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United States Department of the Interior
National Park Service

National Register of Historic Places Multiple Property Documentation Form

This form is for use in documenting multiple property groups relating to one or several historic contexts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. For additional space use continuation sheets (Form 10-900-a). Type all entries.

A. Name of Multiple Property Listing

The Archeological and Historic Resources in the Indian Hot Springs, Texas, Area.

B. Associated Historic Contexts

Context #1 - Aboriginal Lifeways during Prehistory and History in the Indian Hot Springs, Texas, Area, ca. 5000 B.C. - A.D. 1880. Context #2 - A Conflict of Cultures: Displacement of the Apache from the Texas Borderlands by the U.S. Military (A.D. 1867-1881). Context #3 - Historic Euro-American and Mexican Lifeways in the Indian Hot Springs, Texas area, ca. A.D. 1880 - 1940.

C. Geographical Data

[X] See continuation sheet

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards for Planning and Evaluation.

Curtis Tunnell — 14 Nov. 1990

Signature of certifying official — Date

Texas Historical Commission

State or Federal agency and bureau

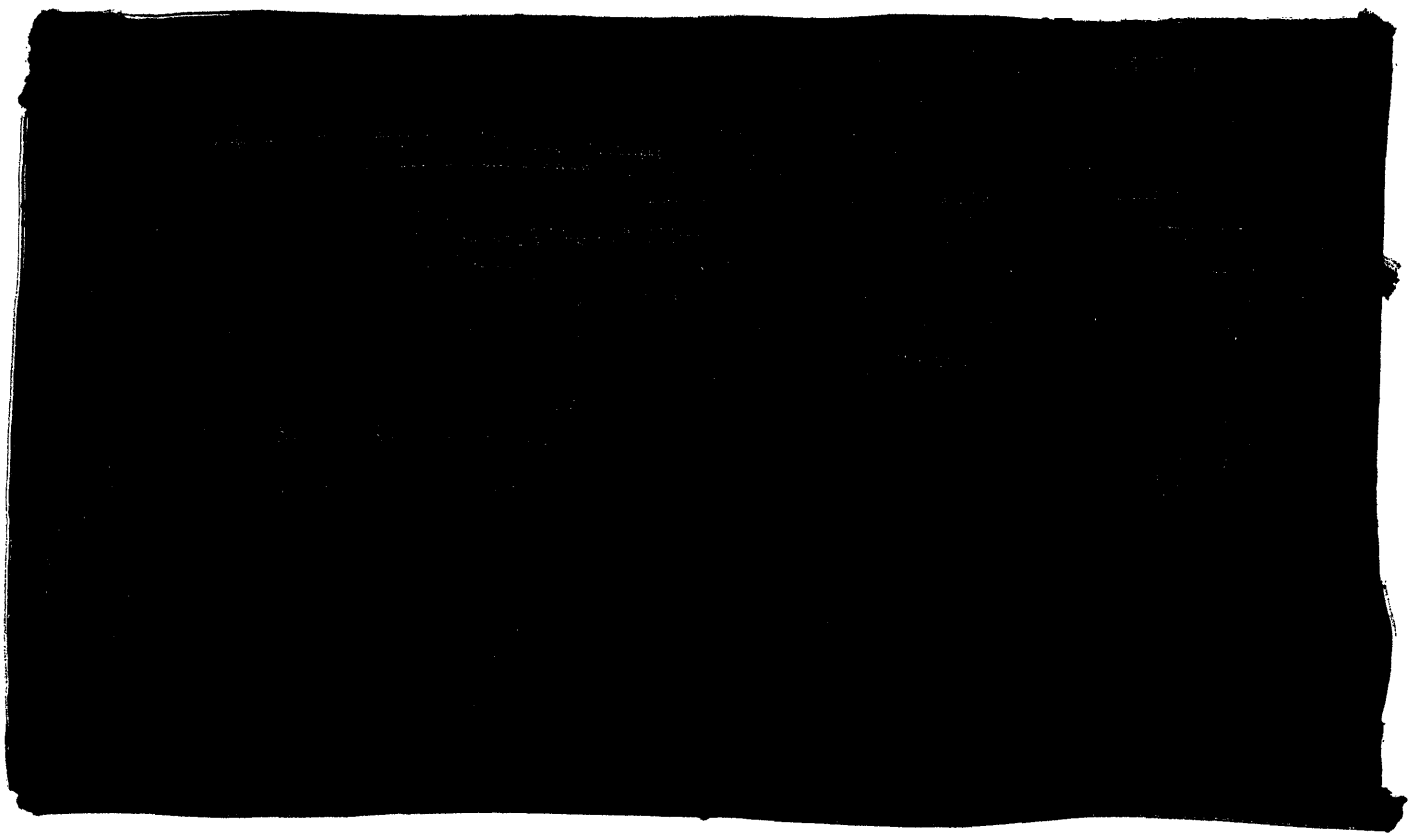
I, hereby, certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

John Knoerl — 1/11/90

Signature of the Keeper of the National Register — Date

Geographical Description

The geographical area of this multiple property submission is entirely within the confines of southern Hudspeth County in west Texas. It includes both public (State) and private lands. The Rio Grande forms the southern and southwestern boundary, but the rest of the boundary follows surveyed tracts that are rectilinear along the river and mostly square in the uplands away from the river. Universal Transverse Mercator (UTM) coordinates from 39 points along the boundary of this submission are used in this description. For the sake of clarity in the following description, these points have been assigned identifying letters (A, B, C, and so on); the UTM coordinates to which these points refer are listed at the end of this discussion.



Context #1

NAME OF CONTEXT. Aboriginal Lifeways during Prehistory and History in the Indian Hot Springs, Texas, Area, ca. 5000 B.C.–A.D. 1880.

INTRODUCTION

A lengthy period of prehistory and history in the Indian Hot Springs area of far west Texas forms the basis for this context. Located along the Rio Grande in southern Hudspeth County, this cluster of seven geothermal springs is unique to west Texas, although a similar cluster of thermal springs is located at Ojos Calientes, Chihuahua, Mexico, just across the Rio Grande from Indian Hot Springs. The presence of aborigines at Indian Hot Springs is indicated by bedrock mortars at the locale; however, it is probable that other archeological remains have been destroyed by historic construction at the site. This entire complex of springs may have served as a nucleus or hub for the Indian groups of the region for 7,000 years or more. The aboriginal site types recorded in the area thus far include open campsites or villages, lithic scatters, rockshelters, and quarries or lithic-procurement sites. Ethnographic data (Hammond and Rey 1929, 1966), the presence of very large occupation sites in the area of the springs and for some distance upstream, and the lack of large numbers of structural features associated with permanent habitation are suggestive of the coalescence of microbands here during winter months (Gerald 1977:50), which supports the hub thesis.

The springs here are located on the Rio Grande floodplain, in the southern Hueco Bolson along the Caballo Fault, which is situated between the thick bolson deposit and the Quitman Mountains. The location, temperature, and chemical composition of the springs are the factors that make these water sources unique. This group of springs, the corresponding group just across the river in Mexico, and nearby Red Bull Spring are the only thermal

springs in the immediate area. The closest other springs of this type are about 100 kilometers downstream along the Rio Grande. A recent study (Henry 1979) of the geologic setting and geochemistry of thermal waters in Trans-Pecos Texas and adjacent Mexico has revealed some interesting aspects of the waters that emanate from Indian Hot Springs. Stump Spring was found to have the hottest springwater in Texas, measured at 47° C (117° F) (ibid. 1979:8). Another important revelation of the study was that these springs ranked very high in 11 of the 13 analyzed constituents. These highly mineralized waters are reputed to have therapeutic values that were realized by the aborigines of the area. A trough cut into the travertine deposit at Chief Spring is thought to have been made by aborigines interacting with the springs (Brune 1981:242; Babb and Taylor 1981:86). Thus, it is assumed in this historic context that the waters from the springs were valued by the aboriginal inhabitants of the region.

Indian Hot Springs is situated in an area of west Texas that has seen a paucity of archeological work over the years. This is in part due to the sparse population of the area and the consequent lack of developmental projects requiring cultural-resource-impact assessments. Another factor that has limited the number and scope of archeological endeavors here has been the presence of rich archeological remains in nearby regions that have drawn the attention of archeological investigators away from the less obviously spectacular resources of the Indian Hot Springs area. Regional studies have concentrated on archeological manifestations in the El Paso district to the northwest and the La Junta district to the southeast of the springs. Thus, a model for cultural continuity and change for the zone between these districts has not been developed. Accounts from early 16th-century Spanish expeditions through the area have been used in setting up some settlement models for the Historic period, but these models have been very limited in scope due to the lack of associated archeological data. Little or no archeological investigation has been undertaken in Mexico across from Indian Hot Springs, so cultural manifestations from the area to the southwest offer limited help in addressing this problem. Therefore, identifying, protecting, and investigating the many sites

around Indian Hot Springs is critical to the development of a model for cultural complexity in the area over time and should thus allow for a better understanding of the cultural mechanisms at work in the region as a whole.

Artifact collecting has occurred in the Indian Hot Springs area for over 100 years, yet formal archeological investigations here have been few in number and confined to the past 60 years. Six archeological projects, from 1932 to 1988, have been conducted in the immediate area, and all researchers have shared a common goal: to place the cultural remains of this area into the regional models of continuity and change established in the nearby El Paso and La Junta districts. Unfortunately, only one archeological excavation, that of a house structure near old Fort Quitman, has occurred in the broad expanse between these districts, so almost all data from the area comes from surficial contexts. E. B. Sayles was the first researcher to recognize the significance of the cultural remains in this area. Sayles, an archeologist working for the Gila Pueblo of Arizona, came to Texas to define the cultural variants present, their geographic distribution, and their relationship to other adjacent areas, especially the Southwest. He recorded and surface collected 6 sites in the Indian Hot Springs area in 1932. The next project in this area was conducted in 1948 by J. Charles Kelley, who worked with grant money through the University of Texas at Austin. Kelley's archeological reconnaissance along a lengthy stretch of the Rio Grande, between Fabens and Redford on the Texas side, recorded 58 archeological sites, surface collected 46 sites, and tested or partially excavated 4 of these sites (Kelley 1949a). Kelley's testing of one of the sites is the only professional excavation that has occurred to date anywhere near the Indian Hot Springs area. Kelley (1949b) concluded that the excavated house structure from that site was affiliated with the Jornada Branch of the Mogollon culture. Over 25 years went by before another archeological project was conducted in this area. This project, an archeological reconnaissance of Public Free School Lands in southern Hudspeth County, was sponsored by the Texas Historical Commission and the General Land Office. Warren M. Lynn, Barbara J. Baskin, and William R. Hudson, Jr., the project archeologists, recorded and surface collected three prehistoric archeological sites just upstream from Indian Hot Springs. The ceramic artifacts

observed suggested affiliations with the Jornada Branch of the Mogollon at these sites overlooking the Rio Grande floodplain (Lynn and Baskin 1975:46). The next investigation that encompassed part of this area was a Natural Area Survey sponsored by the Lyndon B. Johnson School of Public Affairs, the University of Texas at Austin. This archeological reconnaissance of the southern Quitman Mountains was conducted by Julio Betancourt and Ronald W. Ralph in 1976. They recorded 37 prehistoric and 8 historic sites during this survey, and once again the Jornada Branch of the Mogollon was well represented in the prehistoric remains observed (Betancourt and Ralph 1981:68–69). The next project in the Indian Hot Springs area was conducted in 1977 by Charles A. Johnson II of the University of Texas at El Paso for the International Boundary and Water Commission, United States Section. This appraisal of the cultural resources located along the Rio Grande between Fort Quitman and Haciendita, Texas, a 320-kilometer stretch, was designed to provide a preliminary inventory and evaluation of the sites that would be affected by a channelization and brush-clearing project. In all, 114 prehistoric and 42 historic sites were recorded along the narrow strip of floodplain. This study emphasized the lack of cultural deposits in the active floodplain and suggested that the large sites observed along the river were the product of seasonal (winter) coalescences of microbands (Gerald 1977:50). This project included a brief follow-up field session in 1980 under the direction of Rex Gerald. The last archeological reconnaissance in this area was initiated in 1988 by the Office of the State Archeologist. This work was directed by Robert J. Mallouf, State Archeologist, at the request of the landowners of Indian Hot Springs, with the objective of generating a National Register Multiple Property nomination for the sites in the area of Indian Hot Springs. A total of 58 sites were recorded, with 17 of these being previously known sites. The identification of previously unrecorded upland sites during this project will add new data for the formation of an overall model of settlement for the area. It is apparent from the surficial nature of the existing data that much archeological work, especially controlled excavations, needs to be initiated in the Indian Hot Springs area before realistic models of cultural continuity and change can be developed.

This context has been developed to assist the private landowners in the Indian Hot Springs area and the General Land Office of the State of Texas in planning the long-term protection of all archeological resources in the immediate vicinity of these springs. This context also provides a means for understanding the complex interrelationships over time that have produced the sites as they exist today. Preservation of these sites is important to the development of this context because of the lack of archeological excavations in this region. It is assumed that future archeological excavations could help in addressing research questions concerning settlement patterning, demography, subsistence, trade, warfare, chronology, environmental change, seasonality, hearth morphology, typology, intrasite patterning, architectural data, cultural affiliations, special studies in material culture, cross-cultural interactions, raw-material procurement, curandero or shamanistic rituals, and mortuary practices. The destruction of these sites would leave a serious gap in the data bank for the prehistory of this area, which would also hinder full reconstructions of adjacent areas and the region as a whole. Thus, this context addresses regional as well as local questions.

GEOGRAPHIC SETTING

Indian Hot Springs is located along the Rio Grande in southern Hudspeth County (Fig. 1). This area of Trans-Pecos Texas is near the northeastern edge of the Mexican Highlands section of the Basin and Range physiographic province (Fenneman 1931), which is characterized by broad intermontane basins surrounded by isolated mountain masses (Strain 1966:9). The Hueco Bolson is a wide basin-fill deposit that extends from near El Paso, Texas, southeastward along the Rio Grande, terminating just below Indian Hot Springs. This basin deposit is flanked by numerous mountain ranges in Texas and Mexico. The Hueco, Finlay, Malone, and Quitman Mountains border this bolson in Texas, while the Sierra de los Frailes, Sierra de las Bacas, Sierra de la Amargosa, and Sierra de los Pinos form its boundaries in Mexico. The entrenchment of the Rio Grande valley into the bolson, along with

active erosional forces, have created an area characterized by deep arroyos and flat divides. Topography in this area varies from the flat Rio Grande floodplain, to the gravelly dissected slopes of the bolson, to the steep foothills of the mountains.

The main geologic features of the area are products of vulcanism, subsequent block-faulting and folding, and the uplifting of mountain masses. Volcanic activities during the early Tertiary left much of Trans-Pecos Texas with extrusive rock. Thick volcanic rock, composed mostly of tuffs, welded tuffs, ignimbrites, and andesites, outcrops at the southern part of the Quitman Mountains. Erosion of the local tuff provided a source of tuffaceous clay, which may have been utilized by aborigines in the manufacture of ceramic vessels (Jones and Reaser 1970:13). During the Mid-Tertiary, extensive folding and block-faulting began, resulting in the uplifting of mountain masses. In the area of Indian Hot Springs, the Caballo Fault began movement in the Early Miocene and may still be active (Jones and Reaser 1970). This fault, a northwest-trending normal fault, is thought to be intricately related to the discharge of the springs there (Christopher Henry 1990, personal communication). It separates the Quitman Mountains and Cretaceous sediments to the northeast from the downdropped Hueco Bolson fill-deposits to the southwest. The intersection of the Caballo Fault and one or two other minor faults marks the location of Red Bull Spring, which is 5 kilometers northwest of Indian Hot Springs. Rio Grande Canyon, located just downstream from Indian Hot Springs, is a spectacular canyon that cuts through the southern Quitman Mountains and their Mexican extension, the Cieneguillas. This canyon, marking the southeast edge of the Hueco Bolson, may have formed a minor barrier to prehistoric and historic travelers in the region. The bolson fill was built up as erosional forces over time broke down the surrounding mountains and deposited the debris in the intermontane basin. Subsequent down-cutting of the Rio Grande through the bolson and the entrenchment of ephemeral tributary drainages has left the area in its present dissected state. Lithic resources suitable for the manufacture of stone tools are contained within the bolson fill and

within the igneous parent rock of the Quitman Mountains. Some of these sources have been exposed through erosive forces acting on the deposits in the immediate area.

The Indian Hot Springs area is within the Chihuahua biotic province as defined by Blair (1950). The province is locally characterized by a mixed tree and shrub division along the Rio Grande floodplain and a creosote bush and mesquite regime in most of the surrounding foothill slopes and upland areas (Johnson 1977:11). A wide variety of plant types can be found in the diverse ecological zones here: banks of the Rio Grande, Rio Grande floodplain, dissected foothills, canyons formed by intermittent drainages in foothills, and mountainous zones. Numerous native plants were identified in 1974 by Rose Ann Rowlett, General Land Office staff biologist, during the archeological reconnaissance of Talley Ranch (Lynn and Baskin 1975:15). This list of plants was compared to lists of wild plants utilized by Yuman, Pima, and Papago Indians living in similar ecological niches in the Southwest (Castetter and Bell 1942, 1951). Thus, the following plants from the Indian Hot Springs area may have contributed to the subsistence or other everyday needs of the aborigines here: saltbush, seepwillow, cholla, mescal, lotebush, wolfberry, desert-thorn, mistletoe, hackberry, Indian rushpea, mesquite and screwbean, catclaw, creosote bush, yucca, ocotillo, sotol, cottonwood, and desert tobacco (Lynn and Baskin 1975:15–17). These vegetal resources are spread widely across the terrain, with concentrations of specific plants occurring in the various ecological zones. The aboriginal use of the different ecological zones in this area probably was related, at least in part, to the plant communities that were present.

THERMAL SPRINGS

Thermal springs are rare in Texas but do occur with some degree of frequency in the Trans-Pecos region; however, the thermal springs in the Indian Hot Springs area are fairly well isolated geographically. Thermal or hot springs have been defined by Waring (1965), as springs with surface temperatures about 8° C (15° F) above the

mean annual temperatures of other springs in the area. The approximate annual average temperature for springs in west Texas and Mexico along the Rio Grande is 21° C (70° F) (Henry 1979:8). Thus, springs in this region measured at 30° C (86° F) or hotter are referred to as thermal or hot springs. Henry studied 22 thermal springs in this region of Texas and Mexico, including springs at Indian Hot Springs and nearby Red Bull Spring. Chief, Squaw, Stump, Beauty, and Soda springs were found to be the active springs, while the 2 others at the Indian Hot Springs complex, Dynamite and Masins springs, were found to be inactive when visited in 1976. Surficial temperatures varied from 47.2° C (117° F) at Stump Spring to 27.2° C (81° F) at Soda Spring. Red Bull Spring was measured at 37° C (92° F). The cluster of springs at Ojos Calientes, Mexico, across the river from Indian Hot Springs were not included in Henry's study.

The seven springs at Indian Hot Springs are spread out over a 700 meter by 300 meter area with all of the springs except Soda Spring emanating from a travertine plateau precipitated by the springs. Stump Spring was found to be the only spring that discharged to the surface; all other springs were found to discharge through permeable travertine or alluvium below the travertine (Henry 1979:8). Red Bull Spring emanates from fractures in claystone near the Caballo Fault trace. Currently, rock and wood "bathhouses" are located around Chief and Squaw springs while rock "tubs" or basins have been constructed around the others.

The dynamics involved in these spring systems are not fully understood, but a few hypotheses have been generated (Bell 1963; Christopher Henry 1990, personal communication). Henry's study, using chemical analyses, concluded that the thermal springs in this area of Texas and Mexico are recharged through meteoric (rain) water. The recharge zone probably is contained within the immediate area, including the Quitman Mountains (Christopher Henry 1990, personal communication). Using surface and subsurface reservoir temperatures and an estimated thermal gradient, the depth of circulation was calculated to be between 1,000 and 1,300 meters, where the waters are heated then apparently discharge upward using the Caballo Fault as an avenue (Henry 1979:42). The mineral con-

stituents present are thought to be a product of interaction with subsurface strata. Bell (1963:65) theorized that the springs were shallow artesian wells dug into the salt encrusted floodplain, but Henry (1979:8) rejected this hypothesis due to the extensive travertine mounds that have been built up.

As previously stated, the percentages of constituents present in the Indian Hot Springs waters are very high when compared to the other hot springs in Texas and nearby Mexico. Henry's chemical analyses at the 22 springs included in his study found the Indian Hot Springs cluster to rank very high for 11 of the 13 analyzed constituents, being first for 6 of these: boron, lithium, chloride, sulfate, potassium, and sodium. The Indian Hot Springs cluster ranked second for calcium, magnesium, and bicarbonate and third for nitrate and strontium (Henry 1979:24). This spring cluster also had the highest amount of total dissolved solids present. Therefore, it is apparent from this analysis that the waters emanating from these springs are unique and quite rare for Trans-Pecos Texas.

Henry also measured the temperatures of the springs he visited. Using a maximum reading thermometer, he concluded that Stump Spring had the highest temperature of the thermal springs in Texas, 47° C (117° F). In his study, only 2 springs in Mexico, about 100 kilometers south-southeast of Indian Hot Springs, had higher temperatures. Several efforts have been made in the past to record the water temperatures at Indian Hot Springs. Both Sellards and Baker (1934) and Stearns, Stearns, and Waring (1937) found Chief Spring to have a temperature of 48° C (120° F). In 1968, Jones (1968:131) reported temperatures at the springs as high as 52°C (126°F). In 1976, Henry (1979:24) found Chief Spring to be 44° C (110° F). Christopher Henry (1990, personal communication) cautioned against accepting the earlier recorded temperatures because of possible instrument error; he used a maximum reading thermometer but did not know what types had been used in the earlier studies.

There are indicators that some of the springs at Indian Hot Springs formerly overflowed. The extensive travertine deposits at Chief, Stump, and Squaw springs and the white residue covering the entire area around these springs suggest that a higher discharge rate occurred in the past. Stearns, Stearns, and Waring (1937) reported that

the springs ceased flowing after an earthquake in 1931, and Brune (1981:243) suggested that pumps installed in the larger springs and other pumping wells nearby might have affected the discharge rate. Brune felt that the decrease in discharge might be related to the decrease in temperatures recorded during the various studies over time. He suggested that the waters took longer to circulate as discharge fell off, resulting in lost heat along the way (ibid.:243).

The juxtaposition of Indian Hot Springs in relation to the other thermal springs in the region may be a very important aspect of this context. Red Bull Spring is only about 5 kilometers to the northwest but is distinctly different in temperature (35.6° C, 90° F) and mineral content when compared to Indian Hot Springs. The closest other thermal spring is in Mexico, about 100 kilometers downstream. The aboriginal inhabitants of the area must have valued these springs, especially during the winter months. The therapeutic value of hot water for tired or sore muscles is common knowledge today, and given the Indians' keen awareness of human ecology, it is a relatively simple assumption that they prized this unique resource.

CULTURAL SETTING

The long time span of cultural history in this part of west Texas is dominated by the prehistoric period. The earliest known cultural presence in this area was during the Paleoindian period (ca. 10,000–6,000 B.C.) This period was marked by subsistence strategies somewhat dependent upon megafauna that are now extinct. Trans-Pecos Texas is surrounded by regions with relatively high frequencies of Paleoindian sites; however, this specific area of west Texas has only had one definite Folsom site reported. That site is located northeast of Indian Hot Springs on Chispa Creek near Van Horn and Valentine, Texas (Johnson 1977; Lindsay 1969). The earliest presence in the Indian Hot Springs area can be assigned to the Archaic period (ca. 6,000 B.C.– A.D. 200). This lengthy period is characterized by a shift in adaptive strategies from the Paleoindian ways. Attention was focused on the seasonal exploitation of wild plant food sources, as well as the hunting of a broader range of modern fauna. The hunting and

gathering mode of existence led to a more structured settlement pattern based on seasonal rounds, suggesting a better understanding or more complete use of the total environment during this period. The Archaic period cultures in this area of west Texas are incompletely understood and may well be a product or extension of the Cochise culture (Lehmer 1948; Betancourt and Ralph 1981; Suhm, Krieger, and Jelks 1954) which was defined in New Mexico, Arizona, and Chihuahua by Sayles and Antevs (1941).

The Late Prehistoric period (ca. A.D. 200–1535) follows the Archaic period and is marked by a heavy dependence on domesticated plants, the first appearance of pottery, adoption of the bow and arrow, and the construction of house structures. During this period, agriculture was very important in certain sections of west Texas. The Mogollon culture, extending from eastern Arizona to western Texas and from central New Mexico to northern Chihuahua, was an influential cultural variant in the region at this time. The Mogollon culture has been divided into branches based somewhat on geographical subareas. The Jornada Branch (ca. A.D. 900–1400) defined by Lehmer (1948), covering eastern New Mexico and parts of Trans-Pecos Texas, is the branch of the Mogollon that is important to this context. Recent data from the area suggest that brownware pottery was being manufactured and used in the area from ca. A.D. 200-400 (Hard 1983; Whalen 1989; O'Laughlin and Martin 1989). For the purposes of this paper, A.D. 200 will be used for the beginning date of the Jornada Branch of the Mogollon. Evidence of the Jornada Branch in the El Paso area is strong, with the presence of a distinctive brownware pottery, pit house villages, and adobe pueblos (Aten 1972; Lynn and Baskin 1975). Changes in architectural and pottery styles around A.D. 1150 in the El Paso district have been attributed to the indigenous population responding to contacts with outside groups (Lehmer 1948; Schaafsma 1990). Schaafsma (ibid.:68) suggests that this contact was with groups from northern Chihuahua, possibly from the Casas Grandes area. Late prehistoric cultures in the Presidio area, southeast of Indian Hot Springs, developed somewhat later than those in the El Paso area but did have some similarities. The Bravo Valley Aspect (ca. A.D. 1200–present) was defined for cultures during the Late Prehistoric and Historic periods in

the southeastern Trans-Pecos, and was divided into 5 foci (Kelley, Campbell, and Lehmer 1940). The La Junta focus (ca. A.D. 1200–1400) and Concepcion focus (ca. A.D. 1400–1700) are cultural variants in the Presidio area that show evidence of agriculture, ceramics, the bow and arrow, and house structures. However, these variants are thought to be marginal Puebloan types representing local inhabitants who had borrowed certain traits from their neighbors to the northwest (Kelley 1952a; Suhm, Krieger, and Jelks 1954:45). The La Junta focus sites share certain elements with sites from the Jornada Branch of the Mogollon in the El Paso district, including El Paso Polychrome and a wide variety of intrusive pottery types; however, differences in architectural styles and the presence of certain dominant indigenous ceramic styles has caused several researchers to consider the cultural development of these two districts or areas to be very distinct (Kelley 1952a, 1952b; Kelley, Campbell, and Lehmer 1940; Lehmer 1960).

