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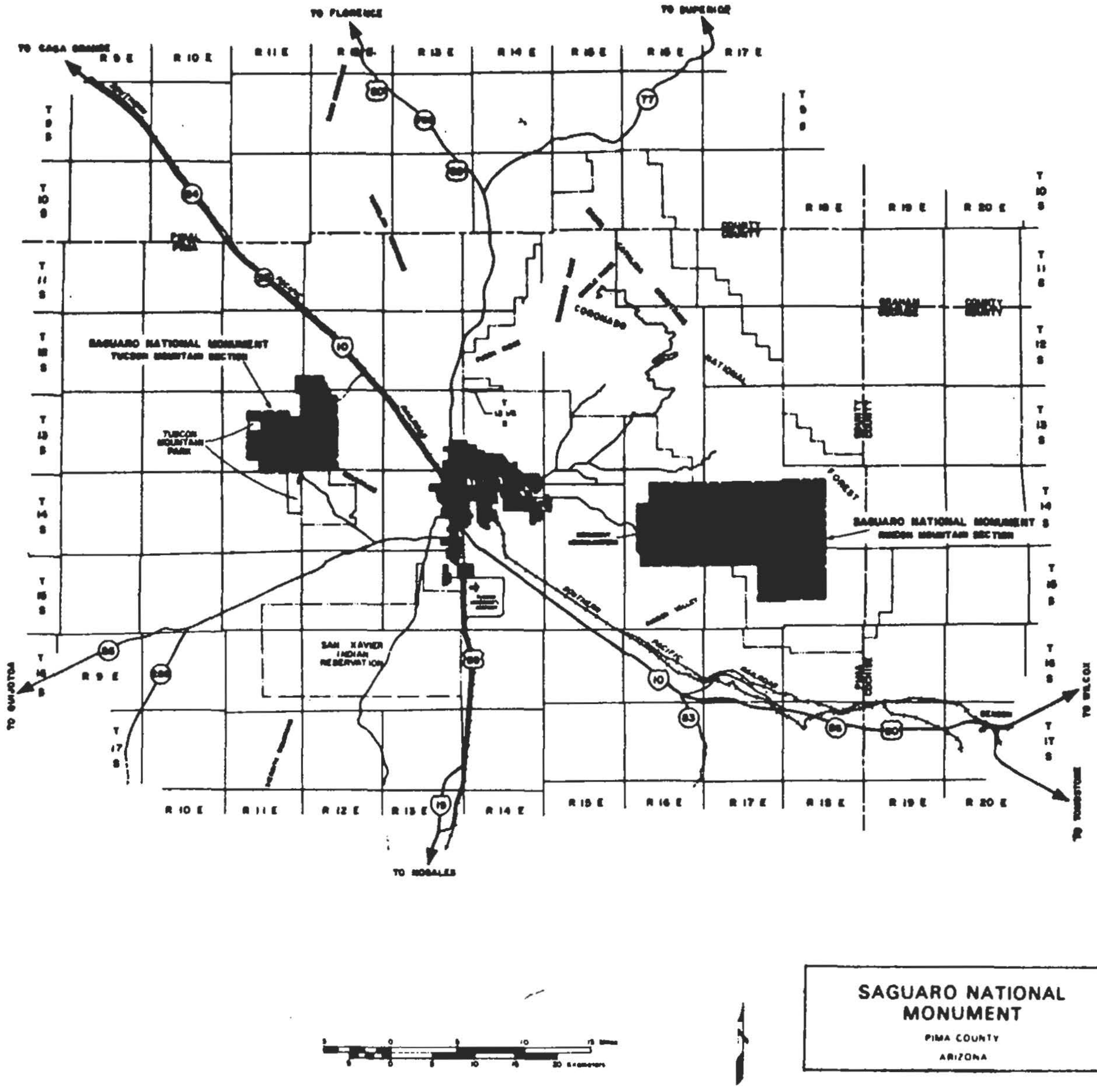
CATTLE, COPPER, AND CACTUS:
THE HISTORY OF SAGUARO NATIONAL MONUMENT

Arizona

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Historic Resource Study
Saguaro National Monument

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SAGUARO NATIONAL MONUMENT

PIMA COUNTY

ARIZONA

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INTRODUCTION

Saguaro National Monument consists of two parts. The Rincon Mountain Unit east of Tucson formed the original segment proclaimed by President Herbert Hoover on May 1, 1933, while the Tucson Mountain Unit west of that city was added by proclamation of President John Kennedy on November 15, 1961. Named for the giant cactus of the area, the two units comprise an area of 83,573.88 acres (Rincon Unit--62,835.88 and Tucson Unit--20,738). Most of the acreage was designated as a wilderness area on October 20, 1976.

Climatically, the two units differ although both are semi-arid. The Rincon Mountain Unit, with a height to approximately 8,600 feet, has a much more developed watershed. Under normal conditions water is more plentiful in that area for winter snow provides spring and early summer moisture, while the monsoons of July and August allow water to flow into September. Historically, this situation attracted settlers to the area for agricultural purposes. At the same time the altitude of the Tucson Mountains, which rise to approximately 4,700 feet, provided an inadequate watershed and thus discouraged settlement until much later. As a result, prospecting and mining played a prominent role there.

The Sonoran Desert vegetation of each monument segment contains differences. In the Rincon Mountain Unit three life zones are apparent. The lower elevation between 2,500 and 4,000 feet contains many varieties of cacti as well as mesquite and palo verde. A transition to semi-desert plants begins around 4,000 feet with scrub oak, yucca, and agave featured. By 7,500 feet the mountains are covered with Arizona yellow pine and ponderosa pine. In contrast the Tucson Mountain Unit contains basically one life zone consisting mainly of cacti, mesquite, palo verde, and ironwood. Some yucca plants are present in the upper parts. Thus, some of the finest areas of Sonoran Desert plant life have been preserved for all the nation to enjoy.

PREHISTORICAL OVERVIEW

A. Introduction

This brief overview traces the origins, settlement, subsistence patterns and salient features of prehistoric humankind in the vicinity of Saguaro National Monument, Arizona. The first section covers the period from the earliest known human presence until the time of European contact.

B. Paleoindian 10,000-8000 B.C.

It is generally accepted that the New World was first populated at least 12,000 to 15,000 years ago by prehistoric hunters from Asia who had gradually, over millennia, moved across Beringia, the land bridge that joined Siberia and Alaska during the last or Wisconsin period of glaciation. By about 9500 B.C., Paleoindian groups were present in the Southwest and in the Tucson Basin, hunting Pleistocene megafauna and gathering wild foods. While these early hunters utilized sophisticated hunting tools and a diversity of stone items for butchering game, and for processing hides and a variety of hunted and gathered subsistence items, their highly mobile lifestyle left only a few traces on the landscape.[1] Isolated occurrences of the leaf-shaped, bifacially flaked, fluted spear points known as Clovis points (named for the type site in New Mexico),

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1. E. James Dixon, "The Origins of the First Americans," Archaeology 38 (March/April 1985), 26; Thomas Y. Canby, "The Search for the First Americans," National Geographic 156(September 1979), 351; Carl Waldman, Atlas of the North American Indian (New York: Facts on File Publications, 1985), 1; Bruce B. Huckell, "The Pale-Indian and Archaic Occupation of the Tucson Basin: An Overview," The Kiva 49 (Spring-Summer 1984), 134; Kay Simpson and Susan J. Wells, "Archeological Survey in the Eastern Tucson Basin, Volume 3: Saguaro National Monument, Rincon Mountain Unit, Tanque Verde Ridge, Rincon Creek, Mica Mountain Areas" (Tucson, Arizona: National Park Service, Western Archeological and Conservation Center, Publications in Anthropology No. 22, 1984), 83.

have been found in the Tucson Basin area and within the boundaries of the Rincon Mountain unit of Saguaro National Monument.[2]

Around 8000 B.C., warmer, drier environmental conditions in the Southwest led to major changes in flora, which in turn contributed to the extinction of Pleistocene megafauna. Archaic period groups who followed the Paleoindians in time in the western Southwest came to depend upon modern species of game and wild plant foods. The shift from migratory megafauna to smaller game, along with the intensive use of wild plant foods, marks the end of the Paleoindian period and the beginning of the Archaic period, circa 8000 B.C.[3]

C. Archaic 8000 B.C.-A.D.1

Tool assemblages of Archaic period groups were characterized by projectile points for hunting, ground stone milling implements, basketry, and simple stone chopping, scraping and cutting tools. The emphasis of this tool kit seems to have been on both hunting and gathering and processing of wild foodstuffs.[4]

As populations increased during the Archaic, settlements became larger and more permanent in nature, and were highly dependent upon the local availability of water and subsistence items. Archaic sites in the Tucson Basin include large base camps, and small specialized activity areas and quarries. Isolated finds of distinctive projectile points, percussion flaked tools, basin metates, and handstones also provide evidence of Archaic occupations, and suggest diversified usage of the

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2. Robert H. Lister and Florence C. Lister, Those Who Came Before (Tucson: University of Arizona Press, 1983), 16; Linda A. Cordell, Prehistory of the Southwest (New York: Academic Press, 1984), 130.

3. Cordell, Prehistory of the Southwest, 123, 142; Lister and Lister, Those Who Came Before, 16; Simpson and Wells, "Archeological Survey in the Eastern Tucson Basin," 3: 85.

4. Lister and Lister, Those Who Came Before, 17.

area's scattered resources. Archaic sites within the national monument are clustered along the major drainage systems of the Rincon Mountain Unit.[5]

About 1500 B.C., the introduction and adoption of corn or maize, a cultigen that evolved from wild teosinte in the area that is now Mexico, is no doubt the most significant event of the Archaic period. The corn, however, was treated as a minor part of Archaic subsistence and was only harvested in low yields. It took the intensive agricultural practices of the Hohokam in the next time period for corn to flourish.[6]

D. Hohokam Circa A.D.1-A.D. 1450

As early as 300 B.C. groups now known as the Hohokam were living in the Gila and Salt River Valleys, and by A.D. 100 they were present in the Tucson Basin, along the Santa Cruz River. (The name Hohokam is Piman for the ancients--those who have vanished and perished.) The Hohokam in this area appear to have developed from local Archaic groups. In the Tucson Basin, remains in the form of chipped, grinding stones, cooking hearths, pithouses and storage pits constitute some of the evidence suggesting cultural continuity rather than a hiatus between the preagricultural foraging of the Late Archaic period and the ceramic period of the Hohokam.

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5. Huckell, "The Paleo-Indian and Archaic Occupation of the Tucson Basin," 138; Kay Simpson and Susan J. Wells, "Archeological Survey in the Eastern Tucson Basin: Saguaro National Monument, Rincon Mountain Unit, Cactus Forest Area" (Tucson, Arizona: National Park Service, Western Archeological and Conservation Center, Publications in Anthropology No. 22, 1983), 1:48-49, 51; Kay Simpson and Susan J. Wells, "Archeological Survey in the Eastern Tucson Basin: Saguaro National Monument, Rincon Mountain Unit, Cactus Forest Unit" (Tucson, Arizona: National Park Service, Western Archeological and Conservation Center, Publications in Anthropology No. 22, 1983), 2:263; V.K. Pheriba Stacy and Julian Hayden, "Saguaro National Monument: An Archeological Overview" (Tucson: National Park Service, Arizona Archeological Center, 1975), 10.

6. Lister and Lister, Those Who Came Before, 18; Cordell, Prehistory of the Southwest, 153.

The Hohokam appear to have been influenced by people or ideas from Mexico, perhaps accounting for the development of maize agriculture, canal irrigation, and pottery--not to mention ball courts and platform mounds. The early Hohokam settlement pattern consisted of clusters of houses within communities known as rancherias--fixed agricultural settlements in which the houses were scattered as much as a half mile apart.[7]

In the main, the Hohokam trait complex consisted of "a sedentary lifestyle, a dependence on agriculture, and a unique ceremonial and trading system."[8] The Hohokam raised corn, beans, squash, and cotton--the seeds of the latter for food and the fiber for yarn. In the Tucson area, there was widespread dependence on dry farming techniques. This dry farming involved the control of rain water with features such as rock terraces or checkdams to make the most of the limited rainfall.

The Hohokam made quite an array of pottery and human effigies; the distinctive pottery featured geometric designs, scroll work, and animal designs. They built semisubterranean houses of wattle and daub with adjacent ramades, maintained shallow pits for obtaining pottery clay, and constructed platform mounds for ceremonial purposes. The Hohokam in the Tucson Basin traded with related groups in the Gila and Salt River valleys. The Hohokam served as major shell traders, and apparently undertook expeditions to the Gulf of California to acquire the seashells.

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7. David E. Doyel, "From Foraging To Farming: An Overview of the Preclassic in the Tucson Basin," The Kiva 49(Spring-Summer 1984), 148-152, Emil W. Haury, The Hohokam: Desert Farmers and Craftsmen--Excavations At Snaketown, 1964-1965 (Tucson: University of Arizona Press, 1976) 5, 338; Cordell, Prehistory of the Southwest, 113; Alfred L. Kroeber, A Roster of Civilizations and Culture (Chicago: Aldine Publishing Company, 1962), 68; George J. Gumerman and Emil W. Haury, "Prehistory: Hohokam," in Handbook of North American Indians, Volume 9: Southwest, edited by Alfonso Ortiz and William C. Sturtevant (Washington, D.C.: Smithsonian Institution, 1979), 77.

8. Linda M. Gregonis and Karl J. Reinhard, The Hohokam Indians of the Tucson Basin (Tucson: University of Arizona Press, 1979), 4.

One of the technical achievements unique to the Hohokam was the decorative acid etching of shells using sour fruit juice from the saguaro cactus. Shell jewelry, clay censors for burning incense, mirrors of iron pyrites, effigy figurines, and decorated pottery all point to a culture rich in creative ideas. In contrast to other southwestern groups who practiced inhumation, the Hohokam cremated the dead.[9]

Hohokam populations had spread throughout the Basin by A.D. 700, including along eastern tributaries into the areas at the base of the Rincon and Santa Catalina Mountains. Large and small Hohokam agricultural villages can be found in what is now the eastern or Rincon Mountain Unit of Saguaro National Monument. Floodplain farming was practiced along with dry farming techniques. The rocky areas adjacent to the Tucson Mountains, where the Tucson Mountain Unit of the national monument is located, are not conducive to agriculture and apparently for this reason the Hohokam established no large permanent settlements there. However, both temporary campsites and rock art sites have been found. These temporary camps may be associated with the picking of saguaro fruit, which ripens in June and early July.[10]

Within the area of the national monument's Rincon Mountain Unit, the primary occupation period of the Hohokam extended from A.D. 700 to 1300. The course of Hohokam development in the eastern Tucson Basin from A.D. 1100 saw a growing association with Mogollon groups to the north and east that resulted in adoption of some Mogollon traits such as corrugated pottery. By A.D. 1250 Hohokam villagers had begun building adobe-walled houses. A century or so later, relatively large communities with aboveground apartment-like dwellings were common. Yet by A.D. 1450, "the Hohokam culture as a whole had disappeared."[11] The collapse

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9. Haury, The Hohokam, 224, 250-251, 289, 318; Gregonis and Reinhard, The Hohokam Indians, 8-9, 15-27.

10. Doyel, "From Foraging to Farming," 151; Simpson and Wells, "Archeological Survey," 1:52; Stacy and Hayden, "Saguaro National Monument," 24.

11. Kroeber, A Roster of Civilizations, 69.

of the Hohokam culture could have been the result of soil deterioration and salt concentration caused by irrigation or, perhaps, a hostile group invaded the Hohokam region. We just do not know.

By A.D. 1500, scattered villages with a lot of space between households, similar to the earlier Hohokam rancheria settlement pattern, reappear. The inhabitants of these villages, known today as the Tohono O'odham (Papago) peoples, were encountered in the seventeenth century by the Spanish upon entering the Tucson Basin.[12] Although connections between the modern Indians and the Hohokam is often assumed, there is no proof at this time.[13]

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12. Gregonis and Reinhard, The Hohokam Indians, 4; Haury, The Hohokam, 355; Julian D. Hayden, "Of Hohokam Origins and Other Matters," American Antiquity 35(January 1970), 91; Bertha P. Dutton, American Indians of the Southwest (Albuquerque: University of New Mexico Press, 1983), 213; Bernard L. Fontana, "History of the Papago," in Handbook of North American Indians, Volume 10: Southwest, edited by Alfonso Ortiz and William C. Sturtevant (Washington, D.C.: Smithsonian Institution, 1983), 137.

13. Fontana, "History of the Papago," 137.

ETHNOLOGICAL OVERVIEW

A. Introduction

This section covers the history of Native American groups occupying the area in the vicinity of Saguaro National Monument from European contact to the present. The discussion also provides a brief look at the specialized cultural adaptation of these groups to the unique and sometimes inhospitable environment of the Tucson Basin.

B. Spanish Period, 1687-1821

The first documented European contact with indigenous groups occurred in the late 1600s when Jesuits penetrated into what is now southern Arizona, establishing missions along the rivers. The Spanish called the native peoples in this area the "Pimas Altos," literally the Upper Pima Indians, "to distinguish them from their linguistic bretheren, the . . . Lower Pima . . . who lived far to the south in lower Sonora."[1] Apparently recognizing some cultural differences among these Upper Pima peoples, the Spanish coined names for local groups. Although the various terms were often used in an inconsistent manner, and terminology changed through time, the name "Papago" was generally reserved for farmers who lived away from the rivers. Groups living in the San Pedro and Santa Cruz River valleys came to be known as the "Sobaipuris," while the lands northwest of the study area, along the Salt and Gila Rivers, were occupied by the Pima.

When Padre Eusebio Kino and his fellow missionaries visited the Tucson Basin in 1694, the Santa Cruz River valley was controlled by the Sobaipuri. West of the Santa Cruz River, the desert lands were generally occupied by the Papago. Over the next century, these groups

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1. Bernard L. Fontana, "Pima and Papago: Introduction," in Handbook of North American Indians, Volume 10: Southwest, edited by Alfonso Ortiz and William C. Sturtevant (Washington, D.C.: Smithsonian Institution, 1983), 125.

were heavily impacted by the newly-arrived Europeans. Spanish priests and soldiers established several presidios and more than two dozen missions and visitas in southern Arizona and northern Sonora, most concentrated in the irrigated river valleys. Following the 1736 silver strike near present-day Nogales, Sonora, Spanish prospectors ranged through the area. Along the eastern limits of Piman territory, various Apache groups continued to raid and harass the Sobaipuri and other Pima-speaking groups who for their own physical and economic survival became increasingly allied with the Spanish. Following three-quarters of a century of Spanish missionization and Apache depredations, the eastern Sobaipuri were resettled at Tucson.[2] About 1770, some of the Sobaipuri refugees left to join the Piman groups living along the Gila River; the rest were absorbed by local Papagos, and "after that time the Sobaipuris were no longer named as an ethnic enclave."[3]

The Sobaipuris had been the "most permanently fixed" of the various Piman groups.[4] Their villages were situated along streams where floral and faunal resources, including freshwater fish, were concentrated. The rich alluvial soils of the river floodplains were well suited to agriculture, and both canal irrigation and floodwater farming were far more reliable than dry farming. At Bac (near present-day Tucson), the Sobaipuri were practicing canal irrigation when the Spanish arrived. Adding wheat to their repertory of foodstuffs further expanded their dependence upon the riverine environment.

The Papago or Tohono O'odham (desert people) developed a different adaptation to life in the Sonoran Desert. When first encountered by the

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2. Paul H. Ezell, "History of the Pima," in Handbook of North American Indians, Volume 10: Southwest, edited by Alfonso Ortiz and William C. Sturtevant (Washington, D.C.: Smithsonian Institution, 1983), 149. The Sobaipuris had become a buffer between the Spanish and the Apache, eventually resulting in abandonment of lands formerly in the control of the Piman groups. Fontana, "History of the Papago," 137.

3. Ezell, "History of the Pima," 149.

4. Fontana, "Pima and Papago: Introduction," 133.

Spanish, the Tohono settlements were scattered over about 24,000 square miles. Tohono dwellings were round buildings with a dry earth roof and brush walls. Some of the habitation clusters were "hardly more than camps. Others were tiny villages occupied only seasonally, and still others [closer to a riverine environment] were large and permanent."[5] Siting was based primarily on the presence of water. Traditionally the Tohono O'odham had a "back and forth" or "two village" life style with a winter home in the hills near the springs, a summer home in the fields, and a mid-summer cactus camp, established in areas where the Saguaro cacti were concentrated.[6] This semi-annual shifting settlement pattern allowed the Tohono to "take advantage of ephemeral water supplies and of seasonally maturing wild plant foods."[7]

The mixed Tohono O'odham economy included agriculture as well as hunting and gathering. They gathered from the vast "cornucopia of wild plants."[8] A typical list of wild plant foods includes the following:

> seeds, buds, fruits and joints of various cacti, seeds of the mesquite, ironwood, palo verde, amaranth, saltbush, lambsquarter, mustard, horsebean and squash; acorns and other wild nuts, screwbean, the greens of lambsquarter, saltbush, canaigre, amaranth and pigweed, boxthorn and other berries; roots and bulbs of the sandroof (wild potato), covenas and others; and the yucca fruit. . . .[9]

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5. Bernard L. Fontana, "The Papagos," Arizona Highways, 59 (April 1983), 40.

6. Donald M. Bahr, "Pima and Papago Social Organization," in Handbook of North American Indians, Volume 10: Southwest, edited by Alfonso Oritz and William C. Sturtevant (Washington, D.C.: Smithsonian Institution, 1983), 178.

7. Stacy and Hayden, "Saguaro National Monument" 8.

8. Ibid., 37.

9. Albyn K. Mark, "Description of Variables Relating to Ecological Change in the History of the Papago Indian Population (Tucson, Arizona: M.A. Thesis, Department of Anthropology, University of Arizona, 1961), 46, quoted in Robert A. Hackenberg, "Pima and Papago Ecological Adaptations" in Handbook of North American Indians, Volume 10: Southwest edited by Alfonso Ortiz and William C. Sturtevant (Washington, D.C.: Smithsonian Institution, 1983), 163.

Protein was supplied by a wide variety of animal foods. The Tohono O'odham hunted

> deer, antelope, mountain sheep and goats, peccary, muskrats, bears, rabbits, quail, dove, mockingbird, wild ducks, geese, bittern, heron, snipe, wild turkey, rats, terrapin, lizards, grasshoppers, moth larvae, locusts, iguanas, snakes, toads, and beaver.[10]

This area has an annual rainfall of about 10 to 11 inches which comes in the form of summer and winter storms. Often springs found in the hills provided the only source of a permanent water supply. Yet the farming skill of the Tohono O'odham was "very effective and was the envy of ordinary dry farmers."[11] As an example, they put brush dams at the "mouths of arroyos where these natural ditches emptied their harvests of mountainside rainfall. . . ."[12] These water-harvesting techniques diverted the floodwaters onto the valley fields where the Tohono O'odham cultivated tepary beans (a native drought-resistent legume), and their fall harvest of corn, and squash.[13] They also planted crops in the washes, taking advantages of the moisture contained in these areas.

In addition to diversified exploitation of both wild and cultivated foods, the Tohonos regularly exchanged foodstuffs and/or labor with the Pima. The diversity between their two regions led to the exchange of Pima cultivated corn, beans, and squash for Papago wild foods. In particularly dry years, the Tohonos would exchange farm labor for food, earning a share of the crop for their efforts.

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10. Ibid.

11. Frank S. Crosswhite, "The Annual Saguaro Harvest and Crop Cycle of the Papago, with Reference to Ecology and Symbolism." Desert Plants 2 (Spring 1980), 5.

12. Ibid., 40.

13. Fontana, "The Papagos," 40.

The Tohono material culture included fire-hardened digging sticks and other wooden tools and baskets for agriculture. They used the bow and arrow with stone projectile points. Net-and-pole packframes, called kihau or giho were used to bring wild food plants and firewood back to the village as well as to carry water jars back from mountain springs.[14] The kuibit or harvest pole for the Saguaro fruit was made by splicing together long ribs of the skeleton of a Saguaro or other long lightweight pieces of wood such as Phragmites communis.[15]

Water jars were made of coarse clay to permit the water to be cooled by evaporation. A variety of geometric designs were used to decorate the more elaborate pottery. However, the real Tohono O'odham art form was basketry. Examples of their highly functional and highly aesthetic work include the watertight basket-jars and basket-bowls of several shapes and designs. The geometric designs were made possible by using contrasting light and dark colors of willow and Devil's Claw fibers, respectively.[16]

There was no central government or centralized authority for the Sobaiburi and Papago. Rather, village units, each consisting of several related villages, were autonomous and were governed by a chief and council of all adult males. Leadership depended upon persuasion and concensus. Gender roles were clearly delineated, and specific tasks were associated with men and women. In carrying out their roles, these groups regarded industriousness as a highly desirable personal character trait.[17]

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14. Bahr, "Pima and Papago," 188.

15. Crosswhite, "The Annual Saguaro Harvest" 20-21.

16. Henry F. Dobyns, The Papago People (Phoenix, Arizona: Indian Tribal Series, 1972), 1,6.

17. Bahr, "Pima and Papago," 184.

In Papago and Pima belief, certain songs had the power to ensure rain when performed in proper ritual appeals to such supernatural beings as Earthmaker and Elder Brother or I'Itoli. Individuals who had just killed an enemy or had just given birth were in spiritual danger and had to be purified by the performance of specific rituals. The religious specialists among the Papago and Pima were shamans who were well versed in the various rituals of purification, of influence over the weather, of promoting success in warfare, and of healing and curing. A shaman was though to possess personalized supernatural power from particular spirits through visions, trances, and dreams.[18]

The first major change the indigenous groups encountered was the presence of European epidemic diseases that physically threatened the population. The diseases probably reached them through fleeing Indian refugees before actual contact with the Spanish. "The Spaniards met in 1694 a society reeling under the onslaughts of repeated epidemics over a period of approximately 170 years."[19]

Not only did the Europeans introduce new diseases; they brought new forms of religion, dress, speech, and sources of food and economy, contributing to many changes in the indigenous cultures. Spanish attempts to pacify the Apache through a combination of force and material enticements resulted in increasing numbers of Apache settling near the Tucson presidio, adding to the pressure for cultural change on the Tohono O'odham. Diminished rainfall in the eighteenth century contributed to movement of the Tohono closer to the mission stations. Domesticated animals and a wide variety of cultivated products began to replace items formerly hunted or gathered by the Tohono. For example, new items introduced to the O'odham included

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18. Ruth M. Underhill, The Papago Indians of Arizona and Their Relatives, The Pima (Washington, D.C.: Bureau of Indian Affairs, 1941), 49.

19. Ezell, "History of the Pima," 150.

> "cattle, horses, sheep, goats, pigs, chickens, wheat [which could be grown in winter] European beans, chick peas, lentils, quinces, oranges, apricots, peaches, and pecans; cabbage, lettuce, onions, garlic, and leeks, and for a touch of color, roses and lilies."[20]

New agricultural tools and technology supplanted traditional items and methods. The Spanish introduced the plow and, possibly, in some areas ditch irrigation. Inroads were made into traditional religious practices and social organization; and there was an increasing awareness among the Tohono O'odham "that one could sell one's labor for money . . . [and] use money to buy . . . new necessities."[21]

C. Mexican Period, 1821-1854

By this time the Jesuits in southern Arizona had been replaced by the Franciscans who continued to work among the native groups until about 1840 when their roles were increasingly assumed by the secular clergy. Roman Catholicism did not replace the native religions but was instead melded into the aboriginal belief system.[22] The Tohono O'odham were located far enough from the major centers of Mexican government to escape much of the political and religious machinations of the era. However, the period was marked by an increase in Mexican migration, "farmers, ranchers, and miners moved in growing numbers into Papago country . . . taking up Papago lands and water holes with utter disregard for Papago rights."[23] The river systems contained the best of the Indian lands, but they were also the "best lands for farmers and cattlemen, they were the highways through the desert," funneling newcomers into the area.[24] Well over a century would pass before Tohono O'odham land claims were recognized and compensation paid.

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20. Fontana, "The Papagos," 42.

21. Ibid.

22. Fontana, "History of the Papago," 138.

23. Ibid., 139.

24. Ibid.

D. American Period, 1854-

It was in this period that the earliest recorded Native American use of Saguaro National Monument occurred by Papago (Tohono O'odham) Indians from San Xavier del Bac. In the mid-nineteenth century they gathered cactus fruit from the western slope of the Tucson mountains, and they may also have used the Santa Catalina and Rincon areas for gathering.[25] In 1857 the first Indian Agent for this area began an active food distribution program, finding it inconceivable that the "Papagos could survive on a diet of mescal [agaves] tunies [prickly pear cactus fruit] and acorns."[26]

In 1874 an area was finally set aside for the Tohono O'odham; and executive order provided for a reservation at San Xavier del Bac, near Tucson, about 6 miles from the west unit of Saguaro National Monument. The Roman Catholic Church continued to work with both the religious and educational needs of the Indian community, and, for a short period, Presbyterian missionaries were also involved in programs at Tucson.

In the late 1800s and early 1900s, construction of day schools, industrial training schools and boarding schools contributed to the continuing changes in the Papago culture. Tohono children were removed from familiar cultural settings and sent away from their families to school where they often became involved in a variety of training programs. For many of the children, it was the first time in their lives they had come "into prolonged and close contact with non-Indians. . . ."[27]

Increasingly Tohono O'odham men had left their subsistence activities for employment in the silver, copper, and gold mines, on non-Indian ranches, for various Government agencies, and in local construction projects. During the late 1870s, a small group of Papago moved into the

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25. Stacy and Hayden, "Saguaro National Monument" 4.

26. Fontana, "The Papagoes," 37.

27. Ibid., 143.

area that is now part of the Rincon Unit of Saguaro National monument, and some of the group's members were employed on nearby ranches. By the mid-1880s these squatters had been evicted and sent to an Indian Reservation some distance away.[28] Around 1910, a half dozen or so Tohono O'odham families again, for a short time, became residents of the Rincon unit area. The men were employed as cowboys on nearby cattle ranches, and these families continued to exploit some of the wild resources of the area, including the use of the Saguaro cactus.[29] Over the years the Tohono have continued to utilize local natural resources. An early resident noted the "Papago Indians carrying rock material, possibly hematite, out of this area in the 1920s."[30] Another long-time local resident, James Converse, reported that the Papago once used some of the area now within the monument for firewood cutting and for collection of clay from a deposit along Cottonwood Wash.[31]

By the third quarter of the twentieth century, the Tohono O'odham had "become irreversibly tied to non-Indian cash economy for their livelihood."[32] Cattle raising provided an important part of the income, along with earnings from government jobs, copper leases, wood, farm produce and cotton, and crafts such as pottery and baskets.

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28. O.N. Benjamin, Assistant Adjutant General to Commanding General, Department of Arizona, December 8, 1883, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, National Archives, Washington, D.C.

29. In the 1920s other Tohono O'odham came from San Xavier Mission to participate in the Saguaro fruit harvests in the Rincon Unit of SAGU.

30. Stacy and Hayden, "Saguaro National Monument," 26.

31. Converse first came to the area in 1928 and lived on a ranch there until 1955. Simpson and Wells, "Archeological Survey in the Eastern Tucson Basin: *Saguaro National Monument, Rincon Mountain Unit Cactus Forest Area*," 1:60.

32. Fontana, "History of the Papago," 145.

Tohono O'odham groups still use the monument on a limited basis for subsistence activities. Today Saguaro harvesting is carried on in the Tucson Mountain unit by present-day Tohono O'odham Indians under a special use permit. In the past, the Saguaro cactus has contributed heavily to the subsistence base of indigenous groups, providing at least twelve kinds of foodstuffs, housing materials and many other items. Its lasting significance to the O'odham culture is represented in various ways. As an example, modern basketry designs depict the annual Saguaro harvest.[33] The annual Tohono O'odham calendar began with ripening of the Saguaro fruit, and the plant itself was revered and protected. Ceremonially, the Tohono O'odham "called upon the supernatural, through intermediacy of Saguaro wine communion, to ask for rain for their agricultural fields."[34] Speeches related to the wine rituals "seem to comprise an epic cycle dealing with natural history of the Saguaro and history of the Papago."[35] Mesquite and the Saguaro cactus provided a critical food source during the summer months when cultigens had been planted but were not yet ready for the fall harvest.

Over the centuries, humankind's adaptation to this harsh and fragile land has common roots in fluid settlement patterns, specialized water-harvest, and shrewd exploitation of the area's scattered and diverse resources. Utilization of the Saguaro cactus provides a common thread uniting twentieth century Tohono O'odham groups with earlier peoples who also relied upon this humble desert plant for a variety of subsistence needs.

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33. Frank S. Crosswhite, "The Annual Saguaro Harvest and Crop Cycle of the Papago, with Reference to Ecology and Symbolism," Desert Plants (Spring 1980), 3.

34. Ibid., 4.

35. Ibid.

CHAPTER ONE: CONQUEST AND SETTLEMENT

Although Spaniards entered present day Arizona as early as 1539, the embrace of European civilization was not felt until the 1690s with the appearance of Jesuit missionaries. Sporadic at first, the influence of the Church through the Jesuits and later the Franciscans predominated over other facets of Spanish society for almost the first century after contact. The fearsome Apache kept other Spanish settlers from the area until a revised policy toward that tribe brought four decades of relative peace beginning in the 1780s.

Mexican independence in 1821 brought change. Missionaries born outside Mexico were soon forced to leave the field. In other areas the national government lacked the money and interest to continue Spain's Apache pacification program. The impoverished Sonoran state government made a slight effort to protect the retreating citizenry from Apache raids before lapsing into several decades of periodic civil war. By the 1840s only Tucson and Tubac existed as small population centers.

When the United States gained the territory south of the Gila River by the Gadsden Treaty of 1854, the village of Tucson had perhaps 300 inhabitants who hardly dare venture beyond the pueblo walls for fear of the Apache. Indian problems discouraged settlement at any distance from the town until 1872. Starting in that year, however, people began to settle as ranchers and farmers in the area that is now the Rincon Unit of Saguaro National Monument. Mining and prospecting, which began a few years before in the Tucson Mountains, increased after 1872. These two ventures, agriculture and mining, played the greatest role in the area that would become the two units of Saguaro National Monument.

A. The Spanish Period

The first Spaniards to enter what is now southern Arizona merely passed through the area on their way to locate the treasure of the cities of Cibola. In 1539 Fray Marcos de Niza became the first European to

traverse the area. As he followed the course of the San Pedro River, de Niza encountered the small villages and irrigated fields of the Sobaipuri - one of the three Piman-speaking tribes which inhabited the region. His report of the riches of Cibola resulted in another expedition led by Francisco Coronado in 1540. He, too, traveled along the San Pedro as he crossed the area. Since they found nothing of value there or at Cibola, the Spanish lost interest in the region.[1]

It was not until the end of the seventeenth century that Spanish civilization reached into the northern part of New Spain and poised on the edge of the northernmost section which by that time had come to be called the Pimeria Alta (Figure 1). This region encompassed present-day southern Arizona south of the Gila and west of the San Pedro rivers and extended into the northern portion of the state of Sonora, Mexico as far as the Rio Altar and Magdalena valleys. It was to this area that the Jesuit padre, Eusebio Kino, came in 1687 to establish missions. In his twenty years of exploration in the Pimeria Alta, he encountered three related tribes in the Arizona part. These peoples, the Sobaipuri in the eastern area, the Pima in the north and central portion, and the Papago in the central and western section, were basically sedentary and lived in rancherias except for those Papago in the extreme west. In that area the people were nomadic food-gatherers.[2]

Padre Kino did not enter the area of present day southern Arizona until 1691 when he followed the Santa Cruz River valley north to the rancheria of Tumacacori. He came to that village at the request of the

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1. Frank C. Lockwood, Pioneer Days in Arizona: From The Spanish Occupation to Statehood (N.Y.: Macmillan Co., 1932), 14-17; Hubert H. Bancroft, History of Arizona and New Mexico, 1530-1880 (San Francisco: The History Co., 1889), 31, 39, 345-346.

2. Edward H. Spicer, Cycles of Conquest: The Impact of Spain, Mexico, and the United States on the Indians of the Southwest, 1533-1960 (Tucson: University of Arizona Press, 1962), 118-119. A rancheria is a fixed agricultural settlement in which the houses were scattered as much as a half mile apart.

Pima Indians who lived there. These people, like their bretheren of southern Arizona, were a relatively peaceful people who were interested in learning about the Christian religion. Since Kino lacked the manpower, he left no missionary at the village. In fact he did not return to the Santa Cruz Valley until 1694. On this occasion he followed the river north to its confluence with the Gila. On the way he stopped at the rancheria of Bac which was a village about nine miles south of present day Tucson. Over the next eight years Kino visited these villages many times, laying the foundation for a church at Bac in 1700.[3]

Although Padre Kino had difficulty supplying sufficient priests for the missions, the Jesuits had a program, financially supported by the civil authorities, which had the ultimate end of turning the Indians into full Christian citizens of the Spanish Empire. To accomplish this goal, Indian villages were structured into orderly societies that would require the inhabitants to modify their old ways. It was a church-centered community designed to be largely self-sufficient. Missionaries taught a simple catechism of Christian concepts which they felt were necessary for the Indians to know. In addition the priests supplied cattle and wheat, which was a new grain, and taught the use of new tools and agricultural techniques. In doing so the missionaries attempted to convince the Indians to accept a daily routine of field and herd work.[4]

The Jesuits never had sufficient manpower to properly supply their Santa Cruz Valley missions until 1732. After that date they had the luxury of instructing the Indians without having what they considered the corrupting influence of Spanish settlers. The reason no Spaniard inhabited the valley was increasing raids by Apaches. These people had begun to attack Spanish settlements in New Mexico by the middle of the

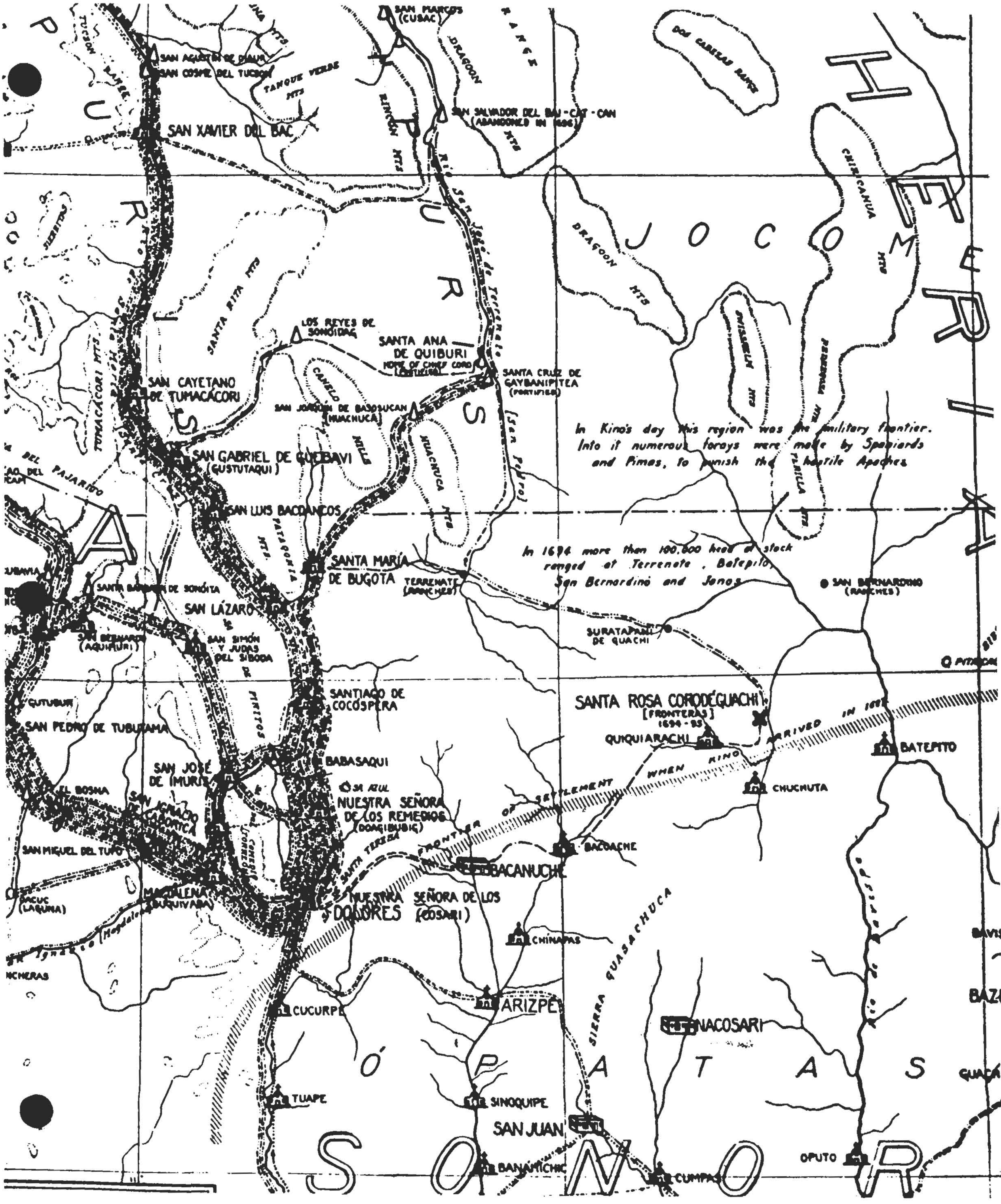
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3. Bancroft, History of Arizona and New Mexico, 1530-1888, 352-359.

4. Spicer, Cycles of Conquest, 287, 295; Ray H. Mattison, "Early Spanish and Mexican Settlements in Arizona," New Mexico Historical Review 21 (October 1946), 274.

