of special historical significance, claiming that all of their ancestors are significant and arguing that existing National Register guidelines do not adequately take into account Native American concepts of historical significance and thereby exclude Native American history from recognition on the NRHP (Ferguson et al. 1993a). As currently written, however, the National Register guidelines explicitly state that specific individuals (whether human or supernatural, as suggested by Parker and King [1990:11]) must be identified and their historical significance must be documented in order for sites associated with them to be considered eligible to the NRHP.

As was true for Criterion A, integrity of association, discussed above, and the "recognizability" test are the most important qualities of integrity in evaluating properties under Criterion B. It is therefore common to ask if the person who imparted significance to the property would recognize the site today. If the location, design, setting, materials, workmanship, and feeling of the property have remained essentially unchanged since the period of significance, the site would be recognizable.

Criterion C

To be eligible under Criterion C, a site or property must embody "the distinctive characteristics of a type, period, or method of construction, or...represent the work of a master, or...possess high artistic values, or...represent a significant and distinguishable entity whose components may lack individual distinction" (36 CFR 60.4). Criterion C is usually applied when a site or property includes architecture, landscape architecture, engineering, or artwork, but *How to Apply the National Register Criteria for Evaluation* (NPS 1991b:18) recognizes that archaeological sites that exhibit "important concepts in prehistoric community design and planning" also qualify. Thus, although archaeologists rarely consider Protohistoric sites as eligible to the NRHP under Criterion C, sites that include structural remains or that exhibit community planning (such as ranchería settlements) or both could be determined eligible to the NRHP under Criterion C. Rock art and geoglyphs would also be likely to meet this criterion, particularly examples that represent a specific style or that have high artistic value. In practice, however, sites nominated under Criterion C are usually of four types: (1)

a rare example of a once-common type; (2) the best example of a common type; (3) an example of a transitional type; or (4) an unusual example of a type. Furthermore, as was true for sites nominated under Criterion A, sites nominated under Criterion C should convey their significance visually. Rock art and geoglyphs, better than all other types of Protohistoric sites, still visually convey the "distinctive characteristics" required under Criterion C. A Yavapai rock shelter with roasting features and a smoke-blackened ceiling would visually convey concepts in Protohistoric community design in ways that an artifact scatter from a lower Colorado River Yuman settlement would not. On the other hand, an upland Yuman or Piman resource procurement area that consists of an artifact scatter, grinding stones, grinding surfaces, and roasting features in an undisturbed environment would visually convey the organization of gathering camps in a way that could make the site eligible for the National Register under Criterion C.

Demonstration of integrity is of paramount importance in nominating properties under Criterion C. In the examples of rock art, geoglyphs, rock shelters, and gathering areas, integrity of location and design is demonstrated by the presence of immovable features such as intact geoglyphs, rock outcrops, overhangs, roasting features, and grinding stones and surfaces. When evaluating the integrity of properties nominated under Criterion C, it is common to ask whether the people who created the property would recognize it today. Rock art sites and geoglyphs that are recognizable today would probably be recognizable to the people who created them, as would rockshelters and gathering areas that were not greatly modified by their occupants, because overhangs, smoke-blackened ceilings, roasting features, and grinding surfaces would appear little changed since they were in use. Setting and feeling, however, would probably have to have remained unchanged if rock art, geoglyphs, rock shelters, and gathering areas were to pass the "recognizability" test. In addition, materials and workmanship must have remained largely unchanged if a site is to be nominated under Criterion C. Integrity of materials and workmanship would more likely be retained at a Protohistoric rock art site, geoglyph, unimproved rock shelter, or gathering area than at a habitation site. For example, a pueblo ruin lacking standing walls would probably not be eligible under Criterion C, even if room blocks and plazas are clearly distinguishable, because the materials and workmanship (manifest as standing buildings) would have been reduced to rubble, which the occupants of the pueblo would not recognize. The same would be true of a Sobaipuri ranchería site with visible house rings, because the occupants of the ranchería would probably not be able to recognize it without house superstructures.

A property or properties may also meet Criterion C if it "represents a significant and distinguishable entity whose components may lack individual distinction." This clause refers to districts, groups of interrrelated resources that have a definable boundary and that convey a visual sense of historic significance. A district can be made up of individual properties or features that lack individual distinction but that add to the overall significance and integrity of a district. Each resource within the boundary of the district is classified as contributing or not contributing to the historic significance of the district. Individual features that are contributing properties to a district must date to the period when the district was significant, must be related to the significance of the district, and must have integrity. Noncontributing properties do not meet these criteria. It may be appropriate to nominate collections of habitation and limited activity sites to the National Register

as districts, particularly if they are visually interconnected. The upland resource procurement sites studied by Goodyear (1977), Jones, Altschul, and Van Dyke (1990), and Marmaduke and Dosh (1994) are examples of site clusters that might be eligible to the National Register under Criterion C as districts.

Criterion D

The requirement for eligibility under Criterion D is that a site or property has "yielded, or may be likely to yield, information important in prehistory or history" (36 CFR 60.4). According to *How to Apply the National Register Criteria for Evaluation* (NPS 1991b:21), a site must meet two requirements to qualify for the NRHP under Criterion D. First, "The property must have, or have had, information to contribute to our understanding of human history or prehistory"; second, the information must be considered "important" (NPS 1991b:21). The most significant research topics for the period from A.D. 1519 to 1692 are discussed in Chapter 4. These topics include: (1) the origins of the historic Native American ethnic groups in Arizona and (2) cultural change and stability among the peoples of Arizona from A.D. 1519 to 1692.