Pottery styles (types) found in the Indian Hot Springs area are similar to those that are dominant in El Paso district sites of the Late Prehistoric period. These wares date from about A.D. 200 to 1400 and are generally affiliated with the Jornada Branch of the Mogollon. These data argue for a strong affiliation between aborigines in the Indian Hot Springs area with the Jornada Branch of the Mogollon in the Late Prehistoric, a theory that has been expounded by numerous researchers (Lynn and Baskin 1975; Betancourt and Ralph 1981; Johnson 1977; Lehmer 1948, 1960; Kelley 1949b).

The Historic period of aboriginal life (ca. A.D. 1580–present) in this region is marked initially by Spanish contact and is characterized by exploration, the establishment of missions, the integration of Indian and Mexican cultures, and finally, the formation of a modern Anglo- and Spanish-American culture. The Conchos focus (ca. A.D. 1700–1800) of the Bravo Valley Aspect, defined by Kelley (1952b), represents the Spanish mission period. This focus is defined by a greatly expanded Spanish presence and the acculturation of the aborigines in this area. The Alamitos focus (ca. A.D. 1800–1900) and the Presidio focus (ca. A.D. 1900–present) are characterized by

development of the native culture through an intermingling of the native, Mexican, and Anglo constituents (Kelley, Campbell, and Lehmer 1940).

Four prominent Indian groups are mentioned in the historic and ethnographic accounts of the region. The Conchos and Jumanos are identified by Kelley (1952a, 1952b) as the nonsedentary aborigines present in the La Junta area around Presidio, Texas. Gerald (1973) suggests that the groups on the Rio Grande above El Cajon (about 15 miles upstream from Indian Hot Springs) belonged to the Sumas. Apache groups came into the region from the plains during the Historic period, but Spanish records do not paint a clear picture of their presence in the Trans-Pecos region (Kelley 1952a). Most of the historic and archeological knowledge of the western Trans-Pecos comes from the El Paso and La Junta districts. Thus, placing the intermediate sites of the Indian Hot Springs area into one or both of these frameworks is imperative to understanding the cultural history of the region as a whole.

HISTORIC ACCOUNTS

Various accounts throughout historic times mention this area of the Trans-Pecos. In the late 16th century, two Spanish expeditions traversed through western Trans-Pecos along the Rio Grande. The chroniclers of these expeditions recorded, in varying detail, the environmental conditions and aboriginal presence as they were encountered. The accounts of Hernán Gallegos from the Chamuscado-Rodríguez Expedition of 1581 (Hammond and Rey 1929) and Diego Pérez de Luxán of the Espejo Expedition of 1582 (Hammond and Rey 1966) offer the only glimpses of the Indian Hot Springs area during the early historic period.

The Rodríguez Expedition passed through west Texas in June 1581, recording very little about the area north of Presidio, Texas (at the confluence of the Rio Grande and Rio Conchos). Gallegos recorded that the "Amotomanco" Indians, living in plastered mud houses and cultivating calabashes, beans, and corn, were encountered at the confluence of the Rio Grande and Rio Conchos. This account clearly refers to the La Junta area of the

Rio Grande. This expedition traveled 18 days up the Rio Grande to a valley they called "La Magdalena," at which time the Amotomanco Indians who had accompanied them said that farther on were Indians who spoke a different language and were their enemies (Hammond and Rey 1966:78). After 2 days of travel, the Spaniards encountered a friendly group of Indians who said 3 days on were clothed people who practiced much agriculture (ibid.:79–80). After 3 days of travel, a marshy valley that extended 8 leagues was reached. The editors suggested that this swampy region was located along the Rio Grande between Guadalupe, Chihuahua, Mexico, and El Paso, Texas. Upon reaching New Mexico, Gallegos stated that they had traveled over 70 leagues in 15 days since encountering any other human beings. Lynn and Baskin (1975), in an attempt to retrace the steps of this expedition, concluded that La Magdalena was in the general vicinity of Indian Hot Springs. Apparently no aborigines were in the Indian Hot Springs area when this group of Spaniards passed through.

Luxán's account of the Espejo Expedition goes into much more detail. This winter expedition followed the same route taken by the Chamuscado-Rodríguez Expedition over a year earlier. This expedition also met friendly Indians, whom Luxán calls "Otomoacos," at the confluence of the Rio Conchos and the Rio Grande (Hammond and Rey 1966:164–165). After traveling 51 leagues, the expedition reached a place called "La Deseada," where over 200 Otomoacos were encountered. Eight leagues farther upriver, about 300 Caguate Indians were met at La Guardia del Caballo. The Caguates were said to be intermarried with the Otomoacos and to speak a similar language (ibid.:165-168). Lynn and Baskin (1975:15), using leagues cited and actual river miles, attempted to retrace the route of this expedition. They concluded that La Deseada was in the Indian Hot Springs area and that large numbers of Otomoacos were camped in the vicinity of these springs when the expedition passed through.

These accounts seem to indicate several possibilities about the Indians and their lifeways at the time of Spanish contact. Apparently, the Otomoaco or Amotomanco Indians were located from the area of Indian Hot Springs downstream to the La Junta area and their range probably did not extend upriver very far above Indian Hot Springs.

No mention was made about living structures or agricultural pursuits in the Indian Hot Springs area in either of these accounts. Using these two accounts and archeological survey data, Gerald (1977) suggested a settlement scheme for the area at the time of Spanish contact. He theorized that at this time the Indians here were hunters and gatherers, occupying the river stretches in large numbers during winter months and dispersing into microbands through the upland areas during the rest of the year (ibid.:50). This suggestion seems to fit the narratives, which indicate no Indians in the area during the summer and many there during the winter; however, this conclusion should be regarded as tentative, since it is founded on only two sketchy historic accounts and has not been demonstrated archeologically.

Apache presence in the area between El Paso and Presidio is mentioned only a few times in the next 270 years. In the mid-18th century, Everitt (1977:22) reported that Joseph de Ydoiaga described this area, especially around "El Cajon" (about 15 miles upstream from Indian Hot Springs), as being dominated by the Apache Indians. In the mid-19th century, Whiting (1849) mentions Apaches practicing winter seasonal occupations in the valleys of the Rio Grande, noting abandoned lodges during the summer months.

A mail and passenger route, dubbed the "Jackass Mail route," was established in 1857 between San Antonio and San Diego (Underwood 1975:168). The following year it was taken over by the Butterfield Overland Mail and used until 1861, when it was discontinued as a result of the Civil War. The Apache Indians of the area made this journey a very precarious one, necessitating the use of armed guards (McMillen 1955:230). Fort Quitman, upstream from Indian Hot Springs, was built in 1858 to offer some protection for this route but was abandoned during the Civil War. It was briefly reoccupied during an Apache uprising led by Victorio in 1879–1880. A united effort between Mexican and United States military forces succeeded in driving the last Apaches out of the region by 1881 (Betancourt and Ralph 1981:42).

RESEARCH TOPICS

Based on the sketchy archeological and ethnographical data from Trans-Pecos Texas, it is possible to identify a number of research topics that could be addressed using data from the prehistoric and historic aboriginal sites in the Indian Hot Springs area. Each research topic is guided by two broad questions: (1) What kinds of lifeways existed among the aboriginal inhabitants of the Indian Hot Springs area and how did they change through time? (2) Were the aborigines in the Indian Hot Springs area a distinct indigenous group or were they associated in some manner or offshoots of other cultural groups—i.e., how did the regional cultural dynamics influence the aboriginal inhabitants of this area through time? These general questions can be explored by pursuing the following research topics.

1. Settlement Patterns. The order created by a culture interacting with the environment can be thought of as settlement patterning, that is, a structuring of the various cultural activities across environmental zones, at a specific point in time. Since this area is incompletely documented archeologically, few time-specific questions can be formulated at present. One broad settlement-related question, which covers the complete time span of cultural occupation here, is the determination of what relationship, if any, exists between the settlement patterns over time and their proximity to the springs at Indian Hot Springs.

A few generalizations can be made about the relationship of property types to environmental zones. As would be expected, the relatively small open campsites in the uplands are concentrated along the narrow terraces of the intermittent drainages and on the ridges between drainages. The large open campsites or villages are located on the terraces and upper floodplain of the Rio Grande, where expansive flat areas offered enough space to support large groups. These locales are also adjacent to the resource-rich zone present along the river. Rockshelters, lithic scatters, and quarries or lithic procurement sites are generally confined to upland or foothill zones. The relationship of site

types to environmental zones in this area of the Trans-Pecos has not been adequately studied. Prewitt (1983) has researched this relationship in the eastern Trans-Pecos region—a very different environment from that at Indian Hot Springs—by using infra-red photography to predict site locations, but that study area was entirely in an upland zone well away from the Rio Grande. He did note a marked variation in site density for the different associated landforms (ibid.:44). A study of this relationship in the Indian Hot Springs area should help in defining the settlement patterns here over time.

Specific problems under this topic concern the Late Prehistoric and Historic periods. A general model for settlement in this area at the time of Spanish contact was proposed by Gerald (1977), using archeological reconnaissances and ethnographic data. The Gerald model proposed that a hunting and gathering mode of existence was practiced in this area and that microbands were dispersed throughout the uplands for most of the year. The model also suggested that these microbands coalesced in large gatherings along the Rio Grande during winter months (ibid.:50). The presence of very large sites along the river around and upstream from Indian Hot Springs, and the two historic accounts from this time period, generally support this hypothesis. If this model is a viable one, several important questions can be formulated, including the following: Were ecological or environmental factors responsible for this settlement scheme or was this pattern a result of underlying socio-religious factors or a combination of factors? What role did economic or subsistence factors have in shaping the settlement pattern? From the reconnaissance data in this area, it is very striking that large sites occur along the Rio Grande, while smaller sites generally are located in the adjacent foothills and upland areas. The small sites in the upland zone are located in a very different environmental and ecological zone than the large sites along the river, which undoubtedly affected settlement schemes to some extent. The large sites could be a product or function of small group encampments occupying the same locale over time, but this possibility is based on pure conjecture at this point. Unfortunately, from the survey data alone, none of the questions posed within this topic can presently be actively pursued. Understanding the vari-

ous settlement schemes through time is essential to understanding the lifeways of the aboriginal inhabitants of the Indian Hot Springs area and the region. Future research, especially controlled excavations, will be needed to address the settlement questions posed by this context. This will create the data necessary to formulate more specific settlement questions.

2. Seasonality. This topic concerns the seasonal use of the Indian Hot Springs area and is closely linked with the previous topic of settlement patterning. Seasonality, in basic terms, is the use of an area or areas within a region during a specific time or season of the year. This subject is approached through the analysis of recovered floral or faunal material diagnostic of certain times of the year. The settlement model proposed by Gerald (1977) for this area of Trans-Pecos Texas at the time of Spanish contact is based largely on ethnographic data and implies that seasonality played a major role in the aboriginal lifeways of the region. His model suggests that microband exploitation of the resources away from the Rio Grande occurred during the spring, summer, and fall seasons, and that the winter season was a time of coalescence of the microbands in a riverine setting. In exploring this model, the following questions should be addressed: What were the reasons for this seasonal dichotomy? What resources were being exploited during the various seasons in the different environmental zones? Why were large permanent settlements established both upriver and downstream but not in the Indian Hot Springs area? Were the thermal springs a major determining factor involved in the winter presence of large numbers of aborigines in the Indian Hot Springs area? The answers to some of these questions may never be realized, but future research should, at least initially, concentrate on these aspects of seasonality until archeological excavation generates new questions.

3. Demography. Demography is the statistical study of the characteristics of human populations. Subjects which fall under this topic include group size, population density, population growth, migration, distribution, and vital statistics. The effect that all of these have on social and economic conditions also comes under the realm of demographic

research. Some basic questions to consider initially are the following: Who were the aborigines in the Indian Hot Springs area, where did they originate, and when did they arrive? Was there an influx of other cultural groups through time into this area? For the Indian Hot Springs area, identification of the cultural affinities of aboriginal sites dating from the Archaic period is very problematic due to a paucity of associated diagnostic artifacts, the lack of archeological excavations, and a general dearth of archeological work in this area.

The presence of certain pottery types in the Indian Hot Springs area is indicative of an association with the Jornada Branch of the Mogollon during the Late Prehistoric period (Lynn and Baskin 1975; Johnson 1977; Betancourt and Ralph 1981). The Historic Suma Indians are thought to have occupied stretches of the Rio Grande north of El Cajon (Gerald 1973; Johnson 1977). Kelley (1952a, 1952b) argued that Jumanos and Conchos Indians were the non-sedentary cultural groups in the La Junta area. Historical accounts suggest that inhabitants of the Indian Hot Springs area had cultural ties with groups in the La Junta district (Hammond and Rey 1929, 1966). Unfortunately the historical accounts use a variety of names to identify the cultural groups of the region, many times using the names of group leaders for identification (Lehmer 1960:111). This array of names has made it very difficult to sort out the cultural affiliations of the aborigines in the Indian Hot Springs area during the early Historic period. Later in the Historic period, Apache groups were noted in this area of west Texas, but, because of the sketchiness of the Spanish records, little can be stated about their relationships to one another or to the local aborigines of the area (Kelley 1952b).

Demographic parameters are very important to understanding the lifeways of the aboriginals in this area. Unfortunately, very little is known about the demographic character of these aborigines due to the lack of archeological excavation data and incomplete Spanish records. Some questions to consider are the following: How did group size and population density change over broad expanses of time and throughout the year during specific time periods? Is there a valid correlation between site size and group size; that is, were sites reused over time frequently

enough to expand their boundaries beyond what was utilized at any point in time? What were the rates of population growth and decline in the area throughout time? How was the population spread across the environment and what factors were related to this distribution? Were there extensive migrations of populations in this region through time, and if so, where did they originate and what were their destinations? What were the birth and death rates for the aborigines in this area, and, if these rates changed over time, how did they change and what caused these changes? Answers to these and other, similar questions are necessary to understanding the Indian Hot Springs aborigines and their cultural complexity from Paleoindian through Historic times.

4. Subsistence. Subsistence strategies probably evolved throughout time with the changing environment. To date, no information has been gathered on subsistence in this area of the Trans-Pecos, but data from adjacent areas are available. A house structure excavated in 1948 near old Fort Quitman contained charred beans of the tornillo, or screwbean, tree in association with El Paso Brown pottery (Kelley 1949b:108–109). This tree has been identified in the Indian Hot Springs area (Lynn and Baskin 1975:16), and screwbeans were a primary wild plant food of the Yuman Indians, who occupied an ecological niche similar to that of the Indian Hot Springs area (Castetter and Bell 1951:179–185). Beans, squash, and cobs of 8-, 10-, and 12-row corn have been recovered from caves and rockshelters in the Big Bend region of Texas (Kelley, Campbell, and Lehmer 1940:27; Lehmer 1960:125). The accumulations of fire-cracked stone known as "sotol pits," "ring middens," or "mescal pits" that are located in central and west Texas, New Mexico, Arizona, and northern Chihuahua have been theorized to represent the cooking of various vegetal substances, including sotol, mescal, or maguey (Greer 1965). Other possible wild plant food sources identified in the Indian Hot Springs area by Lynn and Baskin (1975:15–17) include Indian rushpea, wolfberry, desertthorn, hackberry, mesquite, lotebush, mescal, cholla, seepwillow, and saltbush.

Some questions to consider concerning subsistence in this area are the following: What were the burned-rock middens being used for—were they related to some type of subsistence activity? How important was agriculture to the aboriginal diet during the Late Prehistoric and Historic periods? What food types were grown in the Indian Hot Springs area? How much were animals, especially deer and desert bighorn sheep, relied upon in the aboriginal diet over time? Were there adaptive strategies for subsistence that greatly affected settlement patterns? What kinds of activities were involved in the preparation of the different food sources utilized? Were food sources stored or cached for long or short periods of time, and, if so, how was this storage accomplished? The pertinent data for answering these questions is still to be collected and synthesized. Recent advances in archeological methods, such as residue analysis and phytolith studies, should be able to contribute to the much-needed synthesis of subsistence data. The answers that such studies can provide to basic subsistence questions would greatly expand our understanding of the lifeways of the aborigines in the Indian Hot Springs area.

5. Trade. The exchange of items and ideas between cultural groups can cause many problems for the archeologists attempting to recreate the lifeways of a certain group. Analysis of an obsidian cruciform from 41 HZ 181 revealed the source of origin of this material to be southwestern New Mexico. This evidence suggests that either a broad area was exploited by Indian Hot Springs' aboriginal inhabitants or, more likely, that a trade network existed. Despite limited data on trade for the Indian Hot Springs sites, the presence of large numbers of pottery sherds diagnostic of the El Paso district indicates that these sites have a high potential for addressing this topic. Actual trade between the different indigenous groups or indirect diffusion of the techniques involved in the manufacture of the distinctive pottery types may have occurred. Another possibility is that some of the aborigines in the El Paso district migrated into the Indian Hot Springs area. Historic accounts suggest that much interaction occurred among the Indians along

the Rio Grande at the time of Spanish contact (Hammond and Rey 1929, 1966), so trade may well have played a significant role in influencing the lifeways of the aboriginal inhabitants here.

Data from sites in the Indian Hot Springs area can be used in addressing two basic questions: What role did trade have in shaping the material culture of the area through time? Were items actually traded or did the diffusion of ideas enable the indigenous populations to manufacture the "trade" items themselves? Once these basic questions have been addressed, using data from the sites in the Indian Hot Springs area, other, more sophisticated questions concerned with trade may be formulated.

6. Warfare. Little is known about the nature of relations between cultural groups in the Indian Hot Springs area from Paleoindian through Historic times. From the scanty archeological data presently collected, this topic cannot be addressed at all. The historical accounts from early Spanish expeditions through the area suggest that the cultural group in the vicinity of Indian Hot Springs were enemies of a group upriver to the northwest (Hammond and Rey 1929:33). Two broad questions should be pursued: How important was warfare in the Indian Hot Springs area and did it shape the material culture, settlement schemes, or socio-political mechanisms over time? Did warfare involve protection of the unique thermal springs at Indian Hot Springs? Data from controlled excavations at sites in the Indian Hot Springs area may be able to shed light on this topic.

7. Chronology. All of the research topics discussed in this section are dependent upon some form of adequate dating. Chronology involves developing a temporal order for the cultures and sites in an area or region. To do this effectively, either a strong typology must exist for the material culture present or analyses involving absolute dating must be utilized. Unfortunately, no absolute dating of archeological materials from the Indian Hot Springs area has been achieved. All current efforts to reconstruct the chronological order of the sites here must rely on artifact typologies.

Work on the Coahuila complex of northeastern Mexico, as defined by Taylor (1966), has resulted in a general understanding of the styles of projectile points that were used in that area through time; however, point types in Trans-Pecos Texas tend to be unique expressions of the types found in adjacent areas. Much work needs to be done in developing a projectile-point typology for this region before these types of chronological markers can be used effectively. Typologies have been extensively developed for the styles of pottery that are found in the Trans-Pecos, but these temporal markers cover only the Late Prehistoric and Historic periods. It becomes painfully obvious that, as a result of the paucity of archeological endeavors here, the largest extent of human existence in the Indian Hot Springs area is poorly defined chronologically.

Some chronological questions to consider are the following: Was there a Paleoindian presence in this area of Trans-Pecos Texas, and, if so, how extensive was this presence? How did dart point styles change throughout the lengthy Archaic period? What were the contemporaneous arrowpoint and pottery types during the Late Prehistoric and Historic periods? The potential for addressing these questions is good, since many of the sites in this area appear to have intact deposits that may contain datable material. The use of absolute dating methods, like radiocarbon analysis and thermoluminescence, must be employed if we are to achieve a better understanding of the cultural chronology of archeological sites in the Indian Hot Springs area.

8. Environmental Change. Environmental change can have significant effects on human cultures, both present and past. In fact, many models of prehistoric cultural change are based to some extent on the changing environment. A general question to be addressed concerning this topic is what roles environmental changes through time have in shaping cultural changes. Over the past 35 years, two avenues of research have contributed to the reconstruction of paleo-environments: analyses of pollen and of wood-rat (*Neotoma* sp.) middens. Only general reconstructions based on pollen analyses have been proposed for the Trans-Pecos region (Antevs 1955; Bryant 1974; Bryant and Shafer

1977;); however, data from wood-rat middens have contributed extensively to the understanding of the changing environment.

Pollen data suggest that the Late Glacial period (ca. 14,000-10,000 B.P.) was marked by generally warmer and drier conditions than had previously existed and by the disappearance of much of the woodland and parkland regions of Texas. An important factor in making this determination was the decline of pinyon-pine pollen across much of north and west Texas at this time (Bryant and Shafer 1977:13). The fossil pollen record also suggests that scrub grasslands began to take over much of the woodland and parkland areas of Texas after 10,000 B.P. (ibid.:15).

Wood-rat midden deposits have proved to be more reliable indicators of past environments than pollen residue because of higher taxonomic resolution and more certainty as to source area (Van Devender, Thompson, and Betancourt 1987:324). Faunal remains from wood-rat middens in the Hueco Mountains northwest of Indian Hot Springs suggest that for the past 42,000 years the Hueco Bolson has been an open grassland (Van Devender, Bradley, and Harris 1987:191). Wood-rat middens from the Quitman Mountains, dated between 18,000 and 11,000 B.P., suggest woodlands, including *Pinus remota* (Papershell pinyon), *Quercus pungens* (Sandpaper oak), and *Juniperus* sp. (Juniper), at an elevation of 4692 feet (1430 meters) above mean sea level (Van Devender 1986:101). Other associates from the midden dated at ca. 11,000 B.P. include *Pinus edulis* (Colorado pinyon), *Opuntia imbricata* (Cane cholla), and *Berberis haematocarpa* (Mountain barberry) (Van Devender, Freeman, and Worthington 1978). Numerous analyses of wood-rat middens from the Chihuahuan Desert suggest that fewer xeric species existed in northern portions of this desert than in southern portions during the terminal Pleistocene (ibid. 1978:295).

Mallouf (1981:141), in a hypothesized model for the spread of Archaic adaptations during the Early Holocene in west Texas, proposed that between 12,000 and 8,000 B.C. a desert shrub refugium of Chihuahuan Desert species intermixed with xerophilous woodland species was present in the eastern Big Bend region (ibid.). This

environment was thought to contain a maximum potential for the human gathering economies that are associated with Archaic lifeways (ibid.). Mallouf's model suggested that the spread of this environment to the northern portion of the modern Chihuahuan Desert occurred about 2,000 years after it was present in the eastern Big Bend (ibid.:140). A recent synthesis of the vegetative history of deserts in the Southwest supports Mallouf's model. This synthesis, based on wood-rat (*Neotoma* sp.) midden analyses, suggests that during the Late Wisconsin (ca. 20,000 B.C.–9,000 B.C.) a shift from summer to winter precipitation was accompanied by fairly cool summers (Van Devender, Thompson, and Betancourt 1987:346). The Early Holocene (ca. 9,000 B.C.–6,000 B.C.) was marked by a transitional climate with increased summer temperatures, while the Middle Holocene (ca. 6,000 B.C.–2,000 B.C.) was a warmer period overall but marked by numerous severe winter incursions of freezing Arctic air that may have been responsible for preventing desert-scrub plants, like lechuguilla, from invading the northern Chihuahuan Desert at this time (ibid.:347–348). The Late Holocene (2,000 B.C.–present) was marked by a reduction in the frequency of severe winter freezes and more summer rainfall, which allowed migration of desert-scrub plants into the northern portion of the Chihuahuan Desert by 2,000 B.C. (ibid.:348). This synthesis and Mallouf's (1981) model of cultural adaptation in the Chihuahuan Desert present an example of potential interrelationships between a changing environment and human adaptive responses. Further refinement of this framework, through additional analyses of wood-rat middens and possibly pollen in the Indian Hot Springs area, will allow more site-specific inferences to be made.

9. Hearth Morphology. The different types of hearth construction found in prehistoric and historic aboriginal sites in west Texas indicate several possible scenarios. Hearth types vary from small circular rings of stone, to large solid pavements, to small basin-shaped pavements. Several questions should be considered when addressing this topic: What were the hearths being used for? Were differences in hearth morphology the result of different cultural groups

or differing specific uses? Can hearths be used as chronological markers? Were certain rock types through time favored over other rock types during hearth construction? To formulate the answers to these and other questions, archeologists must undertake the excavation of a broad sample of hearths, analyzing and, where possible, dating the contents. Thermoluminescence and radiocarbon analysis should be applied to dating thermally altered stones and charcoal, respectively. Once this research topic has been properly addressed for this area, the data should be tested across west Texas, where an abundance of hearths are surficially exposed or partially buried.