Figure 1

Portion of Herbert Eugene Bolton's "Map of Pimeria Alta 1687-1711"


PIMERÍA ALTA
SAN MARCOS (CUSAC)
SAN AGUSTIN DE OIAUR
SAN COSME DEL TUCSON
TUCSON
SAN XAVIER DEL BAC
TANQUE VERDE MTS
SAN SALVADOR DEL BAC - CAT - CAN (ABANDONED IN 1706)
SANTA RITA MTS
LOS REYES DE SONOIDAG
SANTA ANA DE QUIBURI
SANTA CRUZ DE GAYBANIPITEA (FORTIFIED)
SAN CAYETANO DE TUMACACORI
SAN JOAQUIN DE BASOSUCAN (HUACHUCA)
SAN GABRIEL DE GUEBAVI (GUSTUTAQUI)
SAN LUIS BACOANCOS
SANTA MARÍA DE BUGOTA
TERRENATE (RANCHES)
SAN LÁZARO
SAN BERNARDO (AQUIFURI)
SAN SIMÓN Y JUDAS DEL SIBOBA
SANTIAGO DE COCÓSPERA
SAN PEDRO DE TUBUSAMA
SAN JOSÉ DE IMURIS
BABASAQUI
NUESTRA SEÑORA DE LOS REMEDIOS (DOAGIBUBIC)
SAN MIGUEL DEL TUPO
MAGDALENA (SUQUIVABA)
BACUC (LAGUNA)
NUESTRA SEÑORA DE LOS DOLORES (COSARI)
CUCURPE
ARIZPE
TUAPE
SINOQUIPE
SAN JUAN BAUTISTA
BANAMICHIC
CUMPAS
OPUTO
SANTA ROSA CORODÉGUACHI [FRONTERAS] 1694 - 95
QUIQUIARACHI
BATEPITO
CHUCHUTA
BACOACHE
BACANUCHE
CHINAPAS
NACOSARI
SURATAPARI DE QUACHI
SAN BERNARDINO (RANCHES)
In Kino's day this region was the military frontier. Into it numerous forays were made by Spaniards and Pimas, to punish the hostile Apaches.
In 1694 more than 100,000 head of stock ranged at Terrenate, Batepilo, San Bernardino and Janos.
SIERRA GUASACHUCA
SONORA

seventeenth century and in 1698 expanded their area of assaults when they entered the Pimeria Alta. Partly for this reason and partly because of a Pima uprising in 1751 the Spanish established a presidio (fort) at Tubac in 1752. These soldiers were to provide protection for the missionaries, but they proved to have little effect.[5]

About the time the Spanish king expelled the Jesuits from his New World domain in 1767, the Sobaipuri could no longer withstand Apache attacks. (Figure 2 shows the relative position of the Apache in 1765.) They left the San Pedro Valley and moved westward to meld with the Pima and Papago. At the same time the Tucson rancheria came under periodic assault partly because it was located at an entry point into the Santa Cruz Valley.[6]

In the face of continued warfare the Franciscans, who replaced the Jesuits in 1768, confined their efforts in southern Arizona to the Santa Cruz Valley and in particular the missions San Xavier at Bac and Tumacacori. Soon after the first Franciscan reached Bac the Apaches plundered the village. Several subsequent raids resulted in a loss of cattle.[7]

Apache problems did not go unnoticed in Spain. In 1772 King Carlos III set forth new regulations by which additional presidios would be established on the frontier to halt Apache incursions. As a result of this decree the Tubac garrison was moved to Tucson in 1776. The presidio was established on the east bank of the Santa Cruz across the river from the Pima/Sobaipuri rancheria and named San Agustin de Tucson.[8]

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5. Bancroft, History of Arizona and New Mexico, 362, 369; Spicer, Cycles of Conquest, 236.

6. Bancroft, History of Arizona and New Mexico, 381; Spicer, Cycles of Conquest, 238-239.

7. Bancroft, History of Arizona and New Mexico, 375; Spicer, Cycles of Conquest, 132.

8. Sidney B. Brinckerhoff, "The Last Years of Spanish Arizona," Arizona and the West 9 (Spring 1967), 7. The current Saint Augustin Church in Tucson takes its name from that rancheria.

The rearrangement of presidios did not prevent Apache raids. As a result the new Viceroy of New Spain, Bernardo de Galvez proposed a different approach to the problem in 1786. Since it was clear that the object of the Apache raids was not to drive the Spanish from the region but was merely a means of maintaining themselves through plunder, Galvez decided to increase military pressure on them and at the same time offer food and supplies if they would settle in peace near a presidio. If kept well supplied, they would have no need to obtain food and animals through raids. One additional facet to the plan departed from the usual Spanish approach to Indians which dictated that they should be Christianized and turned into model citizens. Galvez hoped to corrupt those Apaches who settled near a fort by supplying them with liquor.[9]

The increased use of force combined with the offer of supplies worked. From about 1787 into the late 1820s a period of peace occurred. By the 1790s a number of Apaches had settled at the Tucson presidio. The tranquility resulted in the settlement law of 1791 which was designed to encourage families to move to the frontier where land was provided. Spanish officials hoped that villages would develop around the forts. In addition a Spaniard of means could obtain a grant of ranch land. Two years before the settlement law Torbio de Otero had taken advantage of the calm and asked for a piece of ground near Tubac. He received his land. Soon after the opening of the nineteenth century others asked for grants of land. The Buenavista ranch was established south of Tumacacori in 1806. Tomas and Ignacio Ortiz received a grant for their Canoa ranch thirteen miles north of Tubac in 1820. Their father already had established at Arivaca in 1812. The largest ranch, the San Bernardino, covered a huge area of southeast Arizona and Sonora. It reportedly had 100,000 head of cattle in the 1820s. The tranquility allowed an increase in the mission herds at San Xavier and Tumacacori

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9. Bancroft, History of Arizona and New Mexico, 378; Brinckerhoff, "The Last Years of Spanish Arizona," 10.

Figure 2

Portion of "Kaart van het Westelyk Gedeelte van Nieuw Mexico en van California," 1765. Courtesy of the National Archives, Washington, D.C.

260 261 262 263 264 265 266 267

35 34 33 32 31 30 29 28

Riv. Colorado of del Norte

Riv. Gila

Riv. Yaqui

Riv. Azul

Rio de Sonora

Gila. Rivier Gila ontdekt. of gezien heeft.

Moqui

Nijor

APACHES

YUMAS

PIMAS

COCOMARICOPAS

SOBAIPURIS

SERIS

GUAIMAS

Sobaypuris

Casa grande

La Tinaja

Tubac

Tucson

Caborca

Altar

Pitiquin

Tupo

Ures

Hermosillo

Bacanuchi

Chinapa

Arispe

Guepaque

Rana chi

Guarnaseen van St. Jan Baptist

Babiacora

Ostimuri

Province van Ostimuri

Miclyael

Sonora

as well. In 1820 the padre at the latter location sold 4,000 cattle for money to continue construction.[10]

The settlement law attracted Spaniards to settle at Tucson. In 1804 there were 37 Spanish and 200 Indians farming near the presidio. At the time there were 4,000 cattle, 2,600 sheep, and 1,200 horses at Tucson. By 1819 the old pueblo's Spanish population increased to 62. Cattle had grown to number 5,600.[11]

While stock raising became a major Spanish industry in southern Arizona, others took to mining. Although minerals had been discovered near Arivaca and in the Santa Rita and Patagonia Mountains in the eighteenth century, Apaches had made mining difficult. In the late eighteenth and early nineteenth centuries, however, men returned to those areas during the peace and mined some of the richer deposits which were mostly silver. The ore was reduced in crude smelters.[12]

B. The Mexican Period

After several years of struggle the Mexicans won their independence from Spain in 1821. The area of southern Arizona remained for a few years as it had under the Spanish. The Mexicans, however, had no interest or money to continue the Spanish pacification program with the Apache. Despite this situation it took a decade before those Indians returned to raiding. The Spanish had not been totally successful in corrupting them.[13]

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10. Brinckerhoff, "The Last Years of Spanish Arizona," 15-16; Bancroft, History of Arizona and New Mexico, 400-401; Mattison, "Early Spanish and Mexican Settlements in Arizona," 286; Robert C. Stevens, "The Apache Menace in Sonora 1831-1849," Arizona and The West 6 (Autumn 1964), 213.

11. Brinckerhoff, "The Last Years of Spanish Arizona," 15.

12. Brinckerhoff, "The Last Years of Spanish Arizona," 17.

13. Spicer, Cycles of Conquest, 240; Brinckerhoff, "The Last Years of Spanish Arizona," 19.

The national government in Mexico City ignored the situation on the country's northern border and left it to the state governments to solve the Apache problem. At first the Sonoran officials offered a feeble military response and then made an attempt to achieve peace treaties with the Apache. When this effort failed to pacify them, the state government began a system of paying bounties for Apache scalps. To make matters worse the eruption of sporadic civil wars in Sonora, particularly between the Gandara and Pesquiera factions, kept politicans preoccupied with other matters for over a decade. As the 1840s began nearly all the Mexican population had fled south from southern Arizona. Only two settlements existed, Tucson and Tubac, where a few people managed to live under the protection of the presidios. By 1848 Tubac was abandoned.[14]

The 1840s brought Americans to southern Arizona on their way to California. The first group to arrive were soldiers under the command of Lieutenant Colonel Philip St. George Cooke. The United States had been at war with Mexico almost seven months in 1846 when Cooke entered Arizona. His orders were to survey a wagon trail across the area from the Rio Grande to the Pacific Coast. He entered Arizona at approximately the southeast corner and followed the present day international boundary to the San Pedro River. Turning north he proceeded downstream to the area of present-day Benson. From there he left the river to travel northwest to Tucson. Leaving Tucson, he followed the Santa Cruz to the Gila River. His route through Arizona became known as Cooke's Wagon Road (Figure 3).[15]

The next large group of Americans to pass through southern Arizona came, beginning in 1849, on a trek to the California gold fields. Most

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14. Stevens, "The Apache Menace in Sonora, 1831-1849," 211, 216, 218-219; Brinckerhoff, "The Last Years of Spanish Arizona," 19; Bancroft, History of Arizona and New Mexico, 404-405; Spicer, Cycles of Conquest, 240-241.

15. Lockwood, Pioneer Days in Arizona, 294-297; Bancroft, History of Arizona and New Mexico, 477.

Figure 3

Portion of "A New Map of Mexico, California & Oregon," 1850, by J.A. and U.P. James.

BETWEEN THE UNITED STATES AND MEXICO

Gila R.

Colorado R.

Santa Fe

Albuquerque

Socorro

Valverde

Doña Ana

Mesilla

Las Cruces

Fort Fillmore

El Paso

Franklin

Presidio del Norte

Ojo Caliente

Fort Bliss

Hueco Tanks

Guadalupe Mts.

Organ Mts.

Sierra Blanca

Rio Grande

Pecos R.

Canadian R.

Rio Puerco

Rio Salado

Jornada del Muerto

Mesilla Valley

Jornada

Laguna

Isleta

Tome

Belen

Bernalillo

Albuquerque

Sandia

Tijeras Pass

Galisteo

Pecos

Glorieta Pass

Apache Canon

Las Vegas

Tecolote

Rio Colorado

Rio Gila

Rio Verde

Rio Mimbres

Rio Florida

Rio Casas Grandes

Rio Sonora

Rio Yaqui

Rio Mayo

Rio Fuerte

Rio Sinaloa

Rio Chico

Rio Conchos

Rio Grande

Rio Bravo

Rio Salado

Rio Nazas

Rio Aguanaval

Rio Grande de Tamaulipas

Rio Soto la Marina

Rio Panuco

Rio Tamesi

Rio Guayalejo

Rio Tampico

Rio Purificacion

Rio Ameca

Rio Santiago

Rio Lerma

Rio Grande de Santiago

Rio Balsas

Rio Mexcala

Rio Papagayo

Rio Atoyac

Rio Zahuapan

Rio Tlaxcala

Rio Nautla

Rio Misantla

Rio Actopan

Rio Jamapa

Rio Blanco

Rio Coatzacoalcos

Rio Tonala

Rio Tehuantepec

Rio Chiapa

Rio Grijalva

Rio Usumacinta

Rio Candelaria

Rio Champoton

Rio Hondo

Rio Nuevo

Rio Lacantun

Rio Chixoy

Rio Motagua

Rio Ulua

Rio Aguan

Rio Patuca

Rio Segovia

Rio Negro

Rio Escondido

Rio Wanks

Rio Grande de Matagalpa

Rio Tipitapa

Rio Frio

Rio Sarapiqui

Rio Reventazon

Rio Grande de Terraba

Rio Chiriqui Viejo

Rio Chiriqui

Rio Tabasara

Rio Chagres

Rio Trinidad

Rio Pedro

Rio Cobre

Rio Minho

Rio Hicacos

Rio Cauto

Rio Sagua la Grande

Rio Agabama

Rio Ocklockonee

Rio Appalachicola

Rio Chattahoochee

Rio Flint

Rio Ocmulgee

Rio Altamaha

Rio Ogeechee

Rio Savannah

Rio Edisto

Rio Santee

Rio Pedee

Rio Cape Fear

Rio Neuse

Rio Roanoke

Rio Chowan

Rio Pasquotank

Rio Tar

Rio Yadkin

Rio Catawba

Rio Broad

Rio Saluda

Rio Congaree

Rio Wateree

Rio Enoree

Rio Tyger

Rio Pacolet

Rio Ennoree

Rio Hiwassee

Rio Tennessee

Rio Clinch

Rio Holston

Rio French Broad

Rio Nolichucky

Rio Watauga

Rio Kanawha

Rio Big Sandy

Rio Scioto

Rio Muskingum

Rio Hocking

Rio Great Miami

Rio Wabash

Rio Illinois

Rio Kaskaskia

Rio Rock

Rio Des Moines

Rio Iowa

Rio Wisconsin

Rio Fox

Rio Grand

Rio Menominee

Rio Escanaba

Rio Manistique

Rio Manistee

Rio Muskegon

Rio Grand

Rio Kalamazoo

Rio St. Joseph

Rio Grand

Rio Maumee

Rio Sandusky

Rio Huron

Rio Raisin

Rio Ecorse

Rio Rouge

Rio Clinton

Rio Thames

Rio Grand

Rio Genesee

Rio Oswego

Rio Salmon

Rio Black

Rio Chateaugay

Rio Grasse

Rio Oswegatchie

Rio Indian

Rio Moose

Rio Penobscot

Rio Kennebec

Rio Androscoggin

Rio Saco

Rio Merrimack

Rio Connecticut

Rio Housatonic

Rio Thames

Rio Quinebaug

Rio Pawcatuck

Rio Taunton

Rio Blackstone

Rio Pawtuxet

Rio Providence

Rio Hudson

Rio Mohawk

Rio Susquehanna

Rio Chemung

Rio Tioga

Rio Cohocton

Rio Canisteo

Rio Conewango

Rio Alleghany

Rio Conemaugh

Rio Kiskiminetas

Rio Juniata

Rio Monongahela

Rio Youghiogheny

Rio Cheat

Rio Potomac

Rio Shenandoah

Rio Rappahannock

Rio Pamunkey

Rio Mattapony

Rio Appomattox

Rio James

Rio Chickahominy

Rio Nottoway

Rio Meherrin

Rio Roanoke

Rio Dan

Rio Yadkin

Rio Catawba

Rio Broad

Rio Saluda

Rio Congaree

Rio Wateree

Rio Enoree

Rio Tyger

Rio Pacolet

Rio Ennoree

Rio Hiwassee

Rio Tennessee

Rio Clinch

Rio Holston

Rio French Broad

Rio Nolichucky

Rio Watauga

Rio Kanawha

Rio Big Sandy

Rio Scioto

Rio Muskingum

Rio Hocking

Rio Great Miami

Rio Wabash

Rio Illinois

Rio Kaskaskia

Rio Rock

Rio Des Moines

Rio Iowa

Rio Wisconsin

Rio Fox

Rio Grand

Rio Menominee

Rio Escanaba

Rio Manistique

Rio Manistee

Rio Muskegon

Rio Grand

Rio Kalamazoo

Rio St. Joseph

Rio Grand

Rio Maumee

Rio Sandusky

Rio Huron

Rio Raisin

Rio Ecorse

Rio Rouge

Rio Clinton

Rio Thames

Rio Grand

Rio Genesee

Rio Oswego

Rio Salmon

Rio Black

Rio Chateaugay

Rio Grasse

Rio Oswegatchie

Rio Indian

Rio Moose

Rio Penobscot

Rio Kennebec

Rio Androscoggin

Rio Saco

Rio Merrimack

Rio Connecticut

Rio Housatonic

Rio Thames

Rio Quinebaug

Rio Pawcatuck

Rio Taunton

Rio Blackstone

Rio Pawtuxet

Rio Providence

Rio Hudson

Rio Mohawk

Rio Susquehanna

Rio Chemung

Rio Tioga

Rio Cohocton

Rio Canisteo

Rio Conewango

Rio Alleghany

Rio Conemaugh

Rio Kiskiminetas

Rio Juniata

Rio Monongahela

Rio Youghiogheny

Rio Cheat

Rio Potomac

Rio Shenandoah

Rio Rappahannock

Rio Pamunkey

Rio Mattapony

Rio Appomattox

Rio James

Rio Chickahominy

Rio Nottoway

Rio Meherrin

Rio Roanoke

Rio Dan

parties took one of two routes - Cooke's Wagon Road or, by going further west, they reached the Santa Cruz River and followed it north. The trail along that river had served as the major line of communication for 150 years. This area, including Tucson, was still Mexican territory since the peace treaty which ended the war in 1848 set the international boundary at the Gila River. Most travelers found the area deserted. They usually were less than impressed with Tucson where only several hundred people lived in miserable-appearing adobe houses.[16]

An international boundary survey party was appointed in 1849 to mark the border between the United States and Mexico. In 1850 John Bartlett was appointed to head the American group. When he passed through Tucson in July 1852 he observed that it had about 300 inhabitants who lived in decaying adobe homes. The once extensive, rich land near the village was no longer cultivated because of the Apaches. Bartlett found 300 soldiers in the garrison, most of whom had recently arrived. The Sonoran government also had reactivated the Tubac presidio in that year in an effort to decrease Apache raids.[17]

No documents exist to show that any use was made of the Saguaro National Monument lands during the Spanish and Mexican eras. Spaniards and Mexicans, however, undoubtedly traveled through both of the monument units.

C. The American Period

In 1853 the United States approached the Mexican government seeking to purchase land south of the Gila River for a southern

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16. Bancroft, History of Arizona and New Mexico, 483; Ralph P. Bieber, ed., Southern Trails to California (Glendale, Calif.: Arthur H. Clark Co., 1937), 211.

17. John Russell Bartlett, Personal Narrative of Explorations and Incidents in Texas, New Mexico, California, Sonora, and Chihuahua, Connected with the United States and Mexican Boundary Commission, During the Years 1850, '51, '52, '53 (Chicago: The Rio Grande Press, Inc., 1965), I: 295-296; Bancroft, History of Arizona and New Mexico, 479.

transcontinental railroad. James Gadsden, the American negotiator, succeeded in reaching an agreement on December 30, 1853. It was approved in Washington in June 1854. At that time Tucson became American territory. Prior to Gadsden's accord, Lieutenant John G. Parke was ordered to make a railroad survey for a route from the Gila River to the Rio Grande. He arrived in Tucson from the west on February 20, 1854. Here he found that the regular eastbound trail first went south along the Santa Cruz to the mission San Xavier and then proceeded east. Instead of using that route, Parke went due east toward the Rincon Mountains near where a thick growth of cactus caused him to turn aside. It is possible that this was in the area of the present-day Saguaro National Monument. The railroad survey resulted in the selection of two possible routes through the Tucson area (Figure 4). One passed through that village. East of the San Pedro it ran somewhat north of Cooke's Wagon Road. The other went from the Gila River down the San Pedro Valley to the east.[18]

The American military did not arrive in Tucson until late 1856. Mexican forces had remained there waiting to turn command over to the United States. The population probably was around 400 with a small group of Papago Indians living at nearby San Xavier. They, like their non-Indian neighbors, were still suffering from Apache attacks. The American forces did not remain in Tucson. Most Anglo settlers in the area had located to the south around Tubac, so the troops established Camp Moore at nearby Calabasas. In early 1857 the soldiers moved to an area about twenty-five miles southeast of Tubac and constructed Fort Buchanan on Sonoita Creek.[19]

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18. Lockwood, Pioneer Days in Arizona, 116; Bancroft, History of Arizona and New Mexico, 482.

19. Lockwood, Pioneer Days in Arizona, 90, 92; James E. Serven, "The Military Posts on Sonoita Creek: A Review of the Brief But Important Roles of Fort Buchanan 1857-1861 and Camp Crittenden 1868-1873," The Smoke Signal (Fall 1965), 27.

Figure 4

Portion of "Map of Routes for a Pacific Railroad," 1855. Courtesy of the National Archives, Washington, D.C.

Gila R.
Wasatch Gap
Grand R.
Uncompahgre Plateau
Sierra San Juan
Sierra de los Grullos
Sierra de la Plata
Rio Colorado
Rio Grande
Spanish Trail
Green R.
Bent's Fort
Arkansas R.
Ft Massachusetts
Spanish Peaks
Sangre de Cristo Pass 9219
Raton Pass 7179
Taos
Albuquerque
Ft Burgwin
Ft Defiance
Ft Marcy
SANTA FE
Pecos
Bateheches
Rancho
Anton Chico
Canadian R.
Wm. Williams Mt
Campbells Pass 7730
Zuni
Zuni Pass 7965
Aztec Pass 6201
Isleta
Laguna
Ft Craig
Ft Stanton
Sierra Blanca
Rocky Mts
Sierra Oscura
Sierra Blanca
Ft Thorn
Doña Ana
Ft Bliss
El Paso
Mesilla Pass
Ft Yuma
Pimos Vil
Tucson
El Dado
Pass
Presidio del Norte
Rio Grande
Rio Pecos
Rio Colorado
Rio Gila
Gila R.
Colorado R.
Gulf of California
NEW MEXICO
CALIFORNIA
Mexico

Tucson became less isolated in the latter part of the 1850s. A bi-weekly mail and stage service began to operate from San Antonio to San Diego via El Paso and Tucson in the summer of 1857. The following year the Butterfield Overland Mail took over the route and operated it until the Civil War began in 1861. Although for several more decades Tucson's major link to other areas remained to the south along the Santa Cruz river into Mexico, the mail service, which followed a route to the east similar to that of the present-day Interstate 10, began the link which would tie that city to the United States (Figure 5).[20]

Despite the continued presence of Apaches in the 1860s, Tucson's population grew from 620 in 1860 to 3,224 in 1870. People, however, still tended to settle close to the town for protection. It was not until the Apache truce in 1872 that individuals began to move any distance away. In so doing, they moved eastward and occupied land along the waterways. The Rincon and Santa Catalina Mountains' watershed provided sufficient runoff to irrigate crops such as corn, beans, wheat, and fruit trees until the monsoon rains came in July and August bringing sufficient moisture for the remainder of the growing season. People first moved out along the Rillito River and from there to its tributary the Tanque Verde Creek. They also squatted along the Pantano Wash and its branch the Rincon Wash. Several raised livestock in fairly large numbers at first. In December 1872 Manuel Martinez became one of the first people to move any distance from town. He located his Cebadilla Ranch along the Tanque Verde Creek about eighteen miles east of Tucson at the base of the Rincon Mountains (Figure 6). His ranch was the first in the area adjacent to Saguaro National Monument. He filed a pre-emption claim on 160 acres. Within a few years he cleared forty acres on which he planted 400 fruit trees and some grain that were watered by an irrigation ditch

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20. James H. McClintock, Arizona: Prehistoric- Aboriginal- Pioneer- Modern (Chicago: S.J. Clarke Pub. Co., 1916), I: 270-271; Lockwood, Pioneer Days in Arizona, 298-299.

from the Tanque Verde. In addition by 1880 he grazed 200 head of cattle on the surrounding public domain.[21]

Several families settled on adjacent land in 1875. Jesus Manguia located about one mile west of Martinez. He did little development on the land until the early 1880s. He concentrated on his thirty acres of irrigated land and raised only a few livestock. West of Manguia, A. Van Alstine squatted on land on which he had forty acres under cultivation. By 1880 he owned 350 head of cattle, most of which he pastured in the San Pedro Valley during the winter and spring. Some of his cows formed a small dairy herd. Bernadino Campos and his married son Matildo irrigated forty acres across the Tanque Verde from Van Alstine. They had 110 cattle. The only other occupants in the immediate area were Guadalupe Martinez and two married sons. They cultivated sixty-five acres on a portion of which they raised 150 fruit trees. He and his sons had fifty head of cattle and cared for another 250 owned by William Oury until Oury moved to the area about 1883. Emilio Carrillo had a ranch about three miles west and one mile north of the Tanque Verde. Only two hired men lived on his property and looked after his 250 head of cattle. Several Papago families squatted in the area and worked as day laborers.[22]

In 1873 Camp Lowell, which had been situated in Tucson, was relocated some ten miles northeast of that town. A military reservation, declared on October 26, 1875, extended just over ten miles east of the fort to the base of the Rincon Mountains. The Army reasoned that it needed such a large reservation to assure sufficient grass on which its

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21. Register of Settlers Upon the Fort Lowell Military Reservation, ca. 1880, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, National Archives, Washington, D.C. (Hereafter cited as NA). Register of Settlers Living on or Claiming Land on the Fort Lowell Military Reservation, May 14, 1883, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, NA.

22. Ibid.

Figure 5

Portion of "Map of Southern Arizona," 1868. Courtesy of the National Archives, Washington, D.C.

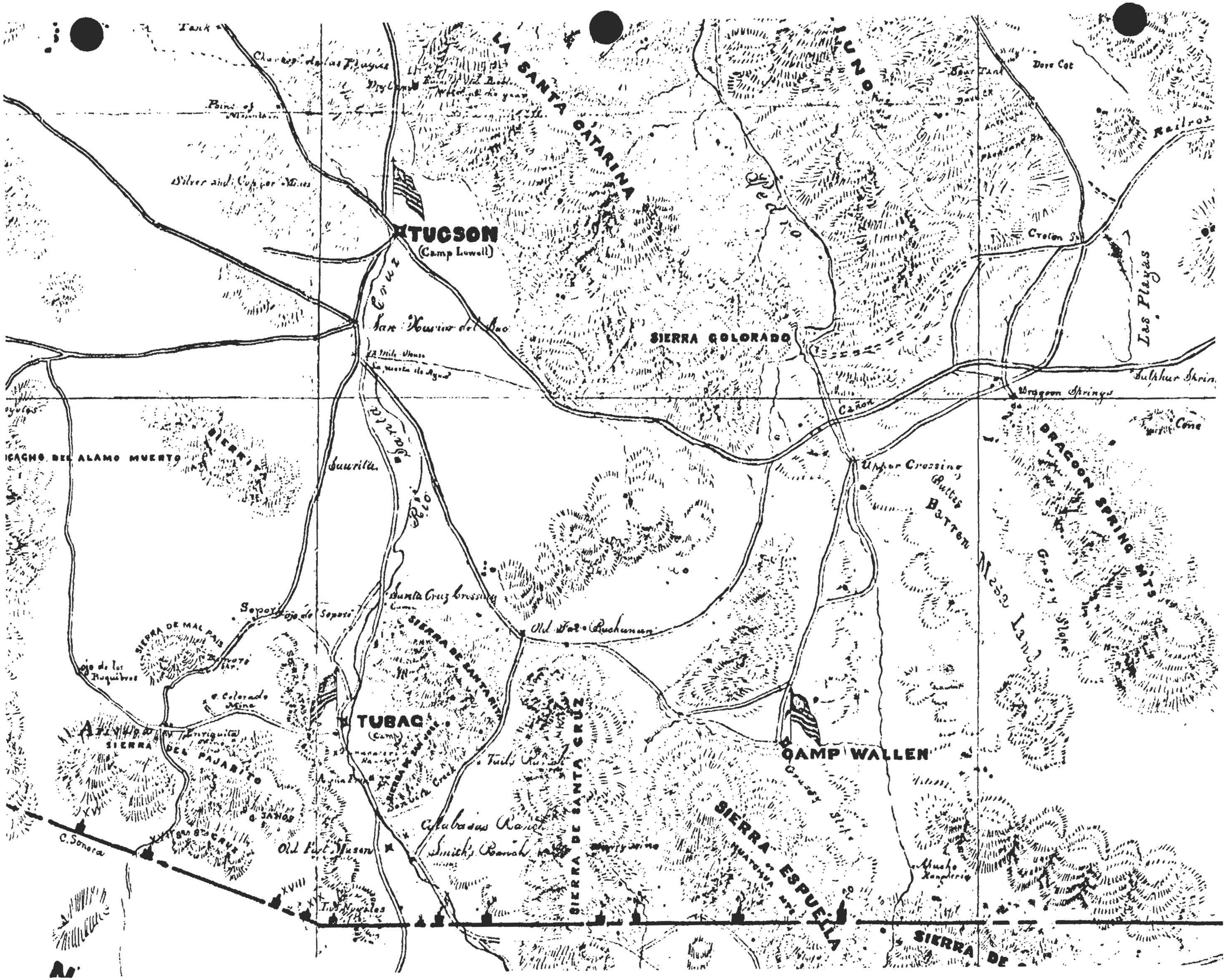

LA SANTA CATARINA
TUCSON
(Camp Lowell)
SIERRA COLORADO
Rillito
Santa Cruz
San Xavier del Bac
Silver and Copper Mines
Point of Mountain
Tank
Dove Cot
Railroad
Las Playas
Sulphur Springs
Dragoon Springs
Cañon
Cone
DRAGOON SPRING MTS
Upper Crossing
Butler's Batten
Grassy Slope
Mesa Land
RANCHO DEL ALAMO MUERTO
SIERRA
Sauvita
Sopori
Ojo de Sopori
SIERRA DE MAL PAIS
Ojo de los Roquitos
Colorado Mine
TUBAC
(Camp)
SIERRA DE SAN JOSE
SIERRA DE SANTA CRUZ
Santa Cruz Crossing
Old Fort Buchanan
Tubac Ruins
Calabazas Ranch
Smith's Ranch
Old Fort Mason
Tubac Presidio
CAMP WALLEN
SIERRA ESPUELLA
SIERRA DE
SIERRA DEL PAJARITO
C. Sonora

Figure 6

Map Drawn May 14, 1883 to show squatters on Fort Lowell Military Reservation. Courtesy of the National Archives, Washington, D.C.

Santa Catarina Mountains

Leopoldo Carrillo → №16

Proposed Line of Eastern Road

Pinery Road

Agua Caliente

Mrs. Watson → №19

Saguara Cactus

Agua Caliente Road.

Elias → №7

Emilio Carrillo → №8

Ravine

Rillito Valley

Cottonwoods

Santa Therisa Mountains

Conkyl (Deceased) → №4

Dunham → №5

Doe → №6

Fort Lowell

Unsurveyed Land

Mountain Spring Road.

Old Road to Fort Huachuca

Antonio Moreno → №15

Guadalupe Martinez → №14

A. Van Austine → №12

Jesus Menguia → №11

№10 Manuel Martinez

Thick mesquite timber.

Drawn by
Thomas Cruse
2nd Lieut. 6th Cav.

Signs used.

Cultivated Land

Water { Flowing
Bed of Creek
Irrigating Ditch

Area of Reservation 49920 Acres.

Latitude 32° 17′ Approximately
Longitude 110° 43′ West from Greenwich.

0 ½ 1 2 3

Scale 1 inch to a mile

horses and cattle could graze as well as having a firewood supply. It also desired to control the streams to maintain a source of water. The settlers along the Tanque Verde found themselves within the east end of the military reservation. This situation resulted in a conflict with the army. In closer proximity to the fort, Emilio Carrillo was the first to engage the army's attention. His cattle interfered with the military livestock by reducing the amount of forage. This situation caused Colonel Eugene A. Carr, the post commander, to exclude all privately owned animals from the reservation. As a result, in February 1881 he ordered Carrillo, Manuel Martinez, Bernardino Campos, and A. Van Alstine to move. An appeal led the Secretary of War to rule in July 1882 that those people living on the reservation could remain, but no new encroachments would be allowed.[23]

The narrow escape from eviction had an effect on the reservation inhabitants. Van Alstine and Campos stopped raising cattle while Carrillo and Martinez cut their herds to seventy-five and eighty head respectively. Still, however, Col. Carr felt that Carrillo's reduced herd disrupted the range. Carrillo did not help his case when he was caught cutting mesquite trees on the reservation. As a result, on May 14, 1883 a Board of Officers recommended a course of action toward the reservation settlers. The board's findings led the Secretary of War to reverse his earlier pronouncement and in December of that year he authorized the Fort Lowell commander to summarily remove any settler from the reservation who allowed his livestock to interfere with the grazing of public animals or who cut wood. The pronouncement affected only Emilio Carrillo. He was removed from the reservation and relocated just outside the boundary to the east near Manuel Martinez (Figure 7). A

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23. Order No. 18, Fort Lowell, February 22, 1881, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, NA; G. Norman Lieber, Act. Judge Advocate General to the Secretary of War, March 13, 1886, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, NA.

short time later a group of Papago squatters was sent to the Indian reservation at Sacaton.[24]

Despite renewed Apache activity in the early 1880s as well as army efforts to discourage settlement, the population continued to grow along Tanque Verde Creek. Occasionally, when Apaches were thought to be in the area, a troop detachment would be sent to Manuel Martinez's ranch from where they could protect the local populous. Communication was made easier in 1885 with the completion of a road from Tucson to the San Pedro Valley that paralleled Tanque Verde Creek for some distance.[25]

In February 1891 the Tanque Verde settlers no longer had the spector of the army before them, for Fort Lowell was declared abandoned and transferred to the Secretary of the Interior. An act of congress in August 1894 opened the old Fort Lowell land to settlement. That portion in Township 14 South, Range 16 East was not surveyed until 1900--three years after the non-mountainous portion of the township outside the old reservation boundary. The 1897 and 1900 surveys did not produce a great rush to make homestead entries. Within the present-day Saguaro National Monument boundary, Fermin Cruz was one of the first to take the opportunity to receive land. He obtained his patent in 1916. Most applications for homesteads were made in the 1920s. Ultimately, only about fourteen percent of Township 14 had homestead entries. Emilio Carrillo was the most prominent person in the area. His son Rafael took over his Tanque Verde Ranch in 1909. He, in turn, sold to James Converse in 1928. Converse and his wife converted a portion of their

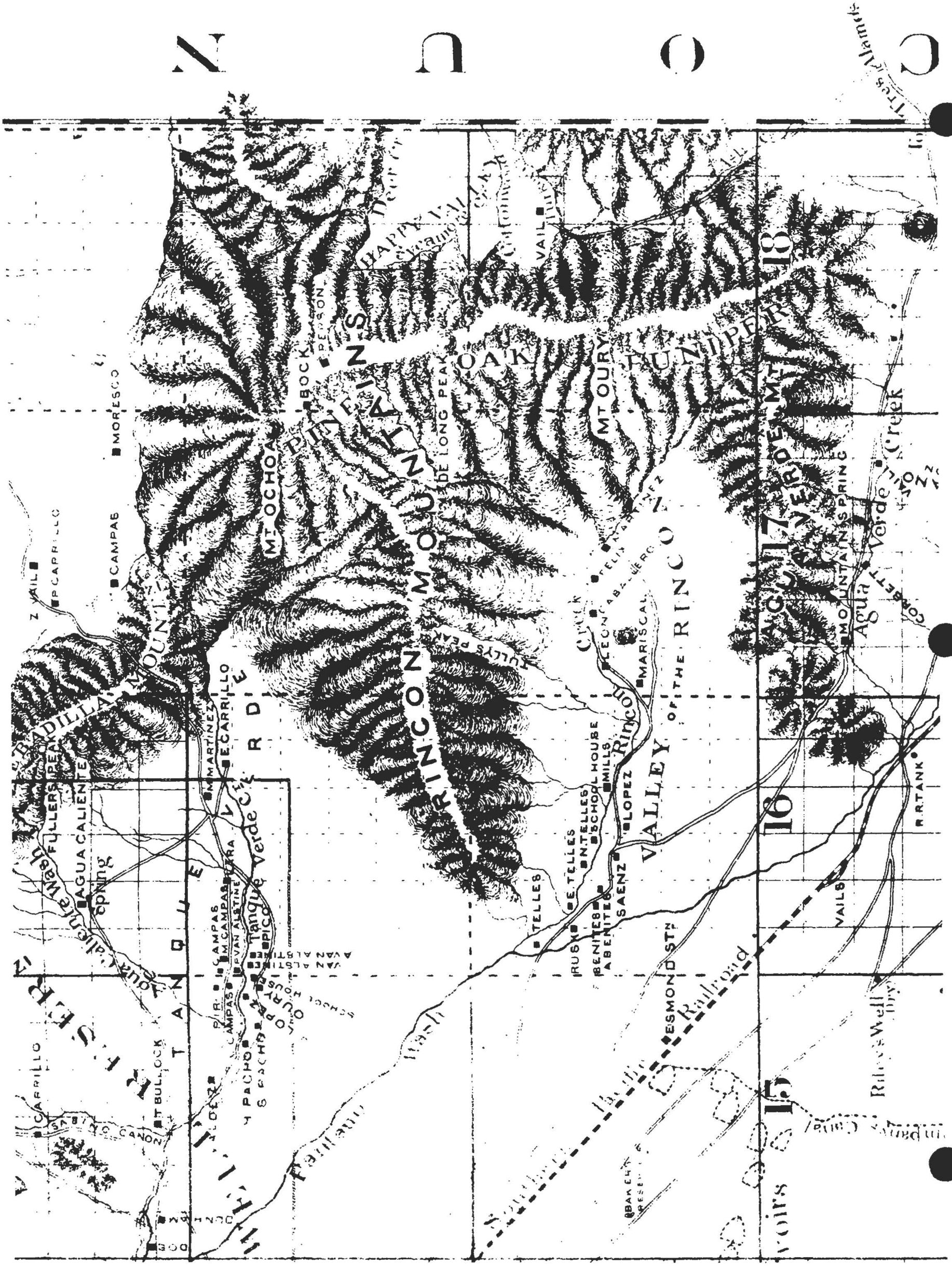
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24. Special Orders No. 20, March 5, 1883, Headquarters, Department of Arizona, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, NA; O.N. Benjamin, Asst. Adj. General to Commanding General, Department of Arizona, December 8, 1883, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, NA.

25. Arizona Citizen (Tucson), September 5, 1885.

Figure 7

Portion of "Official Map of Pima County, Arizona, 1893" by George Roskruge.


N
CAMPAS
MORESCO
MT OCHOA
PINALENO MOUNTAINS
BOCK
PERSON
DE LONG PEAK
OAK
MT OURY
JUNIPER
18
VAIL
MARTINEZ
E CARRILLO
AGUA CALIENTE
FULLERS PEAK
CARRILLO
T BULLOCK
CAMPAS
VAN ALSTINE
PICO
Tanque Verde Creek
OURY
SCHOOL HOUSE
P.O.
PACHO
SEACHO
TELLES
E TELLES
N TELLES
SCHOOL HOUSE
MILLS
LOPEZ
BENITEZ
ABENITEZ
SAENZ
MARISCAL
VALLEY OF THE RINCON
Rincon
Creek
Verde
MT
VERDE
MOUNTAINS
SPRING
Agua
R.R. TANK
VAILS
ESMOND STN
Railroad
Southern Pacific
16
15
Rillito
Well

property into the Tanque Verde Guest Ranch in that same year. They remained in control until the 1950s.[26]

A number of people, most of Indian background, squatted in the area from around the turn of the century to about 1930. The rude houses of those who had lived within the monument boundary were razed by the Civilian Conservation Corps in the mid-1930s. Most of these individuals worked for nearby ranchers. Some cut wood and sold it in Tucson.[27]

The same settlement pattern prevailed along the Rincon Wash south of the present Saguaro National Monument boundary as occurred along the Tanque Verde Creek. In the late 1870s and early 1880s five individuals located along the wash in Township 15 South, Range 17 East (Figure 7). When James Martineau surveyed the area in 1893, he noted that, while most of the township was better suited for grazing, the land along the Rincon was of first quality for farming. The settlers who lived along that stream had cleared parcels of land and irrigated by means of mountain runoff and summer rains. One of the men, Librada Leon, patented his homestead in 1897. Several years later he sold the land to Joseph Mills who relocated to that land from his ranch three miles to the west. These small farms were absorbed into a larger ranching operation by the 1920s.[28]

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26. Acting Secretary of the Interior to the Secretary of War, February 5, 1895, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, NA.

27. Cornelius C. Smith, Jr., Tanque Verde: The Story of a Frontier Ranch Tucson, Arizona (Tucson: Printed by the Author, 1978), 131-132.

28. James H. Martineau, "Field Notes of the Survey of the Subdivision Lines of Township 15S. Range 17E. of the Principal Base and Meridian in the Territory of Arizona," Book 870, November 9-18, 1893, Bureau of Land Management, Phoenix; Homestead Certificate No. 813, To Librada Leon, November 5, 1897, Bureau of Land Management, Phoenix.

Eight families settled along the Rincon Wash to the west in Township 15 South, Range 16 East about 1880 (Figure 7). Four of the inhabitants farmed on irrigated land and operated dairies (Benites brothers, Saenz, and Lopez), while the remainder raised cattle. Juan, Narcisco, and Eusabio Telles, owners of the Box Ranch, and Joseph Mills kept the largest herds of cattle. The Telles ranch was the scene of the kidnapping of Octaviano Gastelum on May 22, 1886 by a group of fourteen Apaches who happened to come into the area on a raiding party. Gastelum, the seven year old son of a cowboy at the ranch, was kidnapped after the Indians threw stones at his mother. Then they disappeared northward in the direction of Manuel Martinez's ranch on Tanque Verde Creek. A group of men assembled and rode after the Apaches. After riding about six miles they came upon the Indians who had stopped to cook a freshly killed cow. Surprised, the Apache left young Gastelum and retreated up the slope of the Tanque Verde Mountains firing several shots at their pursuers. Rather than chase the fleeing Indians the men rode to the Carrillo ranch about two miles distant and rested for the night. (Two miles south of the Carrillo Ranch would have placed the incident within the boundary of Saguaro NM, probably on the west side of section 14.) The next day they returned to the scene and followed the Apaches' tracks over the Rincon Mountains and into the San Pedro Valley before ending their pursuit.[29]

In 1911 Fredric O. Knipe purchased Juan Jose Saenz's homestead and developed the Bar S-K ranch. Two years later he bought the nearby Mills ranch (later known as the X-9) and thereby became the largest rancher in the Rincon Valley. Knipe split the property in 1926 when he sold the Bar S-K to Melvill Haskell. In 1928 he sold the X-9 to J. Rukin

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29. Arizona Citizen (Tucson) May 22, 24, 25, 1886; Juan I. Telles folder, Ephemera file, Arizona Historical Society, Tucson; Reminiscences of Octaviano O. Gastelum, Arizona Historical Society, Tucson; James H. Martineau, "Field Notes of the Survey of the Subdivision Lines of Township 15S. Range 16E of the Principal Base and Meridian in the Territory of Arizona, Book 869, November 1-9, 1893, Bureau of Land Management, Phoenix.