Questions concerning the origins of historic Native American groups have focused on two areas: (1) the transitions from archaeological "cultures" to modern ethnic groups (for example, are the Tohono Akimel [Pima] and Tohono O'odham [Papago] descended from the Hohokam, and if so, why and how did the large Hohokam towns and villages disperse into the ranchería settlements of the modern ethnic groups); and (2) migrations (for example, the gathering of clans into Hopi and Zuni; the Pai, Paiute, and Athapaskan migrations into Arizona). Archaeologists, historians, Native Americans, and government agencies have all sought to document and preserve evidence about the origin of modern Native American groups, first, by identifying sites that date to the transition period, and second, by analyzing the material culture for evidence of cultural affiliation. In defining archaeological cultures and in studying cultural transition and change, archaeologists traditionally have focused on settlement organization, house type, artifacts (particularly pottery and projectile points), and burial treatment. More recently, archaeologists have tried to understand the cultural patterns and processes that resulted in archaeological manifestations, for example, how settlement organization and house type reflect subsistence and social organization, or how rock art and burial treatment reflect ideology.

The latter studies relate to the issue of cultural change and stability among Protohistoric peoples of Arizona. Some archaeological cultures and ethnic groups (most notably the lower Colorado River Yumans) were characterized by stability, but most other groups were characterized by change, including the shift from aggregated Hohokam towns to dispersed Pima and Papago rancherías, the aggregation of Hopi and Zuni populations, and the migrations of Pai, Paiute, and Southern Athapaskans. In Chapter 4 we argued that both the causes and results of change and stability are reflected in environmental change, subsistence strategies, settlement pattern, demography, social and political organization, alliances and exchange, ideology, and material culture.

The first issue in evaluating sites is whether they offer information. Previous discussions have demonstrated (1) the importance of identifying sites that clearly date to the Protohistoric period, (2) the importance of knowing how many sites date to the period (to answer questions about demography), and (3) the importance of understanding lifeways practiced at particular sites (to answer questions about cultural stability and change during the Protohistoric period). A site that can be dated to the Protohistoric period by means of datable materials or historical documentation and that contains structures, botanical remains, faunal remains, or artifacts would almost certainly contribute significant information on the period from A.D. 1519 to 1692. Such a site could contribute to the understanding of how many Protohistoric sites exist in Arizona, what types of sites they represent, and what lifeways were practiced during the Protohistoric period. This information would in turn be used to address the questions of (1) transitions from archaeological cultures to modern ethnic groups, (2) migrations of modern ethnic groups, and (3) change and stability among Protohistoric peoples of Arizona.

The second issue is what constitutes "important" information, that is, how important is the information that a site provides? This issue has to be considered in light of what information is needed to answer research questions and the number of sites that can contribute this information. Sites that can be dated with certainty to the A.D. 1519-1692 period are very rare. Sites that may date to this period—including sites that have been classified as Protohistoric by various researchers using various definitions of Protohistoric—are somewhat more common. Chapter 3 lists the types and frequencies of Protohistoric sites that have been recorded and estimates the number of different types that should exist. As relatively long term habitation sites, pueblos and rancherías are most likely to provide significant amounts of information. In addition, these types of sites are relatively rare. All of the Pueblo villages that were occupied during the Protohistoric period have been recorded and number only seven to ten (depending on the dates assigned to some of them), and one of them (Awatovi) has been partially excavated. Sobaipuri rancherías were probably only slightly less rare, numbering about 100, about 20 have been recorded, and approximately seven have been excavated. No Protohistoric lower Colorado River Yuman rancherías have been recorded, and even though this type of site was once even more common than Sobaipuri rancherías, most have probably been destroyed by flooding. Seasonal and short-term habitation sites (farmsteads, houses, ranchos, and rockshelters), roasting features, and artifact scatters (which constitute approximately one-fourth of all recorded Protohistoric sites) are more common than pueblos and rancherías, but offer less information individually. On the other hand, these sites provide much of the information available on subsistence and settlement systems of less sedentary groups like the Pai, Paiute, and Southern Athapaskans and on nonresidential components of the subsistence and settlement systems of sedentary farmers. Given the more limited amount and likely redundancy of information from these smaller sites, though, those sites that retain the greatest integrity and those that could yield additional information beyond that already recorded (see below) would be of greatest significance. Specialized-activity sites, when considered as specific site types, are relatively rare and individually offer limited amounts of data. The key consideration in evaluating their National Register eligibility under Criterion D would be whether they could provide information beyond that already recorded (again, see below).

A third issue related to Criterion D is the requirement that a site "[must] have yielded or may be likely to yield" important information, which implies that fully excavated sites could be considered eligible to the NRHP under Criterion D. *How to Apply the National Register Criteria for Evaluation*, however, states that sites that have yielded information in the past but that have no additional research potential should be evaluated under Criterion A. In order to be considered eligible under Criterion A, the site would have to retain its historic value and integrity (see below). This same reasoning would apply to sites or isolates that have already provided as much information as they are likely to provide, even if such information is important in understanding some of the research issues important for the Protohistoric period. Thus, many of the sites and isolates that contributed useful information to the excellent studies of Ferg (1992), Goodyear (1977), and Jones, Altschul, and Van Dyke (1990) are probably not eligible to the NRHP because they are unlikely to provide additional information. On the other hand, given the number of questions about many Protohistoric ceramic types (see Chapters 3 and 4), a Protohistoric site that includes ceramics that have not been collected could provide additional important information and might be eligible to the NRHP.

In summary, the key requirements for a Protohistoric site to meet Criterion D are: (1) it must be demonstrated to date to the Protohistoric period (and therefore must have chronometric dating samples, ceramics, or projectile points); (2) it must have an identifiable function (and therefore must have an artifact assemblage that is large enough that it does not appear to be a chance occurrence); (3) it must have information (such as pottery, projectile points, or rock art) to suggest cultural affiliation; and (4) it must retain integrity (that is, it has not been excavated or otherwise destroyed). Unexcavated and relatively undisturbed habitation sites are almost always going to have all of these characteristics. Specialized-activity sites that contain multiple types of data—for example, a hearth or roasting pit that can be radiocarbon dated and that is likely to yield food remains, in association with artifacts such as sherds or projectile points that provide evidence of cultural affiliation—are almost always going to have these characteristics. Rock art sites also will most often have these characteristics. Isolated features and artifact scatters, however, may lack one or more of these characteristics and therefore might not meet Criterion D. Isolated features and artifact scatters that may not be eligible individually may be eligible as part of a district, however.