10. Typology. Typologies of both lithic and ceramic artifacts form the basic framework of chronologies in archeological contexts. Projectile-point typologies have been developed and synthesized for the state of Texas (Suhm, Krieger, and Jelks 1954; Suhm and Jelks 1962; Turner and Hester 1985) and some initial work has been undertaken for northern Coahuila (Taylor 1966). Typologies are strongly documented for central, south, and east Texas, where large numbers of archeological projects involving excavation have occurred. However, due to the lack of formal excavations, the projectile-point typologies for west Texas are fairly weak, with many or most points falling into the "untyped" category. Development of the much-needed typology will come only through the archeological excavation of stratigraphically intact deposits that contain both projectile points and materials that can be dated absolutely.

Ceramic typologies for west Texas have been developed to a greater extent, especially for the El Paso and La Junta district cultural centers (Mera 1938, 1943; Sayles 1936; Runyan and Hedrick 1973; Lehmer 1948; Hawley 1950; Hard 1983; Kelly 1986; Miller 1989; O'Laughlin and Martin 1989; Whalen 1989; Miller 1990). The diagnostic ceramics of the Bravo Valley Aspect, centered in and around La Junta, include many types typical of the Jornada Mogollon and of northern Chihuahua. However, according to Kelly (1986:82) there is "an absolute break" (regarding ceramic types) between early and late foci. Later ceramic types for the La Junta

district include, in their earliest manifestation, a number of as of yet undescribed or unidentified types, as well as Chinati textured and painted wares, Palomas Red-on-Gray, and Conchos Red-on-Gray.

Diagnostic ceramics for the Jornada Mogollon had been defined to include the ubiquitous El Paso brownwares, bichromes and polychromes, in common association with Mimbres Black-on-White (styles II and III), Three Rivers redwares, Chupadero Black-on-White, and less commonly a variety of textured or painted wares from northern Mexico, particularly from the region of Casas Grandes. However, recent studies by Miller (1988, 1990) provide substantive data which suggests that the previously defined ceramic diagnostic indicators are invalid. Furthermore, Miller has been able to refine the chronological sequence of the El Paso wares and convincingly demonstrate that a substantive break occurred in these associations at ca. A.D. 1150. Interestingly this break in ceramic traditions corresponds very nicely with the declining influence of the Chaco Canyon Anasazi manifestation and the Mimbres branch of the Mogollon and the subsequent rise in the influence of Casas Grandes and other traditions.

The break in ceramic associations at A.D.1150 also corresponds to the time thought to be encompassed by the Doña Ana phase. As originally defined by Lehmer, (1948) the Doña Ana phase was thought to be a transition between the earlier Mesilla and the later El Paso phases. Diagnostic elements of the Doña Ana phase were thought to include a co-occurence of the above-referenced ceramic types and both subsurface and surface architectural styles. Miller's observations suggest otherwise and have important ramifications regarding the temporal placement of sites within the Jornada Mogollon, as well as cultural dynamics overall. Although he does not directly discount the validity of the Doña Ana phase, his data corroborate in part the large-scale changes noted in the dynamic interactions of 12th-century cultural manifestations throughout the American Southwest (see Research Topic 15). This data has been incorporated into the present analysis of the Indian Hot Springs ceramic assemblages.

Specifically, Miller has been able to significantly refine the temporal sequence of El Paso painted wares. For example, he has been able to demonstrate that El Paso bichrome may have appeared as early as A.D. 1000 and certainly by A.D. 1050. Too, he has been able to define an early variant of El Paso polychrome that appears to range in age from A.D. 1050 or 1100 to 1150, some 150 to 100 years earlier than originally defined. Miller also determined that Mimbres Classic wares were not being found in contexts dating later than A.D. 1150, which fits the published data for the demise of this particular manifestation (Anyon and LeBlanc, 1984). Pre–A.D. 1150 ceramic associations then are hypothesized to consist of El Paso brownwares, bichromes, an early polychrome variant, Mimbres Black-on-White, and Viejo period sherds from Casas Grandes. Mimbres Black-on-White has been clearly demonstrated to terminate at or around A.D. 1150 (LeBlanc, 1980). Ceramics post-dating A.D. 1150 include El Paso brownwares, the late variant polychrome, Three Rivers redwares, Chupadero Black-on-White (Anasazi), and Medio period (Casas Grandes) sherds, and each of these dates from approximately A.D. 1150 to ca. 1400. These findings significantly alter earlier interpretations of the Jornada ceramic assemblages and enable investigators to more accurately define the temporal affiliation(s) of any given site.

Johnson and Gerald (1977) in their survey between Fort Quitman and Haciendita, Texas, collected a small sample of ceramics, including some from several sites within the current nomination area. Lynn and Baskin (1975) collected 102 pottery sherds from the three sites they visited near Indian Hot Springs, and the most recent survey conducted by the Office of the State Archaeologist collected an additional 282 sherds. As a result of these collections only 2 of the 24 ceramic-bearing sites included in the current nomination can be tentatively assigned to a period of occupation which predated or postdated the hypothesized break in Jornada ceramic traditions at A.D.1150. However, if one were to consider simply the presence of diagnostic sherds from these periods of time (recognizing that undifferentiated El Paso brownwares or unidentified sherds exist on 22 of the

24 sites) then a slightly different picture emerges. One should however bear in mind that these assignments are based exclusively upon the uncontrolled surface collections of several investigators and are therefore tentative assignments at best.

To date, the only ceramic-bearing component that definitely predates A.D. 1150, based upon the presence of Mimbres Classic (Style III) and Playas red incised (Viejo period) wares is site 41 HZ 183. However, the site also contains undifferentiated El Paso brownwares and may date as late as A.D. 1400. Two sites, 41 HZ 1 and 41 HZ 409, appear to minimally post-date A.D.1150 based upon the presence of a single El Paso polychrome sherd in the former and three Chupadero Black-on-White sherds in the latter. These are the only two sites containing sherds exclusive to any single period. However it is not known if this may simply be a reflection of collection bias. Five sites contain diagnostics (other than undifferentiated brownwares) that suggest a wide span of time. Sites 41 HZ 182, 303, 418, 290, and 292 contain El Paso bichromes, early and late variant polychromes, Mimbres Black-on-White, Chupadero Black-on-White, Three Rivers redwares, and both Viejo and Medio period wares from the Casas Grandes region. Should well-stratified deposits exist, these 5 sites have the potential of providing data with which to confirm Miller's observations, and to help understand the overall developmental sequence for the vicinity. The remaining 15 sites (41 HZ 7, 181, 283, 287, 295, 297, 301, 302, 304, 306, 340, 423, 429, 433, and 447) each contain exclusively undifferentiated brownwares or unidentifiable sherds and can only be assigned to the general Jornada sequence.

Work on refining these typologies would contribute greatly toward the creation of a usable chronology for the Indian Hot Springs area. The categorization and dating of currently unidentified sherd types would be especially useful in deciphering the cultural mechanisms that were at work in the Late Prehistoric and Historic periods.

11. Intrasite Patterning. Intrasite patterning can offer a means for deciphering how various activities were arranged in a camp or village during a specific time period or occupation. This kind of study can reveal an array of subtleties about a site that contributes to the understanding of aboriginal lifeways. In the Indian Hot Springs area, many sites are surficially exposed and thus offer relatively ready opportunities for the study of intrasite patterns. The challenge lies in temporally identifying the features on the surface to establish temporal relationships. Establishing contemporaneity between features and work areas is a must when addressing this topic. Since buried remains typically offer materials that are better preserved for the purpose of absolute dating, sites with intact deposits will be more useful in the study of intrasite patterning. Of the researchers who have worked on sites in the Indian Hot Springs area, only Lynn and Baskin (1975) noted, although briefly, the presence of intrasite patterning. At sites, 41 HZ 181 and 41 HZ 182, they observed areas that appeared to be preferred for knapping (ibid.:46).

Some questions to consider when addressing this topic are the following: What kinds of activities occurred at the different property types? How did activities at the different property types change over time? Is there a relationship between site size and the number and variety of activities that occurred at a site? Answers to these questions will be realized only through the archeological excavation and absolute dating of a broad sample of the area's remaining cultural materials.

12. Architectural Data. Evidence of aboriginal architecture related to the Late Prehistoric and Historic periods has been reported from this area of the Trans-Pecos region by various researchers (Sayles 1935; Kelley 1939, 1949b; Kelley, Campbell, and Lehmer 1940; Lehmer 1948); however, only one site (41 HZ 303) in the Indian Hot Springs area has been recorded as having possible aboriginal structural remains. This large site contains many burned-rock features and several depressions in the sand dunes that may be the remnants of pit-house structures. Vegetation at the site has stabilized the dunes to a greater extent than was observed at the other sand-dune sites in this vicinity.

Most architectural evidence from this region is from the extensive village sites located in the El Paso and La Junta districts (Kelley, Campbell, and Lehmer 1940; Lehmer 1960). In the El Paso district, the Mesilla Phase (ca. A.D. 900–1100) marks the earliest appearance of architectural structures, in the form of both round and rectangular pit houses (Lehmer 1948, 1960). The Doña Ana Phase (ca, A.D. 1100–1200) and the El Paso Phase (ca, A.D. 1200–1400) were times of evolving, multi-roomed, surface pueblos built of adobe (Lehmer 1948, 1960); Schaafsma (1990:68) feels that these pueblos represent a local response to cultural traits that had drifted north from northern Chihuahua. In the La Junta district, aboriginal house structures appear during the La Junta focus (ca, A.D. 1200–1400) and Concepcion focus (ca, A.D. 1400–1700) and are somewhat different from the structures of the El Paso district (Kelley, Campbell, and Lehmer 1940; Kelley 1952b, 1953; Lehmer 1960). The earliest structures associated with the La Junta district were rectangular and circular single-room dwellings built in deep or shallow pits. The dwellings built in deep pits were rectangular and the walls were built inside the unplastered pits, a structural variety not apparent in the El Paso district. The other structures associated with the La Junta focus were small, shallow, circular or oval pit houses and rectangular rooms in shallow pits. This shallow-pit variety is similar to structures associated with the El Paso Phase of the El Paso district (Kelley, Campbell, and Lehmer 1940:33).

A pit house located just upstream from Indian Hot Springs near old Fort Quitman is the only structure that has been investigated in the immediate vicinity of Indian Hot Springs. J. C. Kelley's 1948 excavations at this site revealed intact portions of the pit wall, suggesting that the original pit was fairly shallow and had been lined with wet adobe clay (Kelley 1949b:107–108). The house structure was somewhat unusual for the area, although certain traits were similar to those observed in the El Paso district. The house was felt to be a local expression of the Jornada Branch of the Mogollon, and was thought to be best suited for seasonal use (Kelley 1949b:108–109). A seasonal dwelling expressing localized traits of the Jornada Branch of the Mogollon may well be the type of structure to expect in the Indian Hot Springs area, given the evidence of seasonality that has been suggested for other site types.

Some questions to consider on this topic are the following: What types of structures were used in the Indian Hot Springs area and what is their cultural relationship? What were the unique aspects of construction in this area? Which sites in the Indian Hot Springs area contain evidence of architectural remains, and how do they relate to each other? Were the structures in this area seasonally occupied or intended for year-round use? Data from these sites will provide a means for understanding the relationship between architectural designs and other cultural traits of Late Prehistoric and Historic Indians in the Indian Hot Springs area.

13. Cultural Affiliations. This topic has been touched on somewhat in discussions of almost all of the previous topics and is only briefly summarized here. The greatest potential for identifying the cultural groups of this area is felt to lie in sites of the Late Prehistoric and Historic periods, because these are the periods for which comparative culturally related data are most abundant. Aboriginal groups at Indian Hot Springs from these time periods have been linked to the El Paso and La Junta districts. Historic affiliations with Suma, Jumano, and Apache groups may be demonstrated, while links with the Jornada Branch of the Mogollon seems likely for the Late Prehistoric period. The nature and extent of these relationships need to be addressed. The Paleoindian and Archaic periods are at present sketchily documented in this area of west Texas, and there is thus little immediate potential for the identification of cultural affiliations in the sites of these periods.

Some questions to guide research on this topic are the following: Was there an indigenous group in the Indian Hot Springs area that accepted the diffusion of methods or ideas from other areas, or were groups from nearby areas occupying the sites in the vicinity of Indian Hot Springs? Does the material culture at Indian Hot Springs resemble the material culture of groups from adjacent areas? To what extent did Apache groups occupy this area? Are there generalizations that can be made about the cultural affiliations of the Archaic groups that occupied this area? Once

again, in order for archeologists to address the cultural complexity at Indian Hot Springs, the sites must be protected and subsurface investigations undertaken.

14. Special Studies in Material Culture. The data on material culture from the sites at Indian Hot Springs can be approached from several different avenues. Special studies, exploring the material culture remnants, could expand our understanding of the processes involved in the lifeways of the aboriginal inhabitants of this area. Various focuses on lithic, ceramic, floral, faunal, and perishable items should help in this endeavor. Lithic analyses to define the technologies utilized, the material types favored, and the residues present on tool edges will be especially helpful. Ceramic analyses investigating temper, paste, and sherd residues should also add to the material-culture data bank. Studies of floral, faunal, and perishable remains, focused on identification, will provide data for addressing questions concerning environmental change, seasonality, and subsistence.

The archeological projects that have been conducted in the Indian Hot Springs area have incorporated some of these studies into their findings, but, for the most part, these avenues of research have yet to be fully explored in area investigations. Betancourt and Ralph (1981:47, 59) identified in the area three lithic sources associated with the contact zones between igneous and sedimentary rocks: (1) a black to dark brown, fine-grained, basaltic rock that grades into cooked clays: (2) a green stone that may be metamorphosed sandstone or quartzite (most of the hammerstones they found were of this material): and (3) a varicolored, dark felsite that was found to be the most widely distributed lithic source in their survey area. Lynn and Baskin (1975:39) concluded that a primary utilization of locally available lithic sources occurred in the Indian Hot Springs area. They also conducted an extensive ceramics analysis on sherds from the immediate area. Focusing on both temper and paste, they concluded that all of the varieties collected were composed of locally available resources, although no definitive statements were made about the actual area of manufacture (ibid.:25–26). Floral and faunal analyses and studies of perishable remains from this

area are lacking because such items have not been formally collected. Rockshelter sites and sites containing buried deposits have a high potential for yielding these types of remains, and these site types should be assigned priority for future research.

Some questions to consider for this topic are the following: To what extent were local resources utilized? Where did other utilized resources originate? What types of residues can be found on aboriginal tools, ceramics, and other material remains and what kinds of inferences can be made about the presence of those residues? Were the lithic and ceramic technologies here similar to those of adjacent areas or were they unique? Once archeological excavations have revealed the quantities and varieties of material culture present, additional research questions can be formulated.

15. Cross-Cultural Interactions. Very little information regarding cultural adaptations or interactions in the region including Indian Hot Springs has been gleaned during the past five decades of archeological research. However, processual-oriented studies in conjunction with the more traditional cultural historical evaluations hold tremendous potential to enhance our current understanding of the local cultural trajectory and also to assist in defining cultural dynamics as they may have occurred locally, and as they may have related to more distant cultural manifestations such as the La Junta district to the southeast and the El Paso district to the northwest. It may even be possible to detect the influence of even more distant spheres of interaction from Mesoamerica and the Mogollon, Anasazi, and Hohokam cultures of the greater American Southwest. Defining both the local prehistoric sequence or cultural trajectory and regional cultural dynamics are questions central to the study of the Indian Hot Springs archeological remains and one subject of the current multiple-resource nomination. Data through which such investigations can be carried out are available in the archeological record, particularly via a

detailed analysis of the ceramic assemblage and through the ethnohistoric record. Both avenues of study are briefly considered below.

Currently little is known regarding the local prehistoric sequence beyond a general cultural historical framework that has been largely derived through non-local archeological investigations. For example, Archaic period archeological resources may be associated with the loosely defined pan-regional Cochise culture, and the Late Prehistoric sites with the Jornada Branch of the Mogollon. However, subsequent to the defining of these particular cultural variants it has become recognized that local archeological sequences, although outwardly similar to some broadly defined trait list of artifacts or architectural styles, tend to be extremely complex, often manifesting highly distinctive material, and presumably socio-cultural, attributes. Such diversity has been found throughout the prehistoric Southwest. For example, the general attributes of the Hohokam, Anasazi, and Mogollon cultural manifestations have been long identified but numerous local variants continue to be documented and studied. A definition of the local Indian Hot Springs cultural historical sequence therefore is an important goal and one that would be expected to differ significantly from the rather broadly and vaguely defined manifestations currently applied to the cultural record.

As a part of developing that sequence, an evaluation of the temporal affiliations represented by the ceramic types identified in the Office of the State Archeologist survey and from earlier investigations has been briefly presented (Research Topic 10). Perhaps more important, however, than cultural historical reconstructions per se is the role such reconstructions can play in enabling archeologists to begin to understand cultural dynamics. For example, Indian Hot Springs is situated approximately midway along a natural corridor, the Rio Grande, that may have served to link the Late Prehistoric districts of El Paso and La Junta. The La Junta district was dominated between ca. A.D. 1200 and 1400 by what Kelly, Campbell, and Lehmer (1940) have described as the Bravo Valley Aspect. As it is currently defined, the earliest manifestation of this Late Prehistoric aspect is

known as the La Junta focus. The La Junta focus overlaps in time with the El Paso phase, which is the latest of three phases defined for the southern Jornada Mogollon sequence. Although the La Junta focus and the El Paso phase share many traits in common, in particular a roughly comparable ceramic assemblage, they are thought to represent very different cultural traditions.

One question, then, which can be explored is how the respective material assemblages of the El Paso and La Junta districts came to overlap. One must first consider the validity of the two cultural manifestations. Could it be that the La Junta focus is simply a localized variant of the Jornada Mogollon? If not, then through what mechanism(s) were the traits of these respective cultures delivered into the region? To what extent do they represent indigenous developments? Were extensive networks of market-trade interactions operable or did actual migrations of Jornada phase peoples occur into the La Junta district?

Subsequent foci or phases, however, differ considerably. The Jornada tradition, as manifest in the El Paso district and portions of eastern New Mexico, northern Mexico, and the far western reaches of the Texas Trans-Pecos, loses it distinctiveness subsequent to A.D.1400. Yet, in the La Junta district very discrete and definable cultural manifestations, attributable to the Bravo Valley Aspect, continue up to and through the period of Spanish contact. A key difference between the La Junta focus and subsequent foci is largely one of a change in the ceramic assemblage (see Research Topic 10). Another series of questions to be explored, then, includes the following: What happened subsequent to that initial period of contact? Did the bearers of Jornada cultural traits become assimilated by an indigenous population, were former trade contacts disrupted, or did influences from other regions begin to dominate and obscure or overwhelm the region?

At a broader scale one must also consider the affect of regional or even pan-regional phenomena. For example, an important aspect to consider is whether or not a break in the ceramic assemblage, similar to that observed in the El Paso studies (Miller, 1989, 1990), also occurred in the Indian Hot Springs area. If so, what

is the significance of this break and how does it relate to the various changes in regional demographic patterns and subsistence strategies?

The answer to some of these questions can be derived in part through an evaluation and comparison of the respective material traits of both Bravo Valley and Jornada peoples. The sites at Indian Hot Springs are uniquely situated to help answer some of these questions. First, the broad temporal range of sites noted within the Indian Hot Springs area has the potential to assist in chronology building. And second, the location of the Indian Hot Springs materials, mid-way between the El Paso and La Junta districts, offers the unique advantage of being situated in what may have actually been the geographic zone of interaction between two distinct cultural manifestations. In other words, the zone(s) of interaction between these cultures may actually manifest itself more strongly along the edges or hinterlands of each culture's respective "sphere of influence." The Indian Hot Springs area may in fact have bridged that zone of interaction, through time and space, and has the potential to define the nature and magnitude of that interaction.

Similarly, the fact that the Indian Hot Springs archeological remains are situated along the far eastern periphery of the Jornada Mogollon may have made the effects of more distant influences, namely the Anasazi and Mesoamerican cultures, less profound. And any weakening or expansion of these influences would perhaps have become more clearly evident within a shorter period of time in the peripheral regions such as Indian Hot Springs than, say, over the core Mogollon cultural areas where the residual influences of external influences are apt to have lingered on for some time.

Other evidence of cross-cultural interactions in the Indian Hot Springs area is available through the ethnohistoric record. For example, there is one reference from the Luxán chronicles of the Espejo expedition in 1582 that mentions intermarriage between the Otomoaco Indians, who apparently occupied the area around Indian Hot Springs during the winter of that year, and the Caguate Indians, who were along the river northwest

of Indian Hot Springs (Hammond and Rey 1929:33). Because the two tribes, or nations, intermarried and used a similar language, they were said to be closely related. These groups may have been part of a larger nation that shared customs, beliefs, and other traits, or they may have been merely adjacent groups that were able to interact well with each other and with the environment. Exploring these possibilities from the physical remains at the Indian Hot Springs sites presents a challenge. Nevertheless, these possibilities provide a framework for interpreting the occurrences of certain "rare" material-culture traits exhibited at sites in the vicinity of Indian Hot Springs.

Some possible questions to consider are the following: If exogamy did occur, is there evidence in the material culture to indicate how these occasions were structured; that is, did the groups coalesce at regular intervals or were there other arrangements? Were the groups patrilineal or matrilineal? Could the large numbers of Otomoaco Indians observed by the Espejo expedition in the Indian Hot Springs area have been coalesced groups celebrating or conducting intermarriages? These questions represent only a few of those to be considered in archeological and ethnohistorical studies of the lifeways of Indians in the Indian Hot Springs area.

16. Raw-Material Procurement. This topic essentially addresses human ecology, or the manner in which inhabitants of a region interact with their environment. Raw-material procurement must have been an integral part of the everyday lifeways of aboriginal inhabitants in the Indian Hot Springs area. There are two basic questions concerning raw-material procurement: What raw materials were used by aboriginal inhabitants of the area? From where did the aborigines obtain the various raw materials that were used in everyday life through time? It is known that lithic sources were being utilized for tools, such as manos, metates, chipped-stone tools, and hammerstones. Other resources that were probably being exploited in the area include ocotillo or sotol stalks for shelter construction and clay and temper for the manufacture of ceramics. It can be generally assumed that the stones used in the hearths, burned-rock mid-

dens, and ring middens were locally obtained from near the area in which they were used. Several lithic-procurement areas have been located in the Indian Hot Springs area but many more are assumed to be present. The identified lithic sources, used in the manufacture of chipped-stone artifacts, comprise metamorphosed clay, chert, and opalite. Hammerstones in this area are predominantly of a green, unidentified stone type that may be metamorphosed sandstone or quartzite, but this lithic source has not yet been located. Various lithic materials, including rhyolite and quartzite, have been identified as being used as manos and metates in the Indian Hot Springs area. Generally, it can be stated that most of the ground stone used in this area was of a local igneous origin. The only reported ceramic analysis from this area suggested that almost all of the sherds present could have been manufactured locally, using locally available resources (Lynn and Baskin 1975:25–26). An effort to locate and test these clay sources would lend credence to this hypothesis. It has been assumed in this context that some forms of shelters were being used in the Indian Hot Springs area by the various inhabitants through time. Ocotillo branches and sotol stalks are present in abundance in this area and were probably being exploited for the construction of crude shelters. A few, more exotic raw materials were obtained from outside the Indian Hot Springs area. For example, analysis of an obsidian cruciform, collected from the surface at 41 HZ 181, showed that the obsidian came from Grants Ridge, a known obsidian source in southwestern New Mexico. Other obsidian samples from the Indian Hot Springs area are awaiting analysis. As future archeological excavations reveal other local and distant resources that contributed to the human ecology of this region, additional questions relating to the study of raw-material procurement will arise.

17. Curandero or Shamanistic Rituals. This topic focuses on the religious or spiritual aspects involved in the aboriginal lifeways of the area, including both shamanistic rituals and medicinal practices. No data on these rituals and practices have been recovered thus far in the Indian Hot Springs area, but a potential for this kind of data does exist. The rockshelters in the area hold the highest potential for yielding material remains related to ritual, ceremonial, and

healing practices. It has been assumed in this context that the thermal springs in the area were highly valued and were utilized for some healing practices. One possible means of addressing this assumption would be close inspection of the basin or tub cut into the travertine at Chief Spring, to determine whether the cut was excavated with historic or prehistoric tools. Although this procedure might produce inconclusive results, it would establish the feasibility of aboriginal use of this resource. A few questions to guide the research on this topic are the following: How did shamanistic rituals or curandero practices change over time? What sort of flora and fauna were utilized in these rituals or practices, and did the types of materials used change appreciably over time? Were the unique thermal springs at Indian Hot Springs a part of these rituals and practices?