Jelks. Since that time those ranches have been possessed by various owners. The X-9 continues to operate in Henry Jackson's ownership.[30]

Charles Page settled on the east side of the Rincon Mountains about 1874 and started the Happy Valley Ranch. In the mid-1880s he sold his land to the Vail Cattle Company that owned the huge Empire Ranch near the Santa Rita Mountains. In 1943 Roderick MacKenzie operated the property. It has changed hands several times since that date.[31]

In the last decade of the nineteenth and early years of the twentieth centuries the upper portions of the Rincon Mountains became the scene of settlement, timber cutting, summer cabin construction, and army activity. A retired railroad employee built a dwelling near Mica Peak and proceeded to raise potatoes there. From this livelihood came the designation Spud Rock Cabin. After the United States Forest Service acquired the area in 1907 its fire watch personnel used the cabin. The Forest Service replaced the cabin in 1912. The replacement has since collapsed in 1966.[32]

Although into the late 1880s the Santa Rita Mountains served as the sole source for timber and all of the saw mills were located there, some timber cutting of the pine forest atop the Rincon Mountains began about 1887. When Lieutenant G.H.G. Gale ascended Colorado Peak (Rincon Peak) from Mountain Spring in March 1890 to look for a good location for a heliograph station, he encountered a logging trail which led to the top of the peak. That route would have meant timber was brought down the south side of the Rincon Mountains. Frank Escalante, however, told of

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30. Telephone conversation with Theodore Knipe by Berle Clemensen, May 14, 1986.

31. "The Empire Ranch as told to Mrs. Geo. F. Kitt," Box 1, Item 7, Edward L. Vail papers, Arizona Historical Society, Tucson; Happy Valley Allotment file, Coronado National Forest Office, Tucson.

32. Spud Rock Cabin folder, Saguaro National Monument files; Telephone Conversation with Theodore Knipe by Berle Clemensen, May 14, 1986.

ponderosa pine being cut for vigas (beams for the ceiling or roof) and brought down the west side of those mountains through Chimenea Canyon. The vigas would be pulled down by oxen. Near the mouth of Chimenea Canyon the men would stop to heat their food at a chimney which exists to this day.[33]

In 1905 Levi Manning, later mayor of Tucson, began to build a summer cabin near Mica Peak. Here, away from the desert heat, he would spend a portion of the summer and would often entertain guests. Soon after the Rincons were added to the Santa Catalina Division of the Coronado National Forest in mid-1907, Manning then leased his summer retreat for several years. He, however, did not use the cabin after 1907. The Forest Service and National Park Service have since used the structure to house fire watch personnel.[34] Additional information on this important building appears in Chapter Five.

Beginning in 1890, the army conducted heliograph maneuvers in the Rincon Mountains. Practice with this signaling device stemmed from its use during the Apache campaign in 1886. At that time the heliograph seemed to demonstrate great efficiency for field communications. After the Geronimo action ended, Lieutenant W.A. Glassford, a signal corps officer assigned to Department Headquarters at Fort Whipple near

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33. History of Arizona Territory Showing Its Resources and Advantages; with Illustrations, Descriptions of Its Scenery, Residences, Farms, Mines, Mills, Hotels, Business Houses, Schools, Churches, Etc. (San Francisco: Wallace W. Ellicott & Co., 1884), 305; First Lieutenant G.H.G. Gale, "Report of Reconnaissance for a Central Station, Connecting Lowell, Huachuca, Bowie and Grant Heliograph Divisions," March 28, 1890, found in Instructions for Guidance of Signal Officers, in charge of Heliograph Systems, May 1890 (Los Angeles: Headquarters, Department of Arizona, April 29, 1890), 4; Transcript of a Taped Conversation of Frank Escalante and Charles Maguire by Bob Jones, Supt. of SAGU, Hal Coss, Park Naturalist, and Tom Carroll, Park Technician (December 11, 1969), 1, in Saguaro National Monument Files.

34. Arizona Star (Tucson), August 2, 1959; Arizona Citizen (Tucson), August 24, 1907; Data on Manning Camp in the Rincon Mountains as told by Mr. Howell Manning, son of L.H. Manning the Original Builder and Owner, Saguaro National Monument Files.

Prescott, made an effort to keep an interest in the heliograph as a practical military instrument. In 1887 Glassford traveled the territory mapping the region to indicate the best points for stations. Interest, however, declined after he was ordered for duty elsewhere. When Major William J. Volkmar became chief signal officer of the Department of Arizona in 1889 he decided to test the practicability of establishing heliograph stations to cover the department.[35]

Preparatory to holding field operations in May 1890, army personnel made a reconnaissance of Arizona and southwestern New Mexico to ascertain the best station locations. First Lieutenant G.H.G. Gale made a survey of Colorado Peak (now called Rincon Peak) in the Rincon Mountains beginning March 18, 1890. He contacted Fort Lowell from that point the following day and, by prearrangement, Bowie Station on March 23, and Huachuca Station the next day. He found Colorado Peak to be an excellent heliograph site, for it commanded a large field of view except to the northwest. It also had abundant grass and a spring which appeared to have a constant flow (Figure 8).[36]

Two days before the concerted heliograph practice began, First Sergeant Peter Bartsch arrived on Colorado Peak from Fort Lowell with seven other men. He began transmitting to Fort Lowell and Table Mountain on April 30. When practice officially began on May 1, Bartsch opened communication with Bowie Peak and Fourr's Ranch at Cochise Stronghold. The next day he contacted Fort Huachuca and finally the Mt. Graham Station near Fort Grant on May 6. Bartsch was ordered to

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35. "Report of the Chief Signal Officer," October 1, 1890, found in Report of the Secretary of War, 1890 (Washington, D.C.: Government Printing Office, 1890), IV: 40; "Report of the Chief Signal Office," October 1, 1895, found in Report of the Secretary of War, 1895 (Washington, D.C.: Government Printing Office, 1895), 584; Army and Navy Journal 33(November 23, 1895), 201.

36. Gale, "Report of Reconnaissance for a Central Station, Connecting Lowell, Huachuca, Bowie and Grant Heliograph Divisions," 1-4; "Report of the Chief Signal Officer," October 1, 1890, p. 41.

Fort Huachuca on that day with the large station heliograph. Corporal L.P. Gouldman took over command of the Colorado Peak station. Although stations at Table Mountain, Lowell, Huachuca, Cochise, and Bowie could contact him, Gouldman had a problem communicating with the more distant stations like Bowie using the small instrument he had. Problems arose on May 9 when the cook informed him that the spring near the camp had gone dry. When he reported the problem to Fort Lowell the next day, Gouldman was ordered to abandon the station and reestablish another at some other point on the Rincons. His first choice, which he called "A", did not prove to be a proper location. The next day, May 13, Gouldman moved one mile to the southeast to a place called Saucer Peak. This site "B" as well as "C" inhibited contact with some stations (Figure 9). When Gouldman closed the heliograph at sunset on May 15 and prepared to return to Fort Lowell, he concluded that the best area for signaling was Colorado Peak.[37]

The success of this 1890 field exercise was expressed in the Army and Navy Journal.

> By far the most important event in connection with the Signal Corps of the Army has been the unprecedentedly successful establishment and maintenance of an elaborate system of heliograph signaling in the Department of Arizona. The credit for this work deservedly belongs to Asst. Adjt.-Gen. Wm. J. Volkmar, who in addition to his staff duties, voluntarily assumed those of the Chief Signal Officer of the Department. Maj. Volkmar undertook the task of practically testing the scheme of covering, with an inter-related system of heliograph stations, such parts of his department as were of special military importance. About 1,000 miles of heliograph lines were operated and 33 officers and 129 enlisted men took part in this remarkable practice during which nearly 4,000 messages and 100,000 words were exchanged. The regular transmission and interchange of messages were had on greater ranges than have ever before been known in any military practice or, indeed, by any method. Previously 75 miles constituted an extreme range

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37. "Inclosures to Report on Concerted Heliograph Practice, Department of Arizona, May 1st to 15th, 1890," Annual Reports of CSO 1862-63, 1867-68, Reports of Instruments and Methods of Signalling, 1887-1893, Record Group 111, Records of the Office of the Chief Signal Officer, NA.

Figure 8

Portion of a map showing proposed heliograph lines and stations to be operated during the field exercises of May 1-15, 1890. Courtesy of the National Archives, Washington, D.C.

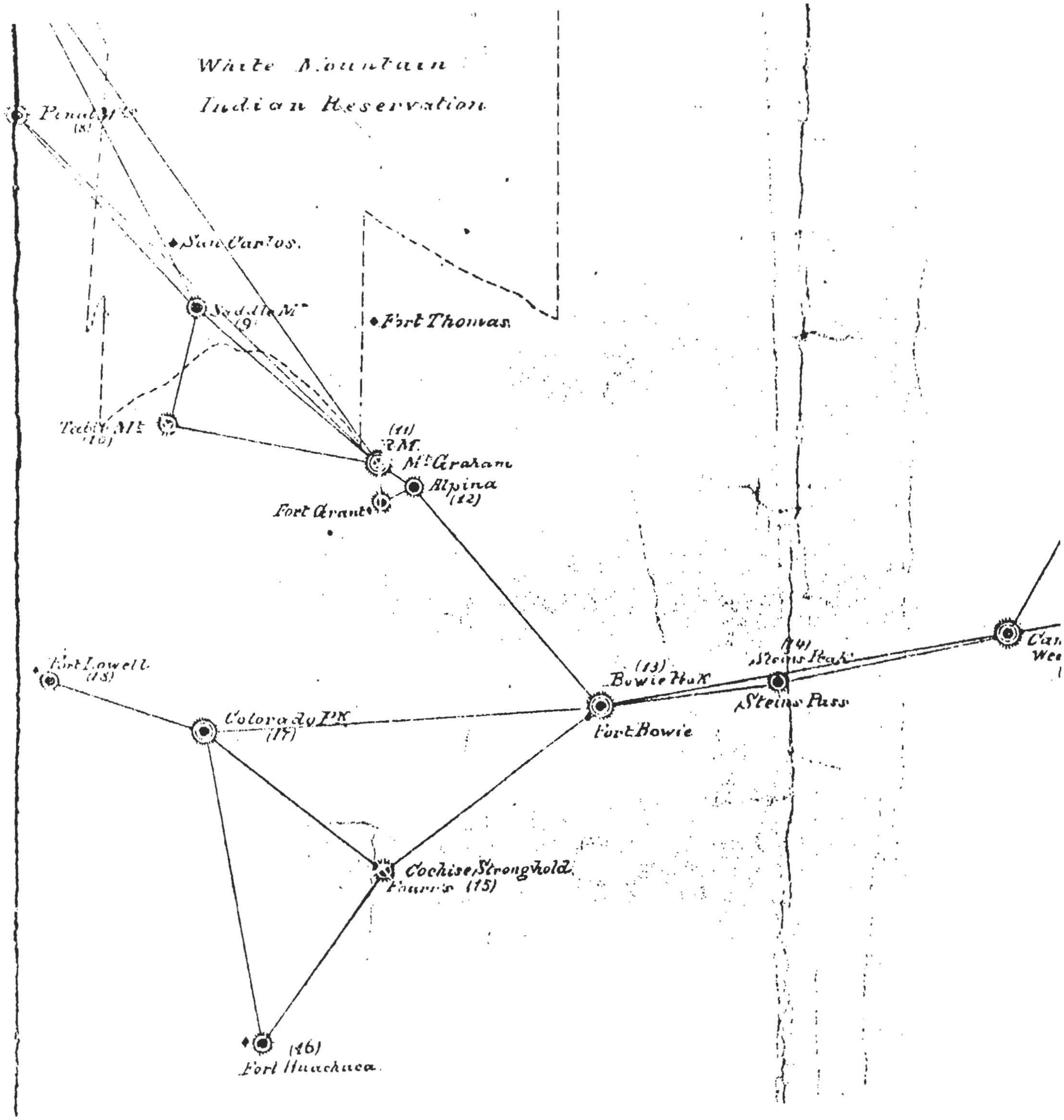

White Mountain
Indian Reservation
Pinal Pk
(8)
San Carlos
Saddle Mt
(9)
Fort Thomas
Table Mt
(10)
(11)
Mt Graham
Alpina
(12)
Fort Grant
Fort Lowell
(18)
Colorado Pk
(17)
(13)
Bowie Hill
Fort Bowie
(14)
Stein's Pass
Cochise Stronghold
Pinaleno (15)
(16)
Fort Huachuca

Figure 9

Portion of a map showing the heliograph lines and stations in Arizona and New Mexico operated during field exercises May 1-15, 1890. Courtesy of the National Archives, Washington, D.C. Colorado Peak (present-day Rincon Peak) was the heliograph site at the beginning of the exercise. Midway through the practice, the heliograph was moved farther north in Rincon Mountains as shown by the designation "Rincon Mt."

Table Mt.
Mt Graham
Fort Grant
San Pedro River
Fort Lowell
TUCSON
Rincon Mt.
Colorado Pk.
PAPAGO
WILCOX
BOWIE STA
SAN SIMON
Bowie Peak
DRAGOON SUMMIT
Four's Rch.
BENSON
PANTANO
Baldy Peak
FAIRBANKS
TOMBSTONE
White's Rch.
Emma Mount
Gray's Rch. or
Old Camp Rucker
Antelope Spr.
HUACHUCA STA.
Fort Huachuca
CRITTENDEN
Fly. Forrest

for military heliograph work but in this practice messages were successfully sent and answered over ranges, respectively, of 85, 88, 95, and communication had at 125 miles.[38]

The achievements of the exercise placed the heliograph among the military signaling devices as a potent factor in "civilized warfare." The new Signal Corps school at Fort Riley, Kansas featured the heliograph in its course of instruction. Here, it was determined that proficiency in the use of that instrument would be achieved when an individual could send and receive eight words per minute. Every five letters were counted as a word.[39]

The American Morse Code, as prescribed in General Order 59 of June 28, 1889, was used by the Signal Corps during both the 1890 and 1893 field exercises in Arizona. Later a joint Army and Navy Board approved a modified Myer Code for use in visual signaling. This regulation took effect on October 1, 1896.[40]

With improvements made to the heliograph instruments, the Signal Corps conducted another field exercise from February 6 to 16, 1893. Colorado Peak was again chosen for a station. Since Fort Lowell had been abandoned for almost two years by this time, presumably men from Fort Huachuca occupied Colorado Peak without problems on this occasion. The exercise proved that with little notice men could occupy unfamiliar territory and promptly establish heliograph communications.[41] Although General Nelson A. Miles first used the heliograph on the Northern Plains in the latter 1870s, its use in the Geronimo Campaign in 1886 led to the

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38. Army and Navy Journal 28(November 15, 1890), 194.

39. Army and Navy Journal 29(September 26, 1891), 74; 29(November 7, 1891), 190; 33(February 8, 1896), 409.

40. Ibid., 33(August 15, 1896), 902.

41. "Report of the Chief Signal Officer," October 9, 1893, in Report of the Secretary of War, 1893 (Washington, D.C.: Government Printing Office, 1893), 652, 665.

subsequent field exercises of 1890 and 1893 in southern Arizona which was viewed as the ideal location to experiment with instruments that used sunlight to send messages. Before the heliograph era ended, rendered obsolete by wireless radio, it had been used in the Spanish-American and First World wars.

The west side of the Tucson Mountains differed from the Rincon Mountains. With a much lower elevation this range only rarely received any snowfall. Consequently, no stream flowed with sufficient regularity to promote agriculture. As a result, no farmers settled there. A small number of cattle and horses from nearby ranches grazed there, but this area of less moisture did not sustain any large ranching operation. Those few individuals who periodically inhabited the area now within the Tucson Mountain Unit of Saguaro National Monument were either miners or mine employees.

CHAPTER TWO: LIVESTOCK GRAZING AND THE SOUTHERN ARIZONA ENVIRONMENT

Cattle raising in Arizona began in 1696 when Padre Kino drove a herd through the Santa Cruz Valley, distributing it among the Indian rancherias as far north as Bac. Nearly a hundred years later, Spanish ranchers settled in southern Arizona, but their sojourn lasted no more than forty years. Apache raids drove them from the region in the early 1830s. These Indians prevented ranching to any extent until the 1870s, nearly twenty years after the Gadsden Purchase placed the area south of the Gila River in American possession. The number of cattle grew until drought in the early 1890s decimated their numbers and caused ranchers to view this semi-arid land differently. In the area of Saguaro National Monument the United States Forest Service came into possession of the Rincon Mountains in 1907 and began a system of grazing permits. The creation of Saguaro National Monument in 1933 and its subsequent administration by the National Park Service did not end grazing on that land until the late 1970s. Livestock ranging over the terrain contributed to environmental change in the area.

A. The Introduction and Proliferation of Livestock in Southern Arizona

As a means of easing the Indians of the Upper Santa Cruz Valley into a Spanish lifestyle, Padre Kino drove the first cattle into southern Arizona in 1696 before he had established a mission system there. These cattle became the nuclei of the mission herds and increased in numbers over the years. Livestock became so abundant at Tumacacori, for example, that the mission had an estimated 5,000 head of cattle, 2,500 sheep, 600 horses, 89 mules, and 15 donkeys roaming the area in 1818. The cattle herd at San Xavier mission just south of Tucson came to number in the thousands as well.[1]

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1. Spicer, Cycles of Conquest, 126; John L. Kessell, Friars, Soldiers, and Reformers: Hispanic Arizona and the Sonora Mission Frontier 1767-1856 (Tucson: University of Arizona Press, 1976), 228, 237.

Except for a few presidio-related animals, mission cattle, sheep, and horses remained the only livestock in southern Arizona until Torbio Ortero established a ranch just north of Tubac in 1789. When an era of relative peace with the Apache that lasted nearly forty years brought many other Spanish ranchers into Arizona at the beginning of the nineteenth century, stock raising became a major industry. By the early 1820s ranches occupied the Santa Cruz Valley from south of Tumacacori to just south of Tucson. Farthest south was the Buenavista ranch which occupied the upper Santa Cruz Valley and stretched north to border on the Tumacacori mission land. The Tumacacori mission property extended three miles north to Tubac. Otero's ranch was located just north of Tubac and above that operation Tomas and Ignacio Ortiz operated the Canoa ranch. It reached to the south border of the San Xavier mission property. That mission's land probably came within five miles of Tucson which was the northernmost settlement.[2]

The number of livestock grazing in that area of the Santa Cruz Valley by the 1820s can only be estimated, but it was substantial. In 1819 the Indian and Spanish settlers around Tucson owned 5,600 cattle and around 3,000 sheep. There could have been an equal number of cattle on the San Xavier land since five years before the Indians there owned around 4,000 cattle. The livestock numbers on the Ortiz and Otero ranches remain unknown. The Tubac inhabitants raised 1,000 cattle in 1804 so that number could have doubled by the 1820s. In 1820 the Tumacacori padre sold 4,000 of the 5,500 cattle to raise money to continue mission construction, but there remained over 1,000 sheep. Again, the Buenavista ranch livestock numbers can only be estimated. A figure of 25,000 cattle and 8,000 sheep in the valley could well have been possible. The largest Spanish ranch, the San Bernardino, which stretched across southeast Arizona and into Sonora reportedly had 100,000 head of cattle in the 1820s.[3]

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2. Brinckerhoff, "The Last Years of Spanish Arizona," 15-17; Mattison, "Early Spanish and Mexican Settlements in Arizona," 294-295.

3. Brinckerhoff, "The Last Years of Spanish Arizona," 15-17; Kessell, Friars, Soldiers, and Reformers, 203, 228, 244-245.

No one knows the extent of the range of these livestock, but it is certain that they did not stay within the bounds of the ranches. As a result there may have been some animals grazing in both units of what became Saguaro National Monument. It would also seem that either these herds did not cause much environmental damage or else recovery was relatively rapid between the disappearance of the livestock after 1833 and the arrival of the 49ers in the Santa Cruz Valley. Americans passing along that valley in 1849 in the main found it to be more lush than other areas through which they had traveled.

With renewed Apache warfare in 1831, the Spanish and Mexican ranchers of southern Arizona began to flee for their lives. In their haste they were unable to take all of their livestock with them. As a result, many abandoned cattle roamed the area, especially in southeast Arizona. Philip St. George Cooke with the Mormon Battalion encountered a large herd of feral cattle on the San Pedro River as they passed through the region in 1846. Others, including people headed for the gold fields of California, saw similar herds a few years later. By the late 1850s these wild cattle apparently disappeared as travelers stopped reporting seeing them. By 1858 there were so few cattle in the Tucson area that that village suffered from a lack of fresh meat. It was noted in the early 1860s that Tucson had four milk cows and a few other cattle which were corraled at night to keep Apaches from stealing them.[4]

After the Apache truce of 1872, cattle numbers began to increase. By 1870 there were 1,800 cattle in Pima County, an area which at that time covered all land south of the Gila River except .a part of Yuma County, but these animals were basically used to supply meat for the troops and reservation Indians. It was not long before pamphlets and books appeared extolling the promise of a stock grower's paradise. In 1874 one of the first tracts praised the Santa Cruz Valley and its adjacent tableland for the superb grass found there. The author felt that there

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4. J.J. Wagoner, "History of the Cattle Industry in Southern Arizona, 1540-1940," University of Arizona Social Science Bulletin No. 20, 23 (April 1952), 25-32.

was room for millions of cattle in Arizona where only a few thousand grazed at the time. In the period 1876-80 the fame of Arizona grassland spread and with it the cattle industry expanded rapidly.[5]

In the period 1880 to 1884 even more effort was expended to attract ranchers. Most of the cattle were the product of crossbreeding either Hereford or Shorthorns with Mexican stock--a blood mixture touted for its hardiness. These cattle, it was said, could be fattened on the nutritious, native gramma grass in an extremely short time. At the same time ranchers had no fear of destroying that grass, for, even when it was grazed to the roots, it was thought that it would grow again the next season with renewed vigor.[6]

Assuming that the range could not be destroyed, ranchers steadily increased the numbers of cattle until the region was vastly overstocked. They forgot that southern Arizona was a semi-arid land until the drought in the summer of 1885 brought a heavy cattle mortality. The following year was dry again. In 1887 the rains returned and that summer was the second wettest on record. As a result, cattlemen began to restock the range, not having learned the lesson of the two previous years. Heavy winter rains in 1888-89 brought even greater renewed hope of a returned

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5. A.P.K. Safford, The Territory of Arizona: A Brief History and Summary of the Territory's Acquisition, Organization, and Mineral, Agricultural and Grazing Resources; Embracing a Review of Its Indian Tribes - Their Depredations and Subjugation; and Showing in Brief the Present Condition and Prospects of the Territory (Tucson: The Arizona Citizen, 1874), 17-18; Wagoner, "History of the Cattle Industry in Southern Arizona, 1540-1940," 38.

6. Patrick Hamilton, The Resources of Arizona: Its Minerals, Farming and Grazing Lands, Towns and Mining Camps; Its Rivers, Mountains, Plains and Mesas; with a Brief Summary of Its Indian Tribes, Early History, Ancient Ruins, Climate, Etc., Etc. (Prescott, Az.: Under authority of the Legislature, 1881), 39, 41, 169, 171-172; Arizona Star (Tucson), January 22, 1882; History of Arizona Territory Showing Its Resources and Advantages, 139-140.

paradise. Again, it became fashionable to praise the stock raising capability of the area. By 1890 the ranges of southern Arizona carried five times the number of cattle as ten years earlier. Then in 1892 another drought began with the result that many cattle died in May and June. When the dry time extended into 1893, between fifty and seventy-five percent of the cattle in southern Arizona died. The range in Pima County was in terrible condition. Finally, those cattlemen who remained learned that numbers could not be the primary objective of cattle ranching in a semi-arid climate. Breeding herds became the chief attraction and by 1897, Arizona cattle raisers began to sell registered animals. Most steers, however, were shipped north when they reached one year old. By 1902 the range carried only about one-third the livestock compared to ten years earlier. Even with these reduced numbers, periodic drought still caused losses. By the mid-1930s the semi-desert grass of southern Arizona was one of the most depleted in all the West. Even to this day a dry season can cause problems.[7]

B. National Forests and United States Forest Service Grazing Policy

Starting in 1891, the national government began to set aside forest land on the public domain as National Forest Reserves. By assuming the role of perpetual owner of these lands and their resources, the government in Washington began the reversal of a three-century-long policy of land privatization on the frontier. These reserves were assigned to the Department of the Interior where they were administered by the General Land Office. Unprepared for such an effort, the General Land Office at first closed the reserves to all use. This position, of

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7. Wagoner, "History of the Cattle Industry," 45, 53-54; James R. Hastings, "Vegetation Change and Arroyo Cutting in Southeastern Arizona During the Past Century: An Historical Review" (Paper Read at the Arid Lands Colloquia, University of Arizona, 1958-1959), 31; Arizona Citizen (Tucson), Special New Years Edition, January 1, 1890; Albert F. Potter, "Report of Examination of the Proposed Santa Rita Forest Reserve," March 1902, found in Range Conditions in Arizona, 1900-1909 as Recorded by Various Observers in a Series of Miscellaneous Papers (University of Arizona Library Special Collections), 18-19; Horace S. Haskell, "Effects of Conservative Grazing on a Desert Grassland Range as Shown by Vegetational Analysis" (Master's Thesis, University of Arizona, 1945), 32.

course, promoted defiance by timber, mining, and grazing interests. In early 1897 Congress, after several feeble attempts, passed the first legislation which dealt with forest reserve use, but it focused on the timber industry. It was not until June 30, 1897 that the Secretary of the Interior issued an order which allowed grazing although it put some restrictions on sheep. Gradually, the General Land Office worked toward a systematic policy on grazing. By 1902 that agency placed a limitation on the number of livestock allowed on the reserves although no grazing fee was charged, and no regulation was made on the time, season, locality, or movement of stock. At the same time the General Land Office adopted a permit system based on "preference". Residences of a reserve received first preference followed by nearby landowners, then longtime users, and finally those who lived some distance from the reserve. This situation prevailed when the Santa Catalina Forest Reserve was created on July 2, 1902.[8]

In 1905 the forest reserves were transferred to the Department of Agriculture where they were placed under the Bureau of Forestry. Two years later these reserves were renamed national forests and the agency became known as the United States Forest Service. At the same time the Rincon Mountains were added to the Santa Catalina National Forest. The next year, 1908, the national forests in southern Arizona were combined under the name Coronado National Forest.[9]

When the Bureau of Forestry gained control of the forests, it continued with the General Land Office permit system to regulate grazing.

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8. Anne E. Harrison, "The Santa Catalinas: A Description and History" (Summer 1972), 12, 88, typescript in the Coronado National Forest Headquarters, Tucson; Robert M. Barker, "The Economics of Cattle Ranching in the Southwest," The American Monthly Review of Reviews (September 1901), 307; Wagoner, "History of the Cattle Industry," 75; William D. Rowley, U.S. Forest Service Grazing and Rangelands: A History (College Station, Texas: Texas A&M University Press, 1985), 4, 22, 30-32, 46-47, 54.

9. Harrison, "The Santa Catalinas: A Description and History," 7, 12; Wagoner, "History of the Cattle Industry," 75.

That agency also continued with the General Land Office permit preference to settlers and property owners of adjacent land who raised livestock in connection with the forest reserves. The period 1905-09 was viewed as a trial period to determine the number of livestock which could safely graze on forest land without damaging the range. This action reduced stock by an estimated thirty percent. At the same time the Secretary of Agriculture approved Regulation 25 on June 14, 1905 by which a reasonable fee would be charged for grazing all classes of livestock on forest land starting January 1, 1906. Cattle and horses were to be assessed at thirty-five to fifty cents per head for year-round usage, while the fee for sheep was five to eight cents for the summer. This regulation went unchanged until 1910 when the charge per head for cattle and horses increased slightly. Fees again increased in 1912 with a larger assessment in 1915 which reached forty-eight to seventy-five cents. By 1916 the top figure reached $1.25 per head for cattle. Ranchers protested when the Secretary of Agriculture announced in late 1916 that fees would be increased twelve to twenty cents per year for the next three years. As a result, there was only a one year raise of twenty-five cents. This amount held until 1921 when it was again increased.[10] In Arizona ranchers were usually charged the lowest amount per head. Between 1906 and the early 1920s this fee increased from thirty-five to eighty cents for cattle and horses.

After the United States entered the First World War ranchers brought pressure to allow greater numbers of livestock on forest land under the war-time mandate to increase meat production. In some instances this persistence resulted in a four-fold increase per owner.

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10. United States Congress, Senate, Committee on Public Lands and Surveys, "Hearings Before a Subcommittee of the Committee on Public Lands and Surveys, Pursuant to S. Res. 347 to Investigate all Matters Relating to National Forests and the Public Domain and Their Administration," 69 Cong., 1 Sess. (Washington, D.C.: Government Printing Office, 1926), I: 3-4, 17-18; Mary Ellen Lauver, "A History of the Use and Management of the Forested Lands of Arizona 1862-1936" (Master's Thesis, University of Arizona, 1938), 162; Harrison, "The Santa Catalinas: A Description and History," 89-90.

Beginning in 1921, the Forest Service reduced individual allotments slightly. A possible reason for not cutting livestock numbers further could have been connected with the observation in the 1924 National Forest Grazing Manual that livestock grazing in forests reduced the fire danger "through utilization of grass and plants."[11]

Beginning with the 1925 calendar year the Forest Service adopted a new policy. For administrative purposes each national forest was divided into grazing districts. Each district forester submitted a tabulation of the number of livestock a given district would carry along with a determination of the length of the grazing period. Local range conditions were to determine the duration of the grazing season. The forest supervisor would then divide the number of cattle, judged to be the maximum a district could carry, among the various range allotments on the most equitable basis. The 1925 policy also directed that district foresters would evaluate the district carrying capacity every ten years. If necessary, that individual could increase or decrease the number of livestock as much as ten percent every five years.[12]

Despite several droughts between the mid-1920s and late 1930s, the Forest Service never severely reduced the number of livestock grazing in the Santa Catalina district east of Tucson. Animals were also allowed on the allotments on a year-round basis until 1939. By that time the forest rangeland had become so devastated that something had to be done. An experiment began with some ranchers by which their grazing period was reduced in essence to a summer season of February 1 to September 15. At the same time they were allowed a larger number of livestock. Since that grazing season eventually proved to have no greater advantage over a year-round grazing period, a new approach began in 1941 with some ranchers. A reduced number of animals was permitted to graze in what amounted to a winter season from January 1 to May 31. With some later

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11. United States Congress, Senate, Committee on Public Lands and Surveys, "Hearings," I: 45, 147.

12. Ibid., 46, 83-84.

adjustment this arrangement came to predominate. Subsequent experiments showed that perennial grass yields were higher on winter range than summer range regardless if the year were wet or dry.[13]

C. Grazing Within and Around Saguaro National Monument

Beginning in the 1870s ranchers began to locate along the drainages of the Rincon Mountains. Manuel Martinez was the first to locate on the Tanque Verde Creek in 1872. By 1880 his cattle herd had grown to 200. Others soon moved near Martinez and raised cattle as well. In 1880 over 1,000 cattle ranged over the public domain around the future monument and Fort Lowell Military Reservation. Although some divested themselves of cattle in the face of pressure by the army, three men, Martinez, Emilio Carrillo, and William Oury, came into prominence on the north side of the present day Rincon Unit of Saguaro National Monument in the latter part of the nineteenth century. Each man probably kept over 400 cattle by the later 1880s. To the south along the Rincon Wash, two ranches developed, one owned by the Telles Brothers and the other by Joseph Mills. Although the Telles' herd grazed primarily in the Rincon Mountains, the other ranchers took their entire herds there during times of drought. The dry period of 1892 and 1893 undoubtedly reduced these cattle. By 1900 Carrillo remained as the primary rancher on the north with Mills and the Telles Brothers on the south.[14]

There were other ranches which developed in the neighborhood of the Rincon Mountains in the late 1870s and early 1880s as well as a herd

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13. Martin S. Clark, "Some Factors Affecting Vegetation Changes on a Semidesert Grass-Shrub Cattle Range in Arizona" (Doctoral Dissertation, University of Arizona, 1964), 68; Haskell, "Effects of Conservative Grazing on a Desert Grassland Range as Shown by Vegetational Analysis," 32. Most of the information on Forest Service experiments in the grazing season was taken from grazing permits.

14. Register of Settlers Upon the Fort Lowell Military Reservation, ca. 1880, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, NA; Wagoner, "History of the Cattle Industry," 40-41.

of army cattle kept on the Fort Lowell Reservation. Walter Vail, who developed the large Empire Ranch in the area between the Santa Rita and Whetstone Mountains in 1876, soon acquired more land with his brother Edward and others. Their operation spread to the area along the Pantano Wash south of the Rincons. By the mid-1880s they purchased the Happy Valley Ranch on the east slope of the Rincons from Charles Page who settled there about 1874. In 1880 there were reportedly 17,000 cattle, horses, and sheep on the outlying ranches near the Rincon Mountains. In that same year after the Southern Pacific Railroad reached Tucson, the Vails were said to have shipped 100 railcars of cattle to California. At the same time Leopoldo Carrillo had a ranch on the south side of the Santa Catalina Mountains and the Bayless family ran a sheep ranch in the Redington area. The Army at Fort Lowell kept a herd of cattle in addition to horses. These livestock were usually confined to an area no more than four miles east of the post.[15]

The addition of the Rincon Mountains to the Santa Catalina National Forest in 1907 affected Emilio Carrillo, Joseph Mills and the Telles Brothers. Since their ranches were closest to the new forest addition, they were given a preference for grazing their livestock. They had to obtain a permit to use the forest land and pay for each animal grazed there. This permit reduced the number of livestock they could have in the national forest. For example Emilio Carrillo's permit allowed him to graze only sixty cattle on the forest land. His son Rafael was assigned that same number when he took control of his father's ranch in 1909 and it remained the same until the United States entered the First World War.

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15. "The Empire Ranch as Told to Mrs. Geo. F. Kitt," 7; Edward L. Vail, "Empire Story," 1, Box 1, Item 7, Edward L. Vail Papers, Arizona Historical Society, Tucson; T.R. Sorin, Hand-book of Tucson and Surroundings Embracing Statistics of the Mineral Fields of Southern Arizona (Tucson: Citizen Print, 1880), 8-9; History of Arizona Territory Showing Its Resources and Advantages, 139-140; Harrison, "The Santa Catalinas: A Description and History," 86; Statement by Col. E.A. Carr on settlers on the Fort Lowell Reservation, ca. 1880, Box 14, Division K, Abandoned Military Reservation File, Arizona, Fort Lowell, Record Group 49, Records of the Bureau of Land Management, NA.

In 1918 he received an increased permit by which he could graze 265 animals. This figure was raised to 290 in 1920 and then dropped to 269 in 1921 where it remained through 1927 when he sold the ranch. That number of cattle caused the range to be severely overgrazed.[16]

In 1925 the Forest Service defined allotment boundaries on which each rancher was to graze his assigned number of livestock. That area, which presently forms the Rincon Unit of Saguaro National Monument, became wholly or partly included in six allotments - Twin Hills, Tanque Verde, Pantano, Rincon, and two untaken (figure 10). One of the two untaken allotments was assigned as Happy Valley beginning in 1943. Harry Wentworth, who had established his ranch about ten years previously, controlled the Twin Hills area with its fifty-animal permit. Rafael Carrillo had the Tanque Verde Allotment with its 269-livestock permit. Fredric Knipe controlled both the Pantano with its eighty-five-cattle permit and the Rincon on which 348 livestock could graze. In 1926 Melvill Haskell gained the Pantano Allotment when he bought one of Knipe's ranches. Two years later Knipe sold the other ranch to J. Rukin Jelks and with it went the Rincon Allotment. Also in 1928, James Converse purchased the Carrillo property and acquired the Tanque Verde Allotment. In the same year Wentworth died and his wife sold the ranch and cattle to Converse, thereby providing him with the Twin Hills Allotment.[17]

In March 1933 Saguaro National Monument was created and placed under the United States Forest Service administration. The area containing saguaro cactus on its west side was partly in private ownership or held by the University of Arizona. The remaining eighty

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16. Tanque Verde Allotment, File G, Permits - C & H - Coronado, Converse, Jas. P., Coronado National Forest Headquarters, Tucson.

17. Telephone Conversation with Theodore Knipe by Berle Clemensen, May 14, 1986; Conversation with James Converse by H. Coss, National Monument Employee, November 17, 1968 in Mrs. Freeman Day folder, Saguaro National Monument files; Tanque Verde, Pantano, and Rincon Allotment files, Coronado National Forest Headquarters, Tucson.

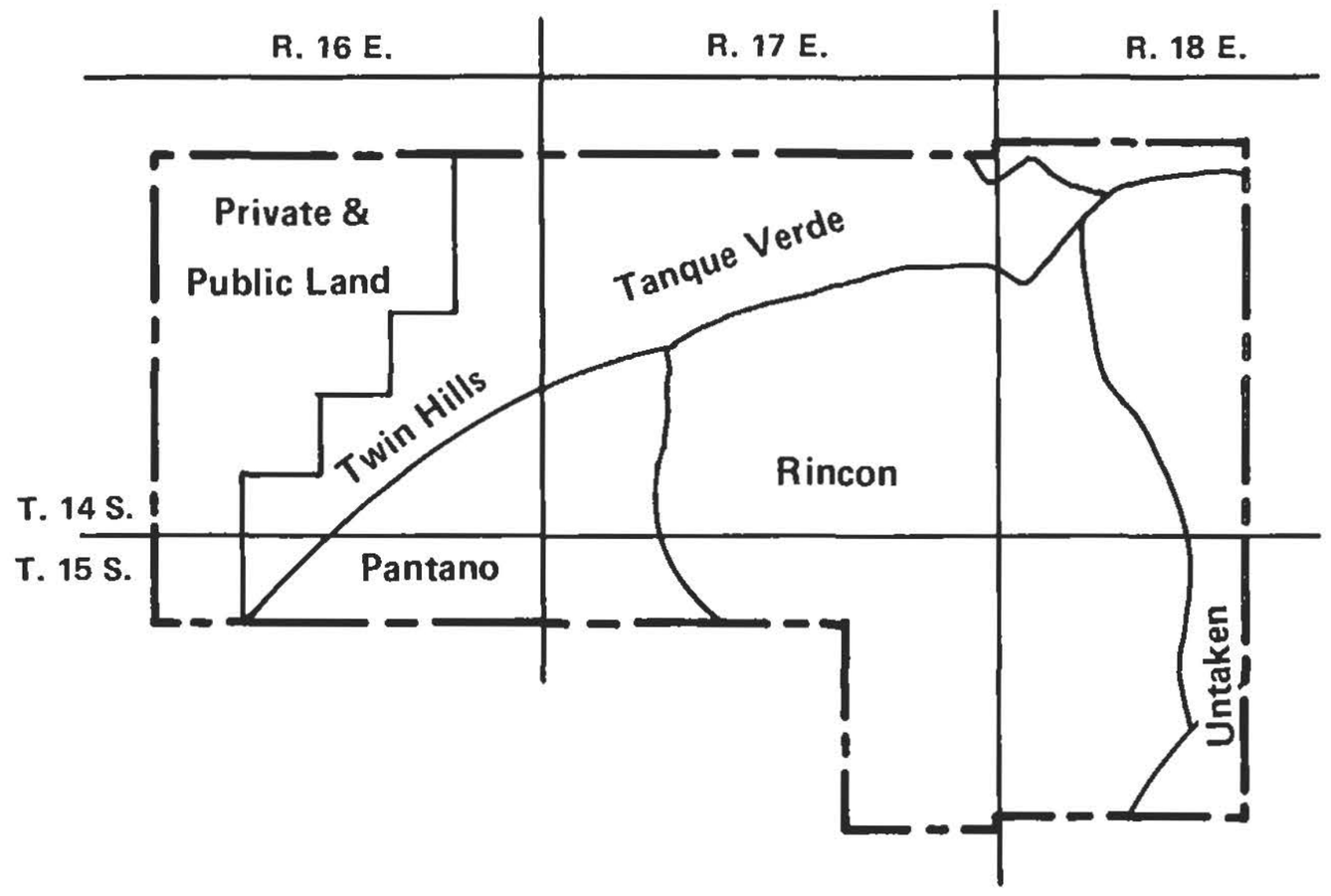


Figure 10

GRAZING ALLOTMENTS IN SAGUARO NATIONAL MONUMENT 1935
RINCON MTN. UNIT

percent or more of the monument came from former national forest land. This tract extended across the Tanque Verde Mountains to the east slopes of the Rincon Mountains. Containing few cacti, the vegetation consisted primarily of scrub trees, forest, and grass. The Forest Service had little opportunity to administer the monument since in August of the same year it was transferred to the National Park Service. This situation brought a loud cry from the ranchers whose grazing allotments lay within the monument boundary, for they thought the Park Service conservation policy would mean the end of grazing on the monument. The Forest Service championed the ranchers' cause and asked that all but three sections of the former forest land be returned to that agency. Frank Pinkley, head of the Southwest Monuments unit of the Park Service, also desired to reduce the boundary, but Arno B. Camerer, the Park Service Director, saw no reason to decrease the monument land to just the cacti area. Rather, he thought it was better to make a study of it for its future possibilities. In the meantime the ranchers would be guaranteed that their grazing rights would not be disturbed.

The Park Service inherited part or all of six grazing allotments of which four were being used by three ranches.[18] Two of the four active grazing allotments, Twin Hills and Pantano, were entirely within the national monument. Fifty-four percent of the Tanque Verde allotment fell within the monument and sixty-five percent of the Rincon allotment lay there. This meant that about 520 head of livestock grazed on the former national forest portion of Saguaro National Monument. The University of Arizona and many of the private land owners within the monument leased their land to James Converse. Since the state and private proprietors maintained looser controls than the Forest Service, Converse would run

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18. Memorandum by F.A. Kittridge, Chief Engineer NPS Field Hdqtrs., San Francisco, April 24, 1934, Folder - Saguaro NM General Correspondence, November 17, 1933 to December 31, 1935, Saguaro National Monument files; Arno B. Camerer, Director NPS, to Frank Pinkley, June 7, 1934, File G, Permits - C & H - Coronado, Converse, Jas. P., Coronado National Forest Headquarters, Tucson.

100 or more cattle on that land depending on the season. The state and University merely charged three cents per acre to lease land with no restriction on the number of livestock that could be grazed.