Since most debates about whether a site meets Criterion D concern small sites, the rest of this discussion will focus on how small sites can be evaluated with respect to date, function, cultural affiliation, and integrity. Even though dating sites is important—and Protohistoric sites have been dated by historical documentation, chronometric dating (tree-ring dating, radiocarbon analysis, archaeomagnetic analysis, obsidian hydration, etc.), ceramic cross-dating, and so forth—many sites that have been excavated and that have yielded significant data on the Protohistoric period (for example, England Ranch Ruin and Alder Wash Ruin) are not well dated. Furthermore, we have discussed a number of projects in which detailed analysis of seemingly limited and unrelated bits of data resulted in the possible identification of settlement systems of mobile Protohistoric groups of Apaches (Ferg 1992), Pai (Jones, Altschul, and Van Dyke 1990), and O'odham (Goodyear 1977). In these studies of Protohistoric settlement patterns, integrity of design, materials, and workmanship—that is, the ability to classify the features, pottery, projectile points, and other

artifacts to a particular time period, function, and cultural affiliation—was important. Since such classification of artifact assemblages usually requires at least some statistical analysis and comparison, assemblages of 25 or more artifacts are usually needed. Assemblages of at least 25 artifacts or so also facilitate analysis of integrity of location and association. Lithic scatters may be undated, but their analysis as possible elements of a settlement system may confirm or disprove a Protohistoric period date. Integrity of location and of setting were important but were often not immediately apparent. Integrity of setting (particularly environmental setting) was important in that the researchers needed to know what the original topographic setting and plant community were in order to determine whether small sites and isolates might logically represent activities that could have been conducted in the area during the Protohistoric period. Integrity of association, particularly association with other small sites and isolates of similar date, is another important quality that, like integrity of location and setting, may not be readily apparent.

In evaluating whether a Protohistoric site retains enough integrity to be eligible to the NRHP under Criterion D, the first decision is whether a property retains integrity of design, materials, and workmanship. Most features retain this integrity or they would not be recorded as archaeological manifestations in the first place. Features that are of questionable origin, such as rock concentrations, may lack integrity of design, material, and workmanship unless other examples can be found in the area. Usually researchers require that assemblages of artifacts be numerous enough to be statistically analyzed and compared, which means that assemblages of fewer than about 25 artifacts may not provide enough information for most research questions. The second decision is whether a property retains integrity of location, setting, and association. In the best of circumstances, a property will be in an environment that has preserved these aspects of integrity or that is in physical association with other properties that have preserved them. When the integrity of location, setting, and association of isolates and small sites is questionable, one has to ask whether the isolate or small site is in an area where similar types of isolates or sites might be identified, thus opening the possibility of reconstructing a settlement pattern in the area. In addition, isolates such as bedrock mortars or large grinding stones would evidently be more likely to retain integrity of location and association than portable artifacts. Isolates and sites in streambeds, mine tailings, or submerged contexts are examples of cultural properties for which integrity of location, setting, and association cannot be demonstrated.

As a final example, a hearth in the Pelocillo Mountains that yields juniper charcoal that is radiocarbon dated to the A.D. 1600s would seem to have provided important information. Ostensibly, this hearth may suggest that someone was using the Peloncillo Mountains in the A.D. 1600s. Second, the hearth appears to represent some type of specialized use. Third, the hearth provides information on specialized site locations. Over time, a number of similar hearths might be identified, and some of them might also yield faunal bone, burned seeds, or occasional artifacts that would suggest a pattern of use. If this pattern of use focused on particular types of topographic locations, it might become possible to enlarge the sample even more, even to the point where a few sites associated with Apache Plain and Hawiku Polychrome sherds would support the hypothesis that Apaches were in southeastern Arizona in the A.D. 1600s. Still, the initial hearth would probably not be eligible for the National Register of Historic Places. First, the hearth would have provided all the information

it was likely to provide. Second, it is not possible to evaluate the significance of the hearth in isolation, because its significance is its similarity to hearths that have yielded more data. Even similar hearths that had yielded key data for interpreting the overall site pattern would probably not be eligible for nomination to the National Register if they have been fully excavated. Instead, one would probably try to nominate a tested or partially excavated site with at least one intact hearth and enough sherds to demonstrate cultural affiliation. In this case, the best example of the site type might be eligible, when typical examples might not. Alternatively, if a pattern of specialized sites like the one described could be identified, it might be feasible to nominate a groups of such sites to the National Register as a district or multiple property nomination (see below).

EVALUATION OF INTEGRITY

The regulations for evaluating NRHP eligibility list seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. A site or property does not have to retain all seven aspects of integrity to be considered eligible to the NRHP, only those that are essential to conveying its significance. For that reason, evaluation of integrity has to be considered in conjunction with the criteria for eligibility, as discussed above. *How to Apply the National Register Criteria for Evaluation* (NPS 1991b) discusses integrity as a separate issue, and a few general comments are presented here by way of summary.

Integrity of association with an event or person is critical for sites that are significant under Criteria A and B. Many of the sites that are thought to have been visited by Kino have only a hypothetical and controversial association, because archaeologists and historians are still debating whether a specific site is the one actually visited. The association between Kino and a given archaeological site would have to be clearly demonstrated if the site were to be nominated to the NRHP under Criterion B. Integrity of feeling is more important for a property that is nominated under Criterion C because of its artistic value than for a property that is nominated under Criterion D for its research potential. Integrity of feeling may be critical in evaluating traditional cultural properties, but *How to Apply the National Register Criteria for Evaluation* (NPS 1991b:45) states, "Because feeling and association depend on individual perceptions, their retention *alone* is never sufficient to support eligibility of a property for the National Register" (emphasis in original). Integrity of materials and workmanship is important for a property nominated under Criterion C for its architecture, but it is also important for a sherd and lithic scatter nominated under Criterion D for its research value in understanding Protohistoric ceramic and lithic technology.