18. Mortuary Practices. Aboriginal burials have been documented at a number of sites in west Texas and adjacent portions of Mexico (Setzler 1931, 1932, 1934, 1935; Smith 1934; Sayles 1935; Kelley 1939; Kelley, Campbell, and Lehmer 1940; Lehmer 1948; Shackelford 1951; Mallouf 1987), but none have been observed in the Indian Hot Springs area. Varieties of burial types identified in nearby areas include cave interments, crevice burials, cairn burials, and house-floor interments. A few of these burials are affiliated with the Archaic and Historic periods, but the majority date to the Late Prehistoric period (Mallouf 1987:5). As is the case with both anthropological and archeological data for the region, the El Paso and La Junta districts have yielded the most information on burial methods and customs. Mortuary practices of the Hueco Phase in the El Paso district involved both cave and crevice interments with a wide array of associated grave goods (Sayles 1935:105,111). Subsequent phases in that district were marked by house-floor interments, in which the human remains usually were placed in flexed positions and accompanied by various grave goods (Lehmer 1948). Late Prehistoric and Historic period burials in the La Junta district are generally flexed, placed beneath house floors, and may or may not contain associated grave goods (Kelley, Campbell, and Lehmer 1940:34; Shackelford 1951:51–59). Other burial practices in the Big Bend region of Texas

and adjacent Mexico include cave interments and cairn burials that may have associated artifacts (Setzler 1931–1935; Smith 1934; Kelley, Campbell, and Lehmer 1940; Mallouf 1987).

To address this topic in the Indian Hot Springs area further data is needed, but the following questions should assist in guiding future research: What kinds of burials (e.g., primary single, primary multiple, secondary single, secondary multiple, shaft, crevice, and mortuary shelters) were being utilized in the Indian Hot Springs area over time and how do these types compare to the varieties observed in adjacent areas? What are the positions (e.g., extended, flexed, etc.) and orientation of the burials in the Indian Hot Springs area and how do these types compare to the varieties observed in adjacent areas? What kinds of grave goods are present in the Indian Hot Springs area interments and how do they relate to the grave goods found in adjacent areas? What are the temporal affiliations that can be assigned to burials in the Indian Hot Springs area? Addressing these questions on mortuary practices in this area should lead to a better understanding of both the lifeways of the aborigines here and the regional cultural dynamics that were at work through time.

Context #2

NAME OF CONTEXT: A Conflict of Cultures: Displacement of the Apache from the Texas Borderlands by the U.S. Military (A.D. 1867–1881)

INTRODUCTION

This context encompasses the late-nineteenth-century activities of the U.S. military in the vicinity of Indian Hot Springs, Texas. These activities were aimed at displacing Apaches from the region, a goal that was accomplished by 1881. Detachments assigned to this duty came from the Ninth and Tenth Cavalries, better known as the

"buffalo soldiers." Pursuit of the fugitive Apaches proved ineffective in this harsh and rugged environment. The strategy that was eventually successful involved constant patrolling of the Rio Grande, mountain passes, and key waterholes from Fort Davis to El Paso (Leckie 1967:223; Ferris 1971:327). The thermal springs at Indian Hot Springs were known to be a regular stopping point for the Indians. There was also an excellent ford across the Rio Grande at this location, which was used by the Apaches to evade their mounted pursuers and escape into Mexico.

The springs here are considered to be unique due to their location, temperature, and chemical composition. The spring complex is located on the floodplain of the Rio Grande, in the southern Hueco Bolson. The location lies along the Caballo Fault, which is situated between the thick bolson deposit and the Quitman Mountains. The springs here, at nearby Red Bull Spring, and at Ojos Calientes (across the river in Mexico) are the only thermal springs in the immediate area. A recent study (Henry 1979) of the geologic setting and geochemistry of thermal waters in Trans-Pecos Texas and adjacent Mexico reports that one of the springs at the Indian Hot Springs complex, known as Stump Spring, has the hottest springwater in the state, measuring 47°C (117°F) (ibid.:1979:8).

The springs are highly mineralized and reputed to have therapeutic value, a characteristic undoubtedly recognized by indigenous peoples through prehistoric and historic times. A trough cut into the travertine deposit at Chief Spring is believed to have been accomplished by the aboriginal inhabitants of the area (Brune 1981:242; Babb and Taylor 1981:86).

Archeological investigations in the vicinity of Indian Hot Springs have been limited in number and intensity. This is in part due to the sparseness of population and the consequent lack of development projects requiring cultural-resource-impact assessments. Only three of six archeological projects conducted in the area have been concerned with the historic manifestations present. The first of these was the Natural Area Survey sponsored by the Lyndon B. Johnson School of Public Affairs (The University of Texas at Austin). This was an archeological reconnaissance of the southern Quitman Mountains conducted by Julio Betancourt and Ronald W. Ralph in 1976. They

recorded 37 prehistoric and 8 historic sites. This was followed the next year by a project for the International Boundary and Water Commission (IBWC), under the direction of Charles A. Johnson II of the University of Texas at El Paso's Centennial Museum. The IBWC work resulted in a preliminary inventory and appraisal of 114 prehistoric and 42 historic sites located along a 320-kilometer stretch of the Rio Grande floodplain between Fort Quitman and Haciendita, Texas. This project included a brief follow-up field session in 1980 under the direction of Rex Gerald.

In 1988 personnel from the Office of the State Archeologist, THC, under the direction of Robert J. Mallouf, undertook a reconnaissance of selected areas in the vicinity of Indian Hot Springs. The purpose of the reconnaissance was to obtain sufficient data regarding the cultural resources adjacent to the springs to generate a multiple-resources nomination for inclusion on the National Register of Historic Places. A total of 58 properties were recorded, with 20 having at least one historic component present. Oral histories, which have helped greatly to reconstruct the history of the Indian Hot Springs area, were also recorded as a part of the 1988 effort.

This context has been developed to assist the landowners and the General Land Office of the State of Texas in planning the long-term preservation of the significant cultural resources in the immediate vicinity of Indian Hot Springs, Texas. This context also provides the basis for understanding past events and peoples. Preservation of the archeological sites at Indian Hot Springs is vital to further development of this context, as is further historic research. Future work on the historic sites of the area should contribute to the study of such topics of research as chronology, warfare, military history, ethnic identity, cross-cultural interactions, demography, architecture, mortuary practices, and special studies in material culture. The loss of these sites would leave serious regional and local data gaps.

GEOGRAPHIC SETTING

Indian Hot Springs, Texas, is located along the Rio Grande in southern Hudspeth County (Fig. 1). This area of Trans-Pecos Texas is near the northeastern edge of the Mexican Highlands section of the Basin and Range physiographic province as identified by Fenneman (1931). It is a province characterized by broad, intermontane basins surrounded by isolated mountain masses (Strain 1966:9). The Hueco Bolson is a wide, basin-fill deposit that extends from near El Paso, Texas, southeastward along the Rio Grande, terminating just below Indian Hot Springs. This basin deposit is flanked by numerous mountain ranges in Texas and Mexico. The Hueco, Finlay, Malone, and Quitman mountains border the bolson in Texas, while the Sierra de los Frailes, Sierra de las Bacas, Sierra de la Amargosa, and Sierra de los Pinos form its boundaries in Mexico. The entrenchment of the Rio Grande valley into the bolson, along with active erosional forces, have created an area characterized by deep arroyos and flat divides. Topography in this area varies from the flat Rio Grande floodplain to the gravelly slopes of the bolson and the steep mountain foothills.

The main geologic features of the area are products of vulcanism, subsequent blockfaulting and folding, and the uplifting of mountain masses (Jones 1968; Jones and Reaser 1970). Volcanic action during the early Tertiary deposited extrusive rock across the Trans-Pecos. Thick igneous rock, composed primarily of tuffs, welded tuffs, ignimbrites and, andesites, outcrops at the southern Quitman Mountains. During the Mid-Tertiary, extensive folding and block-faulting began, resulting in massive uplifting.

In the area of Indian Hot Springs, the Caballo Fault began movement in the early Miocene and may still be active (Jones and Reaser 1970). This northwest-trending fault, is thought to be intricately related to the discharge of the springs (Christopher Henry 1990, personal communication), and separates the Quitman Mountains and Cretaceous sediments to the northeast from the downdropped Hueco Bolson fill deposits to the southwest. The inter-

section of the Caballo Fault with minor faults marks the location of Red Bull Spring, located 5 kilometers northwest of the Indian Hot Springs complex.

Rio Grande Canyon, located downstream from Indian Hot Springs, cuts through the southern Quitman Mountains and their Mexican extension, the Cieneguillas. This spectacular canyon marks the southeastern edge of the Hueco Bolson and may have formed a minor barrier to travelers in the region. The bolson fill was built up as erosional forces broke down the surrounding mountains and deposited the debris in the intermontane basin. Subsequent down-cutting of the Rio Grande through the bolson and the entrenchment of ephemeral tributary drainages has left the area in its present dissected state.

The Indian Hot Springs area is within the Chihuahuan biotic province as defined by Blair (1950). This province is locally characterized by a mixed tree and shrub division along the Rio Grande floodplain and a creosote bush and mesquite regime on the slopes of the foothills and uplands (Johnson 1977:11). A wide variety of plant types occur in the diverse ecological zones which include: the banks of the Rio Grande, Rio Grande floodplain, dissected foothills, canyons formed by intermittent drainages, foothills, and mountains. Specific plant types are present in concentrations in various ecological zones.

THERMAL SPRINGS

Generally speaking, thermal springs are rare in Texas, but they occur with some frequency in the Trans-Pecos region. The thermal springs in the Indian Hot Springs area are unique, geographically isolated, and among the hottest. Thermal or hot springs are defined (Waring 1965) as springs with surface temperatures about 8°C (15°F) above the mean annual temperatures of the other springs in the area. The approximate annual average temperature for springs in the area is 21°C (70°F) (Henry 1979:8). Thus, springs in this region measured to 30°C (86°F) or hotter are referred to as thermal springs. Henry (1979) studied 22 thermal springs in this portion of Texas and Mexico in

1976, including those at Indian Hot Springs and nearby Red Bull Spring. Chief, Squaw, Stump, Beauty, and Soda springs were found to be active springs. Two others at the Indian Hot Springs complex, Dynamite and Masins springs, were found to be inactive at the time of the study. Using a maximum reading thermometer, Henry found surficial temperatures varied from 47.2°C (117°F) at Stump Spring to 27.2°C (81°F) at Soda Spring. Red Bull Spring was measured at 37°C (92°F). The cluster of springs at Ojos Calientes, Mexico, across the river from Indian Hot Springs were not included in Henry's study. Previous researchers (Sellards and Baker 1934; Stearns, Stearns, and Waring 1937; Jones 1968) had reported higher temperatures in the past, but the instruments used may not have been accurate.

The seven springs at Indian Hot Springs are scattered over a 700 meter by 300 meter area, with all except Soda Spring emanating from a travertine plateau precipitated by the springs. Stump Spring was found to be the only one that discharged to the surface; all other springs were found to discharge through permeable travertine or alluvium below the travertine (Henry 1979:8). Red Bull Spring issues from fractures in claystone near the Caballo Fault trace. Currently, rock and wood "bathhouses" are located at Chief and Squaw springs, while rock "tubs" or basins have been constructed at the other springs.

From chemical analyses, it has been determined that the thermal springs in this area of Texas and Mexico are recharged by meteoric (rain) water. The recharge zone is probably contained within the immediate area, including the Quitman Mountains (Christopher Henry 1990, personal communication). Using surface and subsurface reservoir temperatures and an estimated thermal gradient, the depth of circulation was calculated to be between 1,000 and 1,300 meters, where the waters are heated and then discharge upward, using the Caballo Fault as an avenue (Henry 1979:42). The mineral constituents present are thought to be a product of interaction with subsurface strata. Bell (1963:65) theorized that the springs were shallow artesian wells dug into the salt encrusted floodplain, but this interpretation has since been rejected due to the extensive travertine mounds that have formed (Henry 1979:8).

The extensive travertine deposits at Chief, Stump, and Squaw springs and the white residue covering the entire area around these springs suggest that a higher discharge rate occurred in the past. Stearns, Stearns, and Waring (1937) reported that the springs ceased flowing after an earthquake in 1931, and Brune (1981:243) suggested that pumps installed in the larger springs and other pumping wells nearby might have affected the discharge rate. Brune felt that the decrease in discharge might be related to the decrease in temperatures over time. He suggested that the waters took longer to circulate as discharge fell off, resulting in heat loss along the way (ibid.).

CULTURAL SETTING

Military activities during the 1860s through 1880s have contributed greatly to the history of the Indian Hot Springs area (Fig. 2). The presence and efforts of the U.S. Cavalry during this period were critical to the pacification of this rugged and isolated area, making possible the entry of settlers in the late nineteenth century.

Military Activities

Trans-Pecos Texas in the latter half of the nineteenth century was a challenge for the U.S. Army charged with the responsibility of maintaining law and order. A series of frontier forts was established, including Concho, Davis, and Quitman, all manned by troops assigned to the tasks of scouting, picketing the mail road, escorting mail coaches, and performing general escort services (Webb 1952:622-624, 631). In 1867 regiments of the Ninth Cavalry arrived on the scene in order to assist in removing fugitive Apaches from the region and returning them to the Fort Stanton reservation in the District of New Mexico (Leckie 1967:87).

The Ninth and Tenth cavalries were created by General Ulysses S. Grant at the conclusion of the Civil War, with Colonels Edward Hatch and Benjamin H. Grierson, assigned to command the experimental units, which were composed of white officers and black recruits, many of whom were former slaves (Underwood 1989:46). Service

with the Army provided these men thirteen dollars a month, room, board, and clothes (ibid.). Grierson directed his officers of the Tenth, "You will not refer to this regiment as the Tenth Colored Cavalry but as the Tenth Cavalry. Regardless of the color of their skins, they are soldiers of the U.S. Army" (ibid.). The men did, however, proudly accept the informal title of "buffalo soldier," which they received from their Indian adversaries (Leckie 1967:25). The exact origin of the name is uncertain, but it is speculated that it was based upon the similarity of the soldier's hair to the fur of the buffalo (ibid.:26). Regardless of the source of the name, because the buffalo was revered by the Indian, it is thought that the label demonstrated respect for their worthy opponents (ibid.).

Hatch's Ninth Cavalry had little initial success in their pursuit of the Apaches (Mescaleros and Warm Springs) led by the Warms Springs Apache, Victorio. Victorio and his followers were resistant to displacement from their traditional homes (ibid.:172). They continued to raid settlements and ambush travelers in Arizona, New Mexico, and Texas, frequently escaping across the international border into Mexico, where the buffalo soldiers could not follow (ibid.:172, 192). That Mexican settlements also suffered from Apache raids was undoubtedly a factor in the eventual cooperation between the Mexican and U.S. armies (ibid.:192).

Regimental headquarters of the Tenth Cavalry was at Fort Concho from 1875 to 1880, with troops given assignments across west Texas (Glass 1972:20). In 1879, the Tenth Cavalry was ordered to assist the Ninth in their fight against the Apaches (ibid.:222-223). Rather than continue the strategy of pursuit followed by Hatch, which was often unsuccessful and costly to the troopers and their mounts, Grierson proposed a different tactic (ibid.:223). It was his idea to send regular patrols to guard watering holes, mountain passes, and the international border at the Rio Grande (ibid.). After Victorio's escape from Fort Stanton in the summer of 1880, Grierson established headquarters at Fort Davis, with subposts along the Rio Grande at Viejo Pass, Eagle Springs, and Fort Quitman (Utley 1965:42; Ferris 1971:327).

A cooperative effort to defeat Victorio was agreed upon by the Mexican and American governments. Terms of the agreement allowed American forces directed by Colonels George Buell and Eugene Carr to cross the Rio Grande and take combined action with Mexican troops under the command of Colonel Joaquin Terrazas (Leckie 1967:227-228). Grierson's buffalo soldiers patrolled the Rio Grande to stop any attempts to escape to the north (ibid.:228). In early October of 1880, scouts reported that Victorio and his followers had sought the refuge of the Tres Castillos Mountains. As plans for a final assault were being made, Terrazas informed the Americans that they should return to the United States. Buell and Carr returned to American soil, and on the morning of October 14 Terrazas led the battle that annihilated the Apache leader (ibid.). A few Apaches escaped the attack and are thought to be the individuals responsible for the October 28 ambush at Indian Hot Springs (ibid.:230).

Official Fort Davis muster rolls for the fall of 1880, which document the activities of the Tenth Cavalry patrols, report several visits to "Hot Springs, Texas" and the vicinity of Ojos Calientes, across the river from Indian Hot Springs. Under the command of Lt. Robert D. Read, Jr., varying numbers from Company B performed mounted picket and patrol duty along the river, stopping at the springs on September 21 and October 3, 19, and 24 (Fort Davis muster rolls 1880). Corporal William Backus led similar missions with soldiers from Company K during the same month. On October 26, 1880, Backus and soldiers from both companies established a camp overlooking the springs, and, on the morning of the 28th, Backus lost his life in an ambush attack by remnants of Victorio's Apaches. Also killed were Privates Carter Burns and George Mills of Company B and Corporal William Backus and Privates Jeremiah K. Griffin and James Stanley of Company K (ibid.). Missing in action were Privates Scott Graves and Thomas U. Roach of Company K. Two bodies were found some time later and assumed to be those of the missing Graves and Roach (ibid.).

The surviving buffalo soldiers recounted their observations of the attack and reported that thirty to forty Indians were involved in the killings (Fort Davis muster rolls 1880). The attackers also took numerous horses, mules,

supplies, and equipment (ibid.). The dead were later buried, but the available records contain no details concerning the location of the graves or the manner in which they were buried.

In spite of this setback, the days of the Apache on the Texas frontier were numbered. Their numbers were decimated, leaving only small parties to continue the struggle for independence. The buffalo soldiers were able to remove the last of the Indians from the borderlands by the end of 1881, and after four more years were no longer needed to maintain law and order in west Texas (Leckie 1967:230, 239).

General Grant's experiment proved to be a success. Desertion rates of the buffalo soldiers were among the lowest in the army, and violations of the military code were few (Leckie 1967:259). In spite of the buffalo soldiers' years of remarkable service under adverse conditions, there was evidence that racial discrimination often prevailed. Soldiers of the Ninth and Tenth often were assigned equipment and horses rejected by the white cavalries and suffered abusive behavior from civilians and their fellow soldiers (Underwood 1989:48, 259).

RESEARCH TOPICS

From military records and other historic data of the region, it is possible to identify a number of research topics that nineteenth-century military sites may be able to address. Although no Apache sites have yet been identified with confidence, there are a number of research questions that are relevant to this context and are included when pertinent below. They are as follows:

1. Architecture. Architecture in the desert tends to be a function of the resources available and the status of the builder. When the builders were mobile cavalrymen on a mission, the construction of architectural features was probably infrequent and dictated by necessity. Architectural features were few in number, and generally defensive in

nature. The rock redoubt at 41 HZ 227 provides some insight into the question, as does the Tinaja de las Palmas site already listed on the National Register of Historic Places.

Among the questions that should guide research of this topic are the following: Was a standard format for temporary fortifications used by the U.S. Cavalry at this time? How do fortifications of this period compare with contemporary fortifications elsewhere on the American frontier? What were the minimum requirements of such features?

2. Chronology. Each of the research topics discussed in this section is dependent upon some form of adequate dating. Development of chronologies involves the temporal ordering of cultures and their material remains in an area or region. For historic sites, material culture typologies, written records, and oral histories help to achieve this goal.

Material-culture typologies, such as the manufacturing typologies associated with military gear, are most useful in the effort to date sites of this period and affiliation. These types of data often are able to assist the researcher in assigning dates reliably within a tight range of dates. Documents and historical references tend to be the most accurate chronological markers but are often insufficiently detailed. Details about the mundane—objects used and procedures followed—are often lacking in the written record. Accurate dating of historic properties is best accomplished through the use of several forms of data. Sites attributed to the activities of the buffalo soldiers and the fugitive Apaches they were ordered to pursue may be studied using all these types of data.

Relevant questions pertaining to this topic include but are not limited to the following: Does 41 HZ 227 definitely represent the locale of the 1880 ambush? Does the cemetery definitely represent the final resting place of the casualties of the 1880 ambush? Can site 41 HZ 439 and other military camps be attributed to specific dates? What are the characteristics of contemporary Apache sites?

3. Cross-Cultural Interaction. Interactions between the Apaches and the American military may be characterized as confrontational and violent. The purpose in sending the U.S. Cavalry to the Indian Hot Springs area was to remove fugitive Apaches from the region and effect their return to the reservation at Fort Stanton. The Indians in question were resistant to the idea and did not hesitate to use force to fight Americans or Mexicans for their freedom or to obtain needed equipment, livestock, and supplies. One of the survivors (Fort Davis muster rolls 1880) of the 1880 ambush at Indian Hot Springs recounted that the attackers were dressed like Mexicans and spoke some Spanish. Some of the attackers had long hair and were painted, while some had short hair (ibid.). This account suggests that the fugitives were accepting certain characteristics of Mexican culture while taking action to maintain their unique ethnic identity.

Another aspect to consider is that the buffalo soldiers present an opportunity to study the acculturation of Black Americans on the Texas frontier. Many of the recruits were former slaves, and service with the U.S. Army, a rigidly structured institution, presented a radically different cultural experience. Historical accounts of the Ninth and Tenth cavalries report a record of effective service in a challenging environment of rugged terrain and prejudice, suggesting that the troopers adapted well. Further study of the military records, military camps, outposts, and forts would be helpful to determine if the men were able to maintain any remnants of their original cultural experiences. These data would also provide an interesting comparison with data compiled from the examination of contemporary non-military sites associated with Black Americans.

Also important to our understanding of the cultural dynamics of the region is consideration of what happened to these groups after the frontier conflict was resolved. What happened to the men who served as U.S. cavalrymen and the people they pursued helps to complete the picture. Were members of either group able to maintain their ethnic identities, or did they assimilate into American or Mexican cultures?

Other questions worthy of research include the following: What effect did the conflict between the U.S. Army and Victorio's Apaches have on the traditional cultures of the fugitives? What effect did interaction with Mexican culture have on the traditional cultures of the fugitives? Was there variability in the origins of the black troopers who served with the Ninth and Tenth Cavalry? Did the cavalrymen maintain identifiable remnants of material culture from their culture of origin? Can we even identify late-nineteenth-century Apache sites, knowing that the sites may have retained little of their traditional material culture? Additional examination of historical documents and archeological investigations are vital to adequately address this topic of research.

4. Demography. Demography is the statistical study of the characteristics of human populations. Subjects that are covered by this field of study include group size, population density, population growth, migration, distribution, and vital statistics. The effect that all of these topics have on social and economic conditions also is a goal of demographic research.

To date, little work has been done by researchers in this area of study. Data from historic buffalo soldier burial sites, forts, and encampments, and from Apache habitation and burial sites in the vicinity of Indian Hot Springs would contribute greatly to our knowledge of these specific groups.

Demographic questions to consider include the following: How did the movement of fugitive Apaches affect the demographic character of the ethnic group? What were the birth and death rates for the Apaches in the area, and how did they differ from those of their counterparts in New Mexico? What were the death rates for the buffalo soldiers, and how did they compare with their fellow cavalrymen on the frontier? Do the archeological remains substantiate demographic information available from written sources? Can the remains of specific individuals be identified from the study of skeletal materials and/or associated objects? Survey to locate relevant sites and test excava-

tions of those sites should be undertaken to pursue the study of this research topic. The available historical records also should be thoroughly examined for additional data.

5. Ethnic Heritage. Sites pertinent to this context, associated with Black American cavalrymen of the late nineteenth century—"buffalo soldiers"— have been identified in the Indian Hot Springs area. Either no Apache sites have been located or the correct cultural affiliation of located sites has not been recognized. It is hoped that with continued archeological and historical research, Apache sites will be identified.

Historical accounts regarding the black troopers are relatively sketchy. Some were former slaves, while others had previous service with the U.S. Army. Although it may not be accurate to state that the buffalo soldiers shared a common ethnic identity at the outset, their assignment to a rugged and remote area probably promoted the formation of a fairly cohesive unit. Many chapters in the history of Black Americans remain to be written. The significant contributions of the buffalo soldiers to the pacification of the Texas borderlands are worthy of research.

Questions to address during this research include the following: Can we accurately identify archeological sites affiliated with the buffalo soldiers? Can we accurately identify archeological sites affiliated with the late-nineteenth-century activities of the Apaches? Records searches, archeological investigations, and perhaps oral histories will yield information important to these and other questions pertaining to ethnic heritage.

6. Intrasite Patterning. The study of intrasite patterning offers a means for deciphering how various activities were arranged at a site. This type of study has the potential to provide insights into past human behaviors. Military camp and military battlesite property types may yield data important to the study of intrasite patterning.

For example, study of the material remains at military camps should shed light on the ways in which such sites were arranged and where specific tasks were undertaken. Military battlesites have the potential to yield infor-

mation about the events of the battle, including how the battle took place, where shooting occurred, and where lives were lost.

Thorough examination of historical records combined with archeological investigations (survey and excavation) are important tools to address this topic. Oral history interviews may also provide pertinent information about sites known to local inhabitants.

7. Military History. The history of military activities in the Texas borderlands is in need of further historical research. Many details remain to be revealed from available documents and archeological remains. Although some historical research focused upon the activities of the Ninth and Tenth cavalries has been undertaken, many details are still lacking. Many of the camps and battlesites recorded in the muster rolls (Fort Davis muster rolls 1880) have yet to be identified. Archeological investigations to identify and test excavate sites affiliated with these units are needed to fill these data gaps.

Research questions to consider include the following: Do archeological remains support the information stated in the military records? Can military sites be found using the data available from military records? Avenues of research include record searches, survey investigations, and test excavations. Oral history interviews may be helpful in locating military sites known to local inhabitants.

8. Mortuary Practices. Site 41 HZ 228 represents the possible military cemetery that may contain the remains of the seven soldiers killed by an Apache attack on October 28, 1880. The only cemetery known to exist in the immediate vicinity of Indian Hot Springs, it consists of seven rock "cairn" graves, six of which have concrete caps.

If the site does represent the cemetery in question, it presents an opportunity to study the burial customs of the U.S. Cavalry in the field. There are limited data available concerning the location and circumstances of burial of

military casualties in the Texas frontier in the late nineteenth century. This is certainly the case for the casualties of the Tenth Cavalry.