The multi-year grazing permits held by the three ranchers for Saguaro National Monument expired at the end of March 1935. In that month Forest Service and Park Service personnel discussed the approach to grazing on the monument. Since the Park Service had already stated that it would allow grazing to continue, it was only a matter of which agency would handle the permits. It was decided to allow the Forest Service to continue issuing permits on the basis that the monument formed a part of the overall grazing area regulated by that agency. The Park Service was to receive its proportioned part of the grazing fees. Multi-year permits for the allotments touching the monument would no longer be issued.[19]

Just before the grazing permits expired in 1935, Eduardo Carrillo, who had a ranch near James Converse, applied for a share of the Tanque Verde allotment. The carrying capacity of that allotment had been judged by the Forest Service to be 555 head of cattle on a year-long basis. Converse had been allowed to run 269 livestock. Carrillo evidently felt he should be allowed to add several hundred head of his own cattle. Assistant Forest Supervisor C.W. McKenzie went to look at the proposed subdivision line. Dismayed at the prospect of allowing over 200 more cattle on the allotment, he reported, "this range has been seriously

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19. Memorandum of Agreement, April 1935 (Administration of Grazing Permits), File G, Cooperation, Coronado, National Park Service, Coronado National Forest Headquarters, Tucson; Frank Pinkley to the Director, March 20, 1935, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Arno B. Cammerer, Director NPS, to Frank Pinkley, April 5, 1935, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

abused in the past and is still in very poor condition. I think we have an excess stock problem here and always will have until the boundary is closed. Increase in permitted numbers should not be permitted until range is properly developed and vegetation has improved materially." Despite that assessment, Forest Supervisor Fred Winn notified the Park Service that, with the issuance of new permits on April 1, 1935, Carrillo would be included in the Tanque Verde allotment.[20]

Drought conditions again began in 1937 with subsequent deterioration of the range. Even so, the ranchers did not voluntarily reduce their herds. Carl Russell, a Park Service employee, visited Saguaro in early 1937 and reported that he was surprised at the large number of cattle grazing on the monument with so little available grass. With rainfall far below normal the next year, the Forest Service made a small downward adjustment of about ten percent in the number of livestock each permittee could run on an allotment. When dry conditions prevailed into 1939, the Forest Service began an experiment with Converse on his portion of the Tanque Verde and the Twin Hills allotments. He could graze twenty-five cattle year-round with an additional 470 between February 1 to September 15. The range was so poor that he chose to graze only the twenty-five cattle. In that year the Park Service began its own reconnaissance of the monument's range conditions. The report noted the miserable condition of the foothill area and in particular the north side of Rincon Wash which was a natural concentration area for watering. The Rincon allotment had always been a problem, for the monument area was basically steep and rocky and thus poor range. As a consequence the cattle would congregate mainly on the national forest portion near the water and overgraze it.[21]

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20. "Range Improvement Coronado, Range Division Fence (Tanque Verde) Proposed 1935," by C.W. McKenzie, Asst. Forest Supervisor, March 1, 1935, File G, Permits - C&H - Coronado, Converse, Jas. P., Coronado National Forest Headquarters, Tucson; Fred Winn, Forest Supervisor, to Frank Pinkley, March 7, 1935, File G, Permits - C&H - Coronado, Converse, Jas. P., Coronado National Forest Headquarters, Tucson.

21. Southwest Monuments Monthly Report (Saguaro), February 1937; "Report on Grazing Reconnaisance on the Saguaro National Monument,

The Converse experiment continued in 1940 and 1941. In 1940 his permit allowed him to graze twenty-five cattle and ten horses all year with 234 head limited to eight and one-half months. The next year the Tanque Verde and Twin Hills allotments were separated. On the former Converse could graze twenty-five cattle year-round and another 150 cattle could be grazed for five months from January 1 to May 31. He could keep thirty cattle and ten horses on Twin Hills for the same five month period. Converse again chose to graze only twenty-five head of livestock each of those years. This reduction in cattle allowed the grass to make a marked improvement as the rains returned in the early 1940s.[22]

The Forest Service continued with year-round grazing on the other allotments. In fact it returned to that system with Converse in 1942. By that date he began to restock his land. He started by pasturing 100 yearling heifers on the part of the monument controlled by the University of Arizona. An inspection of the Rincon Allotment in early 1942 showed that the cattle still gathered in the lower part near water with the result that the perennial grass was being replaced by weeds and annual grass. Since the Forest Service had come to realize that summer grazing caused the worst range damage, the inspector recommended instituting a dual season for the Rincon allotment with a permit for 180 head of cattle. This split season, he thought, should run from January 1 to June 30 and then October 1 through December 31. His advice was not taken and the allowance continued to be 368 head of cattle of which 239 could be kept on the monument.[23]

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21. March 28 to March 30, 1939," Folder 207, Reports (General), Saguaro National Monument files; Tanque Verde Allotment, File G, Permits - C&H - Coronado, Converse, Jas. P., Coronado National Forest Headquarters, Tucson; Childress Inspection Report, January 1, 1952, Rincon Allotment File, Coronado National Forest Headquarters, Tucson.

22. Tanque Verde Allotment, File G, Permits - C&H - Coronado, Converse, Jas. P.; V.W. Saari, NPS Region Three, Regional Forester, "Forest Protection Requirements Report for Saguaro National Monument," June 1942, Saguaro National Monument Files.

23. Custodian's Monthly Report (Saguaro), February 1942; Southwest Monuments Monthly Report (Saguaro), February 1942; Management,

Several changes in ownership had occurred starting in 1939, and in 1943 the Happy Valley allotment became active. The Pantano allotment passed to Allison Armour in 1939. He was not "conservation minded," so, when he was not permitted to increase the number of cattle he could graze on his allotment, Armour sold to Helen Lichtenstein in 1941. Also in that year Robert Chatfield-Taylor purchased the Jelks property and with it obtained the Rincon Allotment. These land sales prompted a new policy. At the Park Service urging, the Forest Service agreed in 1941 that each time a ranch changed ownership after that time a slight reduction would be made in the number of stock permitted to graze on the allotment. This agreement took effect for the first time in 1945 when Eduardo Carrillo's widow sold the ranch to Joe Lewis Hartzell. The Carrillo livestock permit for a portion of the Tanque Verde allotment was reduced by ten percent for Hartzell. The Happy Valley allotment was awarded to Roderick MacKenzie in 1943. Although the number of cattle permitted to graze there was relatively large, the only portion of the monument it covered was mostly inaccessible and provided forage for only eight to ten cattle on a year-round basis.[24]

The same grazing situation, as had previously prevailed on the allotments, remained through the rest of the 1940s and 1950s with one exception which made a change in the Converse agreement in 1945. The Rincon allotment continued to have a distribution problem with the cattle gathering near water in the lower portions and severely overgrazing it.

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23. Coronado Inspection, Rincon-Spud Rock Allotment, March 17, 1942, by Asst. Forest Supervisor H. Garvin Smith, Rincon Allotment File, Coronado National Forest Headquarters, Tucson.

24. "Summary of Grazing: Saguaro National Monument," Folder, Grazing Allotments, Saguaro National Monument Files; Happy Valley Allotment file, Coronado National Forest Headquarters, Tucson; D.W. Egermayer, Supt. SAGU to Hugh M. Miller, Supt. Southwestern Monuments, June 8, 1941, Box 2366, Folder 901-01 Grazing Saguaro, National Monuments, Saguaro-Sand Dunes 201.06, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Memorandum for the Director by Charles A. Richey, Acting Associate Regional Director, Region Three, July 28, 1945, Box 2366, Folder 901-01 Grazing Saguaro, National Monuments, Saguaro - Sand Dunes 201.06, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

For several years beginning in 1945, no cattle were grazed on the Pantano allotment, an overgrazed, miserable piece of steep and rocky ground with few watering places. This situation resulted in a vast improvement in that range. By the late 1950s no cattle were grazed there, and this continued from that time until the permit was relinquished in 1971. When James Converse regained all year grazing in 1942 and restocked the Twin Hills and Tanque Verde allotments, they returned to their former state, especially when a drought returned in 1943. The Twin Hills covered part of the saguaro forest in the monument and the presence of cattle continued to cause problems with the growth of new saguaro. The head of Coronado National Forest admitted in 1947 that "all grazing should be excluded if we are to properly protect the cactus area" in the Twin Hills allotment. In 1945 Converse agreed to what was called an "on and off" grazing arrangement by which he would rotate cattle to ease the problems. By this apportionment Converse was allowed forty cattle on the allotment from January 1 to April 30 and 230 head during the month of December. At the same time the state finally began to regulate the number of livestock on its land. Converse was allowed to keep eight cattle between January 1 and April 30 with twenty-six permitted there in December on the area he leased from the state and University.[25]

In 1956 a land exchange plan, which had been in the offing for eight years, came to fruition. By this arrangement the National Park Service acquired the state land and nearly all of that held by the University of

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25. Mr. Morris Inspection Report - 1946 (Rincon), Rincon Allotment file, Coronado National Forest Headquarters, Tucson; Memorandum for the Regional Forester by Forester Harold M. Ratcliff, November 18, 1947, Folder G, Cooperation - National Park Service (Saguaro National Monument), Coronado National Forest Headquarters, Tucson; William H. Woods, Forest Supervisor, to John G. Lewis, Superintendent, Saguaro NM, May 28, 1956, File G, Cooperation - National Park Service (Saguaro National Monument), Coronado National Forest Headquarters, Tucson; Memorandum to the Director, NPS from Chief Forester J.D. Coffman, USFS, February 3, 1949, Box 2366, Folder 901-01 Grazing Saguaro, National Monuments, Saguaro - Sand Dunes 201.06, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

Arizona within the monument boundary in return for federal acreage elsewhere in the state. As a result James Converse agreed to end grazing on those sections of state and private land on which he had previously kept livestock. He also consented to having a five-strand barbed wire fence placed along the north monument boundary. As a consequence all grazing finally ended in the giant cactus forest area on the monument.[26]

Several ranches exchanged hands in the 1950s. Henry Jackson bought the X-9 in 1955 while Converse sold his Tanque Verde ranch to Kenneth Kaecker. The ranch controlling the Pantano allotment passed through several owners including Bill Veeck of baseball fame.

Changes in the grazing policy finally began to occur in the 1960s as the same arrangement under which James Converse operated since 1945 was applied to the other allotments. In the early years of that decade, however, any evidence of modification seemed remote as Forest Service inspectors continued to be appalled by the range conditions without making changes to relieve the situation. The Rincon allotment seemed to have the greater problems. When the Forest Service Range Staffman viewed that area in late 1961, he decried the range damage produced by what he thought were too many cattle assigned to too small an area. He suggested that the 320 cattle permit should be reduced by at least seventy-five. He reported that the most suitable grazing areas "have long since been denuded of any perennial forage," and advocated ending grazing during the summer season. His advice was partially taken for the 1962 permit did reduce the livestock by seventy-five. Then in 1964 a seasonal grazing policy was applied allowing cattle on the allotment only from November 1 to April 30; however, the number was raised to 400 of which 242 were allowed on the monument. Although the Forest Service

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26. Letter of Agreement on Grazing, Saguaro National Monument, James Converse - National Park Service, April 12, 1956, File G, Permits - C&H - Coronado, Converse, Jas. P., Coronado National Forest Headquarters, Tucson.

finally made an attempt for improvement, any grazing on the monument still interrupted the basic ecological processes. Much to the Park Service's relief Henry Jackson voluntarily relinquished his permit in January 1968.[27]

Finally, in the 1970s, all legal grazing ended on Saguaro National Monument. The holder of the Pantano permit voluntarily surrendered it in June 1971. This left just the Tanque Verde and Happy Valley allotments with which to contend. Toward the end of 1973 the Forest Service notified the Park Service that as of the end of that year the cooperative agreement would end. That agency no longer would manage grazing permits for the Park Service. With that announcement, the Park Service seized the opportunity to end all grazing. It notified the Tanque Verde and Happy Valley allotment holders that they would be given a special use permit for two years. At the end of that time, on December 31, 1975, those permits would not be renewed. Malcolm MacKenzie acquiesced to the Park Service notification, but Kenneth Kaecker, holder of the Tanque Verde permit did not. He filed a civil suit on March 30, 1976 contending that he had perpetual grazing rights. The Park Service agreed to allow him to continue grazing until a court decision was reached. It required until 1979 to settle the matter. Kaecker lost his suit and grazing was finally thought to have ended on the monument.[28]

By the mid-1970s an increasing number of feral cattle began to appear on the monument especially in the area of the former Rincon

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27. Charles R. Ames, Range Staffman USFS, Coronado National Forest to Files, December 14, 1961, Rincon Allotment file, Coronado National Forest Headquarters, Tucson; Rincon Allotment Management Plan 1977, Rincon Allotment file, Coronado National Forest Headquarters, Tucson; Monthly Narrative Report for January 1967, Folder A28, Monthly Narrative Report, Chief Ranger, Saguaro National Monument files.

28. Superintendent's Annual Report for 1973; Annual Report, Saguaro National Monument, 1976, File A2621, Annual Reports, Saguaro National Monument files; Arizona Star (Tucson), April 2, 1976.

allotment. There were an estimated eighty head by 1976. These vestiges from grazing days caused vegetation damage especially in the area around water holes. In May 1976 Malcom MacKenzie of the Happy Valley Ranch captured six bulls. A second attempt was made to remove these cattle in February 1977. Two cattle were captured and five died. Another try was made in 1980 with better success, for thirty-seven head were captured and one died. Finally, in 1984 and 1985 the remaining ones were shot. Consequently it was not until that time that grazing truly ceased.[29]

The Tucson Mountain Unit of Saguaro National Monument escaped any heavy grazing. Only a few of the neighboring ranchers' livestock ever roamed that drier area. There never were any grazing allotments or system of grazing permits established by either national or state governments in that area.

D. The Ecology of Southern Arizona Grassland and the "Old Cow Theory"

The tradition has prevailed that until a century ago southern Arizona contained one of the most lush grasslands in the nation. With the introduction of cattle, the landscape entirely changed. No longer did the rich perennial gramma grasses abound. Grazed almost to extinction, these grasses purportedly were replaced by shrubby vegetation and annual grass not the least of which were creasote bush, snakeweed, burroweed, and especially mesquite. In addition the depletion of perennial grass allowed a rapid run off that cut deep channels in the area's river and stream beds. Can one blame the cow for such supposed changes or were there not the drastic alterations in the terrain as thought?

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29. Arizona Star (Tucson), October 31, November 18, 1976, April 15, 1984; "Environmental Assessment for the Removal of Feral Cattle from the Rincon Drainage, Rincon Mountain Unit, Saguaro National Monument," September 9, 1982, Folder 207, Reports (General), Saguaro National Monument files; "Feral Cattle Removal, Rincon Mountain Unit, Situation Report," March 23, 1983, Folder 207, Reports (General), Saguaro National Monument files.

Over a century ago, it seems apparent, southern Arizona was not a region of lush grass as believed. As now, it was semi-arid and plant life was vulnerable to seasonal fluctuations in rainfall. Even a decrease of several inches of moisture below a seasonal average, which might be considered minor in other parts of the nation, could severely affect vegetation. As a result, there were years before 1880 when the grass remained stunted and brown, and the streams did not flow. Even without the effects of grazing, the droughts of the 1880s and 1890s would surely have greatly affected vegetation.[30]

It would be hard to deny that cattle did not have an impact on the landscape. All one has to do is read the Forest Service range inspection reports to realize that they did, but historically there have been different changes to the Tucson Basin. In the past this area was not a sea of uninterrupted grass without shrubs. Mesquite, Palo Verde, and creasote bush did not appear, as thought, after cattle destroyed the native grass. These plants were always there. A growing population, in fact, caused many of the shrubs to disappear.

Descriptions of the area within and around the present-day western part of the Rincon Unit of Saguaro National Monument by those who saw it in the 1880s and 1890s, indicated the existence of gramma grass along with an abundance of shrubs. There were thick stands of mesquite on the east end of the Fort Lowell Military Reservation and throughout the lower portions of what is now the Rincon Unit. There was a large number of Palo Verde in Township 14 South Range 16 East. These various shrubs were merely a part of the stands which ran in all directions from Tucson. Mesquite, however, was the fuel of Tucson. Slowly those trees were cut in an ever increasing area out from that village as the population grew. Mesquite was being cut on the Fort Lowell Reservation ten years before the military abandoned it. Surveyors working around what became the Rincon Unit of Saguaro noted numerous

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30. Hastings, "Vegetation Change and Arroyo Cutting in Southeastern Arizona During the Past Century: An Historical Review," 25.

wood roads in the 1890s. When Edward Vail drove a herd of cattle in the vicinity of the University of Arizona in 1890, he noted that the whole surrounding countryside had been cut over and nothing remained but creasote bush. By 1905 fuel became a problem for the people of Tucson. Every tree over seven inches in diameter had been cut within a ten mile radius of that town by that date. In 1933 when Saguaro was proclaimed a monument nearly every mesquite tree large enough for fuel or fence posts had been taken from the western portion of that area. Mesquite cutting remained a problem well into the 1940s on Saguaro National Monument land. In addition individuals who made lime used large amounts of wood, especially Palo Verde, to fuel their kilns.[31]

Mesquite, Palo Verde, and grass were not the only vegetation in the area. The dense saguaro forest at the base of the Tanque Verde Mountains was impressive. In addition there was plenty of cholla, ocotillo, and creasote bush in the area in the 1880s and 1890s. As a result, cattle, by destroying the native grass, did not provide an environment which invited the growth of shrubs, at least in the Tucson Basin, for a large number and variety of shrubs were there before the introduction of cattle.

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31. James H. Martineau, "Field Notes of the Survey of the Exterior Boundaries of Township 15 South Range 16 East, of the Principal Base and Meridian in the Territory of Arizona," Book 1543, October 23-31, 1893; Contzen, "Field Notes of the Resurvey of the South Boundary and Portion of the East Boundary of Camp Lowell Military Reservation, Pima County, Arizona," Book 1794, July 2-September 22, 1897; Sorin, Hand-book of Tucson, 37; Edward L. Vail, "The Diary of a Desert Trail," Box 1, Item 7, Edward L. Vail Papers, Arizona Historical Society, Tucson; Harrison, "The Santa Catalinas: A Description and History," 103; Custodian's Monthly Report, March, May, June, November, 1940, February 1948; Memorandum for the Regional Director, Region Three, by Natt N. Dodge, Associate Naturalist, April 29, 1944, Folder 204-10, By Field Officers, Saguaro National Monument Files; Transcript of Taped Conversation of Frank Escalante and Charles Maguire by Bob Jones, SAGU Superintendent, Hal Coss, Park Naturalist, and Tom Carroll, Park Technician, December 11, 1969; "Report to Mr. H.R. Tillotson, Regional Director National Park Service, Region Three, Santa Fe, New Mexico Concerning the Boundaries of Saguaro National Monument," by Ben M. Thompson, Chief, National Park Division, Branch of Lands, April 1945, Saguaro National Monument Files.

Another change which occurred for which cattle were partly to blame was erosion, especially in the cutting of deep channels in the rivers and streams. In the 1880s none of the waterways around Tucson ran through deep cuts and most had no well defined channel. During floods the streams would spread out in shallow sheets across adjacent land. Farmers dug irrigation ditches from the streams to their fields. By 1890 this situation began to change. A dearth of grass due to overgrazing and drought allowed the summer monsoon rains to run off rapidly. As a result streams began to have well defined channels with the larger ones such as the Pantano, Rillito, and Santa Cruz having much greater erosion damage. Again, however, cattle were only partly to blame, for irrigation ditches also aided in channeling streams.[32]

Cattle grazing in the saguaro forest have received the sole blame for trampling on young saguaro as they crowded around and ate the seeds of the shrubs which acted as nurse plants. Thus the saguaro forest diminished in numbers as old cacti died without replacements. Wood cutters and cactus thieves, however, should be included on the list of those who caused the reduced quantity of saguaro. The two main shrubs which acted as nurse plants, mesquite and palo verde, were much sought after as fuel. In the process of cutting those plants, the men would not only kill young saguaro, but they would rob the cactus of necessary nurse vegetation. By the turn of the century it became fashionable for the growing Anglo population to remove saguaro and other cacti for replanting in their yards. This practice remained a problem long after the monument was created as even then thousands of these plants were stolen.

The Tucson Mountain Unit of Saguaro National Monument appeared much the same a century ago as it does today. It escaped much of the impact of man and livestock that affected the Rincon Unit. Records

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32. Hastings, "Vegetation Change and Arroyo Cutting in Southeastern Arizona During the Past Century: An Historical Review," 30-32; "Reminiscences of Edward L. Vail," Box 1, Item 7, Edward L. Vail Papers, Arizona Historical Society, Tucson.

indicate that shrubs and cacti abounded in that area. In 1905 the Arizona Copper Mining Company, which began development on the Uncle Sam and Josephine mines and others some two miles west of the Old Yuma Mine, claimed to have a large wood supply. The area surrounding its mines for a distance of over twenty square miles was said to be covered with mesquite and palo verde. Surveyors also recorded the presence of dense desert growth. Some wood cutting did occur by miners and by those who needed fuel for lime kilns. Because it was an area with less grass and water, settlement was slow in reaching the area other than scattered miners. As a result fewer livestock grazed on that public domain. No grazing allotments were ever established by any government agency. Soon after homesteading began to encroach on the area in the 1920s, a large portion of the west slope of the Tucson Mountains was removed from settlement and preserved as a county park.[33]

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33. Arizona Star (Tucson), February 26, 1905; William E. Hiester, "Field Notes of the Resurvey of the East Boundary and a Portion of the South Boundary, and the Resurvey and Survey of a Portion of the Subdivisional Lines, Completing the Survey of Township 13 South, Range 11 East," Book 3971, January 29-February 9, 1932, Bureau of Land Management, Phoenix; William E. Hiester, "Field Notes of the Survey and Resurvey of a Portion of the Subdivisional Lines, Completing the Survey of Township 13 South, Range 12 East, and, Retraced Boundaries of Patented Mineral Claims in Said Township," Book 3972, February 27-March 15, 1932, Bureau of Land Management, Phoenix.

CHAPTER THREE: IN PURSUIT OF VALUABLE ORE

Mining has played a prominent role in the history of Arizona. Many have been disappointed in their search for mineral wealth while a few succeeded in their quest for riches. Tucson came to play a prominent role as a center of mining activity, although the physical development of important mines did not take place in close proximity to that city. Silver and copper, the two most common ores, were excavated within a distance of thirty to 100 miles from that city. To this day fifty percent of the copper in the United States is mined, concentrated, and smelted within 100 miles of Tucson. One mining district, Amole, partly covered the Tucson Mountain unit of Saguaro National Monument. Although prospecting and digging have occurred there since the 1860s, the mineral deposits have proved to be generally small and of low grade. The only profit made there was from the sale of claims and not from mining.

A. A Summary of Arizona Mining

Mineral exploration in Arizona began during the Spanish period in the 1730s. Spaniards, in their search for precious metals, moved from central Mexico northwestward and in 1736 discovered a large deposit of native silver about twenty miles southwest of present day Nogales in what became known as the Planchas de Plata district. This strike caused great excitement and brought many men to the region. From this time through the Mexican period of the 1820s and 1830s sporadic prospecting occurred in the mountains of extreme southern Arizona. Although no deposits were found that approached the Planchas de Plata, some small amount of mining took place. Gold and silver were extracted almost entirely by using placers or by the crude smelting of richer ore found in the mountains bordering ranch settlements in the Santa Cruz River Valley. The Patagonia, Santa Rita, and Cerro Colorado mountains were the scene of most activity.[1]

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1. Charles F. Willis, "Mining Oportunities Around Tucson Hold Great Promise," Arizona Mining Journal 6 (October 15, 1922), 26; James Brand

American miners were attracted to southern Arizona after the Gadsden Purchase of 1853. Charles D. Poston and Herman Ehrenberg made a mineral survey in Sonora and southern Arizona in 1854. Poston obtained Eastern backing and began serious prospecting in 1856. The areas previously worked by the Spanish and Mexicans were rediscovered and several silver mines opened in the Santa Rita, Patagonia, and Cerro Colorado mountains. Among these mines were the Mowry, Heintzelman, and Saltero. In addition copper was found at Ajo, but, owing to transportation difficulties, that mineral was not extracted in any amount. Tucson played only a minor role in this early exploration for minerals. It was too far north and most companies headquartered in Tubac.[2]

Prospecting and mining nearly ceased at the onset of the Civil War as the recall of federal troops encouraged Apaches to increase their raids. Prospectors, however, returned when the California Volunteers, a Union force, arrived, but most of their activity occurred in the western portion of the territory and in the Wickenberg area. When the volunteers left at the close of the war, a period of bloody warfare ensued with the Apache and thus little mining occurred until 1872.[3]

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1. Tenney, "History of Mining in Arizona" (Typescript in University of Arizona Library Special Collections, 1927), I:4; "Mineral and Water Resources of Arizona," Arizona Bureau of Mines Bulletin No. 180, (1969), 118; Mattison, "Early Spanish and Mexican Settlements in Arizona," 277.

2. Eldred D. Wilson, "History of Mining in Pima County, Arizona" (Tucson: Tucson Chamber of Commerce, ca. 1952), 3; J.B. Tenney, "History of Gold Mining in Arizona," in History of Mining in Arizona (Phoenix: Arizona Department of Mineral Resources, 1963), 14; Willis, "Mining Opportunities Around Tucson Hold Great Promise," 26; "Mineral and Water Resources of Arizona," 118; Tenney, "History of Mining in Arizona," I:6; Frank P. Knight, "Mining in Arizona: Its Past, Its Present, Its Future" (Phoenix: Arizona Department of Mineral Resources, January 1958), 6; Cecil Todd, "Metal Mining and Its Associated Industries in Tucson," Journal of Arizona History 22 (Spring 1981), 100-101.

3. Tenney, "History of Mining in Arizona," I:7-10; Tenney, "History of Gold Mining in Arizona," 15; Todd, "Metal Mining and Its Associated Industries in Tucson," 103; W. Clement Eaton, "Frontier Life in Arizona, 1858-1861," Southwestern Historical Quarterly 36 (January 1933), 191.

In 1872 the Apache leader Cochise reached a truce with General O.O. Howard. Mining now seemed safe and the remainder of the decade proved a very active period for prospectors. High silver prices led miners to focus on that metal. The first new mine was the Silver King located three miles north of Superior. Tombstone received great notice after 1878. Nearly all of the large copper deposits were located at this time, but they remained relatively undeveloped from lack of adequate transportation. Since most copper mines and the territory's larger silver mines were in southern Arizona, the attention by 1879 focused there and Tucson soon became a mining center.[4]

Tucson became a mining center because of the Southern Pacific Railroad which reached that city from the west in March 1880. The crossing of Arizona by two continental railroads in 1880 and 1882 permitted a dramatic increase in mining activity, especially for copper, since it became feasible to haul that bulky ore. The boom was also fueled by high metal prices. This situation did not last long, for in 1884 the price of copper began to fall. By 1886 all copper mining camps had closed except the big ones at Bisbee, Morenci, Globe, and Jerome. The value of silver also declined, and when the federal government removed it from use for coinage in 1893, mining stopped and never resumed except for short periods. Seemingly in this period, Arizonans turned in larger numbers than usual to other methods of obtaining money from their claims. It was frequently reported in 1888 and 1889 that it was a common practice to have "outrageous transactions in palming off more or less worthless properties to innocent but credulous parties."[5]

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4. "Mineral and Water Resources of Arizona," 118; Knight, "Mining in Arizona," 6; Jack L. Cross, Elizabeth H. Shaw, and Kathleen Scheifele, eds., Arizona: Its People and Resources (Tucson: University of Arizona Press, 1960), 247; Tenney, "History of Gold Mining in Arizona," 15; Tenney, "History of Mining in Arizona," I: 11-12.

5. Wilson, "History of Mining in Pima County, Arizona," 3; C.A. Anderson, "Copper," in "Mineral and Water Resources of Arizona," Arizona Bureau of Mines Bulletin 180 (1969), 119; Tenney, "History of Mining in Arizona," I: 12-13; "What Hurts Mining in Arizona," The Engineering and Mining Journal 45 (January 21, 1888), 51; "Mining in Arizona," The Engineering and Mining Journal 47 (May 4, 1889), 409.

Although many miners turned to a search for gold with some success in the last decade of the nineteenth century, copper soon proved its worth. By 1896 the price of copper began to inch upward as a growing electrical industry caused a greater demand. As the twentieth century opened, copper became the most important metal in Arizona, and during the period 1898-1930 very little mining other than for that ore was done. The financial depression of 1907 reduced production which did not completely recover until the First World War. Several factors added to copper production in 1912 with the simultaneous development of large-scale mining procedures to exploit low-grade ore deposits, and the discovery and perfection of the flotation process used for concentration.[6]

The 1930s depression severely crippled Arizona's mining industry. By 1933 copper production was only thirteen and one-half percent that of 1929. Many mines closed for a time. In 1939 copper prices increased and production rose, but only the large low-grade mines survived and answered the call of the Second World War. These have continued until the present day. Two sites were added in the 1950s at San Manuel and the Pima District south of Tucson. They joined those of Ajo, Clifton/Morenci, and Globe.[7]

B. The Amole Mining District

The Tucson Mountain Unit of Saguaro National Monument covers a portion of the Amole Mining District of Pima County (Figure 11). Geologically, this mountain chain was heaved upward and has many faults and folds. Lava flows, from the volcanics which occurred there, have been stripped off by erosion leaving the underlying rock exposed. The

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6. Tenney, "History of Gold Mining in Arizona," 15-16; Anderson, "Copper," 125, 127; Twenty-First Annual Report of the United States Geological Survey to the Secretary of the Interior 1899-1900, Part IV (Washington, D.C.: Government Printing Office, 1901), 169-170; Cross, Shaw, and Scheifele, eds., Arizona: Its People and Resources, 247; "Mineral and Water Resources of Arizona," 125.

7. Anderson, "Copper," 130-134; Cross, Shaw, and Scheifele, eds., Arizona: Its People and Resources, 251.

greater portion of the mountains is igneous rock. Ore bodies occur in veins along the faults and are generally small or of low grade. The most frequently occurring minerals include copper, lead, and silver, but occasionally some other ores such as molybdenum have been mined. In addition limestone on the western side of the range was used to manufacture lime.[8]

Although the Amole was a miscellaneous Pima county district, its history in the ebb and flow of mining activity paralleled that of the other districts except at the beginning. Spanish, Mexican, and early Anglo mineral exploration and mining was centered farther south in Arizona with no existing evidence to indicate any such activity took place in the Tucson Mountains. The Nequilla, just southeast of the National Monument's boundary, was the first mine located in the Amole District on December 11, 1865. Jesus and Ramon Bustamenti, and Domingo Gallego recorded their claim on February 17, 1866. Two of the partners sold their interest to James Lee and William Scott in 1867. Lee and Scott obtained the final third in 1871. When they patented their claim on September 28, 1872, it was the first mining claim to be patented in Arizona Territory. Apache warfare in the post Civil War period prevented Lee and Scott from developing their property. Three raids in 1867 resulted in the death of a hired hand and the loss of livestock. After the 1872 truce, the partners returned and by early 1875 had dug a shaft to the 120 foot level with plans to expand it another fifty feet. As was the case with other miners in the 1870s, they concentrated on extracting silver ore which they shipped to a San Francisco smelter via Guaymas, Mexico. Lee and Scott operated their mine until the early 1880s when the depression forced them to close. At that time they had reportedly produced $70,000 in silver.

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8. Olaf P. Jenkins and Eldred D. Wilson, "A Geological Reconnaissance of the Tucson and Amole Mountains," University of Arizona Bulletin No. 106, Geological Series No. 2 (1920), 9, 12, 15, 16; J.B. Tenney, "The Mineral Industries of Arizona," University of Arizona Bulletin No. 125, Annual Review Series No. 1 (February 15, 1928), 65; J.B. Tenney, "Second Report on the Mineral Industries of Arizona," University of Arizona Bulletin No. 129, Biennial Review Series No. 2 (July 1, 1930), 70.

Key to the Claims in the Northern Part
of the Amole Mining District

1. Alta
2. Azurite
3. Bonanza Park
4. Bosques
5. Buena Vista
6. Cimaron
7. Copper Bell
8. Copper Crown
9. Copper King (Mile Wide)
10. Copper Mountain
11. Copper Queen
12. Copper Top
13. Esmeralda
14. Esperanza
15. Ferguson
16. Garcilla
17. Gould
18. Henry Waer
19. Jimmy Lee
20. L. Martin Waer
21. Margarite
22. McQuane
23. New State
24. Old Yuma
25. Orient
26. Ramage
27. Ronco Flores
28. St. Louis
29. St. Paul
30. San Fernando
31. San Francisco
32. San Miguel
33. Sibley
34. Silver Moon
35. Stinson
36. Washington
37. Woofenden

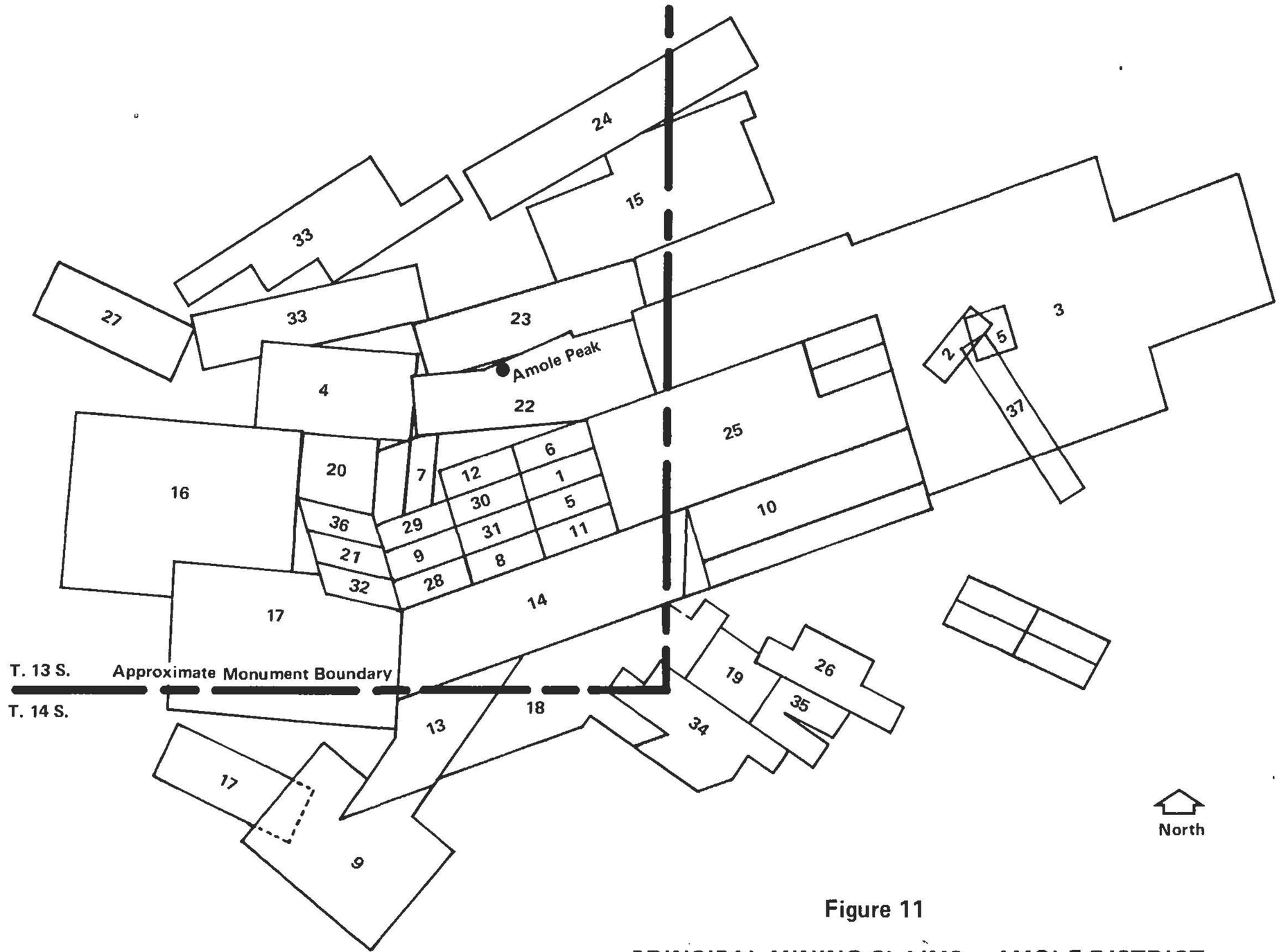


Figure 11

PRINCIPAL MINING CLAIMS – AMOLE DISTRICT
TUCSON MTN. UNIT

It was not to reopen for many years. In the meantime Austin Moss replaced Lee as Scott's partner by 1907. Scott, in turn, took over the operation and sold it to his son at the onset of the First World War. His son sold it to W.A. Weaver about 1922. Now called the Jimmie Lee Mine, Weaver reopened it for a short period in early 1923. It soon closed, never to be worked again, when profits were not forthcoming.[9]

Registration of mining claims began to increase after 1872. The description of claim locations, however, is so vague that it is impossible to locate most of them. Except for the Nequilla, few of the 1870s claims seemed to have had mining activity. Instead, they were mainly held for speculation. Richard Hinton in his 1878 book noted that there had not been a large amount of metals yet located in the Tucson area as compared with the region to the south. Ameliano Lopez was one of the more active prospectors in the period. In 1874 he filed a claim which he called Independence. This was followed in 1878 with the Cymbeline in partnership with Charles A. Shibell. The following year he, with James Blade and J.W. Murphy, filed on the Silver Moon, Lola Lopez, and New Strike. A. Caballero located the Buena Vista in 1877.[10]

The speculative ventures of the 1870s turned a profit in the early 1880s when high metal prices and the coming of the Southern Pacific Railroad to Tucson increased the interest in the Amole District. Ameliano Lopez and his partners found a Grand Rapids, Michigan group that was interested in buying most of their claims. In early 1880 the Silver Moon Mining Company became the owner of the Silver Moon, Lola Lopez, and

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9. Mines-Arizona-Nequilla (Nahuila), Ephemera file, Arizona Historical Society, Tucson; James Lee folder in the Hayden file, Arizona Historical Society, Tucson; Arizona Citizen (Tucson), February 13, 1875, October 20, 1877; Arizona Mining Journal, May 1, 1923; Tenney, "History of Mining in Arizona," I: 278; "The Pima and Santa Cruz Mining Field" (Tucson: The Tucson Citizen, May 1907), 12.

10. Mineral Surveys 231, 371, 372, 435, and 876, Bureau of Land Management Records, Phoenix, Arizona; Richard J. Hinton, The Hand-Book to Arizona: Its Resources, History, Towns, Mines, Ruins and Scenery (New York: American News Co., 1878), 52.

New Strike claims and went so far as to patent them between 1882 and 1885. The company concentrated on the Silver Moon claim (which today lies partly in the southeast corner of the national monument) where they dug two shafts - one a hundred feet deep and the other to the fifty-foot-level. Lopez sold the Cymbeline to William Zeckendorf, a Tucson merchant, and his Michigan partner. It was proclaimed one of the finest mines in the district. The Santa Rita Land and Mining Company, whose interests lay mainly to the south of Tucson, purchased the Buena Vista claim from Caballero in 1880. Despite the fact that part of the claim boundary was in conflict with the Silver Moon Company's New Strike claim, it was patented in 1884. Probably the most famous of the Tucson Mountain claims, the Old Yuma Mine, which is located just east of the National Monument's boundary, was filed during this period. Extensive exploratory work occurred with only limited production. Its greatest notoriety came from the quantities of beautiful Vanadinite and Wulfenite crystals found there.[11]

With great expectation of the silver potential of the Amole District, the Arizona Star cheered on the mining activity of the early 1880s. It stated, "even in the Tucson range to the west of the city, the precious metals are found in great abundance, and of no mean character." The yields did not bear out the enthusiasm and after 1884, with declining prices, the mines closed.[12]

All hope of a future for silver mining did not die in the latter 1880s. In 1888 there was a report of the discovery of ledges of silver/lead ore in the Amole District. This brief flutter of expectancy brought the sale of the Cymbeline claim to the Silver Moon Mining Company. Some other

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11. Mineral Surveys 231, 371, 372, 435, and 876; Sorin, Hand-book of Tucson, 27; Dick Jones, "Old Yuma Mine" (Typescript in the Arizona Department of Mineral Resources, Phoenix, Arizona, September 4, 1980), 1.

12. Arizona Star (Tucson), January 4, 1882; "The Pima and Santa Cruz Mining Field," 3; Mineral Survey 876.

claims were sold to such eastern concerns as the Westinghouse and Disston Companies. The demonetization of silver in 1893 ended any prospects of developing silver mines.[13]

Gold, commanding a higher price than other metals, attracted the attention of miners for a time in the 1890s. Some thought they had found gold in the Amole District. Just east of the National Monument boundary Martha Woffenden filed a claim for the Woffenden Gold Lode in January 1891 and had it patented in August 1893. Bernabe Brichta reportedly found gold in such abundance that it held the potential for a "wonderful bonanza." The expected production never materialized and mining activity became so inconsequential that a feature on Pima County mining in the special 1895 New Years edition of the Arizona Citizen did not mention the Amole District.[14]

As the price of copper rose at the end of the century, prospectors focused their attention almost entirely on that metal. Copper was then thought to be the predominant mineral in the Amole District.[15] With that belief, the greatest rush to stake claims in the Tucson Mountains occurred in the 1897-1908 period. Again, the purpose of filing claims was mainly for speculation, since most attempts at mining occurred when others purchased the claims. Another period of low metal prices followed in the wake of the 1907 depression and caused mines to close.

Some of the first claims to be filed in 1897 were located in the southeast corner of the present-day monument. George Wheatley and H. Harrison staked adjoining claims to the Jumbo, Iron Mountain, Iron Chief, and Apex in April 1897. To this they added the Colorado in February

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13. "Mining in Arizona," The Engineering and Mining Journal 45 (May 19, 1888), 362; Mineral Survey 876.

14. Mineral Survey 1083, Bureau of Land Management, Phoenix, Arizona; Arizona Weekly Enterprise (Tucson), August 31, 1893; Arizona Citizen (Tucson), Special New Years Edition, January 1, 1895.

15. "The Pima and Santa Cruz Mining Field," 4.

1900. Soon thereafter, they sold to Olin G. McWain, William Fox, and H.W. Westlake. These three men set about to develop their property. By late 1902 they had five discovery shafts, five discovery cuts, and three discovery tunnels on the five claims. The shafts were each ten feet deep, while the longest tunnel was thirty feet. Very little additional work was done, but the partners were sufficiently optimistic to obtain a patent on each claim in July 1909.[16]

In the late 1890s L. Martin Waer came to Tucson after having lived in several mining areas in Colorado, Alaska, and California. Still interested in mining, he and Pedro Pellon filed fifteen claims between 1899 and 1906 on land now situated around the Mile Wide Mine within the Tucson Mountain Unit boundary. Their claims included the Copper King (later called the Mile Wide) on which they did sink an exploratory shaft. By the 1907 depression they had reached a depth of eighty-six feet without great success.[17]

Between 1899 and 1903 Bernabe Brichta and his brothers switched from their pursuit of gold to copper. Among their claims were the Uncle Sam, International, and Josephine which were described as being two miles west of the Old Yuma Mine. That location would have placed them within the National Monument boundary. The Brichtas made an attempt at mining and sank several shafts to a depth of twenty-five feet. In 1901, however, they began to sell their claims to the Arizona Copper Mining Company which was headquartered in Los Angeles. Three years later the Arizona Star proclaimed that that company would become one of the largest bullion producers in Arizona because the hill on which the Uncle

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16. Mineral Survey 1709, Bureau of Land Management, Phoenix, Arizona.