Parker and King (1990:10) argue that in evaluating traditional cultural properties the seven aspects of integrity listed in 36 CFR 60.4 can be summarized as (1) integrity of the relationship between a property and the beliefs or practices that give it significance and (2) integrity of the condition of the property. Under the first aspect of integrity, a specific property has to be integral to a traditional belief or practice. Under the second aspect of integrity, the property must retain enough of its original location, design, setting, materials, workmanship, feeling, and association to remain important to the community that uses or used it.

Examples of sites that retain integrity are common, ranging from the Hopi pueblo ruin of Awatovi, with 75% of its 5000 rooms still unexcavated, to artifact scatters. Examples of sites that lack integrity might include scatters of a few artifacts of such widely differing dates that integrity of location, design, workmanship, and association cannot be demonstrated.

EXCLUDED SITES

A site or property may be excluded from the NRHP if (a) it is owned by a religious institution or used for religious purposes; (b) it has been moved from its original location; (c) it is a birthplace or grave; (d) it is a cemetery; (e) it is a reconstruction; (f) it was constructed to commemorate a historic event; or (g) it has achieved significance in the past 50 years. Except for (c) and (d), these considerations do not apply to sites dating between A.D. 1519 and 1692. Graves and cemeteries dating between A.D. 1519 and 1692 often occur on sites (habitation sites, for example) that are nominated to the NRHP for reasons other than the presence of the graves and cemeteries. These sites would not be excluded from the NRHP just because they also contain graves and cemeteries. Furthermore, Parker and King (1990:14-15) argue that birthplaces, graves, and cemeteries may qualify as traditional cultural properties when the cultural significance of the property transcends the fact that the property includes a birthplace, grave, or cemetery.

SITE TYPES AND SIGNIFICANCE

The National Register of Historic Places classifies properties at buildings, structures, objects, sites, and districts (NPS 1991b:4-5). In Chapter 3 we classified Protohistoric cultural and historic properties broadly as habitation sites and special-activity sites. It may be useful to summarize and illustrate the evaluation of properties with regard to National Register eligibility by considering the eligibility of different types of sites.

Habitation Sites

Habitation sites in this inventory include missions, pueblos/villages/rancherías, and farmsteads/houses/ranchos. Most of these sites are associated with significant historical events such as the spread of European diseases and the depopulation of the Western Hemisphere, the contact between Europeans and Native Americans, or the origin of historic ethnic groups. Sites associated with specific individuals named in historical documents or oral traditions may be eligible to the NRHP under Criterion B. Sites may be eligible to the NRHP under Criterion C as examples of particular types of settlements that illustrate concepts of community design and planning. Finally, these sites provide a wealth of information on the history of the Southwest. For most of these sites, integrity will be the most important question with regard to National Register eligibility. For Criteria A and B, the site will have to be assessed as to whether it remains intact enough to serve as tangible evidence of an event or a person's life. For Criterion C, the site will have to be assessed as

to whether it still exhibits its original design. For Criterion D, the assessment of the site's integrity needs to be based on whether additional important information can be recovered from it.

Thus, although the Pueblo site of Awatovi was nominated under Criterion D (because of research already conducted and recently summarized by Redman, James, and Notarianni [1990] and the remaining research potential of the three-fourths of the site that is still unexcavated), it may also be significant under Criterion A (because of its association with such historically significant events as the colonization of the Southwest, the Pueblo Revolt, the Reconquest, and Hopi history), under Criterion B (because of its association with named Hopi leaders and with Spanish explorers and priests such as Espejo, Oñate, and de Vargas), and under Criterion C (because it is an example of pueblo architecture and mission architecture [Montgomery, Smith, and Brew 1949]). Under Criterion D, the unexcavated portions of the site retain integrity of location (the site and its unexcavated materials have not moved), design (it is still possible to identify the ground plan of the pueblo), materials and workmanship (architectural features and artifacts are made of their original materials, which archaeologists can analyze), and association (the historical events that occurred at the site are well documented). Under Criteria A and B, the integrity of location and association is well documented, but because only a few standing walls remain, "recognizability" and integrity of design, materials, and workmanship might be questionable. It might be argued, however, that the site in its ruined state conveys its destruction, which was one of the most significant events in the history of the Southwest. In similar fashion, although Montgomery, Smith, and Brew (1949) demonstrated that Awatovi was typical of Spanish mission architecture, the paucity of standing walls might prevent the site from being listed on the National Register under Criterion C, unless it could be demonstrated that the ground plan was still obvious. That the site is also an important Hopi and Navajo traditional cultural property supports the argument that it retains integrity of feeling and association under Criteria A, B, and C.

On the other hand, many habitation sites dating from A.D. 1519 to 1692 have been destroyed by construction. For example, the significant Sobaipuri site of Alder Wash Ruin was excavated and destroyed soon after its identification. Although this site may have met Criteria A and B (if its association with the historical ranchería of Cusac, visited by Father Kino, could be demonstrated), even before its excavation it might not have passed the "recognizability" test; that is, design, setting, materials, workmanship, and feeling might have been so altered by the disappearance of house superstructures that it would not have been recognizable to Kino or the Sobaipuri who lived there. Since its excavation, qualities of design, setting, materials, and workmanship that might be recorded by archaeologists have all been destroyed.

Special-Activity Sites

Special-activity sites include mounds, rockshelters, campsites, roasting features, artifact scatters, caches, pot breaks, springs, wells/water catchments, fields/gardens, canals, mines/quarries, trails and trail sites, rock art sites, intaglios, sacred sites/traditional cultural properties, shrines, cairns, graves/cemeteries, other sites, and sites of unknown function. Most of these sites are associated with

the same historical events as the habitation sites. They may be eligible under Criterion A if they maintain a high degree of integrity and visually convey the significance of the historical event and period. Except for sacred sites and traditional cultural properties that are associated with individuals named in oral traditions, most special-activity sites do not meet Criterion B.