Some questions to consider concerning the mortuary practices of the U.S. Army of the late nineteenth century are the following: Were there differences in the burial customs of different military detachments? How deeply buried were typical burials? Did military burial practices in the area change through time? Study of available historical records, archeological excavation, and oral history interviews should yield information important to these questions of research.

9. Special Studies in Material Culture. Archeologists enlist the aid of a number of other sciences when they attempt to interpret archeological remains. Special studies in historic archeology include many of those relevant to the analysis of prehistoric materials, such as residue analysis. With the help of X-radiography, corroded metal artifacts may be analyzed for identification of the object or for location of stress fractures. The X-radiography technique is also helpful in determining the composition of metal alloys.

Microscopic analyses of material remains may also provide important data for site interpretation. An example of this is evident at site 41 HZ 439, a military camp containing a number of pistol and rifle cartridges. The microscopic study of minute impressions caused by chambering and firing of these cartridges may be able to yield information about the number of firearms used, since each firearm should leave different impressions. This information may then be used to interpret how many men occupied the site.

Related questions of research include the following: If residues remain, what foodstuffs can be identified from the study of tin cans? Were the objects used by the buffalo soldiers standard military issue items? Can the ammunition used by the buffalo soldiers and that used by their Apache opponents be distinguished? Many more related research questions may be able to be addressed through the use of special studies.

Context #3

NAME OF CONTEXT: Historic Euro-American and Mexican Lifeways in the Indian Hot Springs, Texas, Area, ca. A.D. 1880 –1940.

INTRODUCTION

This context is based on historic Euro-American and Mexican lifeways in the Indian Hot Springs area, following displacement of the Apaches from the region in 1880. The harshness of the environment coupled with the remoteness of this area made settlement and life here in the late 19th and early 20th centuries a very challenging endeavor. Once the area had been opened up, settlers entered and established lifeways that reflected unique adaptations to the local terrain and setting. The thermal springs at this locale were an attraction for historic people just as they had been for indigenous groups during prehistory. The establishment of an elaborate health resort at the springs in the late 1920s brought a diverse group of people to the area. This endeavor has been a major contributor to the unique lifeways that are present here. The following are historic property types recorded in the area thus far: candelilla-wax camps, trail systems, habitation sites, rock dugouts, isolated burials, and health resorts.

The springs here are located on the Rio Grande floodplain, in the southern Hueco Bolson along the Caballo Fault, which is situated between the thick bolson deposit and the Quitman Mountains. The location, temperature, and chemical composition of the springs are the factors that make these water sources unique among springs of the Trans-Pecos region. This group of springs, the corresponding group just across the river in Mexico, and nearby Red Bull Spring are the only thermal springs in the immediate area. The closest other springs of this type are about 100 kilometers downstream along the Rio Grande. A recent study (Henry 1979) of the geologic setting and geo-

chemistry of thermal waters in Trans-Pecos Texas and adjacent Mexico has revealed some interesting aspects of the waters that emanate from Indian Hot Springs. Stump Spring was found to have the hottest springwater in Texas, measured at 47° C (117° F) (ibid. 1979:8). Another important revelation of the study was that these springs ranked very high in 11 of the 13 analyzed constituents. These highly mineralized waters are reputed to have therapeutic values that were realized by both the aborigines and the early historic settlers of the region. A trough cut into the travertine deposit at Chief Spring is thought to have been made by aborigines interacting with the springs (Brune 1981:242; Babb and Taylor 1981:86). Historic activities at the springs include informal use in the first two decades of this century and intensified use in the late 1920s and 1930s following construction of the health resort. Use of the resort since 1940 has been sporadic as a result of numerous changes in ownership. The value of the springs to historic peoples is well documented (Babb and Taylor 1981) and is integral to the cohesion of this historic context.

Indian Hot Springs is situated in an area of west Texas that has seen a paucity of archeological work over the years. This is in part due to the sparse population of the area and the consequent lack of developmental projects requiring cultural-resource-impact assessments. Surface collecting of both prehistoric and historic artifacts has occurred in the Indian Hot Springs area for over 100 years, yet formal archeological investigations here have been few in number and confined to the past 60 years. Six archeological projects, from 1932 to 1988, have been conducted in the immediate area, but only three of these have dealt to any extent with the historic manifestations present. The first of these was a Natural Area Survey sponsored by the Lyndon B. Johnson School of Public Affairs, the University of Texas at Austin. This archeological reconnaissance of the southern Quitman Mountains was conducted by Julio Betancourt and Ronald W. Ralph in 1976. They recorded 37 prehistoric and 8 historic sites during this survey. Another project sensitive to the historic remains of the Indian Hot Springs area was conducted in 1977 by Charles A. Johnson II of the University of Texas at El Paso for the International Boundary and Water Commission, United States Section. This appraisal of the cultural resources located along the Rio Grande between Fort Quitman

and Haciendita, Texas, a 320-kilometer stretch, was designed to provide a preliminary inventory and evaluation of the sites that would be affected by a channelization and brush-clearing project. In all, 114 prehistoric and 42 historic sites were recorded along the narrow strip of floodplain. This project included a brief follow-up field session in 1980 under the direction of Rex Gerald. The last archeological reconnaissance that dealt with historic sites in this area was initiated in 1988 by the Office of the State Archeologist. This work was directed by Robert J. Mallouf, State Archeologist, at the request of the landowners of Indian Hot Springs, with the objective of generating a National Register Multiple Property nomination for the sites in the area of Indian Hot Springs. A total of 58 sites were recorded, with 20 of these having at least one historic component present. This project was the first to formally record the health resort complex at Indian Hot Springs. Oral histories, which have helped greatly in the reconstruction of the history of this area, also were recorded as a part of this project. Only in recent times has attention been paid to the historic sites and components in the area. Future work should address the historic materials in the area with the same rigor that, in the past, has gone into identifying the prehistoric cultural manifestations.

This context, covering the historic cultural aspects at Indian Hot Springs, deals with 12 documented sites. The health resort complex, which consists of numerous associated structures, has been assigned a single site number, 41 HZ 444. As part of this Multiple Property submission, the resort has been nominated as Indian Hot Springs Health Resort Historic District.

This context has been developed to assist the private landowners in the Indian Hot Springs area and the General Land Office of the State of Texas in planning the long-term protection of all historic resources in the immediate vicinity of these springs. It also provides a means for understanding the relationships over time that have produced the sites as they exist today. Preservation of these sites is important to the development of this context because of the lack of historic research in this region. Future work on the historic sites in this area should help in addressing research questions concerning settlement patterning, subsistence, trade, warfare, chronology, intrasite

patterning, demography, communications, architecture, cultural affiliations, special studies in material culture, raw-material procurement, cross-cultural interactions, mortuary practices, recreation, and commerce. The destruction of these sites would leave a serious gap in the data bank for the history of this area and would thus hinder full reconstructions of the history of adjacent areas and the region as a whole. Therefore, this context addresses regional as well as local questions.

GEOGRAPHIC SETTING

Indian Hot Springs is located along the Rio Grande in southern Hudspeth County (Fig. 1). This area of Trans-Pecos Texas is near the northeastern edge of the Mexican Highlands section of the Basin and Range physiographic province (Fenneman 1931), which is characterized by broad intermontane basins surrounded by isolated mountain masses (Strain 1966:9). The Hueco Bolson is a wide basin-fill deposit that extends from near El Paso, Texas, southeastward along the Rio Grande, terminating just below Indian Hot Springs. This basin deposit is flanked by numerous mountain ranges in Texas and Mexico. The Hueco, Finlay, Malone, and Quitman Mountains border this bolson in Texas, while the Sierra de los Frailes, Sierra de las Bacas, Sierra de la Amargosa, and Sierra de los Pinos form its boundaries in Mexico. The entrenchment of the Rio Grande valley into the bolson, along with active erosional forces, have created an area characterized by deep arroyos and flat divides. Topography in this area varies from the flat Rio Grande floodplain, to the gravelly dissected slopes of the bolson, to the steep foothills of the mountains.

The main geologic features of the area are products of vulcanism, subsequent blockfaulting and folding, and the uplifting of mountain masses. Volcanic activities during the early Tertiary left much of Trans-Pecos Texas with

extrusive rock. Thick volcanic rock, composed mostly of tuffs, welded tuffs, ignimbrites, and andesites, outcrops in the southern part of the Quitman Mountains. During the Mid-Tertiary, extensive folding and block-faulting began, resulting in the uplifting of mountain masses. In the area of Indian Hot Springs, the Caballo Fault began movement in the Early Miocene and may still be active (Jones and Reaser 1970). This fault, a northwest-trending normal fault, is thought to be intricately related to the discharge of the springs there (Christopher Henry 1990, personal communication). It separates the Quitman Mountains and Cretaceous sediments to the northeast from the downdropped Hueco Bolson fill-deposits to the southwest. The intersection of the Caballo Fault and one or two other minor faults marks the location of Red Bull Spring, which is 5 kilometers northwest of Indian Hot Springs. Rio Grande Canyon, located downstream from Indian Hot Springs, is a spectacular canyon that cuts through the southern Quitman Mountains and their Mexican extension, the Cieneguillas. This canyon, marking the southeast edge of the Hueco Bolson, may have formed a minor barrier to historic travelers in the region. The bolson fill was built up as erosional forces over time broke down the surrounding mountains and deposited the debris in the intermontane basin. Subsequent down-cutting of the Rio Grande through the bolson and the entrenchment of ephemeral tributary drainages has left the area in its present dissected state.

The Indian Hot Springs area is within the Chihuahua biotic province as defined by Blair (1950). This province is locally characterized by a mixed tree and shrub division along the Rio Grande floodplain and a creosote bush and mesquite regime in most of the surrounding foothill slopes and upland areas (Johnson 1977:11). A wide variety of plant types can be found in the diverse ecological zones here: banks of the Rio Grande, Rio Grande floodplain, dissected foothills, canyons formed by intermittent drainages in foothills, and mountainous zones. The vegetal resources are spread widely across the terrain, with concentrations of specific plants occurring in the various ecological zones.

THERMAL SPRINGS

Thermal springs, which are rare in Texas, occur with some degree of frequency in the Trans-Pecos region. Nevertheless, the thermal springs in the Indian Hot Springs area are fairly well isolated geographically. Thermal or hot springs have been defined by Waring (1965) as springs with surface temperatures about 8° C (15° F) above the mean annual temperatures of other springs in the area. The approximate annual average temperature for springs in west Texas and Mexico along the Rio Grande is 21° C (70° F) (Henry 1979:8). Thus, springs in this region measured at 30° C (86° F) or hotter are referred to as thermal or hot springs. Henry studied 22 thermal springs in this region of Texas and Mexico in 1976, including those at Indian Hot Springs and nearby Red Bull Spring. Chief, Squaw, Stump, Beauty, and Soda springs were found to be the active springs, while the two others at the Indian Hot Springs complex, Dynamite and Masins springs, were found to be inactive at the time of this visit. Surficial temperatures varied from 47.2° C (117° F) at Stump Spring to 27.2° C (81° F) at Soda Spring. Red Bull Spring was measured at 37° C (92° F). The cluster of springs at Ojos Calientes, Mexico, across the river from Indian Hot Springs were not included in Henry's study.

The seven springs at Indian Hot Springs are spread out over a 700 meter by 300 meter area with all except Soda Spring emanating from a travertine plateau precipitated by the springs. Stump Spring was found to be the only spring that discharged to the surface; all of the others were found to discharge through permeable travertine or alluvium below the travertine (Henry 1979:8). Red Bull Spring emanates from fractures in claystone near the Caballo Fault trace. Currently, rock and wood "bathhouses" are located around Chief and Squaw springs while rock "tubs" or basins have been constructed around the others.

The dynamics involved in these spring systems are not fully understood, but a few hypotheses have been generated (Bell 1963; Christopher Henry 1990, personal communication). Henry's study, using chemical analyses, concluded that the thermal springs in this area of Texas and Mexico are recharged through meteoric (rain) water. The

recharge zone probably is contained within the immediate area, including the Quitman Mountains (Christopher Henry 1990, personal communication). Using surface and subsurface reservoir temperatures and an estimated thermal gradient, the depth of circulation was calculated to be between 1,000 and 1,300 meters, where the waters are heated then apparently discharge upward using the Caballo Fault as an avenue (Henry 1979:42). The mineral constituents present are thought to be a product of interaction with subsurface strata. Bell (1963:65) theorized that the springs were shallow artesian wells dug into the salt encrusted floodplain, but Henry (1979:8) rejected this hypothesis due to the extensive travertine mounds that have been built up.

As previously stated, the percentages of constituents present in the Indian Hot Springs waters are very high when compared to the other hot springs in Texas and nearby Mexico. Henry's chemical analyses at the 22 springs included in his study found the Indian Hot Springs cluster to rank very high for 11 of the 13 analyzed constituents, being first for 6 of these: boron, lithium, chloride, sulfate, potassium, and sodium. The Indian Hot Springs cluster ranked second for calcium, magnesium, and bicarbonate and third for nitrate and strontium (Henry 1979:24). This spring cluster also had the highest amount of total dissolved solids present. Therefore, it is apparent from this analysis that the waters emanating from these springs are unique and quite rare for Trans-Pecos Texas.

Henry also measured the temperatures of the springs he visited. Using a maximum reading thermometer, he concluded that Stump Spring had the highest temperature of the thermal springs in Texas, 47° C (117° F). In his study, only 2 springs in Mexico, about 100 kilometers south-southeast of Indian Hot Springs, had higher temperatures. Several efforts have been made in the past to record the water temperatures at Indian Hot Springs. Both Sellards and Baker (1934) and Stearns, Stearns, and Waring (1937) found Chief Spring to have a temperature of 48° C (120° F). In 1968, Jones (1968:131) reported temperatures at the springs as high as 52° C (126° F). In 1976, Henry (1979:24) found Chief Spring to be 44° C (110° F). He cautioned against accepting the earlier recorded tem-

peratures because of possible instrument error; he used a maximum reading thermometer but did not know what types had been used in the earlier studies (Christopher Henry 1990, personal communication).

There are indicators that some of the springs at Indian Hot Springs formerly overflowed. The extensive travertine deposits at Chief, Stump, and Squaw springs and the white residue covering the entire area around these springs suggest that a higher discharge rate occurred in the past. Stearns, Stearns, and Waring (1937) reported that the springs ceased flowing after an earthquake in 1931, and Brune (1981:243) suggested that pumps installed in the larger springs and other pumping wells nearby might have affected the discharge rate. Brune felt that the decrease in discharge might be related to the decrease in temperatures recorded during the various studies over time. He suggested that the waters took longer to circulate as discharge fell off, resulting in lost heat along the way (ibid.).

When the health resort at Indian Hot Springs was recorded in 1988, several of the previously recorded spring names were not given by the local informants. Only Soda Spring, Masins Spring, and Squaw Spring had retained their previous designations. What had formerly been Chief Spring was called Bath Spring, Dynamite Spring had become Salt Cedar Spring, and Mexican Springs, unrecorded by the Henry study, had been changed to Cow Spring. In addition, two names, Itty Bitty Spring and Grass Spring, had been given to what had formerly been called Beauty Springs. (The previously recorded spring names, which are those that appear on USGS maps, are used in this nomination, since the newer designations are considered local, or colloquial, names.)

Various ailments have been treated at the Indian Hot Springs complex through the years. The therapeutic value of hot water for tired or sore muscles is common knowledge today, but patients with other afflictions have also used these healing waters. The doctors and nurses at the resort complex normally subjected their patients to a series of baths, massages, and internally ingested spring water from Soda Spring. This combination of treatments, administered over several weeks, apparently cured or greatly relieved the diverse sufferings of many people while the resort was open and since its closing (Babb and Taylor 1981).

CULTURAL SETTING

A number of commercial activities and several historic events have contributed to the evolving culture that was present in the Indian Hot Springs area during this time period. Commercial endeavors were limited by environmental and locational factors. The earliest commercial activities that occurred here were ranching and farming. Trapping, selling cacti, and processing the candelilla plant for wax are other activities that have contributed to the economy of the area over the years. The most elaborate commercial effort involved the establishment of a health resort at the springs. Military activities associated with the last Mexican revolution have also contributed to the history of the area.

Commercial Activities

Ranching and Farming

The first attempt at ranching and farming in the region was made by Don José Lerma, who obtained a Mexican Land Grant in 1823 for those purposes (Bowden 1971:184). His land was east of the Rio Grande above Indian Hot Springs, but this venture failed due to disputes over the sovereignty of the area. In 1884, ranchers commissioned Captain Jeff Maltby, a Texas Ranger, to check the northern Rio Grande region for potential cattle ranching endeavors (Maltby 1906:143; Babb and Taylor 1981:85). He reported the existence of the hot springs and gave a negative appraisal of the ranching possibilities. Captain Maltby wrote that bandits and bands of hostile Indians were still in the area and that the river was intermittent (ibid.).

Over the next 20 years, more settlement occurred in the region and some ranches began operations in the vicinity of Indian Hot Springs. One ranch, the T. O. Ranch, was extremely large, extending from near Fort Quitman

to at least Red Light Draw. This operation included land in both Mexico and the United States, and probably included the thermal springs on both sides of the border. It had been divided into smaller ranches by the late 1930s (Everitt 1977:24). The ranching industry in this area has concentrated on raising cattle, sheep, and goats.

Farming in this region has been a lesson in patience due to limited precipitation and the sporadic nature of the Rio Grande. In the early years of settlement, floodwater farming was practiced along the Rio Grande upstream of its confluence with the Rio Conchos. This method, involving no labor, was entirely dependent upon overbank flooding of the Rio Grande. Mexicans along this stretch of the river used "temporal" farming, which was accomplished by diverting arroyo drainages with ditches during summer rains (Everitt 1977:22). The ditches were constructed near the mouths of the arroyos, so that the Rio Grande floodplain between the river and the arroyo was irrigated. The only documented farm in the vicinity of Indian Hot Springs was the Algodón Plantation, which had 6,000 hectares of irrigated land planted in cotton. This farm was located along the Rio Grande near Fort Quitman by the mid-1920s and was one of the largest irrigated plantations in the United States by the late 1920s (ibid.:24). Some of the land in the immediate vicinity of Indian Hot Springs has recently been root plowed and cultivated, and remnants of these activities are quite visible. Farther down the Rio Grande in Presidio County, corn, beans, chiles, and wheat were being cultivated in 1900, with the wheat being a winter crop (Gregg 1933:136). Cotton and alfalfa are the primary crops in the county today (Branda 1976:419). In 1909 in Brewster County, J. O. Langford (1955) found a Mexican "squatter," Cleofas Natividad, living in an adobe structure and growing corn, beans, cushaws, and melons on the floodplain of the Rio Grande near Tornillo Creek, where Langford established a bath house at the spring now known as Langford's Hot Spring. Turn-of-the century Mexican farmers like Natividad had no formal claim to the land and are thus not part of the historical record, which has largely ignored historical inhabitants of the region before the arrival of Euro-Americans. Only further archeological investigation will reveal whether such establishments are located in the Indian Hot Springs area.

Trapping

Trapping is another commercial activity that has contributed to the economy in this region of Texas. Ever since ranches became well established in the area, panthers, coyotes, and bobcats have been trapped for government bounties, because these predators occasionally wreak havoc with livestock. Other animals trapped for the sale of their hides include foxes, ringtails, and badgers (Babb and Taylor 1981:51). This activity has not been an extremely important industry but has helped in supplementing incomes in this economically depressed region.

Candelilla-Wax Industry

One of the more profitable industries through the years has been the processing of the candelilla plant. This plant (*Euphorbia antisyphilitica*) is a small perennial with numerous, erect, wax-coated stems emanating from a small root system. It grows throughout the Chihuahuan Desert and can be commonly found on well-drained limestone slopes (Tunnell 1981:19). The plant has been processed for its high-quality wax since the turn of the century.

The first decade of the 20th century was marked by mass production of candelilla wax in Mexico and the beginning of this industry in Texas. In 1907, the Texas Legislature passed a bill to control the harvesting of plants on state school lands in west Texas. That same year, this statue was used by the General Land Office when adopting rules on the harvesting of candelilla (Tunnell 1981:6). Leases were issued by the state for the collection of candelilla from 1908 until 1922. In 1911, the first wax factory in Texas began operations and was followed by a number of factories spread across west Texas. The industry saw an increase in prices in the years before and during World War I, due to the use of wax for waterproofing tents and ammunition (ibid.:7). In 1918, a five-year candelilla lease was secured for Hudspeth County by E. M. Green of San Antonio for $250. That same year, the lease was sold to

Salvador Madero of San Antonio for $1000 (ibid.). An earlier lease for Hudspeth County may have been granted, but no record of it can be found.

Much speculation and vast amounts of money have been made by wax entrepreneurs through the years. Ever since the inception of the wax industry, markets in the United States and Mexico have fluctuated in prices from 12 to 20 cents per pound in the 1920s to from 12 to 70 cents in the 1940s (Tunnell 1981:13). Throughout those years, the fluctuating prices in the respective markets led to "smuggling" of candelilla wax into Texas. In Mexico this competition led to the formation of an organization known as the Union de Credito de Productores de la Cera de Candelilla. Founded in 1936, this organization attempted to help improve conditions for the wax makers and to control prices and exports. The next year, the Banco Nacional de Comercio Exterior granted subsidies to producers and imposed an export tax on wax in an attempt to control illegal exportation along the Texas border (ibid.:15).

Transient wax camps began to replace the factories in the late 1930s, which essentially transferred part of the industry from the hands of the rich to those of the common man. Depletion of candelilla stands from accessible locations led to this shift. These camps have been the only means of manufacturing candelilla wax in Texas since that time.

The transient camps are inhabited only by men and are commonly located near good stands of candelilla along reliable water courses. The men who run the camps work for several weeks or months before moving camp or leaving to visit relatives (Tunnell 1981:10). Pits are generally dug on the first terrace above the water source and steel vats are set up above these pits. Candelilla is gathered from the area and transported with burros to the processing site. Once there, the plants are stored in piles around the camp until firing takes place. When ready, the vat is filled with river or creek water to within 6 to 8 inches of the top and a fire is started in the pit below (ibid.:24). Most of the time, spent candelilla is used as the combustible, but for the first firing, other items are used. Candelilla is then loaded into the vats while the workers stomp it down. Eventually, steel grates are placed over the vat and

several cans of sulfuric acid are added to the mixture. Sulfuric acid is the key ingredient in this process, as it enables separation of the wax from the stalks. An *espumador*, or perforated skimmer, is used to remove the brown waxy foam from the boiling acid waters in the vat. This foam is allowed to cool and separate into a layer of smooth, yellow wax called *cerote* (ibid.:25). The waxy foam is skimmed repeatedly during this process, which involves the use of another can of sulfuric acid. Finally, a handful of ashes is added to the mixture, producing a violent reaction that drives the last bit of wax from the stalks (ibid:28).

Once the workers are convinced that no more wax can be obtained from the load, cold water is added to the vat, the steel grates are opened, and the spent plants are removed and dried (ibid.:29). The dried plants are stored for use as combustibles in future firings. Then, the process is repeated until the stockpiles of candelilla are depleted or the workers exhaust themselves.

The high-quality wax from the candelilla plant has been used in a variety of products. There are numerous traditional uses for the wax: candles, religious statues, artificial flowers, cloth waterproofing, leather dressing, chewing gum, dance-floor wax, and coating for wax matches (ibid.:34). Other products that have used candelilla wax include automobile polish, floor waxes, breath mints, furniture polish, saddle soap, leather-stitching thread, carbon paper, parchment, stencil and tracing paper, various inks, electrical insulation, high-luster varnishes and lacquers, adhesives, cements, cosmetics, crayons, lead pencils, coating on airplane parts, explosives, linoleum, celluloid, plastics, rubber, ointments, paint removers, phonograph records, precision castings, dental castings, anatomical models, and molded figurines (ibid.). With such diverse applications, candelilla has proved to be one of the most widely used non-domesticated native plants in North America.

In the United States, this industry is unique, as it occurs only along the Rio Grande in the Trans-Pecos region of Texas. It constitutes a distinct aspect of the culture present in Texas and several states in Mexico and is very important to the dynamics of recent cultural evolution in this region.

Health Resort Complex

The actual springs at Indian Hot Springs have provided the most important industry for the area in the past. The springs were being utilized by nearby Sierra Blanca residents as early as 1905 or 1906. An oral account of this time period mentions travelling to the springs with a horse and buggy, using tents and camping equipment, and staying for two or three weeks while taking baths. Another early account describes visitation to the springs that included the construction of brush arbors and the use of open campfires for cooking purposes. The first attempt at commercializing the springs occurred around 1907, when cots and tents were rented out and a kitchen shack was set up by an unknown entrepreneur (Babb and Taylor 1981:85-86).

An attempt to make the springs into a health resort began in the latter half of the 1920s, when an El Paso corporation purchased the land and built a rock hotel, the cabins, and a bathhouse over the Indian rock tub at Chief Spring. The resort was reported by Dogie Wright, a long-time resident of Sierra Blanca and early visitor to the resort, to have opened in 1929 (ibid.:86). A recent oral history obtained from Lester Talley, another long-time resident of the area, indicated that 1925 was the first year of operations at the resort (Simons and Mercado-Allinger 1988). Since Dogie Wright apparently was admitted to the complex in 1930 (Babb and Taylor 1981:86), it seems likely that the date he provided is correct.