17. District Ranger, Tucson Mountain Division, Saguaro NM to Chief Ranger, Saguaro NM, April 28, 1968, Western Regional Office Files, San Francisco; Mineral Survey 3978, Bureau of Land Management, Phoenix, Arizona; "Reports on Tonnage in Pima and Santa Cruz Cos Arizona," (Typescript in the University of Arizona Library Special Collections, Tucson, Arizona, ca. 1906), np.

Sam mine was located seemed "to be full of rich copper," while the International had a ten-foot-wide ledge of that ore. Five months later the Star reported that "until recently very little faith has existed as to their [Tucson Mountains] mineral resources." That newspaper felt there was every indication of large mines to be developed. Its support for this belief was based on the findings of the Arizona Copper Mining Company. That concern, which had been at work for four years, had had a "splendid showing." The deepest shaft was on the Uncle Sam claim at eighty-five feet. Every foot of the shaft was in ore, according to a mining man who expressed astonishment at what he saw. It was obvious, the Star deduced, that the company had valuable property which only needed further development. The company, however, never proved the worth of its holdings and ended its operations in 1908 after suffering a setback in the depression.[18]

Some men, like Otto Metchke who filed at least two dozen claims between 1901 and 1908, had no success in even selling their property, but one company out of all those in the Amole District did succeed in developing a producing mine in the early twentieth century. Sometime around 1906 S.H. Gould filed on nineteen claims for the Gould Copper Mining Company. He proceeded to develop a shaft which by 1907 had reached a depth of 165 feet. As was the case with other mining companies, Gould encountered financial problems with the onset of the 1907 depression, but he succeeded in obtaining operating funds by taking a mortgage with the Pioneer Smelting Company from nearby Sasco. Gould's continued mining led to another burst of enthusiasm by the Arizona Star in 1908. The newspaper declared that recent developments at that operation showed that the Tucson Mountains had been overlooked as an important copper area. It reported that the company had a shaft down nearly 375 feet. A thirty-five foot wide vein of chalcopyrite (copper) was found at the 100 foot level. At the 200 foot level that vein broadened to a width of sixty feet. On this occasion, however, the Star

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18. Arizona Republican (Phoenix), December 6, 1900; Arizona Star (Tucson), September 24, 1904, February 26, 1905.

did report a realistic assay of three to four percent copper content in each ton of ore.[19]

For some unknown reason Gould had a Los Angeles mining engineer, Walter Wishon, look over the mine in mid-1908. Wishon reported that the development consisted of a 360-foot-deep working shaft which had cross cuts and drifts on the 100, 200, and 300 foot levels. Thirty tons of ore that had been shipped to an El Paso smelter sampled 8.6 percent copper. Another 100 tons sent to the Old Dominion Smelter in Globe contained 3.2 percent copper. Wishon's own ore analysis showed 3.2 percent copper, 26.0 percent silica, 25.1 percent iron, 1.26 percent aluminum, 13.2 percent lime, and 19.0 percent sulphur. The gold and silver content was so low that no percentage was given. He felt that the construction of a smelter on site was imperative because shipping costs reduced the profit from such low grade ore. He concluded that since there was a geological similarity between the Gould and the very productive Silver Bell mine some thirty miles distant, the Gould could be just as productive when it reached the Silver Bell's depth of 1,200 feet.[20]

Financial difficulty again beset the Gould Company by the end of 1908. It managed to survive for several years by shipping excavated ore which had been stockpiled at the mine. It probably ceased shipments sometime in 1911. By 1913 the Pioneer Smelting Company threatened to

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19. Robert D. O'Brien and L.S. Zentner, "Report of Mining Property Investigations, Saguaro National Monument, Tucson Mountains Section" (San Francisco: National Park Service, Western Region Office, April 1973), n.p.; Tenney, "History of Mining in Arizona," I: 279; Arizona Star (Tucson), April 14, 1908.

20. Walter W. Wishon to S.H. Gould, President and General Manager of the Gould Copper Mining Company, July 6, 1908, Folder, Gould Mine, Pima County, Arizona Department of Mineral Resources, Phoenix; Report of W.W. Wishon, Mining Engineer, Los Angeles, Cal. to President, Gould Copper Mining Company, July 6, 1908, Gould Copper Mining Company File, Arizona Bureau of Geology and Mineral Technology, Tucson.

foreclose on the mortgage. A stockholders' meeting was called to discuss methods to resist foreclosure. The stockholders' lawyer advised that the election of a new board of directors might cause Pioneer Smelting to be receptive to a compromise and thus prevent foreclosure. Gould agreed to step down from leadership. Negotiations, however, did not bring a settlement. By early 1915 the company was forced into bankruptcy and on April 28 its claims were sold at a sheriff's auction. They were purchased by Douglas Gary of Tombstone who made no immediate attempt to operate the mine. For all the effort and investment only 45,000 pounds of copper with a value of $9,000 had been taken from the mine.[21]

High metal prices, engendered by the First World War, resulted in a resurgence of mining in the Tucson Mountains. Although this period witnessed the advent of large mining corporations in several Pima County districts, the Amole District remained the domain of the speculator and small-time operator. Mining continued through the 1920s although on a diminished scale. It also brought the only scandal of any note recorded for the district.[22]

Despite the returned enthusiasm, mines really did not prove to be as valuable as expected. Douglas Gary began to remove the water from the Gould mine in August 1916 and made plans to ship ore to El Paso. He failed to achieve his goal and by June 1918 sold his venture to a Utah group. The new owners did not take advantage of their investment

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21. Arizona Star (Tucson), May 5 and June 12, 1910, April 29, 1915; Letter sent to Gould Mine stockholders, December 3, 1913, Folder, Gould Mine, Pima County, Arizona Department of Mineral Resources, Phoenix; Fred W. Fickett to John H. Campbell, stockholders' lawyer, December 8, 1913, Folder, Gould Mine, Pima County, Arizona Department of Mineral Resources, Phoenix; Morris J. Elsing and Robert E.S. Heineman, "Arizona Metal Production," University of Arizona Bulletin No. 40, Economic Series No. 19, (February 15, 1936), 98.

22. Willis, "Mining Opportunities Around Tucson Hold Great Promise," 30.

either. H.S. Diller of New York purchased the mine in 1929, but he did no work on the property.[23]

The Old Yuma Mine, which had attracted little attention since the 1880s, was purchased in November 1914 for $50,000 by W.J. Laffey. He intended to mine molybdenum, but evidently changed his mind and sold the property to Epes Randolph in April 1915. Randolph immediately set out to open the mine. In early 1916 he constructed a mill which could handle 100 tons of ore a day. Some molybdenum was obtained from the mine, but not enough to draw attention. The owner concentrated on removing Wulfenite for its lead content. With expenses exceeding income, Randolph closed the mine in 1918.[24]

Since hope springs eternal, a group of New York financiers leased the Old Yuma Mine in September 1920. It was reported that a sample of ore exposed at the 300 foot level assayed lead, copper, gold, and silver at a value of $82.50 per ton. The sample belied the true worth of the mine's mineral content, however, and the New York group did not renew the lease. James Reilly, H.K. Love, and T.P. Stines of St. Paul, Minnesota in a flurry of optimism purchased the mine in April 1923. They formed the Arizona Concentrating Minerals Recovery Company and announced their intent to install machinery which would permit them to further develop the property. Soon it was reported that ore being mined was complex, containing gold, silver, lead, molybdenum, and vanadium. Love and Stines were not impressed, apparently, and left the company six weeks later. Reilly reorganized the concern as the International Ore Separation Company. Making slow progress, he had only shipped one railroad car of ore by June 1924 and had another ready for transport.

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23. Arizona Citizen (Tucson), August 20, 1916; "Pima County Review," Arizona Mining Journal 2 (June 1918), 38.

24. The Engineering and Mining Journal 98 (November 21, 1914), 935; Jones, "Old Yuma Mine," 1; Jenkins and Wilson, "A Geological Reconnaissance of the Tucson and Amole Mountains," 16-17.

Very little headway occurred through the remainder of 1924 and 1925. As a consequence, the mine closed in 1926 leaving a large pile of ore on the dump. In the period 1916 to 1926 the Old Yuma Mine produced 70,000 pounds of lead valued at $5,000 and some silver with an equal worth. The amount of molybdenum evidently did not merit mentioning, for it was never listed.[25]

In June 1914 L. Martin Waer, who came to Tucson in the late 1890s and filed a number of claims with Pedro Pellon, entered into an arrangement whereby the Morgan Consolidated Gold and Copper Mining Company took an option to buy his Copper King (Mile Wide) Mine along with thirty-one other claims and a mill site. Expectations ran high that L. Pierpont Morgan, the company president, would begin mining by September and would soon build a 250-ton smelter at the mine. A report on the claims indicated that the Copper King had the deepest shaft (Waer had supposedly reached the eighty-six foot level in the mine by the time he shut down in 1907). Despite finding a dearth of minerals, the report stated that surface indications showed the claims to be "very valuable" copper property. Morgan, however, seemed to be smarter than the average person interested in investing in Tucson Mountain mines. He let the option expire.[26]

Waer soon found someone else to take his mining claims and thus began the biggest scandal to involve the Amole District. Charles Reiniger arrived in Tucson in the mid-summer of 1915 from Mexico. The revolution

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25. "Concentrated Mining Activities from Arizona, Western New Mexico, Sonora," Arizona Mining Journal 4 (October 15, 1920), 21; Arizona Mining Journal 6 (May 15, 1923), 26-27; 7 (July 15, 1923), 28; 7 (September 1, 1923), 30; 8 (June 1, 1924), 30; Elsing and Heineman, "Arizona Metal Production," 98.

26. Vantyne Pritchard, "Report on the Properties of the Morgan Consolidated Mining Co. and known as Copper King Group," ca. July 1914, Copper King Mining Co. - Tucson Mountains File, Arizona Bureau of Geology and Mineral Technology, Tucson; Arizona Star (Tucson), June 8, 1914, January 22, 1916.

there had forced him to leave his mining interests. After looking over the mining situation around Tucson, he became interested in property in the Amole District. Reiniger and J.H. King met with L. Martin Waer and together signed an option on January 21, 1916 to purchase Waer's claims. They gave Waer $1,000 as a down payment with another $74,000 due when the option expired in four years. Reiniger organized a corporation on May 24, 1916 which he named the Mile Wide Copper Company which reflected the fact that the width of the optioned land was one mile. Capital stock was listed at five million shares with a value of one dollar per share. Reiniger then went back east to Pittsburgh where he convinced Charles Freeman to purchase 80,000 shares of his stock at half price. Upon returning to Tucson by July 5, Reiniger appointed a board of directors who elected him president. Miss L.E. Jettinghoff, his secretary, was among the three directors whom he controlled.[27]

In the meantime Reiniger began to develop his interests with the money he received from Freeman. He concentrated on the Copper King mine which he renamed the Mile Wide mine. Work began on Waer's old shaft where he extracted some ore before he decided it was not adequate. As a result, Reiniger started a new shaft up the hill from the old one. His workforce of fifty men found ore at ninety-five feet which assayed four percent copper. Needing more money to continue, Reiniger contracted with the Lyon and Singer Company of Pittsburgh in September 1916 to begin selling 510,000 shares of stock at one dollar per share.[28]

Reiniger had very good timing. After keeping the country aware for most of 1916 that he was developing a mine in the Tucson Mountains, he quickened the pace in 1917. The Star broke the "sensational news" on February 2 that a chalcopyrite (copper) deposit had been found on a 200 foot level crosscut of the Mile Wide mine which had "remarkable purity."

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27. Arizona Citizen (Tucson), May 20, 1920; Arizona Star (Tucson), September 9, 1923.

28. Ibid.

The ore averaged almost twenty percent copper. Not to be outdone, the Citizen followed on February 14 with a full page story, including pictures, of Reiniger and his operation. It concluded that the Mile Wide would be equal, if not superior, to the Magma or Verde Extension which were two of Arizona's biggest copper mines. A Star report on March 5 indicated that Reiniger had made the largest copper strike in southern Arizona. Ore was running thirty-five to forty percent copper. The mine superintendent was quoted as having said that the strike was "one of the richest I have ever seen in Arizona." Reiniger seized the opportunity to telegraph the Lyon and Singer Company of his find. The Arizona Mining Journal, which had just been established, kept abreast of the activity.[29]

In early September 1917 Reiniger contracted to ship his ore to the Sasco Smelter. The first carload arrived on September 10. By October the Mile Wide workers had reached the 360 foot level with drifts each hundred feet. At that point the mine's six trucks began to haul more than fifty tons of ore daily to Tucson for rail shipment to Sasco. By this time the Citizen began to be more realistic by reporting the ore contained about eight percent copper. Reiniger, however, had gotten what he wanted from the earlier stories--an increase in stock sales. October also found Reiniger improving the road to the mine to make it possible to haul twice the amount of ore daily.[30]

In 1918 reports on the Mile Wide dwindled and generally repeated what had been printed toward the end of 1917. During 1919 Reiniger all but faded from public notice. Then came January 1920 and with it the due date for the remainder of the option payment to L. Martin Waer. At

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29. Arizona Star (Tucson), February 2, March 5, 1917; Arizona Citizen (Tucson), February 14, March 10, 1917; "Mining Review," Arizona Mining Journal 1 (June 1917), 23; 1 (August 1917), 22.

30. "Mining Review," Arizona Mining Journal 1 (October 1917), 22; Arizona Citizen (Tucson), October 6, 1917; Ajo Copper Miner, October 12, 1917.

that point Reiniger could not be found. No funds remained in the company treasury. So, on May 20, 1920 the Mile Wide stockholders filed suit against Reiniger and the company. By August an application was made to place the Mile Wide into receivership. In March 1921 the story of Reiniger's dealings became public. It was learned that he had taken half the money derived from the sale of company stock for himself. In addition he had sold up to $100,000 of his own stock before he disappeared. The stockholders asked that Reiniger be declared a trustee for the corporation so he could be required to account for the money. During the hearings the judge referred to Reiniger as "a promoter in the fullest sense of the term."[31]

The case of the Mile Wide Copper Company came before the court on May 16, 1921. Newspapers reported that Reiniger was accused of disposing of $350,000 for which there was no accounting. Litigation lasted more than a year. Finally, in early January 1923 a decision was reached. As expected, it went against Reiniger. He was ordered to pay $134,350.98 into the company treasury as unaccounted money from the sale of stock and $15,000 in attorney's fees. In addition he was required to endorse over to the company all stock he held and to deliver all deeds of conveyance on his interests in the mining claims. In the absence of Reiniger and without assets the company was forced to liquidate its holdings. Its properties were sold on August 29, 1923 to the Union Copper Company of Pittsburgh. The equipment was auctioned in January 1924 and brought $3,000.[32] Reiniger's whereabouts remained unknown.

The Union Copper Company purchased L. Martin Waer's interests and had a mineral survey made of the claims in April 1925 with the intent to

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31. Arizona Citizen (Tucson), May 20, 1920, March 6, 1921; Arizona Star (Tucson) August 2, 1920.

32. Arizona Citizen (Tucson), May 20, 1921; Arizona Star (Tucson), September 9, 1923; Arizona Mining Journal 6 (January 15, 1923), 41; 7(January 15, 1924), 26.

patent them. The claims, however, were never patented. After several hundred feet of development work on the Mile Wide mine, the company closed its operation. In early 1929 H.S. Diller and Associates purchased the property, installed mining equipment, and began operation. Later in that year the shaft had reached a depth of 425 feet. The largest ore vein was located at the 200-foot-level and averaged 3.5 percent copper. By early 1930 the depression forced the company to reduce its work. Although it was listed on July 1, 1930 as the principal company in the Amole District, its workforce was less than five men. It soon ceased to operate. A survey of the area in 1932 noted the buildings in the deserted mining camp and stated "the land is to be used for recreation purposes." At that point the Mile Wide had produced 70,000 pounds of copper valued at $10,000 and $15,000 in silver. Most of that production occurred in the Reiniger period.[33]

L. Martin Waer was a busy man promoting the sale of Amole District Mining property during the First World War. In addition to selling options on a number of claims to Charles Reiniger, he sold options on some twenty-two claims to three Chicago men the spokesman for whom was C.H. Holmes. This real estate, located east of the present-day National Monument boundary, comprised the Woffenden, Hamburg, Wedge, Ysabel, Blumide, Silver Glance, and Azurite claims. The new owners renamed their holdings the Bonanza Park mines. In his contribution to a promotional pamphlet, Waer left the impression that the property could prove to be more valuable than the United Verde at Jerome. After minor

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33. Tenney, "History of Mining in Arizona," I: 280, II: 478; Mineral Survey 3978, April 13-30, 1925, Bureau of Land Management, Phoenix, Arizona; Arizona Citizen (Tucson), April 12, 1929; Arizona Republic (Phoenix), July 14, 1929; Arizona Star (Tucson), June 16, August 8, 1929; Tenney, "Second Report on the Mineral Industries of Arizona," 70-71; William E. Hiester, "Field Notes of the Survey and Resurvey of a Portion of the Subdivisional Lines, Completing the Survey of Township 13 South, Range 12 East, and, Retraced Boundaries of Patented Mineral Claims in said Township, Book 3972, February 27-March 15, 1932, Bureau of Land Management, Phoenix; Elsing and Heineman, "Arizona Metal Production," 98.

development the owners decided they would not find a bonanza and abandoned the operation. Waer, who got the claims back, found new buyers in 1929. He sold them with some other property to H.S. Diller and Associates of New York. That company concentrated on the Mile Wide mine and did not develop the Bonanza Park holdings before it dissolved in late 1930.[34]

Just outside the monument, near the Silver Moon, another highly touted claim, the Silver Lillie, came under development in late 1919. By the latter part of 1921 in an effort to presumably attract stockholders, it was reported that 40,000 tons of lead-silver ore had been blocked out in the mine. By the middle of the following year it was disclosed that the Silver Lillie contained an estimated $3,000,000 worth of high-grade ore. Work, though, had evidently not progressed as rapidly as the optimistic reports seemed to recount, for by early 1923 the company purchased equipment which would allow it to start active work. In August of the next year, after a five year development period, the owners had sunk a shaft through sixty feet of "marketable" ore. Before the Silver Lillie Mining Company ceased operation in late 1925, the mine shaft had reached the 200-foot-level. As had always been the case, expectations were never met by results.[35]

Another mine within the present-day National Monument boundary, the Mexicana, probably started just after the turn of the century under the spelling Mejicana. It had a hundred foot shaft before it closed during the 1907 depression. During the First World War some activity

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34. Arizona Star (Tucson), February 28, 1918; H.E. Brown, "Bonanza Park Mines" (Chicago: n.p., 1918); Arizona Citizen (Tucson), April 12, 1929.

35. Arizona Mining Journal 5 (September 15, 1921), 15; 6 (February 15, 1923), 18; 8 (June 1, 1924), 30; 8 (August 15, 1924), 29; 9 (June 30, 1925); "Silver Lillie Copper Mines of Arizona," Arizona Mining Journal 6 (June 15, 1922), 40.

occurred on the property but, during its existence, it was never known as anything more than a "prospect."[36]

The 1930s depression dealt a severe blow to the limited mining in the Amole District. No mining occurred between 1932 and 1940, although Charlie Lemmon worked 500 tons of dump ore at the Old Yuma mine in 1933. W.E. Holt of Tombstone took an option on that mine in 1937, but let it lapse without operating it.[37]

The last hurrah for the Amole District began just before America's entrance into the Second World War. Three mines, Mile Wide, Gould, and Old Yuma were the sites of this activity. About 1941 L.M. Vreeland and Ralph Campbell leased the Mile Wide mine. The following year they applied for and received a Reconstruction Finance Corporation preliminary development loan to remove the water from the mine. By mid-1943 four carloads of ore had been shipped to the Hayden Smelter. The Mile Wide evidently proved unprofitable, for, by the end of the year, it had closed never to reopen.[38]

By 1940 John Greenwood acquired the Gould Mine. In response to a state inquiry in 1941, he stated that he was not in operation. Production on a commercial basis would require an investment of $100,000 for enough equipment to extract 3,000 tons of ore per month containing 3.5 percent copper, he felt. A state mining engineer visited the Gould in 1942. He

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36. "Reports on tonnage in Pima and Santa Cruz Cos, Arizona," n.p.; Jenkins and Wilson, "A Geological Reconnaissance of the Tucson and Amole Mountains," 16.

37. "Owners Mine Report," October 16, 1940, Arizona Department of Mineral Resources, Phoenix; The Engineering and Mining Journal 138 (April 1937), 202.

38. Mining Journal (Denver), November 15, 1942, June 30, 1943; "Active Mines in Southern District," January 1944, Arizona Department of Mineral Resources, Phoenix.

noted that the 350-foot-shaft contained water to just below the drift at the 100-foot-level. The engineer estimated the mine contained 100,000 tons of ore with an average of four percent copper. Perhaps the engineer's report heartened Greenwood, for he soon applied for a $5,000 Reconstruction Finance Corporation preliminary development loan. In the application he stated there was 53,000 tons of three percent copper ore indicated within the present confines of development which would yield in excess of 3,000,000 pounds of copper. The loan was granted, the water pumped from the mine, and some development work undertaken before Greenwood quit. In April 1945 he leased the property to E.C. Ertel who milled some copper before he, too, quit at the end of that year. Soon thereafter, Greenwood sold the mine to a group composed of Louis Carrasco, Martin and Gilbert Waer, Elmer Dow, and Ed Brady.[39]

The new owners leased the Gould mine to Larry Drake in the early 1950s. With six employees, he extracted 130 tons of ore between November 1, 1953 and March 1, 1954 and shipped it to the International Smelter in Miami, Arizona. Drake labored in difficult conditions since most of the old workings had caved and were under water. The ore he obtained contained about two percent copper. In addition Drake received a yield of fifty-one ounces of silver. That limited return evidently caused him to decide not to make the large expenditure necessary to rehabilitate the entire mine. Drake ceased his mining activity.[40]

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39. J.S. Coupal to John Greenwood, August 20, 1941, Folder, Gould Mine, Pima County, Arizona Department of Mineral Resources, Phoenix; Department of Mineral Resources, State of Arizona Field Engineers Report, September 25, 1942, Folder, Gould Mine, Pima County; Reconstruction Finance Corporation Preliminary Development Loan, Copper Bell (Gould) Mine, October 23, 1942, Folder, Gould Mine, Pima County; "Active Mines in Southern District," July 1, 1945, January 1, 1946.

40. Department of Mineral Resources, State of Arizona Field Engineers Report, March 2, 1954 and May 17, 1954, Folder, Gould Mine, Pima County, Arizona Department of Mineral Resources, Phoenix; Columbia (Gould) Mine File, Amole Mining District, Pima County, Arizona, United States Bureau of Mines, Denver, Colorado.

By 1957 the Banner Mining Company acquired the Gould mine. That company made a request to the Bureau of Land Management in 1959 to restore 7,600 acres of adjacent public land to mining. It had been withdrawn from mining in 1929 and leased to Pima County as part of that governmental body's Tucson Mountain Park. On August 25, 1959 the Bureau announced its decision to open that land to mining. The ensuing public outcry over that decision, which would turn an area of desert beauty into an open pit mine, caused the Bureau of Land Management to revoke its order. Banner without the additional land for mining made no effort to develop the Gould. Its right to such activity at that mine expired in 1975.[41]

About 1940 Grady Wilson leased the Old Yuma mine on which he sporadically produced dump ore and surface material. Extant Arizona Department of Mineral Resources records for the period 1944-48 indicated that Wilson's only activity for that time occurred in January to May 1944 when he milled a small amount of lead and molybdenum. Local mineral collectors often visited the mine in the late 1940s and 1950s to collect spectacular wolfenite and vanadinite crystals. In 1958 Joe Davis filed three claims across the then abandoned mine area and an additional twenty-one claims in 1959. For several years he recovered mineral specimens.[42]

The Bureau of Land Management Organic Act of October 22, 1979 required that all unpatented claims be refiled or they would be considered abandoned. Several months later Dick Jones checked and found that no one had refiled on the Old Yuma Mine so he filed a new claim under the

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41. Department of Mineral Resources, State of Arizona Field Engineers Report, October 23, 1959, Folder, Gould Mine, Pima County, Arizona Department of Mineral Resources, Phoenix; Arizona Star (Tucson), September 10, 1959; Tucson Citizen, December 17, 1959.

42. Jones, "Old Yuma Mine," 2-3; "Active Mines in the Southern District," January 1944 to February 1948.

name Comet. In early 1983 the Southwestern Mineral Associates purchased the claim from Jones. That concern, in turn, leased it to the Consolidated Mining and Milling Company. On May 3, 1983 the latter enterprise obtained permission from the Bureau of Land Management to operate a sodium cyanide leaching operation on the tailings. An area organization, the Tucson Mountain Association, out of concern over the potential effect of cyanide on the environment, worked to prevent access to the mine. The only two available roads crossed either private property or Saguaro National Monument. A United States District Court decision in October 1984 found that the mining company had no right to use either road. Consolidated Mining filed a counter suit. At that point it reached an agreement with the National Park Service. The company was given a one-year permit to use the road through the monument on a limited basis. Vehicles were limited to three-quarter ton vans and one-half ton pickups. During the year Consolidated Mining had to find an alternative access road. If such a road could not be found in that time, then a second, one-year permit would be issued. Any additional extensions would be granted only if the company could prove that it had actively tried to acquire another roadway. The company allowed its one-year permit to lapse without requesting an extension.[43]

Aside from the current operation of the Old Yuma mine, which, although outside the National Monument boundary, still affects it, only two other claims remain active in the district. These claims include the Copper Kittle 1-4 and the Desert View 1-2 of which both sites are in the south half of section nine, T13S R12E and, therefore, partly within the Saguaro National Monument boundary. No mining activity occurs there. The owners have to this date made only the required yearly improvements to retain their claims.

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43. Jones, "Old Yuma Mine," 3; Tucson Citizen, June 14, 1984; Arizona Star (Tucson), May 24, 1984, June 20, November 1, 1985.

The Amole Mining District proved a disappointment with only erratic, low-grade mineral occurrence. Only two mines within Saguaro's Tucson Mountain Unit boundary ever produced any amount of ore. Even then, these two operations, the Gould and Mile Wide, provided more excitement to area residents about mining potential than any mining or economic impact they may have had on the community.

C. The Rincon Mining District

A portion of the Rincon Mining District covered the Rincon Mountain Unit of Saguaro National Monument. It proved to be the least of the Pima County districts with no known production ever recorded. Some of the earliest activity occurred within the monument boundary. In early 1897 as copper prices began to recover from a prolonged low period, L. Martin Waer and two partners filed several mining claims near the Tanque Verde Mountains. By July of that year they were reported to be rapidly developing the property which was said to hold a promise of value. When Philip Contzen surveyed the area in September 1897 he noted the location of their unnamed mining camp.[44]

Waer and his partners soon gave up on the venture. In April 1901 they sold their claims to the Loma Verde Copper Company of Los Angeles. That concern employed twenty-five men. By October a shaft had been dug to the 100 foot level. Ore of sixteen percent copper was reported to be located in "the full width." By the end of 1902 the shaft had reached a depth of 350 feet with a drift at the 100 foot level and stations at the 200 and 300 foot levels. The ore reportedly contained copper and gold which averaged $50 to $75 per ton. Despite the seeming value of the mine, it soon closed and faded from notice. By 1907 it was not included

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44. The Engineering and Mining Journal, July 10, 1897; Philip Contzen, "Field Notes of the Survey of the Subdivision lines of Township No. 14 South, Range No. 16 East of the Gila and Salt River Base and Meridian in the Territory of Arizona," Book 877, September 23-29, 1897, Bureau of Land Management Files, Phoenix.

on a list which named four Rincon District mines. None of those mines was near the monument boundary. That 1907 publication, along with one of 1910, gave the district little attention, merely noting that it had not been developed as other mining areas of Pima County had been. The Loma Verde never revived and was filled by the Civilian Conservation Corps while working in the area during the 1930s.[45]

Numerous other prospect holes and mine shafts indicate that the Loma Verde was not the only place of mineral exploration. In the mid-1930s the CCC filled thirty prospect holes in the saguaro forest area. Other shafts and prospects have been located on the monument, especially in the upper Rincon Wash area. Much of this activity probably occurred during the First World War. Superintendent Don Egermayer stated in his monthly report for March 1947 that he had caught two illegal prospectors on the monument.

D. Lime Kilns

Limestone was mined to manufacture lime in both units of Saguaro National Monument. Although as many as eight kilns were said to exist in the Rincon Unit, the remains of only four (two in each unit) have been identified. It was here that the stone was reduced to lime which was used for area building purposes. The remnants of other kilns are found outside the monument's Rincon unit indicating the manufacture of lime was a factor in the local economy. The beginning date for this industry cannot be established with any certainty. Tradition states that the first kilns were operated within the Rincon unit boundary to supply lime in the construction of Fort Lowell in 1873. David Faust, the current superintendent of Fort Lowell State Park, has said, however, that a

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45. Los Angeles Times, October 17, 1901; Mining and Scientific Press, January 24, 1903; "The Pima and Santa Cruz Mining Field," 18; William P. Blake, Sketch of Pima County, Arizona: Its Mining Districts, Minerals, Climate, Agriculture, and Other Resources (Tucson: Chamber of Commerce, 1910), 24.

search of the Fort Lowell records indicates that lime was not used at that post until 1882. Frank Tuck wrote that lime for building purposes was first produced in Arizona in 1894. Tuck, however, must have referred to two large commercial lime making plants--one near Prescott and the other between Bisbee and Douglas.[46]

It is necessary to piece together what little evidence exists to reach a conclusion about lime manufacture in the Tucson area. The use of lime for whitewash and mortar in area construction would be a factor in the development of lime kilns. Anglos who passed through Tucson or resided in that village at least to 1875 seemed less than impressed with the collection of adobe houses. Writers of that period commented on the lack of whitewashed buildings. Street scene photographs taken during the period bear out the observations, for most structures had raw adobe exterior walls. There was only one brick building in Tucson by 1875.[47]

The demand for lime for use as mortar or whitewash probably did not begin much before 1880. Even in that year Will C. Barnes described Tucson as "a sorry-looking Mexican town." The major factor for change to the village was the completion of the Southern Pacific Railroad track from the west to there in March 1880. The railroad brought prosperity as Tucson became an area center. Increased wealth produced a demand for better housing. An 1884 publication observed that Tucson had recently changed from a town of one-story adobe structures to one with many brick houses of more "pretentious" height and many brick buildings

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46. Tucson Citizen, July 24, 1969; Statement by David Faust to Berle Clemensen, May 2, 1986; Frank Tuck, History of Mining in Arizona (Phoenix: Arizona Department of Mineral Resources, revised 1963), 40.

47. The Restoration of La Casa Cordova (Tucson: The Junior League of Tucson, Inc., 1978), 20; Walter Vail to Ned, November 23, 1875, Box 2, Item 2, Letters to Edward L. Vail by Walter L. Vail, Nathan Vail, H.R. Hislop and Trace Boldman during the years 1875-1876-1877, Edward L. Vail Papers, Arizona Historical Society, Tucson, Arizona.

in the business district. Coincidentally, Tucson newspapers began to carry their first advertisements for lime in the early 1880s. Since this lime was specifically mentioned as having come from California, it would appear that local lime was produced in limited quantities at the time. Because low mineral prices brought a depression to Tucson beginning in 1885 and a consequent twenty-two percent population decline, there would not have been much of a stimulus for the development of a local lime industry through the remainder of the decade and into the first part of the 1890s.[48]

The first written statements about lime kilns appeared in the 1890s. In mid-1896 the Citizen reported that a Juan Romero had died while working at his kiln about three miles from Tucson. Philip Contzen, while surveying subdivision lines in township 14, range 16 in September 1897, encountered an "old lime kiln" at the site of the remnants of the two kilns in the Rincon unit of the monument. It was not in operation at the time. He did not give a construction date. As for the Tucson Mountain kilns, a 1920 publication stated that limestone on the west side of that range had been used for many years to manufacture lime, but that none had been burned for some time.[49]

Interviews have supplied additional information on kiln operations in the area. Ed Herreras said that the lime kilns at Snyder Hill southwest of Tucson began operating in the 1890s. Frank Escalante helped his brother make lime twice in the 1906-08 period in one of the two kilns in the Rincon Unit. They blasted the blue limestone rock from a nearby hill

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48. Frank C. Lockwood, Apaches & Longhorns: The Reminiscences of Will C. Barnes (Tucson: University of Arizona Press, 1982), 17; History of Arizona Territory Showing Its Resources and Advantages; with Illustrations, Descriptive of Its Scenery, Residences, Farms, Mines, Mills, Hotels, Business Houses, Schools, Churches, Etc., 255.

49. Arizona Citizen (Tucson), July 14, 1896; Contzen, "Field Notes," Book 877; Jenkins and Wilson, "A Geological Reconnaissance of the Tucson and Amole Mountains," 16.

and hauled it by wagon to the kiln. It took four days and nights to make lime. The preferred wood for burning was green palo verde, but green mesquite was also acceptable. Ten to fifteen cords of wood would be consumed in the four day period. Finally, an article in the Citizen gave some further information. Carmen Moreno operated one of the Rincon Unit's kilns in the 1914 to 1917 period. He sold lime to Tucson building contractors for $10 per ton. Lime from those kilns was also used in the construction of the rock wall around the University of Arizona. The last two men to use the Rincon Unit kilns were Ygnacio Ramirez and Ramon Maldanado. They were forced to close the kilns by court order in 1920 because the operation had used so many trees that the local ranchers' cattle were deprived of the tree seeds which were used for feed.[50]

On the basis of the available information it would seem that one of the two Rincon Unit kilns was possibly built in the 1880s. Philip Contzen saw only one "old" kiln there in 1897. Since two existed by 1906, the second was probably constructed around the turn of the century. The Tucson Mountain Unit kilns were probably built around the mid-1890s and, if Jenkins and Wilson were correct in stating in 1920 that the kilns in that range had not been used for many years, probably ceased to operate by 1910. Using population growth as a guide for construction demand and, therefore, lime, the greatest demand for locally produced lime would have occurred from the mid-1890s to 1920 when Tucson experienced a rapid growth.

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50. Telephone conversation with E.D. (Ed) Herreras by Berle Clemensen, April 28, 1986; Interview of Frank Escalante by Tom Carroll, SAGU, December 11, 1969, Saguaro National Monument Files; Tucson Citizen, July 24, 1969.

CHAPTER FOUR: THE ESTABLISHMENT OF SAGUARO NATIONAL MONUMENT AND IT'S ADMINISTRATION

The desire to preserve the dense growth of saguaro cactus at the base of the Tanque Verde Mountains first surfaced in 1920, but went unfulfilled. Several interest groups reemerged by the late 1920s with differing ideas on the best approach to protect the cactus. As a result, an almost last-second flurry of activity by one individual resulted in the proclamation of a national monument in the last days of President Herbert Hoover's term. It was placed for a short time under the jurisdiction of the United States Forest Service. The result of this action produced a much larger boundary area than some interest groups thought necessary as a large part of the monument, with no cacti, was carved from National Forest land in the Rincon Mountains. To make matters worse the section containing saguaro was either privately owned or under the control of the University of Arizona. As a result it required years before the land status was solved. This uncertainty caused difficulties for the National Park Service in following its conservation mission, for without complete control this agency could not develop the area and had to permit activities which were at variance with its policies.

The monument expanded in 1961 with the acquisition of the Tucson Mountain Unit. This segment had formed part of the Tucson Mountain Park which had been set aside in 1929 as a county recreation area. It had been developed by Pima County before the Park Service gained control of it. Pressure to permit copper mining in that section of the mountain park resulted in its transfer to the Park Service.

A. Saguaro Becomes a National Monument

The extremely thick stand of saguaro cactus about sixteen miles east of Tucson had undoubtedly been awe inspiring for many years before 1920. No effort, however, was made to preserve these giant cactus until that year when the Natural History Society of the University of Arizona decided to act. That group tried to obtain some of the land, but failed

to accomplish its goal because of financial difficulties. Interest waned until 1928 when Homer Shantz, the president of the University of Arizona, became involved. As a botanist he was concerned about preserving that interesting part of the desert. In 1929 he tried to interest the National Park Service in his project, but, when a response was not forthcoming, Shantz decided to acquire that unique, natural area in order to maintain the desert conditions where experiments could be conducted free from man's interference. He contacted John Harrison, a Tucson resident, and commissioned him to purchase the rights on all tracts of land containing saguaro except those on which homestead requirements were being met. Harrison proceeded to purchase 480 acres of ground in sections 10 and 15 of Township 14S, Range 16 East for the University. Elsewhere he used University money to buy the rights for the state.[1] This expense would then be added to other property held by that governmental entity.

After Harrison's initial success, Shantz wrote to him to express his appreciation and impart his dream for the area. He hoped to secure a nine square mile tract of the "Tanque Verde Cactus Forest" next to Coronado National Forest. Upon achieving that goal, Shantz believed that he could obtain a portion of the national forest and, thereby, have an area ranging from the desert floor to the top of one of the mountains. He actually had a joint project in mind. Not only would there be "a great natural area for maintaining the botanical and zoological forms of the Southwest under natural conditions," but he planned to establish an astronomical observatory in an area where it could be protected from any hindrance of artificial light.[2]

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1. H.L. Shantz, President of the University of Arizona, to Hubert Maier, Regional Direction (ECW), Oklahoma City, April 20, 1935, Folder, Saguaro NM, General Correspondence, November 17, 1933 to December 31, 1935, Saguaro National Monument Files; H.L. Shantz to John E. Harrison, December 18, 1930, John Harrison Papers, University of Arizona Library Special Collections, Tucson (hereafter cited as JHP); H.L. Shantz to Arno B. Cammerer, Director, NPS, February 28, 1934 Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, Central Classified File 1933-1949, National Monuments, Saguaro 120, Record Group 79, Records of the National Park Service, NA.

2. H.L. Shantz to John E. Harrison, December 18, 1930, JHP.

In the process of land acquisition one setback occurred, but it did not restrain the quest. Harrison learned that James Converse, a nearby rancher, had leased much of the land for grazing livestock. The only hope to remove man's mark on the terrain was for Shantz to convince Converse to assign his lease to the University. Converse, however, demurred. Despite this situation Harrison continued to pursue the purchase of additional land. His effort was aided on August 2, 1932, when President Hoover by executive order withdrew four and one-half sections of land in the heart of the saguaro area from homesteading and assigned it to the state for the benefit of the University.[3]

In the meantime in early 1932 Frank Hitchcock, the publisher of the Arizona Citizen, talked to President Hoover and Secretary of the Interior Ray Lyman Wilbur about preserving an area of saguaro and associated plant life as a national monument. As a result, Park Service Director Horace Albright sent Yellowstone Superintendent Roger Toll to Arizona in February 1932 to look at several potential saguaro sites. (Albright often had Toll spend the winter months investigating proposed Park Service areas.) Toll reported in March that his first choice for a national monument would be the saguaro located sixteen miles east of Tucson at the foot of Tanque Verde Ridge. Since that area was controlled both by the University of Arizona and private citizens, it would be necessary to buy the required acreage. Toll estimated that it would take about $45,000 to purchase relinquishments from the settlers and another $28,000 to pay the remaining sum the University owed on its land. He, therefore, told Albright that, if the Park Service could not secure the funds to purchase the area, it should be dropped from consideration as a monument. The Park Service, he felt, should not become involved in a

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3. Carroll Hudson, Deputy Arizona State Land Commissioner to John E. Harrison, March 20, 1931, JHP; John Harrison to Mrs. Hobart Johnson, Madison, Wis., May 23, 1931, JHP.

monument where a complicated land ownership situation would cause problems.[4]

Toll also looked at the area which Pima County had designated as Tucson Mountain Park. County officials told him that they would welcome consideration of the area by the National Park Service. Toll thought that it would be possible to create a national monument there, but "it seems to be about second in merit." Although the saguaro were dense on that land, they were young and, therefore, not as impressive as the heavily branched ones east of Tucson.[5]

One year later, in February 1933, Toll returned to Arizona where he was approached by Hitchcock who expressed a concern about the slowness in having a monument created. Toll conveyed the message to Albright who telegrammed him that the Interior Department would not recommend a national monument at that time because of the land situation. This answer did not preclude there ever being a monument, for Albright asked Toll to study definite boundaries so that a beginning could be made in getting the land owners to consent to a land exchange. Albright thought that it was necessary to have government control of the area as a prerequisite to the creation of a monument. To do otherwise could mean administrative problems. Hitchcock did not agree with Albright. He believed that a monument should be proclaimed and the land ownership problem worked out later. Furthermore, he opposed the Park Service's idea of what generally should be included in the monument and wanted to have part of Coronado National Forest as well as adjacent private land included.[6]

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4. Roger Toll to the Director, National Park Service, March 31, 1932, Saguaro National Monument files; "Report to Mr. H.R. Tillotson, Regional Director National Park Service, Region Three, Santa Fe, New Mexico Concerning the Boundaries of Saguaro National Monument," 4-5.

5. Roger Toll to the Director, National Park Service, March 31, 1932.

6. "Report to Mr. H.R. Tillotson, Regional Director National Park Service, Region Three, Santa Fe, New Mexico Concerning the Boundaries of Saguaro National Monument," 5-6; Charles Vorhies, Economic Zoologist

Believing that the Interior Department had dismissed his concerns, Hitchcock took another tact. Several days after receiving Albright's answer from Toll, he met with University President Shantz and Coronado National Forest Supervisor Fred Winn. Hitchcock was able to convince a reluctant Winn of the need for a monument. At first Winn did not think it necessary to release the amount of national forest land that Hitchcock wanted for the monument, but he relented when Hitchcock explained his plan to have the Forest Service administer it. At that point the three men drafted the provisions of a monument proclamation. To placate Winn and avoid problems with ranchers, a clause was added to the draft which permitted grazing on the monument.[7]

Since his influence resided in the Republican party, Hitchcock had only a short time to act before Hoover left office on March 4. As a result, he hurried to Washington, D.C. where he presented his draft proclamation to the Secretary of Agriculture who accepted the proposal. President Hoover concurred and by Executive Proclamation No. 2031 made Saguaro a national monument on March 1, 1933. The clause which allowed grazing on the monument was stricken from the official version.[8]

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6. at the University of Arizona, to H.C. Bryant, Asst. Director NPS, July 30, 1937, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

7. "Report to Mr. H.R. Tillotson, Regional Director National Park Service, Region Three, Santa Fe, New Mexico Concerning the Boundaries of Saguaro National Monument," 7.

8. "Report to Mr. H.R. Tillotson, Regional Director National Park Service, Region Three, Santa Fe, New Mexico Concerning the Boundaries of Saguaro National Monument," 7; Charles Vorhies to H.C. Bryant, July 30, 1937; Statutes of the United States of America Passed at the Second Session of the Seventy-Second Congress 1932-1933 and Concurrent Resolutions, Recent Treaties, Executive Proclamations, and Agreements, Proposed Amendment to the Constitution, Twentieth Amendment to the Constitution (Washington, D.C.: Government Printing Office, 1933), 121-122; Frank Pinkley to the Director, NPS, May 15, 1934, Folder, Saguaro NM - General Correspondence, November 17, 1933 to December 31, 1935, Saguaro National Monument files. Hitchcock served as Postmaster General in the William Howard Taft administration.