Rock art and intaglios clearly exhibit design and artistry and may meet Criterion C. Depending on their complexity and visibility, springs, wells, water catchments, fields, gardens, canals, shrines, and trails may also exhibit design and construction concepts and techniques that would meet Criterion C. To meet Criterion C, these types of sites must embody distinctive characteristics of a type, period, or method of construction and must have been conceived, designed, and fabricated by a person or culture. To be eligible under Criterion C, a trail must have been purposely designed and constructed and illustrate engineering or construction methods of the period; a trail is not eligible under Criterion C if it develops simply as a by-product of use. In order to meet Criterion C, sites such as the Hopi Salt Mines and Hopi coal mines would have to show evidence of purposeful engineering and construction techniques, and subsequent use of these sites could not have obliterated this evidence. Two known turquoise mines in Arizona had evidence of prehistoric and historic mining techniques (Carol Griffith, personal communication 12 March 1998); these mines might be nominated to the National Register under Criterion C if subsequent use has not obliterated this evidence. As is true of sites nominated under Criteria A and B, sites nominated under Criterion C must convey their significance visually and therefore should pass the "recognizability" test. Sites such as mounds, rockshelters, campsites, roasting features, artifact scatters, caches of utilitarian artifacts, pot breaks, mines/quarries, other sites, and sites of unknown function do not typically exhibit distinctive characteristics of design and construction and would not usually be considered eligible to the NRHP under Criterion C.

Most special-activity sites have provided or could provide information on regional history and would meet Criterion D. Integrity and the likelihood of providing new information are the two major issues in evaluating special-activity sites (see below). Graves and cemeteries are excluded from the National Register, except when they are on sites that are eligible to the National Register for other attributes.

Integrity is a key issue in assessing the National Register eligibility of special-activity sites. For sites nominated to the NRHP under Criteria A and B, integrity of association is critical. In order to demonstrate that a site is associated with the historical events between A.D. 1519 and 1692, it must be possible to date the site to that period, by means of chronometric or relative dating techniques (see Chapter 4). Demonstrating that a special-activity site is associated with a specific, historically significant individual would be extremely difficult (it is no easy matter even with habitation sites, as mentioned above), but it may be possible, especially for traditional cultural properties, as in the case of Montezuma's Head, listed on the National Register under both Criterion A and Criterion B.

Integrity and the likelihood of providing new information are also the two major issues in evaluating special-activity sites in terms of Criterion D. Integrity of feeling and association is not of primary importance in the research potential of these sites. Most mounds, rockshelters, campsites,

roasting features, caches, pot breaks, springs, wells/water catchments, fields/gardens, canals, mines/quarries, trails and trail sites, rock art sites, intaglios, sacred sites/traditional cultural properties, shrines, cairns, graves, and cemeteries retain integrity of location in order for them to have been recognized as sites in the first place. Demonstrating the locational integrity of small artifact scatters may not always be possible, however, and sites that do not have demonstrable locational integrity would probably not be considered eligible for the National Register. A site that is of value primarily because it can be dated (such as a site with a hearth or roasting feature) would have to retain integrity of the materials needed for chronometric analysis. Sites that are of value because of the information they may provide on ceramic or lithic artifacts would have to retain integrity of materials and workmanship.

If a special-activity site retains the integrity needed to provide information about regional history, the next question is whether the site can provide additional information beyond that originally recorded. *How to Apply the National Register Criteria for Evaluation* (NPS 1991b:23-24) states that sites that are not likely to provide additional information are not usually considered eligible to the National Register (although an excavated site that has yielded information in the past may be evaluated under Criterion A). If they contain intact features, special-activity sites such as mounds, rockshelters, campsites, roasting features, caches, springs, wells/water catchments, fields/gardens, canals, mines/quarries, trails and trail sites, rock art sites, intaglios, sacred sites/traditional cultural properties, shrines, cairns, graves/cemeteries, and some sites of unknown function are likely to provide additional information. Given the current state of knowledge about Protohistoric ceramics—in which petrographic analysis of ceramics and direct comparison with sherds from other sites could produce important additional information—a surface scatter of Protohistoric ceramics that has not been collected would probably provide additional information from even a sample of collected and curated sherds. On the other hand, if a site's location is the most important information that it can provide (and this is sometimes the case), then recording exhausts the site's value under Criterion D.

The NRHP does include objects, but they must be associated with a specific setting or environment (NPS 1991b:5). Thus, while a shrine, a bedrock mortar (as a traditional cultural property or as contributing to a district), or a rock outcrop (that is a traditional cultural property) may be eligible to the National Register, individual artifacts are not eligible. For objects to be eligible to the National Register, integrity of location must be demonstrated.

Districts

Evaluating artifact scatters has long been a problem for archaeologists. As mentioned above, lifeways dependent on hunting and gathering typically result in settlement systems that include sites consisting of only a few artifacts. Often these small sites are overlooked or misinterpreted. As also mentioned above, a number of archaeologists have been developing procedures for understanding gathering strategies and the inconspicuous archaeological evidence of these activities (Ferg 1992; Goodyear 1977; Jones, Altschul, and Van Dyke 1990; Marmaduke and Dosh 1994). Studies like

those of Ferg (1992), Goodyear (1977), Jones, Altschul, and Van Dyke (1990), and Marmaduke and Dosh (1994) are important in understanding the Protohistoric period because they reconstruct lifeways and land use over a broad period of time that includes A.D. 1519-1692. Once the pattern of land use has been reconstructed, it may be possible to focus on particular sites that contain datable materials and use the dates of these sites to determine what percent of the sites in the settlement system date specifically from A.D. 1519 to 1692. In this sense, artifact scatters and isolates (such as bedrock mortars)—even those that cannot be dated precisely between A.D. 1519 and 1692—contribute important information to the understanding of the Protohistoric period. One possible way to nominate such a settlement system to the National Register would be to consider it a district. A settlement system could meet Criterion C or D or both. The key consideration in nominating a settlement system to the National Register would be its integrity. "For a district to retain integrity as a whole, the majority of the components that make up the district's historic character must possess integrity even if they are individually undistinguished. In addition, the relationships among the district's components must be substantially unchanged since the period of significance" (NPS 1991b:46). For a Protohistoric district to be nominated under Criterion C, integrity would have to be very high, such that the Protohistoric people who used the area would be able to recognize it today.