The corporation hired two full-time doctors, Dr. Caylor and Dr. Thomas, and a staff of nurses. The doctors also used the hotel as a clinic at that time, even operating on patients when necessary; however, most of the emphasis was on providing baths and massages (ibid.). The success of the venture is indicated in the fact that wall-to-wall carpeting was installed in the hotel at that time and tents had to be set up for the overflow of patients (ibid.:58). The rooms were reported to be spacious and clean, and the care good. Most of the patients went through a daily regimen of bathing in the mornings and relaxing in the afternoons (ibid.).

The resort had a full-time cook on staff, who utilized fresh vegetables from a nearby farm when preparing meals. Chickens also were raised there in the 1930s, and on most Sundays during that decade the resort offered an all-you-can-eat chicken meal for 35 cents. Many local inhabitants of the area took this opportunity to get out, socialize, and enjoy the great meal served there. The cooking at this time was done on a large wood stove. Water for the hotel was pumped in from Soda Spring (Simons and Mercado-Allinger 1988).

Although the resort started out with ambitious plans, the 1930s brought a number of problems to the endeavor. The Depression, which greatly affected the resort's business, followed closely after the major construction events at the resort. In addition, an earthquake struck the area in 1931, apparently altering the discharge zone of the springs enough to significantly affect the level of water present. The river also showed the effects of the earthquake, as its level was correspondingly lowered. The lower river level hurt the fishing and, to some extent, the hunting in the area, which had provided additional attractions for the resort. Eventually, the water level in both the springs and river came back up to previous heights. In the 1930s, one of the original members of the El Paso corporation, J. D. Foster, began buying the other investors out and became the sole owner of the resort in 1937 (Babb and Taylor 1981:86). A road built to the resort in 1935 as part of a WPA project helped business some, but Foster's attempt to keep the resort open finally failed in the early 1940s, when his doctors left to serve in World War II (Simons and Mercado-Allinger 1988).

A building and signpost were erected adjacent to the resort complex at some time in the past, and local informants use the term "port-of-entry" when describing it. A footbridge crossed the Rio Grande at this location, giving Ojos Calientes residents access to the resort. The dates for the opening and closing of this structure have not been obtainable from Customs or Border Patrol; thus, this crossing may have existed on an informal basis (Simons and Mercado-Allinger 1988).

Apparently, Foster owned the resort until around 1952, when he sold it to Dixie Babb. The Babb family spent the 1930s and early 1940s in the vicinity of Langtry, Texas, before moving to Sierra Blanca in 1944 and running a tourist court there. Being ranchers, this family also purchased a ranch adjacent to Indian Hot Springs at that time (Babb and Taylor 1981:57). Jewel Babb, Dixie's mother, ended up running the resort on an informal basis in the 1950s after the death of her husband and the prosecution of her sons for cattle smuggling. In the early years of the Babb ownership, Jewel let people use the springs as they needed. Alone at the springs, Babb decided to try and make a living through the resort after most of her sheep died during the prolonged drought of the 1950s. She did not charge formal prices for use of the springs, but did ask for something in return, like food or services, if it was possible. She became extremely knowledgeable on the curative powers of the different springs and the uses for mud packs and mosses from the individual spring waters. Babb also developed a unique mental ability while helping people at the springs. She became able to "see" the afflicted area and "heal with the mind," by "touching without touching." Her successes became legendary in the area, and she was able to gain the respect of the Mexican people who were used to the folk medicine of *curanderos*. Although Mrs. Babb's folk healing tradition had Anglo roots from the Appalachian Mountains, she was able to establish a unique border tradition that relied on both Mexican and Anglo values. She was instrumental in bringing these two cultures together in this remote setting. Babb eventually lost the resort to a bank in Del Rio, Texas, in 1960 because of back taxes (Babb and Taylor 1981).

Jim Arnold was the next owner of the resort. He apparently tried to bulldoze the port-of-entry crossing during his ownership. Lester Talley, a local informant, related that the Mexican Government made him reopen the crossing, but this has not been substantiated by other sources. During the Arnold ownership, a man with running sores all over his body is reputed to have been cured at the springs. This cure is said to have influenced H. L. Hunt, a health food connoisseur, into purchasing the resort in 1967 (Simons and Mercado-Allinger 1988).

During this ownership, the resort was open to the public once again. Hunt apparently built all the walkways and stone walls now visible at the resort in 1967 or 1968 and was responsible for a deer enclosure that was set up at the resort in 1971. At this time he also arranged for the bulldozing of about 10 of the old rock cabins that were in ruins. The bulldozer is said to have fallen into a septic tank during that operation, and a full week was needed to get it out. The debris from the cabins was used to fill the septic tank. Hunt apparently was somewhat of an eccentric, as he once had a large stainless-steel truck filled with water from Soda Spring for transporting to Dallas (Simons and Mercado-Allinger 1988). Hunt died in 1974, bringing an end to formal use of the springs as a health resort.

J. P. Brown acquired the complex some time after the Hunt ownership and built across from the hotel a building that was used as a "museum." This building was used to house artifacts that had been collected from the area until the collections were acquired for display in the Lajitas Museum in the Big Bend region of Texas.

Cacti Collecting

The collecting and sale of cacti is another activity that has occurred in this part of Texas (Babb and Taylor 1981). The beginnings of this industry are not well documented, but probably occurred in the 1950s or 1960s. All varieties of cacti have been and continue to be collected for sale to nurseries or individuals. This collection has completely denuded vast areas of cacti in some areas of west Texas. The cacti-collecting industry has been a minor contributor to the economy of the region.

Other Activity

A relatively recent commercial activity occurred at a structure (41 HZ 308) about 3/4 of a mile west of the resort complex. This structure, which was already in existence, was used to house a commissary for Mexican

cotton-field and candelilla-wax workers in the 1950s and 1960s (Simons and Mercado-Allinger 1988). Referred to as the Talley Store, this locale must have provided the workers with much-needed items, since there are no towns in the nearby vicinity.

Military Activities

At the time of the last Mexican revolution and World War I, military activities along this stretch of the Rio Grande were greatly intensified. In 1911 Pancho Villa captured Juárez, across from El Paso, Texas, and initiated nearly a decade of unrest along the border. In January, 1914, Villa captured Ojinaga, across from Presidio, Texas, and later that year reclaimed Juárez. At this time, Villa and his followers began to cross from Mexico into the United States to secure cattle, horses, and supplies for their campaign. In May 1915 a raid was carried out in the vicinity of Indian Hot Springs at the R. C. Love Ranch. The ranch, located southeast of Sierra Blanca, Texas, was plundered for cattle and horses, and the rancher's son and several cowboys were murdered in the process (Hinkle 1970:5). A similar raid on Columbus, New Mexico, resulted in fifteen dead Americans (ibid.:4). These and other raids along the border prompted the United States government to deploy 110,000 troops to the region in 1916 (ibid.:6). By 1917 a number of American outposts had been established in Texas along the river. Three of these were located in the vicinity of Indian Hot Springs: one near what is now Neely Ranch; one in the Indian Hot Springs area; and one at Love's Ranch (Everitt 1977:22). The Neely Ranch site locale (41 HZ 211), located about 19 miles upstream from Indian Hot Springs, has been archeologically documented (Betancourt and Ralph 1981:59), but the other two outposts have not been positively identified on the ground at this time.

As the conflict continued through the late 1910s, the Army Border Air Patrol was organized from squadrons returning from World War I combat (Hinkle 1970:6). This support force was brought into action in June of 1919

about the same time that Pancho Villa and his supporters attacked Juárez for a third time. That assault proved to be a costly one for Villa, as the combined Mexican National and American forces soundly defeated the villistas and scattered Villa's remaining supporters. Thus, the main objective of the air patrol was to provide armed aerial reconnaissance to support the isolated army units along the border while they patrolled for the last vestiges of Villa's insurgents (ibid.). Seven patrol districts were established along the United States border, with the Indian Hot Springs area falling within the Bosque Bonita patrol of the El Paso District. In June 1921 after nearly two years of service, the Army Border Air Patrol was disbanded and all but six planes were transferred to Kelly Field in San Antonio. The six planes remained at Fort Bliss in El Paso until 1926, when they too were shifted to Kelly Field (ibid.:63-64).

ORAL HISTORIES AND RECENT EVENTS

In a remote area like Indian Hot Springs, events are sometimes poorly recorded so that little if anything is known about local history at a specific point in time. In situations like this, oral histories, or verbal accounts of events, become one of the better means of understanding the actual history of the area.

One oral history of an event in the 1930s was obtained in 1988, by Helen Simons and Pat Mercado-Allinger of the Office of the State Archeologist. Their interview of Lester Talley, a long-time resident of the Indian Hot Springs area, concerned two sites, a rock dugout (41 HZ 445) and isolated grave (41 HZ 438) near the Talley Ranch.

Talley related that the rock dugout was occupied by a man and women and that the man became despondent over a local controversy concerning fenceposts. He was apparently drug by his horse until dead on a large flat above the Rio Grande floodplain. The isolated grave (41 HZ 438) recorded in 1988 was identified by Talley as the inter-

ment of that individual. The location of this event bears the name Suicide Flat, although according to the informant, suicide was always just speculation in this case (Simons and Mercado-Allinger 1988).

While recounting this event, Talley related some insights about the original construction of the rock dugout, which appears to date to the early part of this century. He said the dugout was made of mortared rock and originally had cottonwood roof beams and ocotillo cross beams, covered with dirt. Subsequently, the roof was replaced with timber and tar paper and a door and window were added (ibid.).

Due to the paucity of historic accounts or records from this area, oral histories probably offer the most complete look into the relatively recent happenings here. The history of the two sites mentioned above would have been difficult, perhaps impossible, to reconstruct without the aid of Mr. Talley's oral account. Additional oral histories from the "old-timers" of the area will undoubtedly add to the general and site-specific histories here and will assist in resolving the discrepancies that are inevitable in oral histories. Future work in this area should attempt to generate this type of non-renewable data from the people there before their knowledge of local events is lost forever.

Other recent activities in the Indian Hot Springs area also are pertinent to continued cultural adaptation in the region. The migration of Mexican laborers, or illegal aliens, to Texas in search of better economic conditions has been and continues to be responsible for significant numbers of historic sites. Although none of these sites were positively identified for inclusion within this context, their existence in the area is expected to be verified in the future. Cultural remains at these "wetback" sites generally include fire-cracked rock from their hearths and modern refuse, such as tin cans. These sites, commonly only occupied for a night, are usually situated near tinajas (natural water catchments), in rockshelters, or in shady arroyo bottoms (Betancourt and Ralph 1981:63, 67). Although these kinds of sites are fairly recent, they are important to the cultural integrity of the current historic period and will one day be an integral part of the archeology of this area and of the region.

RESEARCH TOPICS

Based on the limited historic data from this region, it is possible to identify a number of research topics that could be addressed using data from the historic Euro-American and Mexican sites in the Indian Hot Springs area. Each research topic is guided by a broad question: What kinds of lifeways existed among the various historic inhabitants of the Indian Hot Springs area and how did they change through time? This general question can be explored by pursuing the following research topics.

1. Settlement Patterns. The order created by a culture interacting with the environment can be thought of as settlement patterning, that is, a structuring of the various cultural activities across environmental zones at a specific point in time. One broad settlement-related question for the historic period involves determining the relationship between the historic sites and the unique springs at Indian Hot Springs. The resort complex (41 HZ 444) at the springs is obviously intricately related to these thermal waters, but the other historic sites probably have varying relationships with them.

A few generalizations can be made about the relationship of property types to environmental zones. The candelilla-wax camps (41 HZ 220, 41 HZ 415, 41 HZ 423) were located exclusively along the narrow terraces of upland arroyos, a fact probably related to the density of candelilla plants, past collecting areas, and available water sources. Other, unknown factors may also be related to the location of these camps. The rock dugout (41 HZ 445) was located along an upland water course, but the exact location of this dwelling may have been more a function of property constraints than of environmental factors. As previously related, the isolated grave (41 HZ 438) is related more to the proximity to the rock dugout than anything else. The other five sites with structural remnants thought to have been dwellings (41 HZ 284, 41 HZ 299, 41 HZ 312, 41 HZ 308, and 41 HZ 304/305) were located at the upper edge of the Rio Grande floodplain. Sites 41 HZ 284 and 41 HZ 299 are well upstream of Indian Hot Springs

and appear to have little or no relationship to the springs, but this remains to be demonstrated through archeological investigation, oral history, or record searches. Site 41 HZ 308 contains a stone and mud masonry structure with an associated corral. This site, located fairly close to the springs, housed a store in the 1950s and 1960s but was present before that time and probably served as a habitation. Site 41 HZ 304/305, located nearly 5 kilometers upstream from Indian Hot Springs, contains remnants of an adobe house. The relationship of this site to the thermal springs is unknown at this time. A ranch or farm complex (41 HZ 312), located southeast of Indian Hot Springs, probably had some kind of symbiotic relationship with the resort complex. Oral accounts from visitors to the complex indicated that a farm on the river below supplied the resort with vegetables, and 41 HZ 312 may well be that farm (Babb and Taylor 1981:86). The remaining site associated with this context is a trail system located in the upland foothills of the Quitman Mountains. This site (41 HZ 465) contains extensive remnants of a trail or wagon route and a telegraph system. The probability is high that this site was closely related to the resort complex at Indian Hot Springs, due to the lack of other large-scale endeavors in this area.

Several questions associated with this research topic are: (1) Which sites had relationships with the resort complex and what was the nature of these relationships? (2) What other factors were responsible for the historic site locations? The causal factors involved in the location of the above-mentioned sites are not necessarily easily obtained. Therefore, it is recommended that oral-history, documentary, and archeological investigations eventually be undertaken for these sites in order to determine, among other things, the causal relationships of their locations.

2. Subsistence. Local subsistence strategies probably evolved somewhat during the historic period because such radical cultural changes occurred during the period from 1880 to 1940. Most of the foodstuffs consumed in the area probably were locally grown or raised because of the great distances to nearby markets and the poor road conditions of the area. Locally raised chickens, goats, sheep, and cattle more than likely provided the meat needed by local

residents during this period, while a variety of locally grown vegetables supplemented their diet. Additional foods that were locally available included fish from the river and deer that could be obtained from foothills of the mountains. It is assumed in this context that recipes for cooking the available foodstuffs were passed between the various ethnic groups present during historic times (i.e., Mexicans and Euro-Americans probably became adept at cooking each other's respective traditional dishes).

Several questions need to be addressed concerning subsistence during historic times in the Indian Hot Springs area. What vegetables were being grown in the area, how much of this produce was used for local consumption, and how were the foods prepared? What techniques were used in the preparation of the various meats consumed by residents in the Indian Hot Springs area? Were foodstuffs purchased from local Mexicans, and if so, which foodstuffs? What types of food were purchased in the nearest markets in the United States? Were food sources stored or cached for long or short periods of time, and, if so, how was this storage accomplished? Were locally obtained meats, fruits, and vegetables (such as beans) dried as a means of preservation, or is there evidence of other kinds of food preservation (e.g., salt curing, home canning)? If drying was the predominant preservation method, is there evidence of food drying as a continuation or adaptation of indigenous food-preservation techniques? How was the local food supply system affected by variations in weather patterns (e.g., droughts)? Were there recipes or food preparation techniques that were passed from one ethnic group to the next? Research involving oral histories, archeological excavation, and record searches will have to be initiated before the answers to these and other questions are obtained.

3. Trade. This topic concerns the exchange of items between individuals or groups of individuals. Trade undoubtedly existed both across the border and between people on the Texas side of the river during historic times. People in remote rural areas traditionally use everything available until breakage occurs or a trade is offered. Mexican items

not manufactured in the United States, like lechuguilla whips, were probably in demand on the Texas side of the border; and, a plethora of items not available in Mexico were probably in demand across the border. The Talley Store (41 HZ 308), apparently provided Mexican workers in the 1950s and 1960s with some of these desired items.

A few questions to guide research on this topic are: What items were being traded in the Indian Hot Springs area and who was involved in trade? Were there regular trade networks established or was trade in the area more of an occasional affair? The answers to these questions should be most easily obtained through oral histories.

4. Warfare. Although no war-related sites from the 20th century have been found in the Indian Hot Springs area, a World War I era site is supposed to be there (Everitt 1977:22). Military activities associated with the pursuit of Pancho Villa did occur in the area and may be found in the future. Some questions to consider for this research topic include the following: Was there a post-1900 military campsite in the Indian Hot Springs area, and, if so, where was it located, and how many men were stationed there for how long? What type of military activities occurred in the area? The military records for this time period are very sketchy and little can be gleaned from those accounts. Once again, oral histories are the best hope of resolving the questions related to this topic.

5. Chronology. All of the research topics discussed in this section are dependent upon some form of adequate dating. Chronology involves developing a temporal order for the cultures and sites in an area or region. For historic sites, material culture typologies, written records, and oral histories can best be utilized to achieve this end.

Material culture typologies, such as the manufacturing typologies associated with gun cartridges, glass items, or historic ceramics, are most useful when attempting to date relatively recent sites. These types of data can many times date a site to within five to ten years of its actual occupation. Oral histories are another chronological tool that are usually reliable to within one to five years, depending on the respondent. Written records tend to be the most

accurate chronological markers, but many times these too are insufficient. The best way to date historic properties such as those found in the Indian Hot Springs area is through a combination of these methods whenever possible.

In the Indian Hot Springs area, it should be possible to study habitation sites through a combination of all three of the methods discussed above. The wax camps present a more complex situation due to the economic pressures on the Mexican culture along the border. The long-standing economic difficulties of this cultural group have contributed to the presence of a confusing material culture at wax camps. Most of the material-culture remains at these sites tend to be fairly old and reused items that do not always accurately reflect the date of the site. In this case, oral histories are about the only avenue for a good chronological interpretation. The isolated burial recorded on Suicide Flat is another site that may yield a date only through the use of extensive oral histories. The oral history obtained from Lester Talley dates this interment only within a ten-year period, the 1930s (Simons and Mercado-Allinger 1988). Oral histories have elucidated some dates for events at the resort complex, but much more work in this area is needed. The historic trails and telegraph system documented as 41 HZ 465 also will need to be dated through the use of oral histories because of the lack of associated artifacts and the probability that the system is poorly recorded in the written records of the county.

Some chronological questions to consider are the following: When did the earliest ranching and farming in the Indian Hot Springs area occur and what form did it take? When were the first transient wax camps used in the Indian Hot Springs area? To what time period does the trail and telegraph-line system date? What is the date of the isolated burial? When were the habitation structures in the area built? These are but a few of the chronological questions that need to be considered. The use of oral histories should be of great value in addressing this topic.

6. Intrasite Patterning. Intrasite patterning can offer a means for deciphering how various activities were arranged at a site. This kind of study can reveal an array of subtleties about a site that contributes greatly to the understanding of

human behavior. The wax camps, the resort, the habitation sites, and, to some extent, the trail system can all contribute data for this topic.

On a large scale, the resort complex offers an excellent example of the order that has been created at Indian Hot Springs. Each building there had a certain function at a particular point in time and was integral to the mental template of the people who owned, operated, and visited this site through time. Most of the other property types in this context have a similar order representative of human behavior.

A question to consider for this topic is: Did intrasite patterning change significantly at the various historic sites at Indian Hot Springs with each succeeding generation, or were similar patterns basically repeated throughout historic times? Once again, oral histories should be able to contribute much data on intrasite patterning. Archeological excavation can also be a valuable tool in approaching this research topic.

7. Demography. Demography is the statistical study of the characteristics of human populations. Subjects that fall under this topic include group size, population density, population growth, migration, population distribution, and vital statistics. The effect that all of these have on social and economic conditions also comes under the realm of demographic research. Little work on this topic has been done by historians or historic archeologists in the Indian Hot Springs area, but some needed data may be available in the Hudspeth County records. Undoubtedly, some of the "old-timers" of the area will be able to offer pertinent information as well. Data from the historic sites, especially habitation sites, in the vicinity of Indian Hot Springs should also be able to address some of these subjects. Thus, archeological excavation, record searches, and oral histories should be utilized when exploring this research topic.

Some demographic questions to consider are the following: How and why did group sizes and population densities change over this relatively short time period? What were the rates of population growth and decline in the area? How was the population spread over the landscape and what factors were related to this distribution? How did

population migrations in the region affect the demographic character? How extensive were migrations of Mexicans into this area? What were the birth and death rates for the historic people of the area, and were there differences in these rates for the different ethnic groups? Answers to these and other, similar questions of human populations are necessary to understanding the cultural complexities that existed in the Indian Hot Springs area during recent historic times.

8. Communications. This region of west Texas is perhaps better known for its lack of communications than for any other aspect of its historic development. The area is still characterized by long distances between towns or hamlets, few phones along the way, and frequent disruption of services due to intense lightning storms. Communications in this region during early historic times were probably reliant upon travel along poor roads or trails and word of mouth.

Site 41 HZ 465, located near Indian Hot Springs, exhibits remnants of an old trail system, road, and telegraph system. This site has the potential of providing data on early communications in the area, but this may be realized only through record searches and oral histories. The site could provide some data on road and trail construction, since several intact, reinforced sections of these routes are still present. An oral history from this area related that a road was built to Indian Hot Springs in 1935 as part of a WPA project (Simons and Mercado-Allinger 1988). This WPA road could be the present county road or the road observed at 41 HZ 465.

A few questions to guide the research of this topic are the following: When were the road, trail, and telegraph systems at 41 HZ 465 installed, and when were these systems replaced with more modern communications? How were the trails and roads of the area constructed? How much was word of mouth relied upon for communications in this area throughout historic times? Questions for this topic will need to be expanded as additional data is retrieved.

9. Architecture. Architecture tends to be a function of the available resources and the economic status of the builder. Construction techniques and architectural design typical of the desert are easily observed in the Indian Hot Springs area. Often ignored, folk and vernacular architecture employ very specific methods that require the passing of information through verbal exchange, observation, replication, and apprenticeship, all nonliterary translations of complex traditions. As a collection these buildings can provide information pertaining to local building techniques, the evolution of these techniques within the region, and the composition or decomposition of building types.

The only concentration of buildings within the area covered in this nomination is within the Indian Hot Springs Health Resort Historic District. These buildings were designed with locally available materials. Their floor plans, both simple and complex, appear to be the conclusion of non-local designers and local workers that combines the traditional architectural stylistic influences and materials of the region with specific needs of a resort community.

There is potential for research on architecture at Indian Hot Springs because not only is there a wide array of properties with integrity at the Indian Hot Springs Health Resort Historic District, but several other occupational properties also are present in the area. The rock dugout at 41 HZ 445 provides insight into local construction techniques during early historic times, but were it not for the oral history obtained from Lester Talley (Simons and Mercado-Allinger 1988), the complete history of construction would have been very difficult to obtain.

Questions that should guide further research on this topic include the following: Who were the people who designed and constructed these buildings? How did they make the transition from folk architecture to vernacular tradition? What influenced their ability to make the transition? What was the general strategy of folk and vernacular builders when implementing design and design methods? Who was involved in the design and construction of the health resort? How did they make decisions about the design of the resort's buildings? Were their outside influences or was it the result of local building traditions?

10. Cultural Affiliations. Cultural affiliations in the area during historic times were probably divided along ethnic lines, with Euro-Americans and Mexicans forming the principal groups. The early Euro-Americans here may have had several different origins, but it is likely that they formed a fairly cohesive unit because of the isolation enforced by the rugged and remote nature of the land. The same can be said for the Mexicans that were in the area at this time. Identifying the actual groups that were present, their cultural backgrounds, and the relationship of these groups to the archeological sites are research avenues that should be explored for this topic.

Some questions to address during this research include: What cultural groups were present in the Indian Hot Springs area, and how did this mixture evolve or change through historic times? What aspects of the various cultural traditions were retained through time? Record searches and oral histories should provide the most data for this topic. Archeological excavation may also be able to aid in this research.

11. Special Studies in Material Culture. Archeologists enlist the aid of various other disciplines when conducting site research. Such special studies usually involve geologists, agronomists, or other scientists. Special studies in historic archeology are essentially the same as those in prehistoric archeology, with a few exceptions. Corroded metal artifacts can be analyzed using X-radiography, to identify the object or locate stress fractures. Pollen analysis can be used to identify the vegetational regimes that were present through time, which can provide clues to land-use practices in the past. Analyses of soil samples can be used to delineate activity areas within a site or to identify specific activities. Other analyses that would fall under this heading include phytolith studies, adobe-material analysis (for source area of materials or place of manufacture), and lipid analysis.

A few questions to guide these avenues of research are: Did land-use practices, such as over-grazing, affect the vegetational regimes in the Indian Hot Springs area, and, if so, when were the regimes altered? What types of historic activities can be deduced from soil analyses? Where were adobe bricks in this area manufactured? What

types of materials can be identified through residue analyses? For the most part, archeological excavation will be necessary at the Indian Hot Springs sites in order to recover the materials necessary for these studies.

12. Raw-Material Procurement. Desert lifeways invariably involve using available resources whenever possible, because of the distances to stores or other outlets. The clay and temper sources used in the manufacture of adobe bricks are raw materials that fall under this topic. The procurement of other building materials, such as wood, rocks, and mortar, would also be included in this research. Other items that were being locally procured will need to be identified through oral histories or archeological excavation.

Some obvious questions for this topic are: What raw materials were being procured in the Indian Hot Springs area, and where are the source areas for these materials? To what extent were raw materials being imported from the Mexican side of the river? Did the source areas for certain raw materials change through time? The answers to these questions should provide interesting insights into the lifeways of the inhabitants of this area.