B. The Saguaro Boundary Dispute

The best laid plans often go awry. After thirteen weeks under Forest Service administration, President Franklin D. Roosevelt transferred the jurisdiction over Saguaro and fifteen other monuments to the National Park Service by Executive Order 6166 issued on June 10, 1933. The date of reassignment was to take place on August 10. At the same time the Park Service became the Office of National Parks, Buildings, and Reservations, but the name was soon changed back to National Park Service. The reaction to the transfer of sixteen monuments caused a stir in the Park Service. Agency officials decided they did not want to accept six of the monuments including Saguaro. The decision, however, lay with the Secretary of the Interior. During the winter of 1933-34, while awaiting his judgment, the area ranchers led by James Converse tried to sway the decision in favor of leaving Saguaro under the Forest Service control. Converse, Melvill Haskell, and J. Rukin Jelks barraged their congressmen with letters and telegrams pointing out their fear that under Park Service control they would lose their grazing right on the monument; thus their ranches would be valueless. In addition they frequently visited Forest Supervisor Winn to urge him to action. In their desperation they pursuaded the state land commissioner to write to Senator Carl Hayden. These ranchers' congressmen, in turn, notified the Park Service Director of their constituents concerns. Director Cammerer, reinforced by Interior Secretary Harold Ickes, provided the opinion that land transferred from one agency to another would not mean that grazing would be automatically eliminated. In fact all valid rights would be respected.[9]

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9. Annual Report of the Secretary of the Interior for the Fiscal Year Ended June 30, 1933 (Washington, D.C.: Government Printing Office, 1933), 154; Annual Report of the Secretary of the Interior for the Fiscal Year Ended June 30, 1934 (Washington, D.C.: Government Printing Office, 1934), 173; Telegram, James Converse to U.S. Representative Isabella Greenway, February 16, 1934, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; James Converse to Isabella Greenway,

Others provided a different view of how Saguaro National Monument should be treated *if* it were administered by the Park Service. Harry Langley, a landscape architect from the Park Service's San Francisco office, visited the monument and advised that the eastern sixty-three square miles remain with the Forest Service because this area, which contained no saguaro, did not meet Park Service standards for scenery and "in fact is very ordinary." University President Shantz changed his position of several years earlier and declared that a large portion of the monument in no way contributed to its value. M.R. Tillotson, director of the Park Service's region three, echoed that sentiment as did Frank Pinkley of the Southwestern Monuments.[10]

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9. February 16, 1934, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Melvill H. Haskell to Senator Robert Bulkley, February 17, 1934, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; E.A. Sherman, Acting Forester to Carl Hayden, March 5, 1934, Box 201, Folder 19 - Saguaro National Monument, Revision of Boundaries, Establ. of Park, Buying Lands, Corresp. 1934-1951, Carl Hayden Papers, Arizona Foundation, Arizona State University Library, Tempe (hereafter cited as CHP); Howard J. Smith, Arizona State Land Commissioner to Senator Carl Hayden, February 28, 1934, Box 201, Folder 19 - Saguaro National Monument, CHP; "Report to Mr. H.R. Tillotson, Regional Director National Park Service, Region Three, Santa Fe, New Mexico Concerning the Boundaries of Saguaro National Monument," 7; Representative Isabella Greenway to A.B. Cammerer, February 17, 1934, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Arno B. Cammerer to Rep. Isabella Greenway, February 21, 1934, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79; Records of the National Park Service, NA; Carl Hayden to Arno B. Cammerer, March 2, 1934, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

10. Harry Langley, Asst. Landscape Architect, San Francisco to T.C. Vint, Chief Landscape Architect, Washington, D.C., February 28, 1934, Folder Saguaro NM, General Correspondence November 17, 1933 to December 31, 1935, Saguaro National Monument Files; H.L. Shantz, Pres. *of the University of Az. to* Arno B. Cammerer, Director NPS, February 28, 1934, Box 2363, Folder Correspondence March 1,

Despite efforts to prevent it, the land entanglement situation, which Horace Albright had eschewed, came to pass. In a letter dated March 24, 1934 Frank Pinkley was notified that the Secretary of the Interior had taken the position that Executive Order 6166 did transfer jurisdiction of Saguaro and the other five unwanted monuments to Interior where, as of that date, they would be officially placed under the Southwestern Monuments' management. This situation meant that the Park Service had acquired an area on which the main attraction, the saguaro, grew on land it did not own. The portion it did control consisted mainly of the mountainous former national forest (figure 12).[11]

Determined that Saguaro National Monument would be administered by the Park Service, Director Cammerer decided that the most important project attending the monument was the purchase of the land held by inholders. Since the Park Service did not own any land in the more accessible areas of the monument, it was imperative to purchase or lease an area for a headquarters site. Cammerer did not propose to build a visitor center or utility area until the land was consolidated under federal ownership. Even then that development should be held to a minimum, he felt. Instead, Cammerer proposed to use the area as a research reserve in a manner similar to that envisioned by University President Shantz several years previously.[12]

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10. 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; M.R. Tillotson to the Director, NPS, March 5, 1934, Folder Saguaro NM, General Correspondence November 17, 1933 to December 31, 1935, Saguaro National Monument Files.

11. Acting Director, NPS to Frank Pinkley, March 24, 1934, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA. The other five monuments were Chiricahua, Gila Cliff Dwellings, Sunset Crater, Tonto, and Walnut Canyon.

12. Arno B. Cammerer, Director NPS to H.L. Shantz, President of the University of Az., March 24, 1934, Folder Saguaro NM, General Correspondence, November 17, 1933 to December 31, 1935, Saguaro National Monument Files.

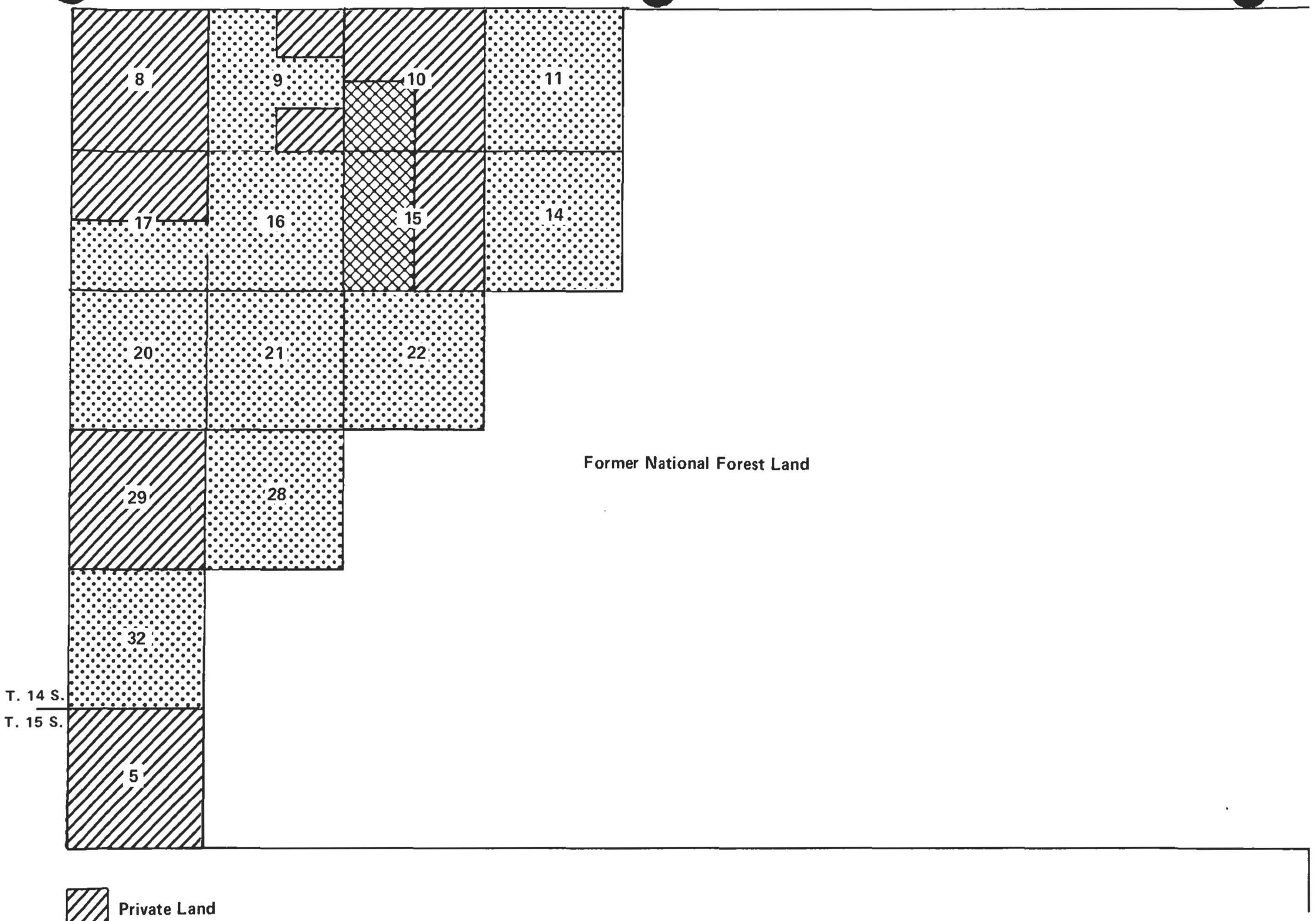


Figure 12

MONUMENT INHOLDERS 1934
RINCON MTN. UNIT

Consolidating the monument under Park Service control proved elusive. Lack of money and opposition to the size of the monument prevented the Park Service from assuming complete control. Local ranchers continued to press Forest Supervisor Winn to work for a return of the former forest section to the Forest Service. Frank Pinkley, too, thought it would be better to return the mountain portion of Saguaro to the Forest Service as a means of ending the ranchers' uproar over grazing. Director Cammerer, however, saw no reason to reduce the boundary. The ranchers should have no complaints, he thought, since "we have promised that we would not disturb the holders of existing grazing rights."[13]

The next move by the National Park Service was to ask the University to donate its land to the federal government. Since the depression had severely affected the University's finances, the Board of Regents refused to give the land to the federal government. Instead it pressured President Shantz to sell the land to the Park Service as a means of getting back the investment. Shantz, therefore, asked that the University receive $56,000 as reimbursement. Pinkley told him that no funds were available to buy the land. When asked again to give the land to the Park Service, Shantz absolutely refused. At this point in mid-May 1935 pessimism enveloped the Park Service as to whether it would ever control the cactus area. If it could not gain control, then there would be no value in keeping the monument.[14]

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13. Frank Pinkley to the Director, NPS, May 15, 1934, Folder, Saguaro NM, General Correspondence, November 17, 1933 to December 31, 1935, Saguaro National Monument Files; Arno B. Cammerer, Director, NPS to Frank Pinkley, June 7, 1934, File G, Permits - C&H Coronado, Converse, Jas. P., Coronado National Forest Headquarters, Tucson and the Saguaro National Monument Files.

14. John Harrison to Frank Hitchcock, November 30, 1934, JHP; Memorandum for the Director, NPS by Ben H. Thompson, Asst. to the Director, October 4, 1935, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

With this impasse Shantz wrote to Acting Director A.E. Demaray to ask if the Park Service had any proposal for the administration of Saguaro. The University was ready to cooperate or work independently. Cammerer replied that the Park Service wanted to have unified management and development under its control, but if the University wanted to keep its land then it would be better if legislation were enacted to transfer the federal portion of Saguaro to the University. Richard Sias, the Regional Inspector for the Park Service's Emergency Conservation Work took a more tactful approach by informing the University that it did not matter at the time whether it or the Park Service controlled the area. The greatest concern was development on the private land which would make it more difficult to acquire. The Park Service, however, decided not to buy Safford L. Freeman's land when he offered to sell it for $25 per acre on August 13, 1935.[15]

As its treasury continued to dwindle, University officials and the Board of Regents decided to pursue the sale of cactus land to the federal government by taking a two-pronged approach. In a February 1936 meeting the Board of Regents voted to support James Converse's request that the former forest service land within the monument be returned to that agency as a means of assuring the ranchers of their grazing rights. At the same time it authorized John Harrison, a local resident, to act as an agent for the University in obtaining options from the private owners thus making it possible to offer all the non-federal land within the boundary to the Park Service in one package. If successful in getting the former national forest land withdrawn, then the Park Service would have

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15. Shantz to Demaray, Acting Director, June 14, 1935, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Arno B. Cammerer, Director, NPS to H.L. Shantz, July 25, 1935, Box 2363, Folder Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Richard D. Sias, Regional Inspector, ECW to A.A. Nichols, Dept. of Range Ecology, Univ. of Az., October 1, 1935, JHP.

to buy the private, University, and state land or it would have no monument. In this way the University would be paid the money it had invested in the monument.[16]

Harrison busily worked to bring the plan to fruition. By July 1936, after he had obtained options from all the private land owners, he met with Frank Pinkley to present the University's proposal. A surprised Pinkley told him that he favored such a scheme whereby all unnecessary land would be returned to the Forest Service with the Park Service getting title to the cactus area. Pinkley added, however, that he did not think any money was available to purchase the land. Harrison then contacted Representative Isabella Greenway and Senator Carl Hayden to recount the plan, stating that it had the support of Frank Pinkley. A.A. Nichol the University Range Ecologist also wrote to Greenway to assure her that the mountainous area of Saguaro was too ordinary to be park caliber and, therefore, should be detached from the monument.[17]

In August 1936 Harrison attached a monetary figure to his proposal. He told Frank Pinkley that the national government could obtain all of the land within the monument that it did not own for the sum of $171,680 plus lieu selection rights to the state of Arizona. Pinkley thought the offer to be excessive in that the state would get both lieu sections and $18.50 per acre for the land it owned within the monument boundary. Had he known that Harrison had an agreement with the University to receive a ten

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16. "From the Minutes of a Meeting of the Board of Regents of the University of Arizona, Held February 14, 1936," JHP; J.E. Harrison to Jack B. Martin, Secretary of the Board of Regents, March 12, 1936, JHP; Arizona Star (Tucson), July 28, 1936.

17. Frank Pinkley to the Director, NPS, July 8, 1936, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; J.E. Harrison to Representative Isabella Greenway, July 15, 1936, JHP; J.E. Harrison to Senator Carl Hayden, July 15, 1936, JHP; A.A. Nichol to Representative Isabella Greenway, July 14, 1936, JHP.

percent commission, Pinkley probably would have advocated no further contact with him. After getting Pinkley's reaction, Harrison contacted Senator Hayden. J.E. Gavin, Hayden's secretary, replied that, in communicating with A.E. Demaray, he was told that the Park Service had no funds with which to buy the land in Saguaro and would not likely have such money in the near future. Harrison's next approach was through Arizona Governor B.B. Moeur. He got Moeur to contact Secretary of the Interior Harold Ickes and request that the federal government establish an emergency fund which would be used to purchase the state and private land within the monument boundary as soon as possible in order to protect the cactus and obtain the land before a price increase. Ickes replied that the Interior Department did not have $171,680 available.[18]

Having failed, Harrison tried another approach. He wrote to Senator Hayden and asked that he introduce a bill by which the former national forest land would be eliminated from the monument. The bill would include a provision to provide the money to buy the state, University, and private land. Hayden's office contacted the Park Service and indicated that, if that agency were interested in Harrison's proposal, it should draft a bill for the Senator to introduce in the next congressional session. Acting Director Demaray replied that the Park Service would be happy to produce a bill by which it would acquire the alienated land in Saguaro. Hayden countered by asking that the draft bill include the return of former Forest Service land to that agency. Director Cammerer

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18. Frank Pinkley to the Director, NPS, August 26, 1936, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; J.E. Gavin, Sec. to Senator Hayden to J.E. Harrison, August 28, 1936, JHP; Governor B.B. Moeur to Harold Ickes, September 15, 1936, JHP; Harold L. Ickes to Governor B.B. Moeur, September 30, 1936, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA. Lieu selection rights meant that the state could trade its land in the monument for other federal land within Arizona.

then indicated to Hayden that, before such a bill could be written, a study was needed to ascertain what, if any, boundary changes should be made and to determine the price of the land for inclusion in an appropriation bill.[19]

The push to introduce the bill on Saguaro National Monument finally caused the Park Service to investigate the area to assess its significance. Demaray asked the region three director to send W.B. McDougall to evaluate the monument. Since Frank Hitchcock, as author of the proclamation, had claimed that the entire area contained a wide range of desert flora worthy of preservation, Demaray wanted to know if that were true. As a result Wildlife Technician McDougall visited the monument in December 1936 to study the vegetation. He concluded that although the higher elevations had been considered too common by some to be included in the monument, this characterization was not true. McDougall considered the area between 4,500 and 7,500 feet elevation to be an interesting section of semi-desert and Mexican flora. The Arizona yellow pine were especially fascinating. As a result in his report, he recommended that the monument boundary be left intact because "any decrease in the size of the area would detract from its value as a sanctuary for both plants and animals."[20]

The day before McDougall released his report, on January 6, 1937, Frank Pinkley wrote that he believed the back country part of Saguaro

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19. J.E. Gavin, Sec. to Senator Hayden to A.E. Demaray, Acting Director, NPS, November 7, 1936; A.E. Demaray to Senator Carl Hayden, November 18, 1936; Senator Carl Hayden to A.E. Demaray, November 23, 1936; Arno Cammerer to Senator Carl Hayden, December 3, 1936, Box 2363, Folder, Correspondence March 1, 1933-August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

20. A.E. Demaray, Acting Director, NPS to Regional Officer, Region Three, November 16, 1936, Box 2363, Folder, Correspondence March 1, 1933-August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; W.B. McDougall, "Special Report: The Vegetation of the Saguaro National Monument," January 7, 1937, Folder, Saguaro NM, General Correspondence August 23, 1936 to September 6, 1940, Saguaro National Monument Files.

would ultimately be returned to the Forest Service. This prospect pleased him, for he felt the cactus area was all that was needed for the monument. A week later after reading McDougall's report he wrote to the director for information on whether the boundary would be reduced or maintained. Although he professed that it did not matter to him if the boundary were reduced or not, Pinkley must have been disturbed with the thought that the director might accept McDougall's recommendation. He pointed out that, if the current boundary were retained, a large amount of development work would be needed in the forest section. Although the director's reply, if there were one, is no longer extant, he probably told Pinkley that the Park Service would oppose a reduction in the monument's size since that became the Park Service policy.[21]

In the meantime John Harrison evidently became desperate. His contract to act as agent for the University ended on May 30, 1937 and with it the ten percent commission if he sold the state and University land to the federal government. It must have been especially disturbing to him when the Arizona State Attorney General told him that he could not act as agent for the state land because state patented land could only be sold at public auction. Harrison informed Pinkley of the situation and told him that under the circumstances there could be no lieu selection trade for the state. Instead, he proposed to arrange to sell the whole land package for $194,880. This proposition seemed strange to Pinkley, for, if the state land could only be sold at public auction, Harrison could not convey it to the federal government. Pinkley had his assistant Hugh M. Miller check into the situation. Miller found that Harrison had no authority to sell state land and, indeed, could not do so, for, as Harrison had confessed earlier, that real estate could only be sold at public auction. The only possible way Harrison could sell the state

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21. Frank Pinkley to F.A. Kittredge, Chief Engineer, NPS San Francisco, January 6, 1937, Folder, Saguaro NM 1934-1937, Saguaro National Monument Files; Frank Pinkley to the Director, NPS, January 15, 1937, Box 2363, Folder, Correspondence March 1, 1933-August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

property was to first purchase it at auction and then, in turn, sell it to the federal government. No auction was contemplated. Miller also found that when Harrison obtained the options from the private inholders he did not secure them with the intent to buy them for the federal government, as his contract with the University specified. He obtained the options for himself. Consequently, Miller advised that the Park Service no longer deal with Harrison.[22]

Because Harrison's contract was to end before any congressional legislation could be enacted to permit the purchase of alienated land within the monument, he tried another tack. He contacted Senator Hayden with the offer to sell the private, state, and University land for $194,880 and it would appear suggested that the Senator should contact the president and have him authorize the use of already appropriated funds to purchase the land within the monument. Hayden contacted the president, told him of Harrison's offer, and suggested that he direct the Park Service to investigate acquiring the tracts in Saguaro. In that manner the president could be apprised of the desirability of buying that property and then could use appropriated funds to do so.[23]

Roosevelt referred Hayden's request to the Secretary of the Interior. Secretary Ickes replied that the federal government should begin to buy nonfederal land within the monument. He, however, recommended against negotiating with John Harrison. Instead, the government should strive for an agreement whereby the state would exchange its land for lieu land on the public domain. Owners of the private property should be dealt

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22. J.E. Harrison to Frank Pinkley, January 4, 1937; Memorandum to Mr. Pinkley from Hugh M. Miller, January 8, 1937, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

23. Carl Hayden to the President, March 12, 1937, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

with on an individual basis and, Ickes felt, that land could be purchased for a total of $85,000. He asked permission to submit that figure to the Bureau of the Budget for approval as a supplementary item.[24]

Nine days after receiving Ickes' memorandum, President Roosevelt notified Senator Hayden that the general policy of acquiring private land in a park or monument had been through donation or purchase with donated money. Since he considered this a good policy, Roosevelt did not intend to provide money to obtain such land within Saguaro. Hayden informed University Regent Halbert Miller of the president's decision and ascribed it to a desire for economy in government. He soon thereafter notified Harrison that he intended to introduce a bill in the Senate which would authorize acquisition of state, University, and private land while returning most of the former Forest Service land to that agency. It was too late, however, to help Harrison to the degree he desired. His contract ended with the University. At that point Harrison retained David B. Morgan of the John H. Page law firm in Phoenix to handle the sale of state land but he kept the options on the private land which he held in his name.[25]

Hayden introduced S2648 in mid-June 1937. Forest Supervisor Fred Winn closely advised Hayden in drafting the bill. It called for the authorization of $95,000 to purchase the University and private inholdings of which the University would receive $36,000. In addition the bill authorized a reduction in the monument from 63,360 acres to 13,120 acres. Whereas Frank Pinkley supported the measure, Park Service Director Cammerer opposed it. The latter position was also taken by the Interior

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24. Memorandum for the President by Harold L. Ickes, April 29, 1937, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

25. Franklin D. Roosevelt to Senator Carl Hayden, May 8, 1937, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Carl Hayden to Halbert W. Miller, May 11, 1937, JHP; Carl Hayden to J.E. Harrison, May 26, 1937, JHP.

Department. Assistant Secretary Oscar Chapman notified Hayden that the monument "was created to preserve outstanding examples of the Southwestern desert because of the great scientific, educational, and recreational value of the reservation." Since the saguaro were only one of the features which needed to be saved, there should be no change in the boundary. The bill ultimately failed, but not from opposition to a decrease in the size of the monument. The Bureau of the Budget disapproved of the land acquisition portion as too costly.[26]

At this point the University of Arizona seemingly lost interest in the monument. President Shantz was removed from office because of his inability to get the federal government to purchase the land. John Harrison's contract was not renewed when it expired at the end of May 1937. Just to be rid of the land, University officials asked only $36,000 in the Hayden bill. This figure represented a loss of about $20,000.[27]

As for John Harrison, he, too, decided to seek his fortune elsewhere. In March 1938 he informed Hugh Miller that he had cancelled his options on the private property and David Morgan of the Page firm had become the private owners' representative. Miller told Pinkley that the replacement of Harrison by Morgan did not mean any change, for "the deal is still rigged, and I should continue to oppose it." He, however,

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26. A.E. Demaray, Acting Director, NPS to Frank Pinkley, June 25, 1937; Memorandum for the Director, NPS by Conrad L. Worth, June 29, 1937; Oscar L. Chapman, Asst. Sec. of the Interior to Senator Carl Hayden, July 15, 1937, Box 2363, Folder, Correspondence March 1, 1933 - August 30, 1937, National Monuments, Saguaro 120, Central Classified Files 1933-1949, Record Group 79, Records of the National Park Service, NA; "Report to Mr. H.R. Tillotson, Regional Director National Park Service, Region Three, Santa Fe, New Mexico Concerning the Boundaries of Saguaro National Monument," 7-8.

27. "Report to Mr. H.R. Tillotson, Regional Director National Park Service, Region Three, Santa Fe, New Mexico Concerning the Boundaries of Saguaro National Monument," 9.

said he reluctantly had come to the conclusion that the asking price of $25 per acre for the private land was fair.[28]

Cheered on by the ranchers, Senator Hayden decided to introduce a new bill to purchase the inholdings and reduce the size of the monument. When he asked Pinkley for an appraisal price of the private land, Hugh Miller gave him the figure of $25 per acre. The University resolved not to take a loss and told Hayden it wanted $63,000. Hayden notified Miller that the combined total for the private and University land would be $119,300. That amount troubled Hayden. He preferred a lower figure, for he felt that the Bureau of the Budget would not approve a request over $100,000. In the compromise, the Park Service proposed to eliminate Section 5, T15S R16E (the Freeman section) and thereby save $16,000, while the University agreed to reduce its request to $55,000. That combined sum totaled $94,100. One addition was made in late 1938. Since the nearest water supply for proposed monument development was on the Baker property outside the area in the NW¼ of Section 31, a provision was made in the bill to reimburse the Tucson Chamber of Commerce which intended to purchase the property for the Park Service.[29]

Senator Hayden introduced S7 on January 4, 1939. This bill proposed to revise the monument boundaries by authorizing a reduction in size to 10,960 acres as well as paying $25 per acre for private land and awarding $55,000 to the University. Delayed until the next congressional session, the bill passed the Senate on September 30, 1940, despite Park

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28. Hugh M. Miller to Frank Pinkley, March 12, 1938, Box 2363, Folder, Correspondence from September 1, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

29. Senator Carl Hayden to Hugh M. Miller, March 22, 1938, Box 2363, Folder, Correspondence from September 1, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Frank Pinkley to John H. Page & Company, Attn: Mr. Morgan, April 9, 1938, Box 2363, Folder, Correspondence March 1, 1933-August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

Service and Interior Department opposition. The bill, however, died in the House of Representatives when Congress adjourned.[30]

On January 16, 1941 Hayden introduced the same bill as S394. On this occasion numerous people such as University of Arizona President Alfred Atkinson, the President of the Tucson Chamber of Commerce C. Edgar Goyette, Forest Supervisor Fred Winn, and James Converse wrote to him to wish a speedy passage. In fact Converse wrote six times in three months. Secretary of the Interior Ickes gave an eloquent reply in opposition to the measure. He said the Department would recommend adversely because

> when the national monument was established in 1933, it was meant to preserve not only the saguaro cactus but those portions of the Rincon-Tanque Verde Mountains watersheds which are largely responsible for the favorable moisture conditions that have produced the extraordinary stands of saguaro found in the area. It was known at that time that the entire area is a biotic community of pronounced scientific interest, of which the saguaros are only one feature, although they are the most spectacular and popular single interest.

Despite this statement, the bill again passed the Senate but died in the House Committee on Public Lands.[31]

Hayden again introduced the bill as S379 on January 14, 1943. Once more with Park Service and Interior Department opposition the legislation took the same course. Hayden made one more attempt to get the

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30. E.K. Burlew, Acting Secretary of the Interior to Senator Alva B. Adams, Chairman of the Committee on Public Lands and Surveys, January 20, 1940; Carl Hayden to Senator Alva B. Adams, July 31, 1940, Box 125, Folder 3, Saguaro National Monument, CHP.

31. Atkinson, Goyette, Winn, and Converse letters in Box 125, Folder 3, Saguaro National Monument, CHP; Harold L. Ickes, Secretary of the Interior to J.W. Robinson, Chairman of the House Committee on the Public Lands, June 2, 1941, Folder 120-01, House Bills, Saguaro National Monument Files.

boundary reduction enacted. He presented it on January 6, 1945 as S68, but with the same result.[32]

Despair crept into the Park Service in 1945. In addition to another assault on the boundary, the apparent rapid spread of disease through the saguaro caused Region Three Director Tillotson to recommend abolishing the monument. It did not make sense to him to keep an area "where the cactus is admittedly doomed and where private land and other problems make the situation seemingly hopeless." Instead, he thought it preferable to concentrate on Organ Pipe Cactus National Monument which contained quite a number of saguaro. A.E. Demaray answered that Tillotson should not give up despite the difficult problems. He thought that the boundary issue should not be brought up for five or ten years. If, at the end of that period, the monument remained for no other purpose than private exploitation, Demaray would recommend abolishing the monument.[33]

Although pessimism about the future of Saguaro carried into 1948, one group of natural scientists in the Park Service felt an urgency to save the area. To them, the despair over the loss of saguaro to a supposed disease was a lesser concern, for they viewed the infection as a natural occurrence in older plants. Their concern lay with the lack of reproduction of young saguaro. They ascribed this sitution to the results of grazing. As a result, if the monument were to continue with saguaro, then livestock had to be removed from at least that area. The only way to accomplish this end was to have the Park Service control the monument through ownership. They managed to impress Director Drury

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32. Harold L. Ickes to Senator Carl A. Hatch, Chairman of the Committee on Public Lands and Surveys, May 28, 1943, Box 125, Folder 3, Saguaro National Monument, CHP; Memorandum for the Director, NPS by Charles A. Richey, Chief National Park Division, March 8, 1946, Folder, Establishment, Saguaro National Monument Files.

33. Memorandum for the Director, NPS by M.R. Tillotson, Regional Director, Region Three, July 18, 1945; Memorandum for the Regional Director, Region Three by A.E. Demaray, Associate Director, NPS, August 14, 1945, Folder, Establishment, Saguaro National Monument Files.

with the seriousness of the situation. As a result Drury wrote to University of Arizona President J. Byron McCormick to ask that institution to convey its land to the Park Service and to help in getting the state to do the same. He saw no other course than to make such a request, for, if the Park Service could not get control of the land within two years to begin protective measures, the monument may as well be abolished. He probably could have anticipated the reply. McCormick wrote that he could not very well ask the Board of Regents to "gratuitously" give the land to the Park Service because the University had a substantial investment there.[34]

The inquiry by Drury reopened the land acquisition and boundary question. University President McCormick wrote to Senator Hayden regarding an appropriation to buy the University land. Hayden did not indicate that he would present another bill. Instead, he observed that he had tried to get an appropriation to buy the University land on a number of occasions without success. He blamed the failure on the Bureau of the Budget and the Interior Department's opposition to returning the mountain area to the Forest Service. Despite that reply, McCormick wrote to Hayden a month later to recount his meeting with State Land Commissioner O.C. Williams. At that meeting the two of them had concluded that a number of private tracts could be eliminated from the monument. Then an effort should be made to get federal funds to purchase the University land. Failing that, the University might be persuaded to exchange its land. According to Williams the state was willing to exchange its holdings for other federal land. When Associate Director Demaray heard of the offer, he wrote to Senator Hayden to say the Park Service would tentatively agree to delete the private land in the north half of sections 8, 9 and 10 in T14S R16E and section 5 in T15S R16E. He reminded Hayden that the University had an investment of approximately $50,000.

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34. Memorandum for the Director by Chief of Development, May 27, 1948, CHP; Newton B. Drury, Director NPS to J. Byron McCormick, August 25, 1948; J. Byron McCormick, Pres. University of Az. to Newton B. Drury, August 31, 1948, Box 125, Folder 3, Saguaro National Monument, CHP.

Perhaps this notation was a hint to Hayden to request an appropriation for that sum. The Senator did not do so.[35]

These offers to make a land settlement led to initial negotiations among the State of Arizona, Bureau of Land Management, and the National Park Service in late 1948 to get a land exchange agreement. At the same time a group of Tucson citizens formed a Saguaro Land Committee to assess the monument's future. It recommended that both the University and state exchange their monument land for other federal property.[36]

Land exchange negotiations did not go unnoticed by the local ranchers. Gordon Packard, who leased the Rincon Allotment, worried that his grazing rights would be affected by the Park Service gaining control of the non-federal land in the monument. He wrote to Senator Hayden on several occasions to express his concern. He wanted assurance that grazing rights would never be ended. Hayden relayed Packard's request to the Park Service. Acting Director Demaray replied that the ranchers should not be disturbed because the plan was to stop grazing only in the best saguaro area. There was no intention to terminate grazing in the rest of the monument in the foreseeable future. That statement did not satisfy Packard. He indicated to Senator Hayden that if the ranchers did not receive perpetual grazing rights then the monument should be reduced to the saguaro area with the rest restored to the Forest Service.[37]

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35. Senator Carl Hayden to J. Byron McCormick, Pres. University of Az., September 1, 1948; J. Byron McCormick to Senator Carl Hayden, September 28, 1948; A.E. Demaray, Associate Director, NPS to Senator Carl Hayden, October 28, 1948, Box 125, Folder 3, Saguaro National Monument, CHP.

36. Superintendent's Monthly Report (Saguaro), August 1955.

37. Gordon Packard to Senator Carl Hayden, May 15, 1949; A.E. Demaray, Acting Director NPS to Senator Carl Hayden, July 15, 1949; Gordon Packard to Senator Carl Hayden, August 3, 1949, Box 125, Folder 3, Saguaro National Monument, CHP.

The Tucson Chamber of Commerce Saguaro National Monument Committee came to the support of the ranchers. This situation brought John Davis, assistant director of the Park Service's Region Three, to meet with the Chamber of Commerce's Saguaro Committee to confer on the monument's future. The C of C demanded that grazing rights be maintained. As a result, Davis told them that those rights on the major portion of the monument were in perpetuity. When the chairman of the Saguaro Committee wrote to Davis two months later asking that his oral assurance of perpetual grazing rights be confirmed in writing by authorized persons, he received no reply.[38]

James Converse and Gordon Packard in their contact with the Tucson Chamber of Commerce learned, of course, that no written assurance of perpetual grazing rights had been received from the National Park Service. Packard asked Senator Hayden to work for a reduction in the monument boundary to just the cactus area. Converse took a different tack. He announced to Hayden that his grazing lease agreement, held with the University and state for those entities' land in the monument, stated that the lease could not end without satisfaction to the leaseholder. Since the Park Service intended to terminate grazing on that land because it comprised the prime saguaro area, his satisfaction would be met by reducing the monument and returning the major portion of it to the Forest Service. Converse and Packard's effort came to naught.[39]

While the state continued land exchange negotiations through 1949, the University requested $50,000 as the selling price of its 480 acres in Saguaro. That figure represented not just the value of the property, but also the money the University had expended in the early 1930s to

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38. Chamber News (Tucson Chamber of Commerce), September 1, 1949; George Chambers, Chairman Saguaro NM Committee to John M. Davis, Asst. Regional Director, Region Three, November 8, 1949, Box 125, Folder 3, Saguaro National Monument, CHP.

39. Gordon Packard to Senator Carl Hayden, December 15, 1949; James P. Converse to Senator Carl Hayden, December 15, 1949, Box 125, Folder 3, Saguaro National Monument, CHP.

purchase relinquishments on land which came under state ownership. In checking, Demaray found that the United States could pay no more than the market value of the real estate to be bought. It could not reimburse the University for funds used to buy land for the state. A land exchange, however, could be made for the full amount. Since the market value of the University's 480 acres was half the price it sought, it was more beneficial for that institution to exchange its property for $50,000 in land selected elsewhere in the state from the public domain. This the University opted to do.[40]

By the end of 1950 the land exchange program had proceeded haphazardly. The University officials had made their selection, but they intended to wait until the state had made its choice before making formal application. The state, however, had to postpone its selection because recent legislation to reappraise state-owned grazing land appeared to mean a delay of as much as a year. The deferment, however, proved shorter than expected, and the state and University made informal application by June 1, 1951. It was thought that the exchange would occur by the end of that year. It did not happen, for by July 1951 the Bureau of Land Management discovered that ten people had filed desert land applications on the land which the state had chosen. Since there were 700 other applications to be examined including inspection of their land before the Bureau could deal with the state application, it was thought there would be a considerable delay before the exchange could occur.[41]

In the meantime the Park Service received permission to buy three tracts of private land. Title to this property was acquired by late

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40. A.E. Demaray, Acting Director NPS to Senator Carl Hayden, March 9, 1950, Box 125, Folder 3, Saguaro National Monument, CHP.

41. A.E. Demaray, Acting Director NPS to Senator Carl Hayden, December 13, 1950; Francis L. McFarren, Acting Regional Director BLM (Albuquerque) to Senator Carl Hayden, July 3, 1951, Box 125, Folder 3, Saguaro National Monument, CHP; Memorandum to the Director NPS from Superintendent, Saguaro NM, June 1, 1951, Folder 207-01 Annual Reports, Saguaro National Monument Files.

December 1951. This real estate included section 29 in T14S R16E owned by Marjorie Ellison, the SE¼ of section 15 in T14S R16E owned by L. Nelson Garwood, and section 5 in T15S R16E possessed by Safford Freeman. In May 1952 the monument acquired twenty acres of land in the NW¼ of section 31 T14S R16E from the Tucson Chamber of Commerce. This tract, outside the boundary, had been purchased by the Chamber in 1938 because the well there was one of the closest sources of water for the monument.[42]

Although the Arizona Star reported that the state and University had completed most of the land exchanges in the latter part of September 1955, the story was not wholly true. An obstacle occurred in the state trade when the United States Air Force negotiated for a withdrawal on the real estate near Yuma. By early 1956 the exchange was finally completed except for half the University land. Those 240 acres were traded in 1959.[43]

The purchase of the remaining private land within the boundary, except for 775 acres which were recommended for deletion, was accomplished in 1972. By Public Law 94-578 of October 21, 1976 all of section 8 in T14S R16E and 135 acres west of Old Spanish Trail in section 5 in T15S R16E were removed from the monument. Thus the long struggle over monument land ended.[44]

C. The Tucson Mountain Unit

In the 1920s the Tucson Game Protective Association headed by C.B. Brown became fearful that the encroachment of homesteads in the Tucson

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42. Superintendent's Monthly Reports (Saguaro), September and December, 1951; Arizona Star (Tucson), December 15, 1951, May 22, 1952.

43. Arizona Star (Tucson), September 25, 1955; Superintendent's Monthly Reports (Saguaro), September and December, 1955.

44. Superintendent's Annual Report (Saguaro) 1972; Public Law 94-578 enacted October 21, 1976, Folder A2621, Annual Reports, Saguaro National Monument Files.

Mountains would leave no place of beauty there for the area residents to enjoy. The Association, backed by many prominent people, started a movement to have the area withdrawn from homesteading and set aside as a park and game refuge. They were successful when on April 29, 1929 the Department of the Interior issued Recreational Withdrawal Order 21 on 28,988 acres, thus preventing mineral and homestead entry. Pima County obtained a lease on 15,787.90 acres of that land on December 15, 1930. A supplemental lease provided the remainder on May 4, 1931. A formal opening was held for the Tucson Mountain Recreation Area on April 10, 1932. At about that time Roger Toll of the National Park Service viewed the park as he searched for cactus areas which would make suitable national monuments. Toll thought the county would welcome Park Service administration of the area, but he considered it second in merit to the area east of Tucson. The National Park Service paid little attention to the Tucson Mountain Park over the years except for a brief period in the mid-1940s when it was believed that the saguaros in the monument east of Tucson were dying. At that time the idea was entertained to add the Tucson Mountain Park to the monument, but nothing came of it.[45]

On August 25, 1959 Assistant Secretary of the Interior Roger Ernst issued Public Land Order 1963 by which 7,600 acres of the Tucson Mountain Park would be restored to mining including the Pictured Rocks area as of September 30. The announcement of this action immediately caused an intense protest by numerous organizations and individuals. This opposition to order 1963 caused Assistant Secretary Ernst to suspend the effective restoration date to February 15, 1960 and to announce that there would be public hearings in Tucson on the reopening for mineral development on December 8, 1959. Continued reaction, however, resulted

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45. Arizona Star (Tucson), April 10, 1932, December 16, 1951; Arizona Citizen (Tucson), March 6, 1930; "Tucson Mountain Park History," I (Typescript copy in the Saguaro National Monument File); Roger Toll to the Director, NPS, March 31, 1932; Charles A. Richey to Mr. Drury, Acting Director NPS, April 5, 1946, Folder, Establishment, Saguaro National Monuments Files. Subsequent purchase brought the park acreage to 33,000.

in the hearing date being moved to October 29. On that evening the crowd overflowed the hearing room in the Pioneer Hotel and spilled into the halls and lobby. There was a great deal of animus toward the Banner Mining Company as the perpetrator of the order. Representative Stewart Udall told the people at the meeting that he would introduce legislation in the next congressional session to place the northern part of the Tucson Mountain Park under the Park Service as part of Saguaro National Monument.[46]

Although the Bureau of Land Management cancelled the order to open 7,600 acres in Tucson Mountain Park to mining on December 17, 1959, the Arizona Congressman did not drop the idea of adding part of the park to the national monument. On January 11, 1960, Stewart Udall kept his word and introduced HR 9521 by which federal land leased to Pima County for the park would be transferred to Saguaro National Monument. No action was taken on this bill or a subsequent measure, HR 1103, which he presented to the House of Representatives on January 3, 1961. Senator Barry Goldwater introduced S827 on February 9, 1961 whereby ownership of the entire Tucson Mountain Park would be transferred to Pima County. Subsequently, Representative Morris K. Udall, who replaced his brother Stewart when he became Secretary of the Interior, initiated HR 8365 on July 5, 1961 to have 15,360 acres of the Tucson Mountain Park attached to Saguaro National Monument. Shortly thereafter, Carl Hayden presented the same bill to the Senate.[47]

Before any action was taken on the Udall/Hayden measures, Stewart Udall convinced President John F. Kennedy to transfer part of the park to Saguaro by proclamation. On November 15, 1961, Kennedy issued Presidential Proclamation 3439 enlarging Saguaro National Monument by 15,360 acres and thus creating the Tucson Mountain Unit. Later, on

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46. Arizona Star (Tucson), September 10, 29, October 16, 29, 1959; Tucson Citizen, October 16, 1959; "Tucson Mountain Park History," 3.

47. Tucson Citizen, December 17, 1959, August 24, 1961; Arizona Star (Tuscon), July 27, 1961; "Tucson Mountain Park History," 4.

October 21, 1976 Public Law 94-578 added 5,378 acres to that portion of the monument.[48]

D. Monument Development

Although Saguaro National Monument appeared for the first time in April 1934 in Frank Pinkley's Southwestern Monuments Monthly Report, he was less than happy with the notification on March 24 that he had a new area under his control. Since the Park Service did not own what he considered the most attractive and accessible area, administering the park would prove a problem.