Site Types and Site Boundaries

Somewhate related to site types and districts is the defining of site and district boundaries. Guidelines for selecting boundaries of nominated sites are presented in the National Register Bulletin entitled *How to Complete the National Register Registration Form* (NPS 1991c:56-57). As with integrity, the definition of a site boundary is dependent on the criteria under which the site is nominated. Thus, the boundaries of a site nominated under Criterion A should encompass the area where the significant historical event took place, and the boundaries of a site nominated under Criterion B should encompass the area where the significant event in the life of the individual took place. For example, the boundaries of a Sobaipuri village visited by Kino and described as containing 100 houses would need to encompass the area where the 100 houses were. Only areas with historic integrity and known to have been directly associated with the event should be included, however, and it is unlikely that any Sobaipuri site would retain enough integrity to be listed under Criterion A or B. Boundaries of traditional cultural properties—usually nominated under Criterion A or B—are usually defined by native consultants. For many traditional cultural properties, maintaining setting and feeling will be of paramount importance in defining boundaries. Boundaries of archaeological sites that are nominated under Criterion D are usually defined as the edges of the artifact scatters, because the area outside the artifact scatter of a given site is not usually likely to provide additional information. Boundaries of a district are based on the shared relationship of individual sites within it. Historic districts (nominated under Criterion A, B, or C) usually have visual interconnections; archaeological districts usually do not. In all cases, the boundaries of a property or district should include all significant resources but should not include buffer zones or areas not contributing directly to the significance of the property. Thus discontinuous districts are allowed.

Multiple Property Nominations

Previous chapters have described the complexity of responses by Native Americans in Arizona to the arrival of Europeans to North America. This complexity is characteristic of tribal societies, in which each social group, no matter how small, is largely free to chart its own course of action. The attempt to identify, systematize, and explain wide-ranging responses to European–Native American contact, exemplified by Edward Spicer's classic 1962 work, *Cycles of Conquest*, constitutes the fundamental theme of research on the Protohistoric period. For the purpose of evaluating sites to the National Register of Historic Places, though, the Protohistoric period as a whole may be too complex and and is probably represented by too many sites to be manageable as a single theme. Therefore, most historians and archaeologists will probably need to break the Protohistoric period down into smaller "subthemes" focusing on individual tribes (Zuni, Hopi, Sobaipuri, Papago, Hualapai, Yavapai), groups of tribes (Upper Pimans, lower Colorado River Yumans, Southern Athapaskans), or issues (Southern Athapaskan origins). A number of these "subthemes" lend themselves to National Register multiple property nominations, which are discussed in *How to Complete the National Register Multiple Property Documentation Form* (NPS 1991d). Some Protohistoric sites, though, might better be nominated to the National Register under other themes altogether. For example, the Hopi-Zuni Trail—which surely deserves to be on the National Register of Historic Places—would be better nominated under the trail theme (see Stein 1994), because its period of significance is much broader than the Protohistoric period.

Enough significant sites have been identified that pertain to some "subthemes" (particularly Zuni, Hopi, Sobaipuri, and Papago) that we would recommend that National Register nominations be started. For other "subthemes" (especially lower Colorado River Yuman groups, Pai, Southern Athapaskans), though, not enough sites are known, and efforts should focus on inventory and evaluation. A few other sites or settlement systems might be nominated on an individual basis.

A good multiple property nomination for Zuni sites would be "Arizona Places in Zuni Migration Stories" and would entail placing Zuni Heaven and Hantlipinkia on the National Register. The nomination would also include a sample of shrines to document Zuni recognition of archaeological sites as "Footprints of the Ancestors" and would explain the need to identify and evaluate special activity sites—including farm camps, fields, and hunting camps—as evidence of continued Zuni use of portions of Arizona during the Protohistoric period. Such a nomination would also recognize expressed Native American concerns that the National Register does not reflect Native American concepts of historical significance.

A good multiple property nomination for Protohistoric Hopi sites would be "The Hopi in the Era of Spanish Contact" and would result in the likely nomination of Kisakovi, Old Mashongnovi, Old Shongopovi, and Kuchaptuvela and evaluation of Sikyatki, Kawaika'a, Chacpahu, and Chuckovi. In addition, the nomination would include a sample of campsites, cairns, shrines, and coal mines that can be dated primarily to the Protohistoric period and that illustrate Hopi uses of their entire territory during the Protohistoric period. Awatovi and Oraibi are already on the National Register as National Historic Landmarks. The historical significance of Awatovi dates primarily to the Protohistoric

period, as defined here, but Oraibi has been occupied continuously since Protohistoric times and does not retain integrity as an example of Protohistoric significance under Criteria A, B, and C. Portions of the village, however, may be eligible under Criterion D for their archaeological research potential, much as portions of Zuni provided information in the excavations of Ferguson and Mills (1992). Kisakovi, Old Mashongnovi, Old Shongopovi, and Kuchaptuvela—all of which probably date to the A.D. 1519-1692 period—should be recorded and evaluated for nomination to the National Register. Sikyatki, Kawaika'a, Chacpahu, and Chuckovi should be recorded and evaluated in terms of their dates. Although these latter four sites are probably eligible to the NRHP, they may not be good examples of Protohistoric sites, because they may have been abandoned prior to 1519. Currently only a few campsites, cairns, shrines, and coal mines dating to the Protohistoric period have been recorded, and these should be included in the nomination. Sites like Willow Springs, the Hopi Salt Trail, the Sipapu, and the Hopi Salt Mines in the Grand Canyon, although probably eligible to the National Register, do not date exclusively to the Protohistoric period and should be nominated to the National Register under other themes.