13. Cross-Cultural Interactions. The interactions of the various ethnic communities in the Indian Hot Springs area through time have resulted in a meshing of cultural traditions. Most Mexicans are of mixed Spanish-Indian descent, and this ethnic group has incorporated traditions of both of its ancestral cultures, involving such things as food preparation and health care, into the Mexican culture. The determination of the ethnicity of Euro-Americans in the area may be more complicated, as a result of mixing between the various ethnic groups that arrived in the United States from Europe. Thus, the Euro-American culture is also a product of diverse cultural traditions. In the Indian Hot Springs area, the Euro-American and Mexican cultures have been present since shortly after the Apaches were removed in 1880. The mixing of these ethnic communities, in all aspects of life, has produced a unique culture that is common to the Mexican-American border regions. Food preparation, building techniques, health care, commercial endeavors, and other aspects of the lifeways of this area reveal the extent of this mixture.

Food becomes a common denominator whenever cultures are in close contact, and those at Indian Hot Springs are no exception to this rule. As a result, food preparation here has incorporated techniques from both the Mexican and Euro-American groups. Building techniques also have been shared over the years in this region, with many structures having aspects derived from the different ethnic groups present. The use of adobe bricks in the area is an example of the incorporation of Mexican techniques into Euro-American structures. An example of Mexican folk traditions present on both sides of the border is apparent in the case of health care, or the work of *curanderos*. Folk medicine is a rich part of Mexican heritage, dating back to the integration of Indian values and lifeways into the Spanish or Mexican culture. Economic factors and the remoteness of many parts of Chihuahua and Mexico have been partly responsible for the popularity of *curanderos* over modern medicine. Since the Texas side of the border in much of Trans-Pecos Texas is just as remote, folk medicine has become an important aspect of medicinal care here too. The work of Jewel Babb in the 1950s was responsible for the establishment of a border folk medicine that relied on both Mexican and Anglo values. Many inhabitants of the area today rely on this type of health care. Other examples of cultural interactions are undoubtedly present in this area.

The most obvious example of local cross-cultural interaction is Euro-American adaptation of the Mexican method of resource exploitation involved in the candelilla-wax industry. The industry began in Mexico and has always been more important for that country than for the United States. In the early days of this industry on the American side of the border, the Euro-Americans involved were mostly entrepreneurs and the Mexicans provided most of the labor. Since the transient camps came into use in the late 1930s, few Euro-Americans have participated in this industry (Tunnell 1981). Because attempts to cultivate the plant have failed, the techniques used in gathering the wild plants have been essential to this enterprise, even during the period of industrialization in the early 20th century.

The expansion of the cattle industry into Trans-Pecos Texas, it has been suggested (Meinig 1969:Map 11; Wulfkuhle 1986:58), was in large part from the South Texas region that had long been the center of Anglo and Hispanic exchange in the development of ranching practices. In South Texas this exchange was furthered by the employment of Hispanic vaqueros, and it is hypothesized that this practice existed also in the Trans-Pecos. Determinations of whether a significant number of early Anglo ranchers in the area came from South Texas and whether they employed Hispanic vaqueros are essential to addressing the possibility of cross-cultural interactions in ranching practices in the Hot Springs area during the period 1880 to 1940.

The origins of the inhabitants of this region are very important to understanding concepts associated with their culture. For example, the culture of Hispanics with recent origins in Texas exhibits marked differences in comparison with the culture of Hispanics from the different states in Mexico. The same can generally be said for the Euro-American groups. The people from the Euro-American ethnic groups that were present at Indian Hot Springs in early times differ from the groups that arrived later from Europe, other states, or other parts of Texas.

Some questions dealing with this topic include: Where were the origins of the Hispanic people at Indian Hot Springs through time? What were the ethnic or national origins of the Euro-Americans here through time? What specific cultural traditions can be traced to the different ethnic groups? What has been the on-going relationship between the occupants of the Indian Hot Springs complex and the Mexican village across the Rio Grande? Have vaqueros been extensively employed on area ranches, and, if so, has this furthered the exchange of Anglo and Spanish ranching practices? These questions can be addressed primarily through oral history interviews, but archeological excavation and record searches may also be able to contribute to the data base.

14. Mortuary Practices. To date, only one site (41 HZ 438) in the Indian Hot Springs area has been recorded with a historic burial dating to the time period of this context. This burial, covered with stacked stones, has been associated

with an occupant of a nearby dugout (41 HZ 445). An oral history was utilized in making this association (Simons and Mercado-Allinger 1988), but further interviews need to be conducted in the area to ascertain the name of the interred individual and a more complete history of the events surrounding interment.

Another historic burial site in the area has come to the attention of the Office of the State Archeologist since the 1988 fieldwork, but formal recording of that site has not yet been undertaken. The site consists of three stacked-stone interments located about 500 meters northwest of Soda Spring. The landowner believes that the burials are those of a Mexican family and date to the 1930s or 1940s. Formal recording of the site and inclusion within this context will be accomplished in the near future.

Some questions to consider on the mortuary practices of historic people in this area include the following: Were there differences in the mortuary practices observed by the different cultural groups in the area? What types of grave goods are typical for the various cultural groups here? Was cremation ever utilized in this area? How deep are typical burials in the area? Are small, isolated family cemeteries common in this area? Did burial practices in the area change through historic times? Oral history interviews and record searches should be able to provide the answers to some of these questions. If a burial excavation is required in order to save a known burial site from destruction, data on mortuary practices may be realized.

15. Recreation. Hunting and fishing have been attractions of the Indian Hot Springs area for many years. Hunting has primarily involved deer and game birds, like quail and dove, while fishing has concentrated on catfish. These endeavors were apparently part of the lure of the resort complex in the 1920s and 1930s. In 1988, the group associated with the Office of the State Archeologist noted a Mexican festival across the river in Ojos Calientes, Chihuahua, Mexico. It is reasonable to assume that such festivals occurred in the past and may have been attended by Euro-

Americans and Mexican-Americans from the Texas side of the river. Other forms of recreation have not been documented in the area but must have existed through time.

A few questions concerning this topic are: What were the other recreational activities in the Indian Hot Springs area besides hunting and fishing? What animals besides deer, quail, and dove were being hunted, and what fish besides catfish were being caught for recreation here? To what extent have occupants from the American side of the river participated in festivals and other celebrations held in the village on the Mexican side of the river? What effect did improved communications in the 1930s and 1940s have on local recreational activities? Oral histories should be able to provide the most information on this topic. Archeological excavation at habitation sites and the health resort may also reveal data on this subject if recreational items are recovered.

16. Commerce. Documented commercial enterprises in this area during historic times include ranching, farming, trapping, collecting cacti, candelilla-wax processing, and the operation of a health resort at the thermal springs. Other endeavors that probably occurred in the area but are poorly documented include mining and adobe-brick manufacturing. All of these activities, geared toward maintaining a living in this harsh land, have been conducted at different levels of intensity through the years. Farming and ranching were the earliest industries in this area and apparently have been the most resilient through the years. Trapping, collecting cacti, and candelilla-wax processing have been relatively minor components of the economy of this region, but these activities are integral to the cultures present here. The resort complex has constituted the most elaborate commercial activity in the area during historic times. These endeavors, and probably other minor activities, have had a major role in shaping the lifeways of the inhabitants of this area.

Some questions to consider for this topic are the following: Where were the earliest farm and ranch locales in the Indian Hot Springs area and when were they established? When were the earliest commercial activities, which

preceded the resort complex, established at the springs? What segment of the population in this area participated in the candelilla-wax industry through time? These are just a few questions to begin research, as myriad other questions can be formulated for this topic. Once again, oral history interviews and record searches will substantially aid this research. Archeological excavation should also be able to contribute greatly to this topic, especially when conducted at the wax camps, resort complex, and habitation sites.

Associated Property Types

CONTEXT #1
Aboriginal Lifeways during Prehistory and History in the Indian Hot Springs, Texas, Area,
ca. 5000 B.C.– A.D. 1880

INTRODUCTION

At present, four aboriginal property types have been identified for the Indian Hot Springs area: open campsites or villages; quarries or lithic procurement areas; rockshelters; and lithic scatters. Future survey work may locate additional property types associated with the aboriginal use of this area, such as burials, rock art sites, or caches.

I. NAME OF PROPERTY TYPE: Open Campsites or Villages.

II. DESCRIPTION:

Prehistoric and historic Indian open campsites and villages are by far the most numerous site type in the Indian Hot Springs area and, generally speaking, throughout west Texas. An open campsite is an occupational site where no natural features, such as rockshelters or caves, were used as habitations. These sites usually possess hearth features, burned-rock middens, ring middens, or scattered, fire-cracked rock indicative of camping episodes. A high potential for structural remnants also exists at these sites. Sites interpreted as villages are essentially open campsites but are generally of a much larger size. These sites contain important information about the day-to-day lifeways of the Indians over time. Late Prehistoric diagnostics, consisting almost exclusively of ceramic sherds, dominate these sites, while Archaic materials are present at only a few of the sites. That very few lithic diagnostics have been located here over the years by researchers is undoubtedly attributable to the tenacity of local relic collectors rather than to insufficient survey methods. It is assumed that either the full range of Archaic manifestations and possibly Paleoindian materials are intact in undisturbed deposits or were present at one time.

Open campsites in the Indian Hot Springs area vary from small sites (100 square meters) with single hearths to exceptionally large sites (covering 25 acres) with numerous hearth and burned-rock features. Most are moderate in size (10,000 square meters) and contain multiple features. Burned-rock middens and ring middens are thought to be features related to the processing of certain plant resources (Greer 1965, Weir 1976). The majority of sites were observed in surficial contexts on the terraces above the Rio Grande floodplain. Other open-campsite locations include high points overlooking the Rio Grande floodplain and terraces along the tributary drainages in the uplands. Large sites interpreted as villages are almost exclusively confined to terrace and floodplain locales along the Rio Grande.

Open-campsite locations provide data for interpretation of the aboriginal use of an area through time. Smaller open campsites, especially those in the uplands away from the river, have been interpreted as representing hunting groups or microbands dispersed during the summer months (Gerald 1977:50–51). This dispersion can be thought of as an adaptive strategy designed for exploitation of the available resources of the area. The large, riverine, open campsites or villages in the vicinity of Indian Hot Springs have been correspondingly interpreted as representing sites where microbands coalesced into macrobands over the winter months (ibid.:50). The broad floodplain and lower terraces of the Rio Grande upriver from Indian Hot Springs provided the space necessary for large groups to come together at a single site. Although early European accounts of the region suggest a seasonal settlement pattern, this has not yet been demonstrated archeologically.

III. SIGNIFICANCE:

The research significance of this property type centers on its potential for providing a wide array of information on the relationships between the sites in this area and the permanent establishments in the El Paso and La Junta districts. A variety of research topics can be addressed through study of the open campsite or village property types:

settlement patterns, seasonality, demography, trade, warfare, hearth morphology, typology, intrasite patterning, architectural data, cultural affiliations, special studies in material culture, cross-cultural interactions, raw-material procurement, curandero or shamanistic rituals, and mortuary practices. In addition, depending on the degree of site preservation, some of the individual sites within this property type may contain significant data pertaining to chronology, environmental change, and subsistence.

The dearth of knowledge concerning the aboriginal inhabitants of this area is a major contributing factor in the overall significance of this property type. The open campsite or village property type can provide the most comprehensive data on the aborigines who inhabited this area and thus allow for a better understanding of the lifeways of these people through time. This understanding will undoubtedly lead to the formation of a better regional model of cultural dynamics.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: D.

b. Areas of Significance: archeology, prehistoric archeology, historic archeology.

c. Data Requirements: In order to contribute to one or more of the research topics discussed above, examples of this property type should contain at least one of the following information categories: hearths, burned-rock middens, ring middens, trash deposits or middens, lithic artifacts, lithic debitage, ceramic artifacts, burials, bedrock or slab metates, bedrock mortars, portable ground-stone tools, habitation structures, and ramada structural remains.

I. NAME OF PROPERTY TYPE: Quarries or Lithic Procurement Areas

II. DESCRIPTION:

This property type is defined by the presence of hammerstones, cores, flakes, and other by-products of lithic reduction activities at the source of the raw material. Activities at quarry sites were usually aimed at producing items that were transportable to habitation sites, and these activities most commonly involved, to some extent, reduction of the core or parent material. These sites normally contain few if any diagnostic artifacts. This property type includes both quarry areas where the lithic source in question is removed from bedrock and procurement areas where an exposed lithic source is surficially collected. Areas of procurement of certain other lithic items, like hammerstones and ground-stone tools, also would be included in this property type.

III. SIGNIFICANCE:

Quarries or lithic procurement areas provide direct evidence of exploitation of stone resources in the Indian Hot Springs area. This property type may be able to provide important data for the following research topics: trade, intrasite patterning, special studies in material culture, and raw-material procurement. Individual quarry or procurement sites should provide information on techniques employed in quarrying activities, the different lithic technologies utilized, the variety of material types favored, and the presence or absence of activity areas within site limits. If intact deposits are present, data on cultural changes through time may also be realized. At a regional level, the study of quarry or lithic procurement sites in the Indian Hot Springs area may yield significant data on exchange relationships between cultural groups in adjoining areas.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: D.

b. Areas of Significance: archeology, prehistoric archeology, historic archeology.

c. Data Requirements: In order to contribute to at least one of the research topics discussed above, examples of this property type should contain at least one of the following information categories: lithic debitage, hammerstones, and ramada structures.

I. NAME OF PROPERTY TYPE: Rockshelters

II. DESCRIPTION:

This property type is restricted to certain locations where a natural opening in the exposed bedrock is present. Definition of this property type relies on the presence of artifacts in the shelter or downslope in a talus cone. Another cultural marker is the occurrence of smoke-blackened ceilings within the confines of the shelter. Pictographs and petroglyphs occur in rockshelters in the region, although no rock art has been recorded thus far in the sites included in this nomination. Generally speaking, the rockshelters in this area are small and were probably utilized for short-term habitation purposes.

III. SIGNIFICANCE:

The primary significance of this property type lies in the fact that rockshelters in this area often contain well-preserved stratified deposits that can greatly expand the data base for a specific culture or time period. Due to the

high degree of preservation at dry rockshelter deposits in this region, a number of research topics could be addressed. Seasonality and subsistence could be addressed through the study of preserved food remains. Enlightenment on chronology and hearth morphology could result from the presence of intact hearth features containing datable remains. Pack-rat middens, often present in rockshelters, could provide data on environmental change. Well-preserved deposits could also provide information on settlement patterns, intrasite patterning, special studies in material culture, curandero or shamanistic rituals, and mortuary practices. In addition, depending upon the artifactual materials present, this property type may contribute to the following research topics: demography, trade, typology, cross-cultural interactions, and raw-material procurement.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: D.

b. Areas of Significance: archeology, prehistoric archeology, historic archeology.

c. Data Requirements: In order to contribute to the research topics discussed above, individual sites of this property type should be able to provide data from one or more of the following information categories: hearths, trash deposits or middens (in many instances in rockshelters, in the form of a talus cone), lithic artifacts, lithic debitage, ceramic artifacts, burials, coprolites, bedrock mortars, slab and bedrock metates, and portable ground-stone tools.

I. NAME OF PROPERTY TYPE: Lithic Scatters

II. DESCRIPTION:

This property type consists of scattered lithic tools or debitage that, due to the lack of occupational debris, do not appear to be related to a habitation. The absence of features, such as middens, quarries, or hearths, in association with these scatters makes it difficult to appraise their relationship to the cultural dynamics present in the area through time. Although the lithic scatter property type may later be determined to have had a certain function or role, at this time the data necessary for an assignment of function are not available. Therefore, such sites can be identified only with the temporary label of "lithic scatter."

III. SIGNIFICANCE:

Despite the lack of identifiable features, it can be assumed that examples of this property type will provide important data about the range of aboriginal activities that occurred in the Indian Hot Springs area. These sites probably represent brief occupations by hunting groups or small groups performing special functions, such as the processing of a certain resource. Until excavation and analysis can shed more light on this property type, these suggestions will remain purely speculative. Much of the significance of this property type lies in the interrelationships with other property types in the Indian Hot Springs area. Lithic scatters have the potential to contribute significant information on a number of research topics: settlement patterns, seasonality, demography, intrasite patterning, architectural data, special studies in material culture, and raw-material procurement. Further study of individual sites within this property type should result in an expansion of this list of research topics.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: D.

b. Areas of Significance: archeology, prehistoric archeology, historic archeology.

c. Data Requirements: In order to contribute to one or more of the research topics discussed above, examples of this property type should contain data from one or more of the following information categories: lithic debitage, lithic tools, and ramada structures.

CONTEXT #2
A Conflict of Cultures: Displacement of the Apache from the Texas Borderlands by the U.S. Military
(A.D. 1867-1881)

INTRODUCTION:

There are currently three known archeological sites that may be attributed to military presence in the Indian Hot Springs area. The sites appear to contain the material remains of the 1880 activities of the Tenth U.S. Cavalry, and may be classified into three property types: military camp, military battle site, and military cemetery. Further study of available military records and archives and continued field investigations may be able to locate additional properties affiliated with the "buffalo soldiers" of the nineteenth century. To date, no Apache sites contemporary with these military sites have been recognized or identified with any assurance in the vicinity of Indian Hot Springs. Additional survey and study of recorded sites may be able to address this gap in our knowledge.

I. NAME OF PROPERTY TYPE: Military Camps

II. DESCRIPTION:

Two historic military camp sites have been recorded in the Indian Hot Springs nomination area. Both 41 HZ 227 and 41 HZ 439 occupy ridgetops overlooking the Rio Grande to the south and are likely associated with activities of the Tenth U.S. Cavalry during their campaign against the Apaches in the 1880s. [redacted]. Site 41 HZ 227 is located nearer to the Indian Hot Springs complex (1.2 kilometers), and is reputedly the location of an ambush that occurred on October 28, 1880, resulting in the deaths of seven soldiers from companies B and K, and the loss of several of their animals and equipment.

Because the U.S. Cavalry's activities in the Indian Hot Springs area were constantly mobile, these sites were occupied for brief periods of time. The strategy devised by Col. Benjamin H. Grierson (commander of the Tenth Cavalry) for defeating the Apaches involved constant patrolling of the Rio Grande, mountain passes, and key waterholes from Fort Davis to El Paso (Leckie 1967:223; Ferris 1971:327). Small amounts of debris and few features (excepting fortifications and remnants of campfires) would be anticipated at sites near these specific locales.

Deposits are judged to be fairly surficial at 41 HZ 227 and 41 HZ 439, and surface features are generally lacking. Only one feature, that of a semi-circular stone redoubt, occurs at site 41 HZ 227. Constructed of stacked native stone, the redoubt at 41 HZ 227 is similar to the circular barricades found at Tinaja de las Palmas battle site (Ferris 1971:339-340; Clark and Morrow 1979).

Trash typically includes a variety of metal objects—cans, horseshoes, horseshoe nails, pistol and rifle cartridge cases, and cooking utensils. The presence of .45/70 caliber cartridges at 41 HZ 439 was of particular importance, as it was the same caliber used by the U.S. Army during this period of conflict with the Apache. Glass and

ceramics were not observed at either site and would not likely occur in any quantity at transitory camps of this nature.

Site 41 HZ 227 is well known to the local populace and was recorded in 1976 during the Natural Areas Survey of the Quitman Mountains (undertaken by the LBJ School of Public Affairs, the University of Texas at Austin) and revisited by survey personnel during the University of Texas at El Paso's Centennial Museum investigations for the International Boundary and Water Commission. Surface collectors have been active at 41 HZ 227, and during the most recent field inspection no artifacts were observed on the surface. However, as recently as 1987, shell casings and other metal objects were present in the vicinity of the stone fortification feature. Site 41 HZ 439 was located by survey personnel during the reconnaissance undertaken by the Office of the State Archeologist, THC, in 1988. At that time the site appeared to be relatively intact, with numerous artifacts evident.

III. SIGNIFICANCE:

This property type has the potential to yield information about the activities of the U.S. military in a relatively isolated area of the state. Specifically, the property type is significant to our knowledge of the final military campaigns against resistant Apache forces on the Texas frontier. This property type reflects a significant change for the Tenth Cavalry in combat strategy from endless pursuit to guerilla tactics. These sites also offer an opportunity to study the material remains of one of two experimental regiments of the U.S. Cavalry manned by black soldiers, known as "buffalo soldiers" following the Civil War.

Outside of forts and other semi-permanent outposts, few of the temporary camps of the Tenth Cavalry have been located or adequately documented. The sites included in this nomination represent only two of several encampments known to exist from military records in the rugged country between Fort Quitman and Fort Davis. This property type is significant to the study of the buffalo soldiers' pursuit of Victorio's Apaches, and provides

information useful to the study of the tactics followed. The location and investigation of other sites of this property type will undoubtedly provide a better regional perspective of the military activities of the time. By 1885 the men of the U.S. Cavalry were effective in routing the last of the Apache raiders, opening the region to peaceful settlement (Leckie 1967:239).

Research topics that may be addressed from the investigation of the military camp property type include: military history, intrasite patterning, cross-cultural interactions, special studies in material culture, architecture, chronology, and ethnic heritage.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: A, D.

b. Areas of Significance: architecture, historic archeology (non-aboriginal), ethnic history (Black), military.

c. Data Requirements: Examples of this property type should contain at least one of the following data categories: military fortifications or other structural remains; military artifacts, which may include ammunition, firearms, metal artifacts (e.g., mess kits, cans, wire, buttons, buckles) and other military equipment of the appropriate affiliation and age. Military records should be searched thoroughly for corroboration.

I. NAME OF PROPERTY TYPE: Military Battle Sites

II. DESCRIPTION:

To date, one site (41 HZ 227), has been identified as a military battle site in the Indian Hot Springs area. The site, abutting a steep bluff, occupies a ridgetop overlooking the Rio Grande to the south and the Indian Hot Springs

complex to the south-southwest. It appears to be associated with activities of the Tenth U.S. Cavalry during their campaign against the Apaches in the 1880s. More specifically, it is considered to be the location of an early morning ambush by remnants of Victorio's Apaches upon the men of the Tenth Cavalry on October 28, 1880, resulting in the deaths of seven soldiers from companies B and K, and the loss of several of their animals and equipment. This argument is strengthened by statements (Fort Davis muster rolls, 1880) taken by the survivors of the attack referring to the unwise selection of a camp site. Site 41 HZ 227 is surrounded by steep drop-offs, which would have made efforts to retreat extremely difficult, and thus was not a recommended situation for a detachment in search of hostile Apaches.

Site 41 HZ 227 is well known to the local populace and was recorded in 1976 during the Natural Areas Survey of the Quitman Mountains (undertaken by the LBJ School of Public Affairs, the University of Texas at Austin) and revisited by survey personnel during the University of Texas at El Paso's Centennial Museum investigations for the International Boundary and Water Commission.

Only one feature, that of a semi-circular stone redoubt, occurs at site 41 HZ 227. It is constructed of stacked native stone, similar to the circular barricades found at Tinaja de las Palmas, another site of conflict between the Tenth Cavalry and the Apaches (Ferris 1971:339-340; Clark and Morrow 1979). According to military records (Fort Davis muster rolls, 1880), ten horses, four mules, some amount of ammunition, weaponry, and other military supplies and equipment were lost to the attackers.

Surface collectors also have been active at 41 HZ 227. During the 1988 site inspection no artifacts were observed on the surface. However, as recently as 1987, shell casings and other metal objects were present in the vicinity of the stone fortification feature. Undisturbed shallow deposits containing significant material may still be present.

III. SIGNIFICANCE:

Battle sites have the potential to shed light on conflict between warring parties. In the case of 41 HZ 227, its significance is in its ability to yield information about the nineteenth-century conflict of two very different cultures—the Apache and the United States. This site also offers an opportunity to study the material remains of one of two experimental regiments of the U.S. Cavalry manned by black soldiers following the Civil War. A variety of research topics may be addressed with the investigation of sites of this property type. In the case of 41 HZ 227, pertinent research topics include: architecture, chronology, historic archeology, ethnic heritage, intrasite patterning, special studies in material culture, and military.

The site included in this nomination represents only one of several battle sites known to exist in the rugged country between Fort Quitman and Fort Davis. It is one of few sites of this property type to be documented by archeological survey. This property type is significant to the study of the history of the buffalo soldiers' pursuit of Victorio's Apaches and provides information useful to the study of the Apache strategy of attack. The investigation of 41 HZ 227 and other sites of this property type will undoubtedly provide a better regional perspective of the skirmishes of the time. By 1885 the men of the U.S. Cavalry were effective in routing the last of the raiders, opening the region to peaceful settlement (Leckie 1967:239).

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: A, D.

b. Areas of Significance: architecture, historic archeology, ethnic history (Black), military.

c. Data Requirements: Examples of this property type should contain at least one of the following data categories: military fortifications or other structural remains; military artifacts, which may include ammunition, firearms, and other military equipment (e.g., mess kits, cans, wire, buttons, buckles) of the appropriate affiliation and age. Military records should also be researched thoroughly for corroboration and pertinent information.

I. NAME OF PROPERTY TYPE: Military Cemeteries

II. DESCRIPTION:

Only one possible military cemetery (41 HZ 228) has been recorded to date in the Indian Hot Springs area. The site, which is located on a slight colluvial slope overlooking the floodplain of the Rio Grande to the south, was originally recorded during a reconnaissance of the southern Quitman Mountains in 1976 by the Natural Areas Survey of the LBJ School of Public Affairs, the University of Texas at Austin. There appear to be seven graves of stacked native stone at 41 HZ 228, arranged in two rows (of five and two graves) that run north-south. The average dimensions measure about 6.5 feet x 3 feet. According to a local informant (Simons and Mercado-Allinger 1988), concrete caps were added to six of the seven graves in 1966. No markers exist to identify the individuals interred at this location, and no other artifacts were found in association with the graves.