Pinkley was told that a salary for a three month temporary custodian would be provided starting July 1, 1934. He, however, did not view a temporary custodian as the answer to the problems. He advocated leaving the position vacant and he would occasionally travel there. He got a custodian anyway. The Washington office considered the months of June through August to be the best period in which to station a person at Saguaro. When University President Shantz learned of such a proposal he notified A.E. Demaray that few people came to the monument in the hot summer months. The greatest visitation occurred from January through March.[49]

The first use envisioned for the monument was to keep it as a research reserve while restricting visitation. Pinkley objected to that approach noting that it would be impossible to keep people away. Not only was there a relatively large population in nearby Tucson, but the Chamber of Commerce had already printed a brochure advertising the monument as an important place to visit. Whether through Pinkley's insistence or for other reasons the concept of a research reserve soon

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48. Tucson Citizen, November 17, 1961; Federal Register, November 22, 1961; "Tucson Mountain Park History," 4; Public Law 94-578, October 21, 1976.

49. Frank Pinkley to the Director NPS, April 11, 1934; A.E. Demaray, Acting Director NPS to Frank Pinkley, April 19, 1934, Folder, Saguaro NM General Correspondence November 17, 1933 to December 31, 1935, Saguaro National Monument Files.

died. At the same time the subject of building a road to Rincon Peak was discussed since the mountain area was the only place the Park Service was free to develop. Regional Director Tillotson, however, felt such an undertaking would be too costly and not appropriate.[50]

The monument remained unmanned until March 1935 when Charles Powell arrived as the first custodian. There were no facilities for him. The University allowed him to use a structure which the Civilian Conservation Corps had built on Observatory Hill. Without a contact point for visitors, he had to remain at the roadway entrances or meet people already in the monument. There were two entrances, one at the northwest corner and the other in the northwest part of section 32. Much of the rest of his time was taken up with preventing cactus theft and wood cutting.[51]

Powell served at the monument through June 1935. While there, Harry Langley, a landscape architect from the Park Service San Francisco office visited to investigate building a Rincon Mountain road. Regional Director Tillotson's opposition to such an undertaking the previous year did not end the proposal. Langley also did not favor a road into the mountains. To build a road into the Rincons would merely duplicate the Forest Service road to the top of the Santa Catalinas. If people wanted to escape the summer heat or have winter recreation they could use that already existing trail, he thought. In addition a Rincon road was not needed for administrative or development purposes and, if constructed, it would leave a visible scar. Langley's report laid the matter to rest until 1948.[52]

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50. Frank Pinkley to the Director NPS, April 11, 1934; M.R. Tillotson to the Director NPS, March 5, 1934, Folder, Saguaro NM, General Correspondence, November 17, 1933 to December 31, 1935, Saguaro National Monument Files.

51. Southwestern Monuments Monthly Reports (Saguaro), March and May 1935.

52. "Report to the Chief Architect on Proposed Rincon Mountain Road, Saguaro National Monument," May 28, 1935 by Harry Langley, Folder, Saguaro NM 1934-37, Saguaro National Monument Files.

Paul Beaubien came to Saguaro on New Years day 1936 as Ranger-in-Charge. He, too, found no facilities. For a time he stayed at the CCC camp just north of the boundary. Then he rented a small house about a mile and three quarters outside the south entrance. Finally the University of Arizona gave him some material to use to convert a storeroom into a residence. Basically, he operated as his predecessor Charles Powell had done. He did get some help from the CCC in counting visitors and in catching cactus thieves and illegal quail and deer hunters. Although he returned to his permanent station at Walnut Canyon in April, Beaubien was back at Saguaro the next November. Again he lived in the converted storeroom.[53]

Because of the uncertainties about whether the former Forest Service land would be returned and about the lack of money to purchase private and state holdings, the Park Service did not attempt to draft a master plan for Saguaro until 1937. Although the master plan never got beyond the preliminary report stage of May 1937, the whole plan was development oriented. It called for roads, an administrative and support area, and one picnic ground. Only two interpretive features were envisioned--an explanatory sign placed at the two lime kilns and a cactus garden near the visitor contact station. This plan called for the establishment of the headquarters area in section 32. Continued uncertainty about the monument allowed only one of the items in the master plan to be carried out. On September 18, 1937 a five-year lease was obtained from the University for the W½ of the NW¼ of section 32, T14S R16E. Here, it was hoped, that the headquarters would be developed. The two most important issues, grazing and forest fire protection, were not covered in the preliminary plan for by agreement the Forest Service administered these items for the Park Service.[54]

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53. Southwestern Monuments Monthly Reports (Saguaro), January and November 1936.

54. "A Preliminary Report for the Master Plan--Saguaro National Monument Arizona, National Park Service Region Three," May 1937, Saguaro National Monument Files.

The Civilian Conservation Corps began work on an administration building in the fall of 1939 at the same time Don Egermayer arrived as the first permanent custodian. Located on the leased land in section 32 that structure was to be the first of several buildings in a complex. Others included a visitor contact station, custodian's residence, and maintenance facility. The CCC, however, did not complete the office building before it left in December. Work, however, resumed on March 1, 1940 and the structure was completed April 24. Before any construction could begin on the other buildings the CCC departed. Egermayer decided to move from his converted storeroom residence and turn the intended administration building into a home and visitor contact station. No running water was available, so he had a 300 gallon tank placed on a dump truck and made periodic trips to Randolph Park on the east side of Tucson to fill it with water.[55]

Egermayer kept busy providing visitor services and maintaining the graveled Cactus Loop Road which the CCC completed in 1939. He also had to chase cactus thieves, hunters, and wood cutters. He was often unsuccessful in capturing anyone. Usually he only found evidence of such activity, but one night in February 1940 he caught people hauling six loads of wood out of the monument through a break in the fence. In addition to his other duties he found time to plant a cactus garden near the new building. In that same year the Forest Service ended its fire protection agreement and Egermayer began to post a two man fire watch on Mica Mountain in the summer months.[56]

A Master Plan was finally produced in late 1947. It, however, addressed only two issues--the need for a museum and the effect of grazing on the monument. In the latter case it only offered a statement

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55. Custodian's Monthly Report (Saguaro), November 1939, May 1940; Southwestern Monuments Monthly Reports (Saguaro), March and April 1940.

56. Custodian's Monthly Report (Saguaro), February 1940; Southwestern Monuments Monthly Report (Saguaro), May 1940.

on grazing with no solution. Although not mentioned in the master plan the subject of a mountain road resurfaced the following year. Edward Zimmer, the Chief of the Major Roads Branch in the Director's office, proposed to build a road to near the top of Mica Peak which would terminate in a picnic and campground facility at Manning Camp. He also thought the site had potential for the development of winter sports. Senator Hayden was enlisted in the project to get an appropriation for it. One condition was attached to building a road. The state and University had to relinquish control of their land as a prerequisite to construction of the route. Hayden agreed to use that tack, but he did not gain the consent of the state land commissioner. Eight months later the Park Service still hoped a road could be built to Manning Camp to make it possible for the public to enjoy the monument, but nothing came of this project.[57]

In April 1951 a new headquarters site was selected a little less than a half mile north of the current headquarters. The area was in section 29 near a point where the "new" Old Spanish Trail road intersected with the west boundary. Negotiations to purchase this private inholding were completed in December of that year. Now, for the first time, the Park Service had its own property in the lower part of the monument and no longer needed to renew a lease with the University every five years. A visitor center was completed on the new area in 1953, but the real development came with the Mission 66 program. As money became available in the late 1950s the visitor center was enlarged, employee housing was built in 1963, utility buildings were erected, and a water and sewer system were installed. A boundary fence was also constructed to keep cattle from the cactus forest area. In addition the 1959 Master Plan

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57. Saguaro Master Plan Development Outline, October 2, 1947, Folder 600-01 Master Plan, Saguaro National Monument Files; Report on a Proposed Development for Saguaro National Monument, May 21, 1948 by Edward S. Zimmer; Senator Carl Hayden to O.C. Williams, State Land Commissioner, September 1, 1948; Newton B. Drury, Director NPS to Thomas H. MacDonald, Commissioner Public Roads Adm., Federal Works Agency, May 6, 1949, Box 125, Folder 3, Saguaro National Monument, CHP.

called for a desert to mountain drive which would run from the headquarters area to Rock Reef Meadow with a spur to Manning Camp. The purpose of this road was to permit visitors to get a view of the desert to mountain transition zones. The 1963 Master Plan discounted this highway scheme and it was never again raised.[58]

E. The Civilian Conservation Corps

The Emergency Conservation Work (ECW) program, as the Civilian Conservation Corps (CCC) was first called, was one of a multitude of agencies established by the federal government to fight the depression of the 1930s. Popularly called the CCC until the name became official in 1937, the ECW provided service jobs for unemployed, single young men across the nation. Several agencies administered the ECW program among them the Park Service, Forest Service, United States Army, and the Department of Labor. The National Park Service not only had CCC men working on land it controlled, but it established a State Parks Division through which it administered an aid program to improve state, county, and city parks. Through that division, Park Service personnel designed and oversaw all construction projects in state, county, and city parks. Recreational facilities were designed to blend with the natural surroundings. In the desert southwest buildings tended to be camouflaged by constructing them of well defined horizontal coursed stone. Roofs were usually flat. Picnic shelters were devised in a ramada style while tables, benches and fireplaces were built of stone.

Emergency Conservation Work funds were provided by the Park Service's State Parks Division for the establishment of CCC camps in and near what later became both units of Saguaro National Monument. Pima County, which operated the Tucson Mountain Park, applied for two ECW camps in August 1933 for that park. The request was approved, and Camp Pima (SP-6-A) and Camp Papago (SP-7-A) were authorized. In April 1935 University of Arizona President Homer Shantz requested a camp

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58. Saguaro National Monument, Master Plan Development Outline, 1959.

whose members would work on the University controlled land that comprised an area within the monument called Saguaro Forest State Park. Out of his efforts came Camp Tanque Verde (SP-11-A), which was established in July 1935 about one mile north of section 10 just outside the current Rincon Unit. These camps were constructed by local men chosen by the Pima County Reemployment Committee. Like other ECW camps, they were initially composed of a set number of frame structures designed to house 210 men. The buildings included four barracks, one mess hall, one kitchen, one recreation hall, one officers' quarters, a hospital, a latrine, and several shower rooms. The operation of the camps was overseen by the United States Army which provided the commanding officer, adjutant, physician, and educational adviser. The State Parks Division of the National Park Service approved and supervised the work projects. During the summer the men were transferred to more, northerly climates such as the Grand Canyon. One exception to this scheme occurred in the 1934-35 period when extra finances were allotted to employ more youth through ECW drought camps. In that period Camp Pima housed a special drought company DSP-1-A in lieu of the SP-6-A group.[59]

1. Tucson Mountain Unit

In October 1933 the enrollees destined for the two Tucson Mountain Camps reached Tucson before their camps were completed. As a result, they were put to work in Tucson for a time. The men of Camp Pima (SP-6-A) were the first to arrive in the Tucson Mountain Park. They established a temporary tent camp on November 17, 1933, and

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59. Donna B. Allen, "A Preliminary Survey of Camp Pima, Saguaro National Monument West, Tucson, Az." (Typescript submitted for University of Arizona Historical Archaeology course, May 1979), 4; Larry Copenhaver, "CCC Camps in Arizona" (Typescript submitted for University of Arizona History 216, June 1966), 6, 10. When the Park Service determined that it would be assigned Saguaro National Monument before the Secretary of the Interior's official decision, it contemplated a CCC camp whose members would be used to build horse and foot trails as well as fire breaks in the Rincons. Because of the later uncertainty as to whether that area would be returned to the Forest Service, a decision was made not to employ the CCC.

remained there until the permanent camp was completed on December 22 of that year. The site of the permanent camp is located in the northwest corner of the national monument. Some of the men were immediately put to work gathering several hundred tons of rock to be used in the construction of roads, dams, fireplaces and other picnic area projects. Others began to rebuild eight miles of poor desert road. In the meantime enrollees moved from Tucson into Camp Papago (SP-7-A) on December 22, 1933. Owing to a lack of water, half the men in that camp were transferred in less than a month while the rest stayed until May 1934 when the camp was closed. During that period, the men performed road work, but they did build one masonry and two earthen dams.[60]

In January 1934 the men of SP-6-A began to construct picnic ground fireplaces, tables, benches, ramadas and bathrooms as well as some dams. The ramadas were termed "unique and attractive," because the roof support posts with a core of reinforced steel and concrete were covered at the base with stonework while the upper part was enveloped with woody saguaro skeleton. The roofs were also covered with saguaro ribs. Tables were made of uncoursed stone legs to support a concrete top, while the benches were uncoursed stone capped with concrete. The fireplaces were built of uncoursed stone. Bathrooms were sometimes constructed of coursed and other times uncoursed stone. Since the CCC camp superintendent's monthly reports often did not specify which picnic sites were in the process of construction at any given time, one cannot be certain of the specific dates the five picnic areas in the Tucson Mountain Unit were constructed. At best one can only observe that the

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60. Rich R. Thomson, Supt. Camp SP-6-A to Conrad L. Wirth, December 14, 1933; Rich R. Thomson to Conrad L. Wirth, January 2, 1934, CCC Projects, Arizona, Entry 41, Box 7, SP-4, SP-5, SP-6, Record Group 79, Records of the National Park Service, NA (hereafter cited as CCC Projects, Box 7); Rich R. Thomson, Acting Supt. Camp SP-7-A to Conrad L. Wirth, March 1, 1934; Rich R. Thomson, Supt. Camp SP-7-A to Aaron L. Citron, State Procurement Office, Phoenix, April 25, 1934, CCC Projects, Arizona, Entry 41, Box 8, SP-7, SP-8, SP-9, SP-10, SP-11, Record Group 79, Records of the National Park Service, NA (hereafter cited as CCC Projects, Box 8).

Ez-Kim-In-Zin and Signal Hill facilities were constructed between January and May 1934, while the Sus, Cam-Boh, and Mam-A-Gah Picnic areas were built in the September 1934 to June 1935 period.[61]

Twenty-six check dams were built throughout Tucson Mountain Park. These dams were basically of two types. Earth-fill dams were placed in the lower reaches for flood control and to store water for wildlife. Masonry dams were constructed in canyons and arroyos to prevent erosion and again to provide water for the fauna. Thirteen such dams were built within the Tucson Mountain Unit boundary. All check dams were completed by the end of February 1936.[62]

When the DSP-1-A enrollees arrived at Camp Pima on August 1, 1934, they were immediately put to work making adobe brick for use in an administration building. The 200 men of the camp were soon apportioned to other projects such as dam building, and road and trail construction. By November 1 the King Canyon Road was completed with heavy boulders set along the road's edge in the most dangerous hillside sections to act as guard walls. At the end of that month the eleven-mile Wasson Peak horse trail was finished.[63]

By June 1935 the DSP-1-A group had departed and the SP-6-A men once more inhabited Camp Pima. The next fifteen months were basically spent working on roads, and obliterating the scars of old mine roads and trails, putting in cattle guards, building barbed wire fence, placing

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61. Rich R. Thomson to Conrad L. Wirth, February 1, 1934 and March 1, 1934; Rich R. Thomson to the State Park ECW, NPS, March 31, 1935, CCC Projects, Box 7.

62. Rich R. Thomson to Conrad Wirth, February 1, 1934 and March 1, 1934; Clinton F. Rose, Acting Supt. SP-6-A to the State Park ECW, NPS, February 1, 1936, CCC Projects, Box 7.

63. Rich R. Thomson, Supt. Camp DSP-1-A to State Park ECW, NPS, August 31, 1934, November 1, 1934, and November 30, 1934, CCC Projects, Box 7.

rip-rap to protect roads, banks, and dips, completing more dams, and reseeding sixty-seven acres in various places with native grass.[64]

For the next several years, beginning September 1936, the work concentrated on building an administrative complex and in the southern part of Tucson Mountain Park outside the present monument boundary except for two projects within the current monument boundary. These two undertakings involved the construction of the Red Hills and Dobie Robinson facilities to supply water to game animals and birds. The Tucson Game Protective Association with several other organizations collected $250 by early September 1936 to build one water source in the central part of Tucson Mountain Park. They asked the State Game Department to supply the funds to equip another well in the north portion. The CCC, however, developed the two facilities in 1937. Each site included a windmill and galvanized water storage tank. In 1941 a reinforced concrete water storage reservoir was added to each location. These reservoirs remain along with the windmill tower at the Red Hills facility.[65]

Camp Pima officially was changed from SP-6-A to CP-1 on November 3, 1940. It was this group that built the water storage

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64. Rich R. Thomson to State Park ECW, NPS, June 1, 1935; Harold W. Cole, Supt. Camp SP-6-A to State Park ECW, NPS, September 30, 1935 and November 30, 1935, CCC Projects, Box 7; Camp Application, Department of the Interior, Emergency Conservation Work, September 5, 1936, Saguaro National Monument Files.

65. C.B. Brown, Pima County Park Commissioner to Regional Director, Region Three, NPS, September 10, 1936; Memorandum for the Regional Director [Region Three] by Carl A. Taubert, Inspector, CCC, Az., April 19, 1941; Wildlife and Man-made Water Sources, Tucson Mountain Unit, Saguaro National Monument (no date), 3, Saguaro National Monument Files; December [1936] Report by Clinton F. Rose, Resident Landscape Architect, Region Three, Box 5 Monthly Narrative Reports of Regional Landscape Architects, Region III; 1936, Record Group 79, Records of the National Park Service, NA; Monthly Narrative Report to Chief Architect by Clinton F. Rose, Resident Landscape Architect, Region Three, October 21-November 20, 1937, Box 16, Monthly Narrative Reports of Regional Landscape Architects, Region III, June-December 1937, Record Group 79, Records of the National Park Service, NA.

reservoirs at Red Hills and Dobie Robinson shortly before the camp was abandoned on June 21, 1941. The next year the CCC gave the buildings to the army. The army dismantled the wooden structures and shipped them to Phoenix where they were reassembled in a mechanics' center. Only the concrete slabs on which they were built remain. Adobe structures were left to decay and merely remnants of their walls survive. The only other reminder of this CCC camp which could house 210 men is the circle of saguaro at what was the entrance area.[66]

2. The Rincon Mountain Unit

University President Shantz evidently decided that, since all of the saguaro cactus area inside the national monument would not be developed by the Park Service because that agency did not own it, he would attract the CCC to help with the portion controlled by the University of Arizona. To be eligible for this aid meant that a state park had to be created, for the CCC would not work on state projects without such a designation of the land. As a result the Saguaro Forest State Park was created out of a ten-square-mile area at the western end of Saguaro National Monument.

Although the 1937 Master Plan for the monument stated that the Arizona State Legislature set aside the Saguaro Forest State Park area in February 1934, that was not possible. The legislature only met every other year in odd numbered years. A check of the legislative journal for 1933 and 1935 did not show any action taken to create a state park. At the same time a check of the governor's papers and calendar did not reveal that he signed any bill dealing with a Saguaro Forest State Park. The annual reports of the Arizona State Land Commission, under whose administration such a park would fall, showed no mention of the park or of a budget allocated for it in the period 1933-40. As a result, one has to conclude that University President Shantz merely designated the area Saguaro Forest State Park for his own purposes.

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66. C.B. Brown to J.H. Haile, Eighth Corps Area, Fort Sam Houston, Texas, April 15, 1941. Although the camp could house 210 men, the number living there usually ran between 150 and 200.

In a letter dated April 20, 1935, President Shantz notified the Director of the National Park Service that he intended to have the CCC work on projects on the University-controlled land within the monument. The CCC endeavors would include water development, construction of a limited amount of automobile road, and the obliteration of old homestead and squatter sites, old roads, and mines. He placed the responsibility for the Emergency Conservation Work with Professor A.A. Nichols, a range ecologist. An advance party of twelve CCC men arrived to occupy Camp Tanque Verde, SP-11-A, on July 20, 1935.[67]

Within a few days the remainder of the enrollees reached the camp and began the process of razing and removing old shacks, filling mine shafts, cleaning up rubbish, and removing old road scars. By the end of March 1936 the men had obliterated twelve miles of old road, filled the Loma Verde mine with 800 tons of cans, rubbish, and debris cleaned from the state park, razed twelve squatters' shacks, destroyed two old picnic areas, removed any trace of thirty prospect holes, and began construction of the road to Observatory Hill.[68]

In the meantime a skyline loop road through the saguaro cactus area was in the planning stage. By the end of March 1936 that route had been surveyed and staked. Construction began soon thereafter and continued as the main project until completed in April 1939. Besides traversing University land, it extended through private property with the owner's consent. Much of the proposed rock work along the road was eliminated in 1937 because of the cost and difficulty of finding adequate

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67. H.L. Shantz, Pres. of the University of Az. to Arno B. Cammerer, Director NPS, April 20, 1935, Folder Saguaro NM, General Correspondence November 17, 1933 to December 31, 1935, Saguaro National Monument Files; Narrative Report, SP-11-A, Saguaro Forest, Tucson, Arizona, October 3, 1935, CCC Projects, Box 8.

68. Narrative Report for ECW, Camp SP-11-A from July 20, 1935 to March 31, 1936, CCC Projects, Box 8; W.H. Wirt, "Report to the Director, National Park Service on Emergency Conservation Work at Saguaro National Monument," February 29, 1936, Folder, Master Plan, Saguaro National Monument Files.

rock. One year before completion Camp Tanque Verde, SP-11-A, closed (April 30, 1938) for want of water. As a result, men from a side camp in Randolph Park in Tucson, SP-3-A, finished the road.[69]

Another important CCC project involved the construction of an administration building by a group from SP-3-A. The building site was staked in March 1938, but actual construction did not begin until the fall of 1939. It was completed April 24, 1940, but, when the planned custodian's residence was not built, it became a visitor contact station and residence.[70] The structure was taken down in the late 1970s.

Other work accomplished by the CCC on the University land in the mid-1930s included building a fence along the west boundary, leveling the top of Observatory Hill, and constructing several check dams. The fence no longer remains, the top of Observatory Hill has reverted to a natural state, and ranchers so changed the dams for cattle watering that they are not recognizable as having been built by the CCC.

F. Forest Fire Policy

When the National Park Service gained control of Saguaro National Monument, the Forest Service had administered most of the area for twenty-seven years. In that period of time that agency had developed a forest fire policy to suit its needs. Basically, prevention and early suppression comprised the Forest Service approach to fire. In the forest

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69. Narrative Report for ECW, Camp SP-11-A from July 20, 1935 to March 31, 1936; Monthly Narrative Report to Chief Architect by Clinton F. Rose, Resident Landscape Architect, Branch of Plans and Designs, Region Three, April 21-May 20, 1937, Box 15, Monthly Narrative Reports of Regional Landscape Architects, Region III, January-May 1937, Record Group 79, Records of the National Park Service, NA; Southwestern Monuments Monthly Report (Saguaro), November 1938; Custodian's Monthly Report (Saguaro), March 1939.

70. Monthly Narrative Report to Chief of Planning by Clinton Rose, Resident Landscape Architect, Region Three, February 21-March 20, 1938, Box 21, Monthly Narrative Reports of Regional Landscape Architects, Regions II & III, 1938, Record Group 79, Records of the National Park Service, NA; Custodian's Monthly Report, April 1940.

fire season, which usually ranged from May into September, the Forest Service used the Rincon Ranger Station as a base of operation. From about 1912 to 1922 Spud Rock Cabin was used as the fire fighting and trail headquarters on the mountain. In 1922 the Manning Camp area began to serve this function. Since proper lookout coverage could not be made from only one point, fire protection trails were constructed and two Forest Service fire guards rode a patrol from Manning Camp to Mica Peak via Spud Rock and back twice per day.[71]

When the Park Service officially began to administer Saguaro National Monument in 1934, the temporary custodians who served there approximately four months per year were absent during the fire season. As a consequence an agreement was made with the Forest Service by which that agency would continue to handle fire prevention and suppression. In 1937 Forest Service officials told the Park Service that the practice of riding patrols had not proven to be adequate. As a consequence, the two agencies agreed that the Park Service would purchase a 100-foot steel fire watch tower and the Forest Service would erect it on Mica Mountain. The Park Service did not question the location since no one from that agency had been to Mica Mountain. The unassembled tower was bought and delivered to the Rincon Ranger Station in 1937. It remained there over winter and the next May the CCC moved it by mules to Spud Rock. From there the Forest Service took it to Mica Mountain and began to erect it on June 13, 1938. It was completed by the end of the month. Several years later the Park Service learned that the Forest Service wanted the tower on Mica Mountain because it provided

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71. Lauver, "A History of the Use and Management of the Forested Lands of Arizona, 1862-1936," 109; W. Ward Yeager, "Saguaro National Monument Special Report of Forest Protection Requirements as Part of the Master Plan Study" (May 4, 1937), 3, Folder 600-01, Master Plan, Saguaro National Monument Files; Arizona Star (Tucson), May 8, 1966; Don Egermayer, former SAGU Custodian to Harold Jones, Superintendent, SAGU, April 9, 1971, Folder, Monument Personnel, Saguaro National Monument Files.

good coverage of the Santa Catalina Mountains which were their territory. It proved of very little use in detecting fires on the national monument. During the forty years of its use Park Service fire watch personnel provided a valuable service to their neighbor.[72]

On January 6, 1940 Custodian Egermayer learned that the Forest Service intended to withdraw all assistance for fire protection on the monument except for cooperation in detecting forest fires. As a result, he hired one man for fire watch duty on Mica Mountain beginning May 2 and a second person to start June 1. They worked until mid-September. At that time the Park Service continued the Forest Service policy regarding forest fires. As indicated in the 1942 forest fire control plan, the "primary aim is to PUT OUT all fires, confining the area burned to the smallest possible minimum, and to KEEP THEM OUT."[73]

The Park Service decided that the existing Forest Service trail system of about fifty miles was sufficient for protection. These trails consisted of the following:

1. Chimenea Trail - twelve miles from the Rincon Ranger Station to Manning Camp.
2. Happy Valley Saddle Trail - fifteen miles from the Rincon Ranger Station to Manning Camp via the Happy Valley Saddle. It was the only trail toward the eastern boundary.
3. Manning Camp - Spud Rock - Mica Peak Trail - six mile trail used by the Forest Service for patrol.

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72. Yeager, "Saguaro National Monument Special Report of Forest Protection," 3; Herbert Maier, Acting Regional Director, Region Three to the Director NPS, May 27, 1938, Folder, 620-37, Lookout Stations, Saguaro National Monument Files; Egermayer to Jones, April 9, 1971.

73. Southwestern Monuments Monthly Reports (Saguaro), January and May 1940; Egermayer to Jones, April 19, 1971; Forest Fire Control Plan for 1942, Saguaro National Monument, March 1, 1942, Saguaro National Monument Files.

4. Happy Valley Saddle to Rincon Peak Trail - four miles.
5. Telephone Line Trail - ten miles along the telephone line from Rincon Ranger Station to the junction of the line with Manning Camp - Happy Valley Saddle Trail.
6. Lateral trails - several uninvestigated trails leading from the main trails.[74]

Under the arrangement that Egermayer established, the lookout tower man arrived in the mountains about a month before the fire guard patrolman. The living quarters for both men was Manning Cabin as it had been with the Forest Service. Each morning the lookout rode to the tower while the patrolman walked the trail from Manning Camp to Reef Rock to Mica Mountain Lookout to Spud Rock and back to Manning Camp. Telephones at each of the patrol stops kept the two men in hourly contact. Men in Forest Service lookout posts on Mt. View and Mt. Bigelow in the Santa Catalina Mountains watched for fires on part of the monument while the Park Service man observed the Santa Catalina Mountains from the Mica Mountain lookout tower. It was thought that the highest occurrence zone for fires on the monument was in a ten section area surrounding Manning Camp and Mica Mountain.[75]

In 1941 the patrol route changed. Man Head was added as a patrol lookout point and Spud Rock was dropped except in extreme fire danger. At the time of extreme danger the patrol loop was walked continuously. This situation required the aid of a third patrolman. In case of fire, nearby ranchers, who held grazing allotments, could be contacted for men and horses, and help could be obtained from the Forest Service.[76]

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74. "A Preliminary Report for the Master Plan - Saguaro National Monument Arizona," 5-6; W. Ward Yeager, "Forest Protection Plan of Saguaro National Monument" (March 1940), n.p., Saguaro National Monument Files.

75. Yeager, "Forest Protection Plan of Saguaro National Monument," n.p.

76. D.W. Egermayer, "Fire Protection Step-up Plan and Fire Control Plan for Saguaro National Monument" (1941 and 1942), n.p., Saguaro National Monument Files.

The next revision of the forest fire protection plan occurred in 1950. A two man horse patrol now rode a four station loop with observations made at Spud Rock, Mica Mountain, Reef Rock, and Man Head. It was ridden twice daily except in extreme fire danger. Additional fire-fighting agreements were reached with the Federal Prison camp in the Santa Catalina Mountains and Davis Monthan Air Base as well as the Forest Service and ranchers. The area considered to have the most frequent fires was broadened to an eighteen section zone surrounding Manning Camp, Mica Mountain lookout tower, Happy Valley Saddle, and Rincon Peak. Since much of the section of high fire occurrence could not be viewed from the Mica Mountain tower, a new tower was proposed for Rincon Peak. It was thought that such a tower would eliminate the need for patrols, but it was never constructed.[77]

In 1957 an additional lookout was established at Happy Valley Knoll to be used in times of extreme fire danger. Since it was not a part of the patrol loop, fire aids took turns staying there for five days. In 1960 that area was designated a lookout at all times during the fire season.[78]

Manning Cabin was used until 1958 to house lookout and patrol personnel. In that year a modular building was erected at Manning Camp. It contained modern conveniences including electricity supplied by a generator. This situation lasted until the summer of 1977 when Manning Cabin was once more used as quarters for fire fighters and the newer buildings were removed.[79]

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77. "Forest Protection Requirements Report for Saguaro National Monument" (February 20, 1950), 5-7; Harold M. Ratcliff, NPS Forester to Regional Forester, Region Three, March 9, 1950, Folder, 883#2, Forest Protection (General), Saguaro National Monument Files.

78. Saguaro National Monument, Master Plan Development Outline, 1959; Arizona Star (Tucson), May 24, 1959, June 30, 1960.

79. Arizona Star (Tucson), October 17, 1976.

In 1963 the forest fire lookout season changed from the period of May 1 to August 31 to one of greater duration. The duty time then went from mid-April to mid-October. Five fire guards were also employed instead of three.[80]

The year 1963 presaged a change in the Park Service's approach to forest fire control. At that time the Secretary of the Interior released a special report which stated that fire suppression had severely affected the ecosystems of many forest areas and, instead of suppression, fire should be used to preserve or restore the natural biotic scene. The National Park Service, however, did not adopt that policy until 1971. Saguaro National Monument became the first Park Service unit to which it was applied. Specifically the new policy for Saguaro stated:

1. All man made fires would be suppressed as soon as possible.
2. All fires that threatened cultural resources and physical facilities would be extinguished.
3. Fires would not be permitted to burn in the Saguaro cactus forest excluded from grazing in 1957.
4. Motorized fire fighting vehicles could not be used unless it was necessary to protect human life, cultural features, or property outside the monument.
5. All natural fires were to be extinguished except when all of the following conditions prevail:
    a. The fire occurs between July 1 and September 15.
    b. Accumulated rainfall beginning June 15 for the period exceeds two inches or more at Manning Camp.
    c. Summer monsoon rain pattern fully established.
    d. Buildup index not to exceed forty at Manning Camp.
    e. Spread index not to exceed thirty at Manning Camp.[81]

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80. Master Plan for the Preservation and Use of Saguaro National Monument, Mission 66 Edition" (1963), 4, typescript in the National Park Service History Collection, Harpers Ferry Center, West Virginia.

81. "Resource Management Plan: Saguaro National Monument," Appendix No. 1: A Natural Method of Introducing Prescribed Fire into Saguaro National Monument (ca. 1971), 4; "Draft Environmental Statement: Fire Management in the Western Region" (San Francisco: National Park Service Western Regional Office, ca. 1971), 4, 5, 9.

Several additions were made to the new fire management policy in 1974. One such provision stated that all fires which threatened surrounding Forest Service land would be controlled. The other attachment, which dealt with air pollution, stated that the Pima County Air Pollution Control Department would be notified whenever a decision was made to allow a natural fire to burn uncontrolled. If that local agency declared a pollution alert and requested cooperation, then the fire would be controlled or extinguished.[82]

This approach to forest fire management was reaffirmed in 1978. Surprisingly soon thereafter in that year, the Forest Service adopted the same plan for the forest adjacent to the national monument. This meant that natural fires which occurred on the monument under favorable conditions need not be controlled when they threatened the surrounding national forest.[83]

G. The Park Service Approach to Grazing

When the National Park Service received Saguaro National Monument, it inherited a situation which ran counter to its conservation policy. Livestock grazing on the monument became a troublesome issue even before the Park Service officially accepted administration in March 1934. Ranchers, alarmed at the potential transfer and thus assumed loss of grazing rights, complained to their political representatives of the impending peril. As a result, Park Service Director Cammerer pronounced that the transfer of land from one bureau to another need not

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82. "Resource Management Plan: Saguaro National Monument," Management Appendix No. 1, Addendum No 1 (February 1974), 1, Saguaro National Monument Files.

83. Natural and Cultural Resources Management Plan and Environmental Assessment, Saguaro National Monument Arizona (June 1978), 8-12, Saguaro National Monument Files; Tucson Citizen, June 26, 1978; Arizona Star (Tucson), July 2, 1978.

eliminate grazing rights and did not affect valid existing rights. This statement gave little comfort to the ranchers who continued to campaign for the return of a part of the monument to the Forest Service.[84]

The uncertainty over whether the Park Service would continue to administer the portion of the monument carved from national forest land or would transfer it back to the Forest Service remained for years. After it gained official control, this unsettled condition caused the Park Service to allow continued grazing. Director Cammerer, however, allowed that "eventually for the protection of certain desert flora, we may want to make some adjustments."[85]

Having determined not to end grazing rights on the monument, the Park Service did not face the issue for a year. In March 1935, however, Forest Supervisor Fred Winn wrote to Pinkley and announced that the five year Forest Service permits which covered a portion of the monument expired at the end of that month. Two of the allotments fell partly on the monument and partly on the national forest. Winn told Pinkley that permit renewal required Park Service approval. As a result, Pinkley asked Cammerer for advice. Should the Park Service allow the Forest Service to issue permits for it or should the Park Service develop its own permit system? Cammerer answered that, if it were impracticable to issue separate permits for the coming season, then Pinkley should allow the Forest Service to administer the program under a cooperative agreement. Pinkley chose the latter course and signed a memorandum of agreement in April 1935. The two agencies consented to let the Forest Service control permits for the 1935 grazing year with the Park Service receiving a

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84. Arno B. Cammerer, Director NPS to Representative Isabella Greenway, February 21, 1934, Box 2363, Folder, Correspondence March 1, 1933-August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

85. Arno B. Cammerer, Director NPS to Frank Pinkley, June 7, 1934, Folder, Saguaro NM, General Correspondence November 17, 1933 to December 13, 1935, Saguaro National Monument Files.

proration of fees. If that arrangement were to continue, it would require a yearly agreement. This provisio meant that ranchers no longer could obtain multi-year permits. Each year for twelve years the two agencies renewed the agreement.[86]

The next decision involved whether to allow a grazing permit to be transferred to the new owner of a ranch or to terminate it. In late 1938 J. Rukin Jelks, who held the Rincon Allotment, announced to Frank Pinkley that he had a buyer for his Casa Blanca Ranch (later X-9) if the grazing permit went with it. Although Jelks had been previously informed by the Park Service that permits would not be transferred to a new ranch owner, such a policy, he contended, meant a loss of money because it reduced the value of his ranch. Pinkley asked Director Cammerer if it were possible to forego the regulation and allow the buyer of Jelks' ranch to receive the permit. Cammerer acceded to Jelks' request on the basis that it would not violate policy because it was doubted that the Park Service would retain much of the monument land. Although Jelks did not sell for two more years, the establishment of an exception to the rule allowed Melvill Haskell to market his property and Pantano Allotment in 1939.[87]

Although Park Service personnel noticed the effects of overgrazing which the Forest Service seemingly permitted, nothing was done about the

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86. Frank Pinkley to the Director NPS, March 20, 1935; Arno B. Cammerer to Frank Pinkley, April 5, 1935; Memorandum of Agreement, April 1935, Box 2363, Folder, Correspondence March 1, 1933-August 30, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; Memorandum of Agreement, April 1935, File G, Cooperation, Coronado, National Park Service, Coronado National Forest Headquarters, Tucson.

87. Memorandum to the Director from Frank Pinkley, December 19, 1938; Memorandum for the Superintendent, Southwestern Monuments by Arno B. Cammerer, January 14, 1939, Box 2363, Folder, Correspondence From September 1, 1937, National Monument, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

situation until ranch sales with the transfer of their attendant grazing allotments prompted a new policy. In 1941 the Forest Service agreed to reduce the number of livestock permitted to graze on an allotment each time a holder sold his property. Ten percent became the established reduction.

In 1948 the memorandum of agreement for administration of grazing permits was amended to save an exchange of memoranda each year. An addendum permitted the memorandum of agreement to remain in force until terminated by either agency upon sixty days written notice. An additional modification was made in 1956 to allow the Forest Service to issue ten-year permits.[88]

In 1973 the Forest Service decided not to continue administering grazing permits for the Park Service. Although two ranchers had voluntarily relinquished their permits by this time, there were still two active allotments. The Park Service granted the two remaining ranchers special use permits until the end of 1975 at which time grazing would end on the monument. Although a lawsuit allowed one permittee to graze cattle until 1979, he, too, gave way in the end.

H. Presumed Death of the Saguaro

In addition to all the other problems, a great fear arose among many Park Service people in the early 1940s that the saguaros would disappear from the monument as the victims of disease. Consequently, this situation provided some with more reason to question whether the Park Service should continue in its quest to consolidate its control of the monument. Basically, however, it spurred a movement to bring the monument totally under Park Service control.

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88. Memorandum of Agreement, 1948, File G, Cooperation, Coronado (Chiracahua Nat'l Monument), Coronado National Forest Headquarters, Tucson; Memorandum of Agreement, 1956, File G, Cooperation, National Park Service (Saguaro National Monument), Coronado National Forest Headquarters, Tucson.

Custodian Don Egermayer reported in May 1940 that he had observed a large number of saguaro with black spots. Some of these infected cactus had died. Word spread that the saguaro had a serious disease. Despite the assurance of three University of Arizona professors that the importance of the disease was overrated, Acting Region Three Director Milton McColm felt the affliction to be a very serious threat to the saguaro.[89]

In March 1941 other University personnel came to the monument and determined the rot pockets on the saguaro were caused by bacterial necrosis. This bacteria, they decided, was spread by the larvae of a nocturnal moth which attacked the cactus. As a result, a request was made to obtain the services of a plant pathologist from the Bureau of Plant Industry of the Agriculture Department. Dr. Lake S. Gill of that agency appeared on April 4, 1941 to study the problem. He was assisted by Paul Lightle of the University of Arizona. Gill conducted an experiment during the winter of 1941-42. Each of the 12,750 saguaro in section 17, T14S R16E were numbered. The section was then divided in half. While nothing was done to the saguaro in the north part, the plan was to remove and bury every diseased plant in the south portion.[90]

While Gill and Lightle were busy directing the cactus removal, the Park Service Regional Biologist from Santa Fe W.B. McDougall came to view the saguaro. He became dubious of Gill's efforts after Gill told him

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89. James L. Mielke, "Summary of Results of Control Experiments on Saguaro Disease, Saguaro National Monument," July 12, 1944, Folder 883-06, Insect Infestations, Saguaro National Monument Files; Memorandum for the Director NPS by Milton McColm, Acting Regional Director, Region Three, February 14, 1941, Box 2363, Folder, Correspondence From September 1, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA; V.W. Saari, "Forest Protection Requirements Report for Saguaro National Monument" (June 1942), 28, Saguaro National Monument Files.

90. Southwestern Monuments Monthly Reports (Saguaro), March, April, and October 1941; Mielke, "Summary of Results of Control Experiments on Saguaro Disease."

that he had found references to the disease going back as far as 1886. McDougall felt that if the saguaro had survived for at least fifty years with the disease present then it was not likely they would be wiped out. After looking at the plants, he noted that the only place the disease seemed serious was in the areas of fully mature saguaro. As a result, McDougall recommended that "the National Park Service policy of allowing natural phenomena to proceed unmolested be adhered to." If this were done, he believed the saguaro stand would be thinned, but it would regenerate.[91]

The presumed disease continued to recur the next year, but, because of a labor shortage, these saguaro could not be removed. As a result, it was decided to try another experiment. It was based on an observation that when woodpeckers ate the drone fly larvae which lived in the rot pockets, they would inadvertantly open the pockets and cause them to dry up. James Mielke, who by this time had joined Gill, went about opening the lesions so they could dry. His examinations led him to suspect that the rot only killed very old saguaro or those with low vigor. The situation looked discouraging because saguaro on the monument were primarily aged. Man's activities such as wood cutting combined with overgrazing had reduced the vegetation required to protect saguaro seedlings and consequently there were almost no younger cactus. Mielke, however, never came to a positive conclusion that the disease was merely a natural phenomenon. Instead, he left the impression that the loss of saguaro in 1944 would be higher than the previous year.[92]

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91. Special Report by W.B. McDougall (ca. December 1941), 1-2, Box 2363, Folder, Correspondence From September 1, 1937, National Monuments, Saguaro 120, Central Classified File 1933-1949, Record Group 79, Records of the National Park Service, NA.

92. Mielke, "Summary of Results of Control Experiments on Saguaro Disease;" Memorandum for the Regional Director, Region Three by Harold M. Ratcliff, Regional Forester, September 26, 1944, Folder, 204-10, By Field Officers, Saguaro National Monument Files.

Toward the end of 1944, the principal pathologist at the Bureau of Plant Industry offered to spray the saguaro with DDT as a means of killing the moth which was suspected of spreading the bacterial rot. He proposed using an airplane to apply the insecticide every six weeks. The pathologist acknowledged that at the same time all insects would be eliminated, but, he ventured, if the saguaro were valued above all else, the use of DDT would presumably allow them to survive for many more years. Several members of the Park Service opposed the use of DDT at the monument. Chief Forester J.D. Coffman notified the Bureau of Plant Industry that the Park Service would decline the offer. He noted that, since DDT was a potent chemical for which mixtures and dosages had not been established, there was a great potential for harmful effects beyond killing all insects. It was not known what the consequences would be to plants and soil as well as cold and warm-blooded animals. Biologist Victor Cahalane remarked that the saguaros were not the primary concern because the monument had been established to protect all plants and animals within the boundary. He ascribed the major cause of the problem at Saguaro to cattle grazing.[93]

In mid-1946 Gill and Lightle produced a progress report on their study of bacterial rot in section 17. They came to the conclusion that fewer saguaro were dying. Mortality, they noted, was related to size with a higher death rate among the larger plants. They, however, offered only a tentative conclusion for this phenomenon. It was possible, Gill and Lightle thought, that since larger plants were older and therefore in a state of decline, they were less able to resist disease. They would not predict what the future would bring, but others did.