For Sobaipuri sites the goal should be to nominate a range of sites, including rancherías, farmsteads, campsites, roasting pit complexes, artifact scatters, and rock art sites. Furthermore, an attempt should be made to nominate sites from the two major Sobaipuri territories, the Santa Cruz River valley and the San Pedro River valley, and to nominate the full range of sites within each of these territories, including the major settlements along the rivers as well as sites in the upland hinterlands. Finally, two multiple property nominations might be considered: (1) Sobaipuri sites that antedate Kino's exploration of Arizona; and (2) Sobaipuri sites visited by Kino. Pitaitutgam (Di Peso's Gaybanipitea) should be re-evaluated for nomination to the National Register. As discussed earlier, nominating Sobaipuri rancherías to the National Register under Criteria A and B would involve demonstrating clear association with historical events and persons, an effort which has been fraught with controversy in the past. Sites with clear house rings could be nominated under Criterion C. Most sites will be nominated under Criterion D.

The National Register should include a sample of the approximately 200 Papago rancherías and ranchos that one would expect to have been occupied during the Protohistoric period. Batki and Horn-Lying, identified by Haury (1950), would be the best two candidates for more detailed recording and evaluation. In addition, a sample of specialized activity sites, including camps, rockshelters, roasting pits, scatters, and rock art sites, should also be nominated. Camps, roasting pits, and scatters might best be nominated as a district such as the one reported (but not nominated) by Goodyear (1977).

The Ak-chin Farms project (Gasser, Robinson, and Breternitz 1990) demonstrated that substantial rancherías and isolated houses in relatively good shape are present and have not been as badly disturbed by agricultural development as Schroeder (1954) feared. The problem is that the best-known sites have been excavated. Therefore, some effort needs to be expended to identify sites that have not been disturbed by agricultural development or archaeological excavation and to place these sites on the National Register. Many of the sites that have been identified are on the Gila River

Indian Reservation, and more inventory in this area would be appropriate. In addition, undeveloped non-Indian lands throughout the Gila River valley could also be targeted.

The lack of recorded archaeological sites representing Protohistoric rancherías of lower Colorado River Yumans is perhaps the single biggest gap in current site databases. Thus, the priority for representing Protohistoric lower Colorado River Yuman groups in the NRHP is to identify and record Protohistoric rancherías. A number of researchers (Colton 1945; McGuire 1982) have remarked on the difficulty of such an undertaking, presuming that most of the sites have been destroyed or buried by flooding and agriculture. On the other hand, the identification and excavation of Gila River Pima rancherías suggests that some sites could still remain. In contrast to the absence of ranchería sites in various databases, upland specialized activity sites are relatively common, although dating such sites to the Protohistoric period is problematic. Nonetheless, studies such as the one conducted by Marmaduke and Dosh (1994) suggest that intact settlement systems can be identified, and examples of such settlement systems, nominated to the National Register of Historic Places under Criterion C (as examples of settlement planning and organization) and Criterion D (for their research potential) would greatly enhance the representation of lower Colorado River Yuman groups on the National Register.

Other groups for which inventory and site identification should be the next phase of work include Upper Pimans, Jano and Jocome, Pai, Apache, Navajo, Southern Paiute, and Ute. Upper Piman sites may be indistinguishable from Sobaipuri and Papago. Jano and Jocome sites may be present along the slopes of the Chiricahua Mountains. Pai sites are relatively common; the challenge to nominating such sites to the National Register as Protohistoric sites is dating the sites without completely excavating them. Apache sites, which are far less common than Pai sites, also are difficult to date. Navajo sites dating to the period from A.D. 1519 to 1692 are most likely present in the Red Rock Valley of northeastern Arizona and on the Defiance Plateau, but none have been documented to date.

CHAPTER 6

RECOMMENDATIONS FOR FUTURE WORK

The Arizona State Historic Preservation Office (SHPO) and other interested parties could undertake a number of initiatives to improve the preservation and management of sites dating between A.D. 1519 and 1692. These initiatives are summarized under the following headings: (1) National Register nominations, (2) inventory and evaluation, (3) cultural resource management, (4) recreational development, (5) education and awareness, and (6) funding.

NOMINATIONS

In the previous chapter, we listed a number of multiple property nominations that could be started with minimal fieldwork and evaluation. These include:

(1) Arizona Places in Zuni Migration Stories;

(2) The Hopi in the Era of Spanish Contact;

(3) Sobaipuri Sites of Southern Arizona;

(4) Sobaipuri Sites Visited by Kino; and

(5) Papago Sites of the Protohistoric Period.

In addition, a few sites could be nominated individually with a limited amount of fieldwork. Such sites may include Hoye Spring (the earliest Spanish rock art in Arizona) and the Hopi-Zuni Trail (which should be nominated as a historic trail [Stein 1994] rather than as a Protohistoric site).

INVENTORY AND EVALUATION

A number of site inventories are needed to fill in gaps in our existing knowledge of the Protohistoric period in Arizona. These recommendations are listed in order of priority.

(1) The lower Colorado River Yuman sites are the least-known of the period. Surveys should be undertaken to find the large rancherías described by the early Spanish explorers. Many sites in this area have been buried, inundated, or plowed, or have undergone some combination of these disturbances.

(2) Documentary sources could be used to define probable locations of yet-unrecorded sites, which could then be identified on the basis of minimal surface remains. The sites visited by Kino

in southern Arizona would be the primary sites to look for in this manner. Private lands in the vicinity of hypothesized site locations should be the first search priority, followed by state and federal lands.