Local tradition states that the seven unmarked graves belong to the seven buffalo soldiers (members of the Tenth U.S. Cavalry) killed in the vicinity of Ojos Calientes on October 28, 1880 (Redding 1980:22). Military records (Fort Davis muster rolls, 1880) do not describe the specific location where the casualties were buried, nor the manner in which they were buried.

III. SIGNIFICANCE:

The research significance of military cemeteries is based on the ability of the property type to provide data on the burial customs of the U.S. military. Manner of death and other demographic questions may be addressed from the study of the actual human remains. Additional research topics that may benefit from the investigation of military cemeteries include special studies in material culture and chronology.

Only limited data are available concerning the location and circumstances of burial of military casualties in the Texas frontier of the 1880s. This is particularly the case for the casualties of the Tenth Cavalry. Burial data will contribute greatly to our understanding of mortuary practices in the field of battle.

IV. REGISTRATION REQUIREMENTS

a. National Register Criteria: A, D.

b. Areas of Significance: historic archeology, ethnic heritage, history, military.

c. Data Requirements: In order to contribute to one or more of the research topics identified above, examples of this property type should contain at least one of the following information categories: one or more burials, associated grave goods, rock cairn(s), burial marker(s).

CONTEXT #3
Historic Euro-American and Mexican Lifeways in the Indian Hot Springs, Texas, Area,
ca. A.D. 1880 –1940.

INTRODUCTION

At present, six historic property types for the period 1880-1940 have been identified for the Indian Hot Springs area: habitation sites; rock dugouts; isolated graves; candelilla-wax camps; trail systems; and health resorts. Future survey work, record searches, and oral history interviews may be able to locate or identify additional property types associated with historic lifeways present in this area.

I. NAME OF PROPERTY TYPE: Habitation Sites

II. DESCRIPTION:

Five historic habitation sites have been recorded thus far in the area contained within the confines of this nomination. Habitation sites typically have a number of associated structures or outbuildings, such as corrals, sheds, pens, or other buildings. Hearth features have also been noted at several of these sites. In addition to structures, pens, and hearths, these sites usually possess trash deposits that are related to the occupation of the site. Trash deposits may contain metal, glass, ceramic, and wire artifacts, as well as other occupational debris.

These five habitation sites (41 HZ 304/305, 41 HZ 284, 41 HZ 299, 41 HZ 308, and 41 HZ 312) occupy varying areas, as a result of the difference and magnitude of activities that occurred at the respective sites. The primary structures or structural remnants at each of these sites are assumed to represent habitations. At 41 HZ 304/305, two adjacent rectangular depressions outlined with gravel mounds suggest that adobe structures were present at one time. From the associated occupational debris surrounding these features, it is assumed that one or both of these were used as habitations. Several cement foundations at 41 HZ 299 probably represent a house structure and

associated outbuildings. At 41 HZ 284, a stone foundation marks the location of the habitation structure. The main structure at 41 HZ 308 is a stone and mud masonry building that was used as a store in the 1950s and 1960s. An associated corral at this site was undoubtedly used for livestock containment. Site 41 HZ 312 has the most extensive array of structures and features within this property type. One rectangular structure, made of field stone and concrete mortar, is partially intact, Two piles of concrete, stone, and brick have been assumed to be the representations of one or two demolished structures. A shed and pen were also present at this site and are thought to have been used for storage and livestock containment, respectively.

Site 41 HZ 304/305 dates to the early part of this century, while the artifactual materials at 41 HZ 312 suggest an occupation beginning no earlier than the 1920s. The approximate dates of 41 HZ 284, 41 HZ 299, and 41 HZ 308 remain unknown at this time. All of these sites occupy similar environmental niches: on or just above the upper edge of the Rio Grande floodplain. Thus, it is probable that in addition to ranching, farming also occurred to some extent at these locales. One oral history from the area mentions a farm near the resort that supplied the complex with vegetables (Babb and Taylor 1981:86). This farm may be represented by site 41 HZ 312, which is just south of the resort complex.

III. SIGNIFICANCE:

The research significance of this property type centers on the potential of these sites to yield data on the life-ways associated with early ranching and farming in the area, in addition to providing data on relationships between these sites and the thermal springs at Indian Hot Springs. A variety of research topics can be addressed through study of the ranch complex property type: settlement patterns, subsistence, demography, trade, communications, chronology, architecture, intrasite patterning, cultural affiliations, special studies in material culture, raw-material procurement, cross-cultural interactions, recreation, and commerce.

The lack of data concerning the historic inhabitants of this area is a major contributing factor in the overall significance of this property type. Of the historic site types, those containing evidence of habitation can provide the most comprehensive data on the historic inhabitants of this area, and thus allow for a better understanding of the lifeways of these people through time. This understanding will undoubtedly lead to the formation of a better regional model of cultural dynamics.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: D.

b. Areas of Significance: historic archeology, history.

c. Data Requirements: In order to contribute to one or more of the research topics discussed above, examples of this property type should contain at least one of the following information categories: habitation structures, other structures or structural remnants, corrals, pens, trash deposits, ceramic artifacts, metal artifacts, glass artifacts, levees, roads, communication devices (e.g., telephone or telegraph artifacts), adobe bricks, fishing or hunting paraphernalia, and ranching or farming equipment.

I. NAME OF PROPERTY TYPE: Rock Dugouts

II. DESCRIPTION:

Only one rock dugout has been recorded thus far within the confines of the area covered in this nomination. Although this site represents a habitation site, it was placed in a separate property type because of the unique construction style present. Like the other habitation sites within this context, this site and undiscovered similar sites

usually possess trash deposits that are related to the occupation of the site. Trash deposits may contain metal, glass, ceramic, and wire artifacts, as well as other occupational debris.

This site (41 HZ 445), the only rock dugout recorded in the area, [redacted] The dugout measures 13 feet 11 inches by 15 feet 8 inches and is 6 feet 6 inches in height. A rock fireplace, built into the western wall, is an intact aspect of the original construction. Cottonwood beams, ocotillo crossbeams, and a dirt cover were apparently utilized in the initial construction of the roof. Subsequent remodeling of the roof involved replacement with a wood frame and tarpaper. Other remodelings include the addition of windows and a door frame and door. The initial entrance may have just been an opening with a cloth or sack covering (Simons and Mercado-Allinger 1988). No trash or midden deposits were noted at the time of recording, but these materials could well be buried at the site.

This site has been linked to an early family in the area who settled and built the dugout dwelling. The date of this construction and the name of the family are unknown at this time. The man who built the structure may have committed suicide by dragging himself to death behind a horse in the 1930s. This apparently occurred on a nearby flat close to the Rio Grande, which was subsequently named Suicide Flat. The widow and son are said to have occupied the dugout into the 1940s. Although this story is recounted by local informants, the actual details of this event have not been substantiated. The man's grave (41 HZ 438) is reported to be about 400 meters north-northeast of the rock dugout (Simons and Mercado-Allinger 1988).

III. SIGNIFICANCE:

The research significance of this property type is based on the potential of this site, and sites like this, to yield data on the lifeways of early settlers in the area and on construction techniques of this type of dwelling. In addition,

further study may reveal relationships between this site, and sites like this, with the thermal springs at Indian Hot Springs. A variety of research topics can be addressed through study of the rock dugout property type: settlement patterns, subsistence, demography, trade, communications, chronology, architecture, intrasite patterning, cultural affiliations, special studies in material culture, raw-material procurement, cross-cultural interactions, recreation, and commerce.

The lack of data concerning the historic inhabitants of this area is a major contributing factor in the overall significance of this property type. Of the historic site types, those containing evidence of habitation can provide the most comprehensive data on the historic inhabitants of this area, and thus allow for a better understanding of the lifeways of these people through time. This understanding will undoubtedly lead to the formation of a better regional model of cultural dynamics.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: C, D.

b. Areas of Significance: historic archeology, history.

c. Data Requirements: In order to contribute to one or more of the research topics discussed above, examples of this property type should contain at least one of the following information categories: habitation structures (rock dugout), other structures or structural remnants, corrals, pens, trash deposits, ceramic artifacts, metal artifacts, glass artifacts, levees, roads, communication devices (e.g., telephone or telegraph artifacts), adobe bricks, fishing or hunting paraphernalia, and ranching or farming equipment.

I. NAME OF PROPERTY TYPE: Isolated Graves

II. DESCRIPTION:

Only one historic isolated grave (41 HZ 438) has been recorded thus far in the area contained within the confines of this nomination. This interment is located on the crest of a long, narrow ridge, west of Red Bull Creek, in the foothills of the Quitman Mountains. The grave is marked by a one-foot-high stacked rhyolite stone arrangement that is about 5 feet by 2.5 feet in plan view. No artifacts were found to be in association with this feature.

This interment has been linked to an early family in the area who settled and built the rock dugout (41 HZ 445) located about 400 meters south-southwest of the grave. The man who built the structure is said to have died in the 1930s, on a nearby flat close to the Rio Grande, and to have been interred at this locale. He was dragged to death by his horse, and rumors persisted that he was despondent and had committed suicide. The flat where he died was subsequently named Suicide Flat. Although this story is recounted by local informants, the actual details of this event have not been substantiated (Simons and Mercado-Allinger 1988).

III. SIGNIFICANCE:

The research significance of this property type is based primarily on the ability of this site, and sites like this, to provide data on burial customs of early historic settlers in the region. A few research topics can be addressed through study of the isolated grave property type: demography, chronology, cultural affiliations, special studies in material culture, and mortuary practices.

The lack of data concerning the historic inhabitants of this area is a major contributing factor in the overall significance of this property type. Burial data will allow for a more complete understanding of the lifeways of historic people in the area through time, and thus lead to the formation of a better regional model of cultural dynamics.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: D.

b. Areas of Significance: historic archeology, history.

c. Data Requirements: In order to contribute to one or more of the research topics discussed above, examples of this property type should contain at least one of the following information categories: an isolated burial, grave goods, a rock cairn, and a burial marker.

I. NAME OF PROPERTY TYPE: Candelilla Wax Camps

II. DESCRIPTION:

Two candelilla-wax camps (41 HZ 220 and 41 HZ 423) and one possible incipient wax camp (41 HZ 415) have been recorded thus far within the confines of the area covered in this nomination. The camps represent relatively short-term processing locales associated with the commercial endeavor of producing wax from the candelilla plant. The possible camp was never used but was placed within this property type as a result of its proximity to 41 HZ 220, the environmental setting, and the morphology of the pit feature located there. These property types usually possess pit features, piles of ashes and charcoal, remnants of dry-laid stone structures and ramadas, trails, and trash deposits associated with the occupation of the sites. Trash deposits may contain metal, glass, ceramics, and wire artifacts, as well as debris associated with the production of wax from the candelilla plant, like vats and *espumadors*.

All of these sites were located adjacent to upland water courses in the foothills of the Quitman Mountains. The proximity to water is very important for these sites, since extensive use of water is necessary in the production of

candelilla wax; therefore, these sites typically are located on the first terrace above permanent or semipermanent water supplies. These camps are also typically located in fairly inaccessible areas where candelilla plants grow in proliferation.

Site size within this property type varies depending on the amount of work that has occurred at a given locale. Both 41 HZ 423 and 41 HZ 220 were utilized fairly extensively, and cover from 800 to 1600 square meters, respectively. At 41 HZ 415, a large hole in the first terrace was excavated and stream cobbles were collected, presumably for lining the pit; however, no further activities were discernable at the time of recording. This site occupies only about 100 square meters.

These types of sites many times have structural features in association because the wax workers usually occupy these transient camps for from two weeks to several months. At 41 HZ 423, there are three dry-laid stone structural remnants that are about 3.0 meters by 3.0 meters in plan view. A flat, cleared area, measuring about 4.0 meters by 4.0 meters, was recorded at 41 HZ 220. This space was probably used with a ramada of some sort.

The workers at these camps have traditionally been Mexican or Mexican-American, a fact related in part to the history behind the industry. Many items are used, reused, and adapted for other uses because of this subculture's depressed economy. Thus, some of these sites tend to have fewer associated artifacts than might otherwise be expected.

III. SIGNIFICANCE:

The research significance of this property type is based on the potential of these sites to yield data on the lifeways associated with the candelilla-wax industry. Possible relationships between these sites and the thermal springs at Indian Hot Springs may also be revealed in investigation of these sites. A variety of research topics can be addressed through study of this property type: settlement patterns, subsistence, demography, trade, communica-

tions, chronology, architecture, intrasite patterning, cultural affiliations, special studies in material culture, raw-material procurement, cross-cultural interaction, recreation, and commerce.

The lack of data concerning the historic inhabitants of this area is a major contributing factor in the overall significance of this property type. These sites, having both commerce-related and habitation aspects, can provide comprehensive data on the historic inhabitants of this area, and thus allow for a better understanding of the lifeways of these people through time. This understanding will undoubtedly lead to the formation of a better regional model of cultural dynamics.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: D.

b. Areas of Significance: historic archeology, history.

c. Data Requirements: In order to contribute to one or more of the research topics discussed above, examples of this property type should contain at least one of the following information categories: habitation structures, ramadas, corrals, pens, other structural remnants, trash deposits, ceramic artifacts, metal artifacts, glass artifacts, roads, and trails.

I. NAME OF PROPERTY TYPE: Trail Systems

II. DESCRIPTION:

Only one trail system site (41 HZ 465) has been recorded thus far within the confines of the area covered in this nomination. This site contains remnants of three trail segments and cairn features associated with an old tele-

graph line. One of the trail segments appears to have been used as a wagon road, while the other two are narrower, probably representing foot or horse trails. Several dry-laid rock alignments that are present along these trails seem to have been attempts to prevent the collapse and washout of these portions. Each of the rock cairns located at this site was adjacent to large pole-like branches that had ceramic electric insulators and galvanized-metal type wire in association. Only very recent historic trash was observed at the time of this recording; however, historic trash associated with the use of these trails and telegraph line is expected to be present in some quantities. The trails and telegraph line were only observable in one area along an intermittent drainage in the foothills of the Quitman Mountains.

III. SIGNIFICANCE:

The research significance of this property type is based on the potential of this site, and sites like this, to provide data on early communications in this area. This would involve data from both the telegraph system and the trail systems. In addition, a relationship between this site and the thermal springs at Indian Hot Springs may be realized. Several research topics can be addressed through study of the trail system property type: communications, chronology, and raw-material procurement.

The lack of data concerning the historic inhabitants of this area is a major contributing factor in the overall significance of this property type. A better understanding of the lifeways of these people through time will only be realized after incorporating the data from all sites from this time period.

IV. REGISTRATION REQUIREMENTS:

a. National Register Criteria: D.

b. Areas of Significance: historic archeology, history.

c. Data Requirements: In order to contribute to one or more of the research topics discussed above, examples of this property type should contain at least one of the following information categories: roads, trails, dry-laid stone alignments, rock cairns, telegraph poles, insulators, wire, metal artifacts, glass artifacts, and ceramic artifacts.

I. NAME OF PROPERTY TYPE: Health Resorts

The property type Health Resorts may include a diverse collection of buildings with varying forms, materials, construction techniques, and architectural ornamentation. Only one extant example (41 HZ 444) exists in the Indian Hot Springs area.

Because the property type Health Resorts is such a broad category and includes a wide variety of possible clinics and spas across the state, it is best to view each example of this property type within its regional context. Categorizing health resorts regionally will enable a more in-depth analysis, which will assist in the evaluation of the relative significance of similar properties. This particular health resort appears to be unique in the region, and perhaps in the state. Distinguishing features of the property type include use, physical features, stylistic influences and detailing, locational patterns, and periods in which the buildings were erected. Future development of this property type may include a comparison of this region's health resorts with those in another region. All should fit within the broadly defined Health Resorts property type but have attributes that are unique unto themselves.

Despite their many differences, the buildings within the property type Health Resorts share many associative qualities that demonstrate their related functions. Each building is part of a network created to enable the health resort to properly treat and rehabilitate its clients. The buildings at the health resort serve to house or treat clients while a corresponding infrastructure maintains the ability of the health resort to carry out such functions.

The buildings are linked to transportation networks that bring clients to the locale or region. In this particular region of Texas transportation networks existed, but not to the extent necessary for the health resort to thrive beyond the 1940s. In addition, the region is not proximate to any city, and this affected the ability of the Indian Hot Springs health resort to draw upon a larger market of potential clients. However, in other regions of the state, health resorts may have been more successful for longer periods of time due to greater accessibility to larger markets.

Besides its associative qualities, this property type in the Indian Hot Springs area has certain physical attributes. The buildings within this health resort have simple square or rectangular floor plans, providing efficient yet flexible use of space. Most of the buildings utilize local materials like rock, adobe, and some wood. All of the buildings are one-story. One building, the main clinic or hotel, is prominently sited and bears the most architectural detail. To a lesser degree, two other residential units exhibit similar stylistic detail. The remaining buildings are grouped nearby but render a more rustic, non-stylistic appearance. Considering the function of each building, it appears that those buildings intended for public use feature the greatest amount of architectural detailing, while those buildings that see little or no public use have little or no ornamentation.

The owners of the health resort in the Indian Hot Springs area have had to deal with pressures and problems that are not as pronounced in other parts of the state. The setting of this health resort is a remote rural location that precludes vandalism to a large degree, but in periods of vacancy during change in ownership, these buildings probably were largely unprotected from natural elements of destruction. These conditions can profoundly impact the overall maintenance and integrity of local historic properties. While some survive, others have been razed or have suffered neglect. As numbers of visitors to this particular health resort waned in the 1940s, the buildings fell into disrepair. They were rejuvenated in the late 1960s and early 1970s when another attempt was made to revitalize the resort, but this venture also failed. In some cases the buildings have undergone alterations, such as the replacement

of doors and windows or the maintenance of mechanical systems, but, for the most part the buildings' exterior and interior designs have remained unchanged, although slight alterations have occurred.

A description of the physical characteristics and a discussion of the historical and architectural significance of the health resort in the Indian Hot Springs area follows. Registration requirements for Health Resorts as a property type in the Indian Hot Springs area concludes this section of the nomination. The registration requirements describe specific conditions that must be met for an example of this property type to be nominated to the National Register.

II. DESCRIPTION:

The Indian Hot Springs Health Resort Historic District, also known as Indian Hot Springs, includes 20 features (14 buildings, 5 structures and 1 site) dispersed across a large area on the floodplain of the Rio Grande. The district's area, 700 meters by 300 meters, approximates the areal confinement of the eight thermal springs that are within the district boundaries. A county road runs along the north and northeast edge of the district, while a private road loops around the district. The loop intersects with the county road at its northernmost and easternmost points. A levee and retaining wall runs approximately north-south and serves as the west boundary of the district.

The health resort at Indian Hot Springs was constructed in the late 1920s and early 1930s. Few of the buildings exhibit any stylistic influences, although the clinic/hotel and two cabins do exhibit detailing typical of the region, modest Spanish or Mexican influences. The clinic/hotel, near the southwest edge of the district, is the largest and most complex building within the district. Other buildings include two bath houses, two cabins, four sheds, a well house, two pump houses, a picnic shelter, and a former museum facility. The district contains one site: a "port of entry" where a footbridge crossed the Rio Grande. The district also contains two concrete pools that are classified as structures.

Artifacts present probably include historic debris associated with the resort, and such debris is most likely buried beneath flood deposits that cover the ground. The debris probably consists of metal, glass, and ceramic artifacts and other occupational items and artifacts related to the health resort.

III. SIGNIFICANCE:

Health resorts can be eligible for the National Register under Criteria A, C, or D. The Indian Hot Springs health resort, which is representative of Historic Euro-American and Mexican lifeways in the Indian Hot Springs area, attracted people, possibly from outside the region, to use the natural resources to improve health and correct medical problems (Criterion A).

Although many of the associated buildings may be utilitarian in nature, health resorts can have architectural significance (Criterion C) and can be noteworthy examples of a particular style, type, or form. Esthetic considerations were usually only important for the buildings that the clients frequented. Therefore, many of buildings included under this property type will be strictly functional and exhibit little or no stylistic influences. Nevertheless, these buildings supply the health resort with necessary infrastructure and are important to the maintenance and operation of such a facility.

The research significance (Criterion D) of this health resort is based on the potential of this historic district to provide data through time on the lifeways associated with this property type, and on its potential to reveal relationships between this district and the surrounding historic sites in the area. A variety of research topics can be addressed through study of this property type: settlement patterns, subsistence, demography, trade, communications, chronology, architecture, intrasite patterning, cultural affiliations, special studies in material culture, raw-material procurement, cross-cultural interactions, recreation, health/medicine, and commerce.

The lack of data concerning the historic inhabitants of this area is a major contributing factor in the overall significance of the health resort property type. The unique nature of this property type also adds to the historic district's overall significance. Indian Hot Springs is integral to this nomination, as it provided a remote, harsh area with a cohesive element and was probably responsible for the establishment of many of the historic sites in the area. This historic district, having commerce-related, health/medicine-related, and habitation components, can provide the most comprehensive data on the historic inhabitants of the area, and thus allows for a better understanding of the lifeways of these people through time. This understanding will undoubtedly lead to the formation of a better regional model of cultural dynamics.

IV. REGISTRATION REQUIREMENTS:

To be eligible for the National Register a building must be at least 50 years old and retain enough of its architectural integrity to evoke its date of construction or period of significance. Buildings within a health resort should retain most of their original facades and fenestration as well as their exterior finish. Superficial and easily reversible changes like replaced windows are less important than major remodeling or additions that can severely alter a building's historic character. Physical changes completed more than 50 years ago sometimes are important in their own right and can represent the architectural evolution of a building over time.

Health resorts can be eligible for the National Register under Criteria A, C, or D. Health resorts with strong historical associations should retain enough of their integrity to be recognizable to their period of significance. Most but not all of the buildings' architectural fabric should survive in a relatively intact state. Those being considered for designation under Criterion C should generally be unaltered and retain their integrity to a high degree. They can be distinctive examples of a particular style or type, or display noteworthy craftsmanship or detailing.

a. National Register Criteria: A, C, D.

b. Areas of Significance: health/medicine, architecture, historic archeology—non-aboriginal.

c. Data Requirements: In order to contribute to one or more of the research topics discussed above, examples of this property type should contain at least one of the following information categories: intact associated structures, structural remnants, levees, roads, trash deposits, ceramic artifacts, metal artifacts, glass artifacts, communication devices (e.g., telephone or telegraph artifacts), adobe bricks, fishing or hunting paraphernalia, and ranching or farming equipment.

G. Summary of Identification and Evaluation Methods

Discuss the methods used in developing the multiple property listing.

[X] See continuation sheet

H. Major Bibliographical References

[X] See continuation sheet

Primary location of additional documentation:

- [XX] State historic preservation office
- [ ] Other State agency
- [ ] Federal agency
- [ ] Local government
- [ ] University
- [ ] Other

Specify repository: Texas Historical Commission

I. Form Prepared By

name/title Andy Cloud & Pat Mercado-Allinger/Staff Archeologists; Helen Simons/Editor
organization Texas Historical Commission date Sept. 13, 1990
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Summary of Identification and Evaluation Methods

CONTEXT #1
Aboriginal Lifeways during Prehistory and History in the Indian Hot Springs, Texas, Area,
ca. 5000 B.C.–A.D. 1880

Information on the aboriginal sites in the Indian Hot Springs area comes primarily from several surveys that have been conducted in this portion of west Texas in the past sixty years (Sayles 1935; Kelley 1949a; Lynn and Baskin 1975; Johnson 1977; Betancourt and Ralph 1981). Almost all of these surveys were conducted at the reconnaissance level in order to glean information from this poorly documented area. Only the project that Charles A. Johnson II, of the University of Texas at El Paso's Centennial Museum, conducted for the International Boundary and Water Commission, involved a cultural-resource-management assessment, and this was very limited in scope. One particularly important source of information comes from a more recent reconnaissance of the Indian Hot Springs area, performed by the Office of the State Archeologist, Texas Historical Commission, in 1988. Therefore, all of the archeological information used in the generation of this context has been surficially gathered.

Additional information comes from two historic accounts of the region during early expeditions through the area: the Chamuscado-Rodríguez Expedition of 1581 and the Espejo Expedition of 1582.

CONTEXT #2
A Conflict of Cultures: Displacement of the Apache from the Texas Borderlands by the U.S. Military
(A.D. 1867-1881)

Information regarding the three historic military sites in the Indian Hot Springs area was derived from several sources. Archeological surveys (Betancourt and Ralph 1981; Johnson 1977) were conducted in the area and identified two of the sites (41 HZ 277 and 41 HZ 228) included in this context. The remaining site, 41 HZ 439,

was located and recorded by the Office of the State Archeologist, THC, during a week-long survey in 1988. Office of the State Archeologist personnel (Simons and Mercado-Allinger 1988) also conducted an oral history interview of Lester Talley, a long-time resident of the area. Military histories and official Fort Davis muster rolls were invaluable resources as well.

CONTEXT #3
Historic Euro-American and Mexican Lifeways in the Indian Hot Springs, Texas, Area,
ca. A.D. 1880–1940

Information on the historic sites in the Indian Hot Springs area during the period 1880–1940 comes from a variety of sources: three reconnaissance level surveys, one oral history, and other reference sources. Two archeological surveys (Betancourt and Ralph 1981; Johnson 1977), conducted in this area in the 1970s, identified six of the twelve historic sites covered by this context. The other six sites were recorded by the Office of the State Archeologist, Texas Historical Commission, during a brief survey in 1988. That project also involved an oral history interview of Lester Talley, a long-time resident of the area, which was conducted by staff of the Office of the State Archeologist (Simons and Mercado-Allinger 1988). A number of other references were used in the generation of this context, most notably *Border Healing Woman* by Jewel Babb and Pat Ellis Taylor, and *Wax, Men, and Money* by Curtis Tunnell.

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