(3) The camps of the Coronado expedition would be a second group of sites that should be investigated. The route of the Coronado expedition through Arizona has long been debated without conclusion, but the recent identification of Coronado campsites in New Mexico and Texas suggests that these sites can be found and identified. Perhaps a concerted effort by the SHPO, federal land agencies, historians, archaeologists, and other interested parties would contribute to the solution of this problem.

(4) The SHPO, the U.S. Forest Service, the Bureau of Indian Affairs Branch of Forestry, and Apache and Navajo tribal resource managers should consider an inventory of sites with dendrochronological samples that may date between A.D. 1519 and 1692. Such an inventory could contribute greatly to the resolution of questions about Athapaskan migrations into the Southwest.

(5) Sites along the Santa Cruz River originally recorded by Danson should be re-recorded.

(6) The western slopes of the Chiricahua Mountains should be surveyed to find Jocome sites that may be associated with the route of Cabeza de Vaca.

(7) Protohistoric sites along the Gila River should be inventoried.

(8) The SHPO and the Tohono O'odham Tribe should consider detailed surface recording of Batki, Horn-lying, and Kohatk. Although the then–Papago Tribe rescinded permission for Haury to excavate Batki in the 1940s, progress in archaeological in-field analysis coupled with the establishment of tribal historic preservation offices may make a less disturbing option acceptable to the Tohono O'odham and could provide both training to Tohono O'odham resource managers and valuable information on the Protohistoric period in the Papaguería.

(9) The SHPO and the Hopi Tribe should cooperate in detailed surface recording of Protohistoric Hopi sites. The locations of these are known, but only Awatovi and Kawaika'a have been mapped in modern times.

(10) The SHPO and the Navajo Nation should consider inventories of the Red Rock Valley, the Lukachukai Mountains, and the Defiance Plateau for early Navajo sites. These areas contain known examples of Gobernador phase sites (Gilpin 1996; Hays 1991; Huber 1984) and would be the areas of Arizona that would be most likely to contain Navajo sites of the Dinetah phase.

CULTURAL RESOURCE MANAGEMENT

The single most useful thing that could be done to manage the cultural resources of Arizona would be to develop a single site file. Only when all sites in the state are recorded in a single system will it be possible to ascertain with some accuracy the number of sites of particular date, type, and cultural affiliation.

One highly specific problem in identifying Protohistoric sites is that during their training, most archaeologists are not taught to distinguish Protohistoric wares such as Whetstone Plain or Apachean pottery from other plainwares. The SHPO can help fill this gap by sponsoring workshops on Protohistoric plainwares.

Tribal historic preservation offices have been arguing that virtually all prehistoric sites should be considered eligible to the National Register under Criteria A, B, C, and D. For the reasons discussed in Chapter 5, this does not seem possible at this time, but tribal historic preservation offices could continue to develop position statements that would encourage agencies to take tribal concerns into account. The Hopi Cultural Preservation Office may wish to revise the National Register listings of Awatovi and Oraibi (now listed only under Criterion D) to have these properties listed under Criteria A, B, and C, as well.

Radiocarbon dating of annual-plant remins from roasting pits should be encouraged. This procedure would aid in distinguishing Protohistoric period sites from similar material remains of other periods.

A number of questions about the Protohistoric period throughout Arizona, but especially in northern Arizona, could be answered by analysis of materials collected by the Awatovi Expedition and curated at the Peabody Museum of American Archaeology and Ethnology at Harvard University. The Hopi Cultural Preservation Office is currently upgrading the documentation on Awatovi, and additional work along these lines should be encouraged.

RECREATIONAL DEVELOPMENT

Most Protohistoric period sites are not especially spectacular, and the ones that convey most visually the characteristics of the period (pueblos, Piman rancherías, Yuman rock ring sites, and rock art and geoglyph sites) are under public control or on Indian lands. More interpretive opportunities for Protohistoric sites should be developed. Arizona State University has conducted an evaluation of the feasibility of developing interpretive facilities at Awatovi Ruins on the Hopi Indian Reservation. The National Park Service has just completed a study of the feasibility of establishing a Coronado National Historic Trail and determined that Coronado's route is not well-enough documented to be used as a modern trail. If sites of the Coronado Expedition are found in Arizona, this situation may change.

EDUCATION AND AWARENESS

Perhaps the single greatest public education issue specific to the Protohistoric period is that prehistoric peoples of Arizona did not mysteriously disappear but developed into the modern Native American groups that inhabit the state today. Awareness of this transition could be enhanced by critical evaluation of displays and exhibits in museums and visitor centers in the state. Homolovi Ruins State Park emphasizes that the prehistoric people of Homol'ovi were ancestral to the Hopi. In lieu of replacing old exhibits, the visitor center at Wupatki National Monument has recently added text to its exhibits pointing out that the exhibits are old, explaining that new research has modified many of the conclusions of earlier researchers, and encouraging visitors to think critically about the information presented. This approach emphasizes that history, anthropology, and archaeology are active fields, that new discoveries are being made regularly, and that archaeological and historic properties really are cultural resources that can yield and are yielding new information that changes our understanding of the past and the present.

Indian tribes should be involved in this effort. As mentioned above, we could learn a great deal by recording Batki, Horn-lying, and Kohatk in detail, and our current ability to learn a great deal from detailed surface inventories might be of interest to the Tohono O'odham tribe.

FUNDING

The best way to enhance the preservation of the archaeological and historical record of the Protohistoric period in Arizona would be to fund the preparation of the National Register nominations and the inventories proposed above. These projects entail work on private, state, federal, and Indian lands. Historic properties on private and state lands are most poorly known and most endangered, but agricultural development on Indian lands also threatens historic properties of the Protohistoric period. The priorities of the above proposed project lists reflect the extent of these threats.

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