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93. Lee M. Hutchins, Principal Pathologist, Bureau of Plant Industry to J.D. Coffman, Chief Forester NPS, November 13, 1944; Office Memorandum to Mr. Drury by Victor H. Cahalane, December 20, 1944; Memorandum for the Director NPS by Chief Landscape Architect Thomas C. Vint, January 6, 1945; J.D. Coffman to Lee M. Hutchins, February 12, 1945, Folder, 883-06, Insect Infestations, Saguaro National Monument Files.

Region Three Director Tillotson believed that there soon would be no remaining saguaro and, therefore, recommended abolishing the monument. The Park Service chief of development concluded that, since there was no reproduction under the current situation, the rate of loss meant there would not be any saguaro in fifteen years.[94]

At the same time another school of thought developed within the Park Service that perhaps followed the lead of Regional Biologist McDougall. To this group, the bacterial rot on saguaro was viewed as a natural occurrence and, therefore, should be allowed to take place. What worried these people was the lack of young cactus which they ascribed to the results of grazing. Without vital young saguaro to replace ancient, diseased ones a disastrous situation would occur. To end grazing and thus begin saguaro rejuvenation could only be accomplished by having Park Service ownership of all the monument land. Conditions were so serious, the chief of development thought, that the Park Service had to acquire the state and private land within one and a half years and end grazing on that acreage. This belief impressed Director Drury and led him to contact the University of Arizona President about obtaining that institution's land. This belief then led to the long negotiation which finally culminated in Park Service ownership and the salvation of the saguaro.[95]

While Pathologist Gill finally decided without doubt in 1951 that the rot in saguaro was linked to overmaturity and did not threaten to kill all

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94. Lake S. Gill and Paul C. Lightle, "Analysis of Mortality in Saguaro Cactus" (June 30, 1946), 3-4, Saguaro National Monument Files; Memorandum for the Director, NPS by M.R. Tillotson, Regional Director, Region Three, July 18, 1945; Memorandum for the Director, NPS by Chief of Development, May 27, 1948.

95. Memorandum for the Regional Director, Region Three by Harold M. Ratcliff, September 26, 1944; Office Memorandum to Mr. Drury by Victor H. Cahalane, December 20, 1944; Memorandum for the Director NPS by Thomas C. Vint, January 6, 1945; Memorandum for the Director by Chief of Development, May 27, 1948; Newton B. Drury, Director NPS to J. Byron McCormick, August 25, 1948.

the cactus, others began to experiment with seed germination. William Bryan of the Bureau of Plant Industry constructed a lath house in which to study saguaro seedlings. Boxes containing different soil nutrients were planted with seeds so that saguaro requirements could be better known. Stanley Alcorn of the Ornamental Plants Section in the Agriculture Department succeeded Bryan in 1955. He transplanted saguaro seedlings to study their survival and note the effects of fertilizing them in a natural setting. The experiments seem to have ended when the lath house burned thus destroying the seedlings.[96]

The breakthrough in understanding saguaro ecology came in the early 1960s. Between January 11 and 13, 1962 University of Arizona Professor Charles Lowe studied the effects of a winter freeze on saguaros. He found that those which had frozen tissue began to decompose. As a result he discovered that bacterial necrosis was not a disease but a natural process of tissue decomposition which developed about two years after freezing. His research uncovered the fact that during the winter of 1937 temperatures fell to twelve degrees, which made it one of the coldest periods in the century. Since it took several years for the frost damage to appear on the saguaro, the discovery of rotting in 1940 led people to assume it was a disease.[97]

Lowe and others recognized, of course, that causes other than freezing had an effect on the saguaro population. Grazing reduced the number of nurse plants as well as caused erosion. Livestock also trampled young saguaro, and destroyed and spread organic matter which

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96. L.S. Gill, "Mortality in the Giant Cactus at Saguaro National Monument 1941-50" (January 31, 1951), 4; Saguaro National Monument Files; Superintendent's Monthly Report (Saguaro), November 1951, March 1953, October 1954, August and November, 1955.

97. W.A. Niering, R.H. Whittaker, C.H. Lowe, "The Saguaro: A Population in Relation to Environment," Science 142 (October 4, 1963), 16; Charles H. Lowe, "Life and Death of the Saguaro in Arizona" (Extract of a paper presented at the annual meeting of the American Institute of Biological Sciences, University of Maryland, August 17, 1966); Arizona Republic (Phoenix), November 26, 1978.

provided a good microclimate for germination. Rodents ate seedlings. Killing coyotes allowed an increase in the rodent population which, in turn, meant the loss of greater numbers of cactus. In the past woodcutters destroyed nurse plants and cactus thieves removed large numbers of intermediate-sized saguaro.[98]

I. Second World War Period Aircraft Crashes

Three military aircraft crashed in Saguaro National Monument in the period July 30, 1943 to January 20, 1945. The first plane to go down was a B-24D, Consolidated "Liberator," heavy bomber with all nine aboard killed. Its impact location was approximately three-fourths mile east of Juniper Basin camp. The plane cut a swath about 200 yards by seventy-five feet and burned. The wreckage remained until Donald Harris, who operated a scrap firm, received permission from the National Park Service to remove it. He accomplished that task between April and June 1960. Some small pieces of debris remain at the site and one propellor may be found one-fourth mile northeast.[99]

The second crash involved a UC-78B, Cessna "Bobcat" trainer. It crashed about 1¼ miles northeast of Happy Valley Lookout during a rainstorm on November 28, 1944 killing all three aboard. Although it landed in full flight, it did not burn. Helicopters were used in 1979 to

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98. Lowe, "Life and Death of the Saguaro in Arizona;" W.A. Niering and R.H. Whittaker, "The Saguaro Problem and Grazing in Southwestern National Monuments," National Parks Magazine 39 (June 1965), 4-9; Warren Steenburgh and Charles Lowe, Ecology of the Saguaro: II, Reproduction, Germination, Establishment, Growth, and Survival of the Young Plant, National Park Service Scientific Monograph Series, No. 8 (Tucson: University of Arizona Press, 1977), 167-168.

99. Lawrence V. Tagg, "Aircraft Crashes in the Rincon Mountains" (March 15, 1984), 1, typescript copy courtesy of the author; Southwestern Monuments Monthly Report (Saguaro), August 1943; Handwritten Report by J. Peavy (SAGU employee), July 31, 1943, Folder, 207, Reports (General), Saguaro National Monument Files; Memorandum to the Superintendent (SAGU) by Louis L. Gunzel, Chief Ranger, May 7, 1970, Folder, Airplane Accidents, Saguaro National Monument Files.

salvage the remains which were used by the Pima County Air Museum to reconstruct another plane now on display.[100]

The last craft to crash was a B-25D, North American "Mitchell" medium bomber. It impacted on January 20, 1945 during a snowstorm while enroute from Kelley Field in Texas to Tucson. All five men aboard the plane died when it exploded and burned. The bomber suffered further destruction from explosives after the army recommended that it be destroyed on site. The crash site was located on the east side of Wrong Mountain, in December 1984.[101]

J. Dude Ranches

The first enterprising individual to operate a resort near Saguaro National Monument (Rincon Unit) was James P. Fuller. About 1879 he established Fuller's Springs or Agua Caliente, as it was also called, approximately four miles north of the monument's boundary (Figure 6). Fuller advertised that the resort was for "those who seek temporary recreation away from the heat and business of the city." He had cottages and hotel accommodations as well as medicated water that was eighty-eight degrees.[102]

The real dude ranching in the Rincon area, however, began on October 1, 1928, when James Converse added that dimension to his Tanque Verde Ranch. He remodeled the main ranch house and added guest rooms to the north. Since Tucson was an attractive winter vacation

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100. Tagg, "Aircraft Crashes in the Rincon Mountains," 2; Memorandum for the Regional Director, Region Three by Saguaro Custodian Paul Beaubien, December 27, 1944, Folder, 207-02.3, Superintendents, Saguaro National Monument Files.

101. Tagg, "Aircraft Crashes in the Rincon Mountains," 2-3; Memorandum for the Regional Director, Region Three, February 27, 1945, Folder, 207-02.3, Superintendents, Saguaro National Monument Files.

102. Barter, Directory of the City of Tucson for the Year 1881, 41.

area even during the 1930s, Converse had no trouble filling his guest rooms and the same held true for other dude ranches in the area.[103]

Although a few guest ranches opened during the Second World War, such as the Bar BR near the Rincon Unit, the real boom for such operations began just after the end of that conflict. During that period the Tucson area had about 100 dude ranches. Horseback riding was the most popular sport. Those ranches near the monument east of Tucson, in addition to the Bar BR, which accommodated sixteen guests, included the Arrow H with housing for ten, the Lazy Vee, just south of the monument, with room for twenty people, the Thunderhead Ranch on the western boundary with accommodations for twelve, and the Tanque Verde Guest Ranch to the north with lodging for twenty-four people. During this period, Converse kept about fifty head of horses, used for guest riding, on the cactus area and his grazing allotments. About 1950 the 49ers Ranch Resort came into existence. It advertised camping trips for tourists into the monument. Several small dude ranches such as the Lazy K Bar, Picture Rock Ranch, and Sundancer Saddle and Surrey Ranch developed in the 1940s and 1950s in the Tucson Mountain area.[104]

In the 1960s and 1970s the number of dude ranches began to dwindle until by the 1980s there were less than a dozen. The Tanque Verde Guest Ranch on the north side of the Rincon Unit is the only such

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103. Elmer E. Davis, "Where the Ancient and Modern Meet-Tanque Verde Ranch," Progressive Arizona and the Great Southwest (September 1928), 23-24; Custodian's Monthly Reports (Saguaro), December 1939, March 1943.

104. "The Distaff Wranges Dudes," The Magazine Tucson 2 (October 1949), 24-25; Susan Penn, "Tucson's Ranch Resorts Fewer But Booming," Tempo 2 (January 24-February 6, 1980), 4; "List of Guest Ranches Along Southern Pacific Lines and Resort Hotels and Ranch Schools in Southern Arizona," September 1, 1947; "Arizona Ranches, Resorts, Hotels," compiled and distributed by the Valley National Bank, September 1947; "They were City Folk Once, TOO!" The Magazine Tucson 2 (October 1949), 26; John Clausen, "Dude Ranches," Tucson Magazine 3 (December 1977), 16, 18; "Hi-Ho Sisson," The Magazine Tucson 2 (October 1949), 20.

operation in that area. Under different ownership since the 1950s, it has greatly expanded to the point that it can accommodate 125 guests. With its stable of 100 horses, riders daily cover the monument for short periods or even go on overnight campouts into the Rincons. Several small guest ranches such as the Lazy K Bar and White Stallion Ranch still exist in the Tucson Mountains. These do not advertise overnight campouts, but riders can go on excursions of up to all day.[105]

Dude ranches and a growing horse-owning population on the monument's boundaries began to cause ecological problems by the mid-1960s, especially in the Rincon Unit. Increased horseback outings with unlimited access to the monument and with no restraint on the riding areas have caused a proliferation of trails with resulting vegetation destruction and erosion. This situation had reached such proportions by 1973 that bridle trail construction was contemplated, but as yet nothing has been done to alleviate the problem. Some limit on the number of riders or restriction on the riding area will have to be addressed to preserve the desert ecosystem.[106]

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105. "Tucson Vacation Living: Places to Stay, Things to See, Places to Go, Outstanding Events," (n.p., 1967), 28; Penn, "Tucson's Ranch Resorts Fewer But Booming," 4-5.

106. Chairman Harold T. Coss, Jr. (SAGU), Environmental Management Committee to Superintendent, SAGU, April 21, 1969, Box SAGU, Folder, Saguaro NM, Harpers Ferry Center, West Virginia; Superintendent's Annual Report (Saguaro) 1973; Terry D. Shand and A. Heaton Underhill, "Saguaro National Monument: Recreational Use by Visitors, Neighbors, and Organized Groups," Technical Report No. 15 (Tucson: University of Arizona, May 1985), 30.

CHAPTER FIVE: A HISTORY OF MANNING CABIN

Levi Howell Manning was born in Halifax County, North Carolina in 1864. In his youth his parents moved to Mississippi. After graduating from the University of Mississippi he migrated to Tucson in 1884. Since he had little money at the time, Manning got a job driving an ice wagon. Soon he became a reporter for the Star and then the Citizen. By 1885 he held the position of Chief of the Mineral Department in the Office of the United States Surveyor General for the Territory of Arizona. In his successful career he next entered into partnership with Frank Oury in the real estate and mining business. When Oury was killed, Manning took over the company. In 1893 President Cleveland appointed him the United States Surveyor General for Arizona Territory. By 1900 he established the L.H. Manning and Company commission brokerage house. Beginning in 1905 he held one term as Mayor of Tucson. By 1910 he expanded into the ranching business and raised pure blooded cattle and horses. Among his holdings were the Canoa, Scotch, and La Osa ranches. He died in 1935 while at his summer home in Beverly Hills, California.[1]

In 1904 Manning filed for a 160 acre homestead in the Rincon Mountains where he planned to build a summer cabin retreat. That same year he had Mexican workmen construct an eleven mile wagon road to the proposed cabin site (see base map). The following year, 1905, Manning erected tents on his mountain land in which to house a Mexican workforce while they built his cabin. Provisions, tools, and equipment were taken to the area by pack horse and wagon over the newly constructed road. Manning's ranch foreman, David Waldon, oversaw fabrication of the structure. Trees for the cabin were felled in the immediate area. After it was completed in mid-summer 1905, the Manning family used this structure as a summer home to escape the heat of Tucson and as a cool

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1. Arizona Star (Tucson), December 3, 1933, August 8, 1935.

place where friends could be entertained. Manning was the first to build such a cabin retreat in the mountains.[2]

As constructed Manning's cabin was a log structure. Daubing sealed the cracks between the logs. Rolled roofing covered the sheathing that was placed over the log trusses (Photos 1-5). On the interior the cabin consisted of a living room with a fireplace, a kitchen, two bedrooms, and two, small bunk rooms (Figure 13). Manning had a piano hauled by wagon to the cabin.[3]

In mid-1907 Manning's homestead rights were revoked when that area of the Rincon Mountains was attached to the Santa Catalina Division of the Coronado National Forest. He then leased the land from the Forest Service for several years, but the family did not use the cabin after the summer of 1907. For the next thirteen to fourteen years only an occasional hunter, rancher, or forest ranger visited the structure (Photos 6 and 7). In 1922 the Forest Service decided to move the quarters for its fire watch and trail crew from Spud Rock Cabin to Manning Cabin even though the structure had begun to deteriorate by 1914.[4]

An article in the Arizona Star of 1959 claimed that Manning had a bedroom and storage space in a lean-to attached to the cabin. Since this addition had not weathered well over the years, the Forest Service removed it in 1922 and thereby reduced the living space. If that article is correct the lean-to would have had to have been on the back or west side of the cabin as photographs do not reveal any such rooms on the

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2. Data on Manning Camp in the Rincon Mountains as told by Mr. Howell Manning, son of L.H. Manning, the Original Builder and Owner; Arizona Star (Tucson), August 2, 1959; Arizona Citizen (Tucson),August 24, 1907.

3. Data on Manning Camp in the Rincon Mountains as told by Mr. Howell Manning, son of L.H. Manning, the Original Builder and Owner.

4. Arizona Star (Tucson), August 2, 1959, April 14, 1976; Data on Manning Camp in the Rincon Mountains as told by Mr. Howell Manning, son of L.H. Manning, the Original Builder and Owner.

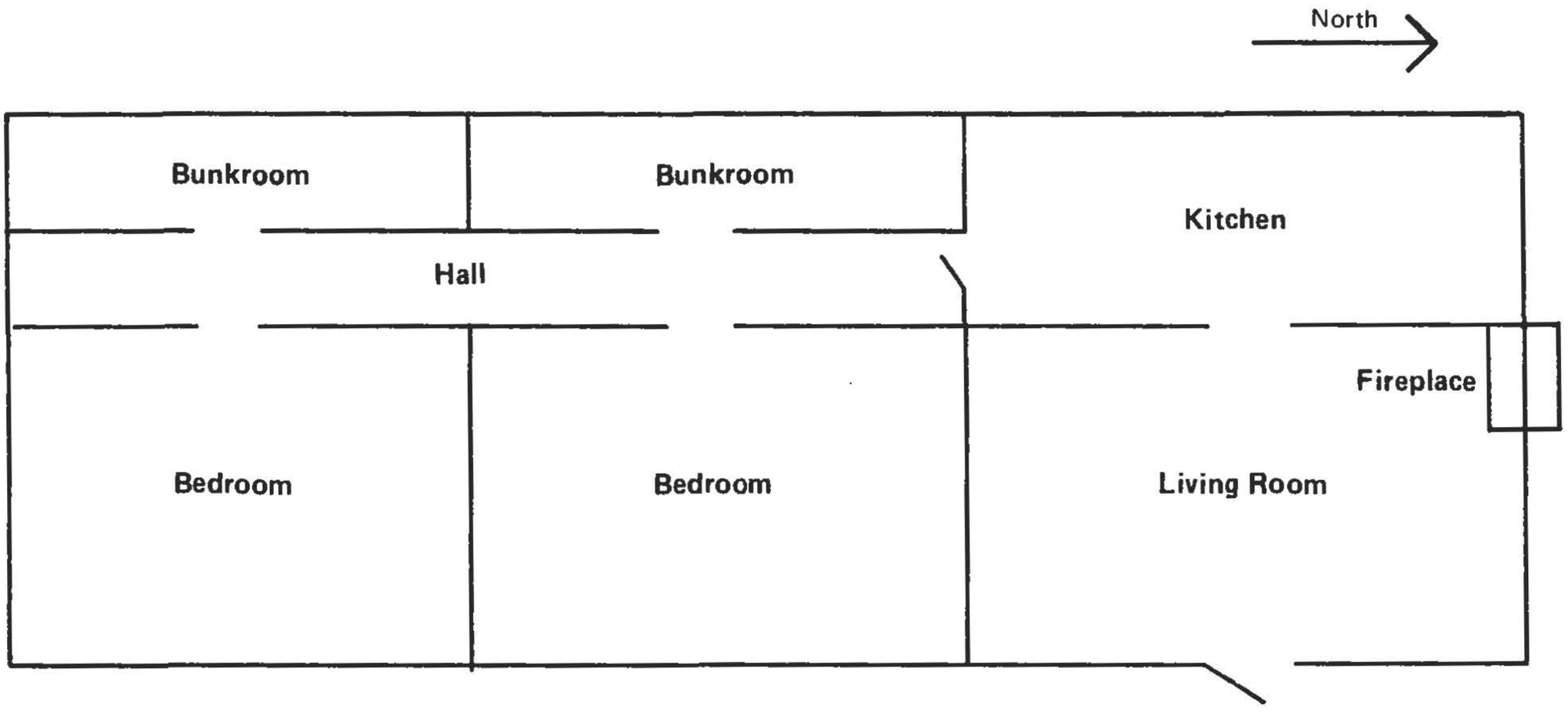


Figure 13

Original Floor Plan of Manning Cabin as Described by Howell Manning

Photo 1
Manning Cabin ca. 1906
Saguaro National Monument Files

This view of the structure shows its east side. The living room is on the right. The cabin's central section is enclosed with verticle, daubed slabs. One can see the rolled roofing. The butt ends of the log trusses extend beyond the edge of the eaves. There are no windows on this side of the living quarters and no door in what became the storage shed.



Photo 2
Manning Cabin 1906
Saguaro National Monument Files

This picture gives a close-up of the roof and the daubing between the logs on the east side of the living room.



Photo 3
Manning Cabin ca. 1906-07
Saguaro National Monument Files

Another view of the east side. Again one can see the absence of a door on what became the storage room and the vertical slabs enclosing the central portion. The wagon arrived by way of a road especially constructed to haul supplies to the cabin.



Photo 4
Manning Cabin ca. 1906-07
Saguaro National Monument Files

A close-up of the east side of the living room. Here the bottom portion of the door can be seen.



Photo 5
Manning Cabin ca. 1906-07
Saguaro National Monument Files

This photograph shows the east side of the cabin at the juncture of the living room and the central area. Here one can see the verticle, daubed slabs which enclosed a bedroom.



Photo 6
Manning Cabin ca. 1909-10
Saguaro National Monument Files

A view of the east side of the living room. The cabin appears to be in good condition although the butt ends of the wall logs seem to have begun to crack. The two men are probably Forest Service employees.



Photo 7
Manning Cabin ca. 1912-14
Saguaro National Monument Files

A picture of the east side of the living room and part of the central area. The structure shows evidence of deterioration. The rolled roofing has begun to peel and the daubing has disappeared from between the vertical slabs of the walkway.



ends or east side. A 1976 article in the same newspaper, which is probably the correct version, indicated that the dimensions of the cabin of Manning's day was the same as the one that stands today.[5]

When the Forest Service decided to use the cabin in 1922, it made some repairs. The structure was reroofed. In addition the interior wall between the kitchen and living room was undoubtedly removed at this time. A concrete floor was poured in that area which then became a kitchen and bedroom. The central verticle board portion, which had decayed, was removed thus separating the structure into two buildings. Three men stayed there. Two people served as trail crew keeping the fire trails serviceable and the third man rode horseback on fire guard patrol making two rounds per day on a circuit of four lookout points. This situation prevailed at least through 1937. The firewatch tower built on Mica Mountain in 1938 necessitated at least one additional man for the area.[6]

A little over two years after the Park Service acquired the national monument, Region Three Assistant Forester Ward Yeager inspected Manning Camp. He found two log buildings there. Because it had decayed, the Forest Service had removed the central part in the 1920s. Both buildings, he thought, were in serviceable condition. One of these structures was large enough to function as a kitchen/dining room for a crew of eight and sleeping space for two men. The other building, Yeager reported, would provide sleeping quarters for four to six men. When Yeager returned in 1940 just prior to the Park Service's first year in charge of forest fire protection on the monument, he found Manning cabin

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5. Arizona Star (Tucson), August 2, 1959, April 14, 1976.

6. Arizona Star (Tucson), August 2, 1959; Telephone conversation with Theodore Knipe by Berle Clemensen, May 14, 1986. Knipe worked on Forest Service trail crews from 1927-32. Part of the time he lived at Manning Cabin.

in an advanced state of decay. He felt it would require complete reconstruction within two years.[7]

For the next three years, the Park Service fire guard stayed in the Manning structures although they continued to decay. At the close of each of those fire seasons, braces were placed under the rafters to prevent snow from collapsing the roofs during the winter. During the period Custodian Egermayer and Region Three Forester V.W. Saari advocated that the Manning buildings be abandoned in favor of a new fire guard cabin at the Mica Mountain lookout tower. Saari expected the kitchen/dining room cabin to soon collapse. Not only had the roof begun to sag, but the logs had rotted and the front wall had begun to bow outward.[8]

Finally, in the summer of 1943 both structures were repaired. The front wall of the kitchen/dining room building was straightened and rock buttresses were built on either side of the front door to reinforce the wall (Photo 8). The logs were redaubed. The structures received new roofs. Doors and broken window glass were replaced and screens installed over them. Two years later the central portion was reconstructed as a walkway and thus Manning's cabin became one building again (Figure 14).[9]

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7. W. Ward Yeager, "Special Report Saguaro National Monument" (September 1936), Folder, 207, Reports (General), Saguaro National Monument Files; Yeager, "Forest Protection Plan of Saguaro National Monument," March 1940.

8. Memorandum for the Regional Director, Region Three by V.W. Saari, October 10, 1941, Folder, 204-10, by Field Officers; Memorandum for Acting Superintendent McColm, Southwestern National Monuments by Custodian (SAGU) Don Egermayer, November 9, 1941; V.W. Saari, "Forest Protection Requirements Report for Saguaro National Monument," June 1942; Memorandum for the Regional Director, Region Three by S.T. Carlson, Associate Regional Forester, August 17, 1942, Folder, 204-10, by Field Officers, Saguaro National Monument Files; Custodian's Monthly Report (SAGU), September 1942.

9. Custodian's Monthly Reports (SAGU), August, September 1943, June, July 1945; Memorandum for the Regional Director, Region Three by Superintendent (SAGU) Paul Beaubien, June 26, 1945, Folder, 207-02.3, Superintendents, Saguaro National Monument Files.

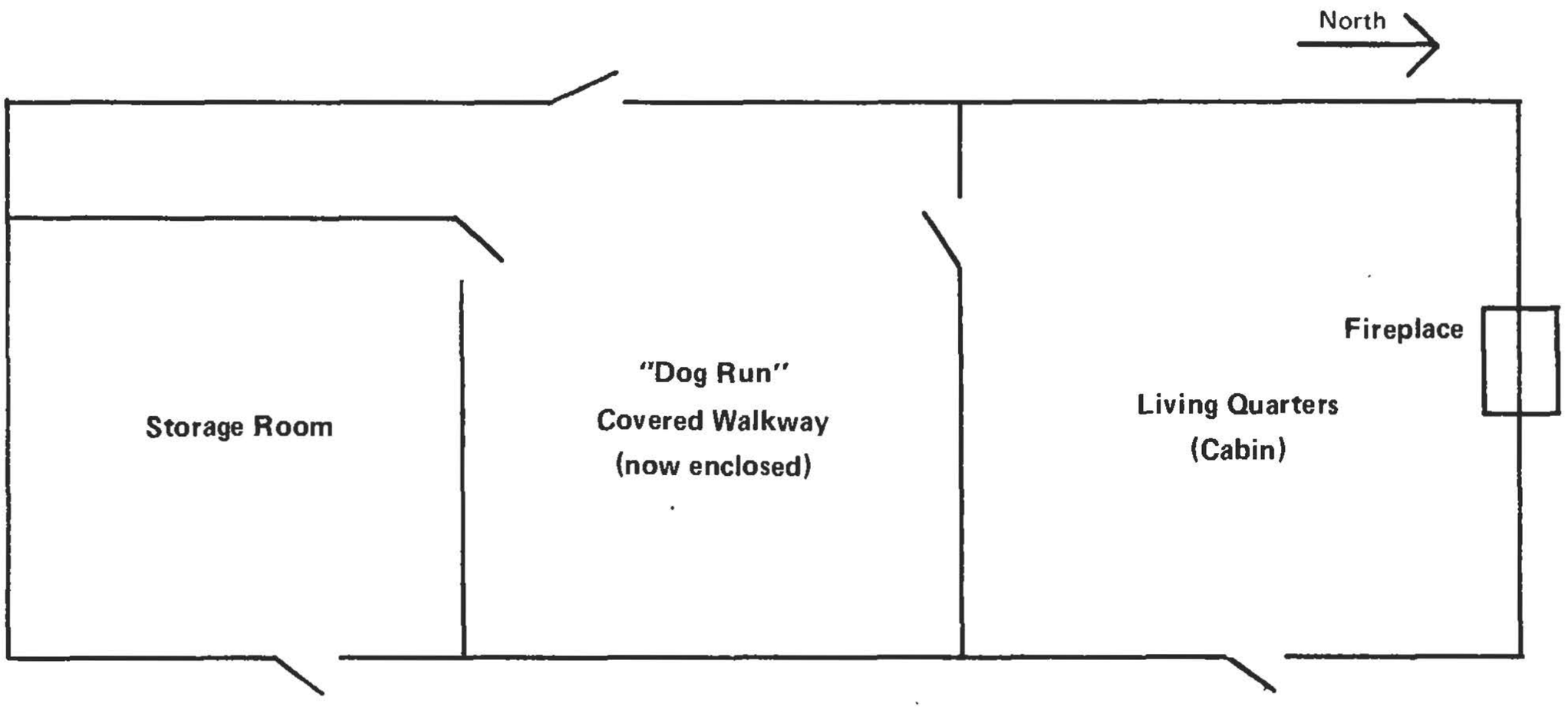


Figure 14

Present-day Manning Cabin Floor Plan

In June 1946 a wall was built on the west side of the walkway and two "more" windows were installed in the cabin. Historically, the cabin had no windows on the east. Since the cabin currently has two windows in front (Photo 8) and one in back (west), one or two of these windows was probably installed by the Forest Service. The window on the south end of the storage shed was probably placed there by that agency as well.[10]

Periodic repairs and improvements continued to be made. In 1949 a concrete floor was put in the storage room and the interior of the cabin painted a light color. Corrugated metal roofing was put on the cabin in 1950, but not the walkway or the storage room (Photos 10 and 11). The storeroom received new rolled roofing in 1963 and the entire structure was re-caulked (daubed) in that year. In August 1966 the covered walkway (or "dog run" as it was now called) was completely removed and reconstructed because heavy snow the previous winter had caused it to partly collapse (Photos 9, 10, 11). After it was rebuilt it was enclosed on both sides (Photos 11 and 12). The following summer both the storage room and cabin roofs were removed to the truss beams and rebuilt. They were then covered with green colored, asphalt shingles. These roof sections had begun to leak badly despite the corrugated metal roofing over composition shingles and rolled roofing. The roof was also home to many bats about which the ranger's wife protested. She found them more objectionable than the four footed mammals and various reptiles which also occupied the cabin. In 1976 the interior and exterior doors were rebuilt. In the fall of 1985 the cabin portion was again reroofed with asphalt shingles (Photos 12 and 13). The remainder of the roof was completed in the summer of 1986. At the same time ten percent of the fireplace joints were repointed, the cabin foundation was reconstructed with mortared stone and the bottom logs were replaced on the east, north, and west sides. The stone buttresses on either side of the east door were

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10. Memorandum for the Regional Director, Region Three by Paul Beaubien, June 26, 1946, Folder, 207-02.3, Superintendents, Saguaro National Monument Files.

removed. A gutter was attached on the east. A new bottom log was placed on the east side of the storage room south of the door. The foundation on the south end of that structure was repointed and new daubing was placed on that wall. In addition ninety-five percent of the overall east wall was redaubed along with 100 percent of the north and thirty percent of the west walls (Photos 14 and 15).[11]

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11. Memorandum for the Regional Forester, Region Three by Harold M. Ratcliff, June 21, 1949, Folder 204-10, by Field Officers, Saguaro National Monument Files; Superintendent's Monthly Report (SAGU), August 1949, September 1950, June and July 1963, June 1967; Chief Ranger's Monthly Report (SAGU), August 1966.

Photo 8
Manning Cabin May 1986
Photograph by Berle Clemensen

This view of the east side of the living room shows the rock buttresses on either side of the door. Placed there in 1943 to prevent the wall from collapsing, they originally sloped from roof to ground. At an unknown time they were cut back to the L-shaped appearance shown in the picture. These buttresses were removed in the summer of 1986.

Photo 9
Manning Cabin "Dog Run" (Walkway) August 1966
Saguaro National Monument Files

This photograph taken of the west side and shows the roof supports before they were removed during the time the walkway was razed and reconstructed in 1966. One can see the corrugated metal roofing put on the living quarters in 1950 and the rolled roofing placed on the storage shed in 1963.





Photo 10
Manning Cabin "Dog Run" (Walkway) August 1966
Saguaro National Monument Files

A picture of the new framing of the walkway during reconstruction in 1966 taken from the east.



Photo 11
Manning Cabin "Dog Run" (Walkway) August 1966)
Saguaro National Monument Files

A view of the nearly reconstructed walkway from the west side. One can see the contrast in the roofing material.



Photo 12
Manning Cabin May 1986
Photograph by Berle Clemensen

Again, one can see the contrast in roofing material. The living quarters asphalt shingles (right) were placed there in the fall of 1985. The walkway asphalt shingles put on in 1966 and the storage room (left) roofing applied in 1967. One can also see the plywood used to enclose the east side of the walkway in 1966.

Photo 13
Manning Cabin May 1986
Photograph by Berle Clemensen

A contrast between the 1966 and 1985 asphalt shingles of the walkway and living quarters. Those shingles on the walkway were replaced in the summer of 1986.





Photo 14
Manning Cabin May 1986
Photograph by Berle Clemensen

The north end of the cabin showing the exterior of the fireplace with its unhistorical metal covering.

Photo 15
Manning Cabin May 1986
Photograph by Berle Clemensen

This photograph reveals the typical decaying butt ends of logs which are located on the east side of the cabin at the south end of the "dog run."





CHAPTER SIX:
DESCRIPTION AND EVALUATION OF HISTORICAL RESOURCES

The following properties possess varying degrees of historical interest. Unfortunately, information was spotty or nonexistent in some instances. Those properties not deemed to have sufficient value to be placed on the National Register of Historic Places should be retained and could play a useful role in the interpretive program.

A. Mining in the Tucson Mountain Unit

The Tucson Mountain Unit partly covered the Amole Mining District where numerous claims were recorded. Nearly all of the location descriptions of these claims are so vague as to make it impossible to establish where they are situated. Although 149 earth disturbances from a few feet to 425 feet deep have been recorded as mining activity in this unit of Saguaro National Monument, only two, the Gould and Mile Wide have any significance. They were the only producing mines. The others were classified as prospect shafts or tunnels which meant that not enough ore was extracted to ship to a smelter. As a result, only the Gould and Mile Wide mines will be nominated to the National Register as typical mines which provoked interest and great expectations for the Amole Mining District. Wayside exhibits could be placed on each of the two sites telling of the activity that occurred there. The remainder of the shafts and prospect holes have no significance.

S.H. Gould established the Gould Copper Mining Company and filed on nineteen claims about 1906 during the period of the greatest rush to stake claims in the Tucson Mountains. Although he did encounter some financial problems during the 1907 depression, a mortgage enabled him to keep his Gould Mine operating. His operation prompted the Arizona Star to declare that his mine showed that the Tucson Mountains had been overlooked as an important copper area. That newspaper proved to be incorrect, for, although Gould managed to recover some 45,000 pounds of copper before he ceased operation in 1911, the profit from the mine was

not sufficient to offset the costs. Gould was forced from the company leadership and in 1915 it went bankrupt. From 1911 until it permanently closed in 1954 the mine was operated only sporadically. The 130 tons of ore extracted in the last four months the mine functioned contained only two percent copper and fifty-one ounces of silver. This amount proved too little to allow a small concern to operate. There are no physical descriptions of the number or types of structures associated with the mine or their location. The mine shaft and a shell of the powder house are all that remain (Photos 16 and 17).

At the turn of the century L. Martin Waer and Pedro Pellon filed several claims in the Amole Mining District among which was the Copper King (later called the Mile Wide). By 1907, when they ceased operation, they had sunk an exploratory shaft to a depth of eighty-six feet without striking any profitable ore. Waer tried to lease the Copper King to the Morgan Consolidated Gold and Copper Mining Company in 1914 without success. The next year, however, Charles Reiniger and J.H. King signed an option to purchase the property along with Waer's other claims. Reiniger established the Mile Wide Copper Company. It was so named because the width of the claims was a mile wide. He concentrated on the Copper King which became known as the Mile Wide Mine. In the process of development Reiniger abandoned Waer's old shaft in favor of a new site up the hill. While mining at that location he reported a copper strike which purportedly would be the equal if not superior to the largest Arizona copper mines. As a result, stock sales increased and Reiniger further developed the property. He built four houses, a work shop, mess house, rock crusher, and mill.[1] In addition he improved the road to make it possible for his six trucks to haul more ore to Tucson for rail shipment to the smelter at Sasco which was just north of Silver Bell.

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1. These abandoned buildings were mentioned in a 1932 resurvey of the area. Hiester, "Field Notes of the Survey and Resurvey of a Portion of the Subdivisional Lines, Completing the Survey of Township 13 South, Range 12 East, and, Retraced Boundaries of Patented Mineral Claims in said Township, Book 3972, February 27-March 15, 1932.

Reiniger used the mining activity and the promotional hype to practice fraud on the stockholders. In late 1919 he disappeared taking half the money derived from stock sales. In addition he sold up to $100,000 of his own stock before his departure. Although the stockholders brought a suit against him and won, the absence of Reiniger forced the company to liquidate its holdings. The real estate was purchased by the Union Copper Company of Pittsburgh and the equipment auctioned for $3,000. That company did some development work, but in 1929 it sold the property to H.S. Diller and Associates of New York. Diller operated the Mile Wide until the depression forced a halt to the operation by the end of 1930. At that point the mine had produced 70,000 pounds of copper valued at $10,000 and $15,000 in silver. Most of that production occurred during the Reiniger period. The Mile Wide opened briefly in late 1942, but L.M. Vreeland and Ralph Campbell, who leased it, managed to ship only four carloads of ore before abandoning it by the end of 1943. It never operated again. Today, all that remains of the mine are the two shafts and the foundations of some of the buildings which Charles Reiniger constructed (Photos 18 and 19).

B. Mining in the Rincon Mountain Unit

A portion of the Rincon Mining District covered part of the Rincon Mountain Unit. As the least of the Pima County mining districts, no known production was ever recorded. Mining activity, however, did occur within the monument boundary and the Loma Verde was the best known of the mines. Numerous prospect holes and some other mine shafts can be found as well. Most of these sites are on the headwaters area of Rincon Creek with several located on the western slope of the Tanque Verde Mountains. Thirty prospect holes in the cactus forest area were filled by the Civilian Conservation Corps in the mid-1930s. Because of the dearth of information on these mines and prospect holes, and since there is no recorded production from them, none merit nomination to the National Register of Historic Places.

Photo 16
Gould Mine Shaft May 1986
Photograph by Berle Clemensen

Photo 17
Gould Mine Powder House May 1986
Photograph by Berle Clemensen

These uncoursed stone walls are of the only remaining structure at the Gould mine site.

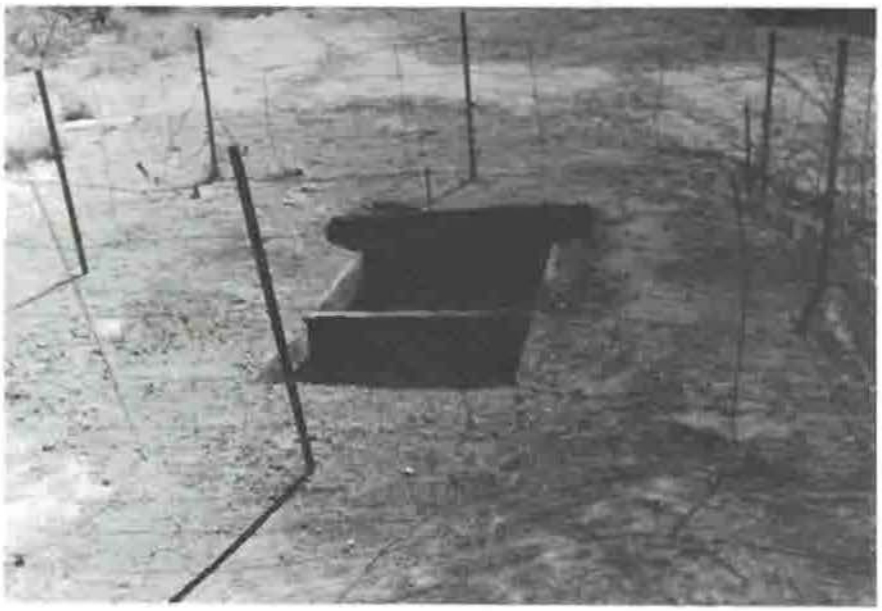




Photo 18
Mile Wide Mine Upper Shaft May 1986
Photograph by Berle Clemensen

Photo 19
Mile Wide Mine Tailings May 1986
Photograph by Berle Clemensen





C. Lime Manufacturing on Both Saguaro National Monument Units

Although a number of lime kilns were said to have operated on the monument, the remains of only four kilns (two in each unit) have been identified. Since these kilns represent the remnant of a once active local industry, they are worthy of nomination to the National Register of Historic Places. The two kilns in the Rincon Mountain Unit have been placed on the Arizona State Register of Historic Places.

The beginning date for local lime manufacture cannot be established with certainty although tradition states that the first kilns to operate in the Rincon Unit supplied lime for the construction of Fort Lowell in 1873. This belief was false, for lime was not used at that post until 1882. Lime production probably did not begin much before 1880 as most accounts of Tucson to that time described the village as a collection of unwhitewashed adobe structures. The Southern Pacific Railroad, which reached Tucson from the west in March 1880, promoted prosperity and, therefore, a demand for better housing. Since California lime was advertised for a time after that event, local lime production was probably limited. In fact the first written statements about lime kilns did not appear until the 1890s. Available evidence leads one to the conclusion that one of the two Rincon Unit kilns was possibly built in the 1880s while the second was constructed around the turn of the century. Both ceased operation in 1920. The Tucson Mountain Unit kilns were probably built in the mid-1890s and no longer functioned by 1910.

Each of the kilns was constructed differently. The northernmost one in the Rincon unit was built into the west bank of a north-trending wash with its top at terrace ground level. It is circular in construction and made of coursed adobe. The interior dimension is just over seven feet in diameter (photo 20). The south kiln was also constructed with a circular design into the west bank of the same wash. It, however, was made of angular granite masonry set in mud mortar. It has an interior diameter of about eight feet (photo 21).[2] The southernmost Tucson Mountain Unit

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2. Lyle M. Stone, "A Description of Two Lime Kilns Located in Saguaro National Monument, Arizona" (Typescript prepared for the National Park Service, Western Archeological Center, October 1976), 2-4.

kiln, like the others, was circular and built into the south bank of an arroyo. It was made of rubble stone laid without mortar with an interior diameter of seven feet (photo 22). The final kiln was constructed into a small hill. It, too, is circular with an interior diameter of about seven feet. It was made of rubble stone and lined with a double layer of fire brick. A brownish colored mortar was used to set both the stone and brick. All four kilns are in various states of decay.[3]

The monument kilns are typical of a crude type used in the manufacture of lime. Building them into an embankment so that the top was level with the embankment surface allowed the kilns to be easily charged with limestone and fuel from a wagon. At the same time heat loss would be lessened by having most of the kilns' exterior embedded in earth. The small exposed area away from the embankment provided for the lime removal from the base. As Frank Escalante explained, it took four days to make lime during which time wood would be added every two to three hours. Ten to fifteen cords of green palo verde would be burned in the four days although if that wood were not available green mesquite would be substituted.

D. The Civilian Conservation Corps

Emergency Conservation Work (ECW) camps were established in or near both units of Saguaro National Monument. From these camps members of the Civilian Conservation Corps (CCC) performed work in building picnic sites, roads, dams, fences, and trails as well as obliterating the scars of old roads, and removing delapidated homestead and squatter buildings. These projects were accomplished between November 17, 1933 and June 21, 1941.

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3. Kenneth Rozen, "A Brief History of the Manufacture and Use of Lime, with Special Reference to Two Lime Kilns in Southern Arizona." (Typescript prepared for History/Anthropology 211 at the University of Arizona, May 2, 1977), 7-9.

Photo 20
North Lime Kiln, Rincon Unit May 1986
Photograph by Berle Clemensen

This interior picture shows the coursed adobe brick construction.

Photo 21
South Lime Kiln, Rincon Unit May 1986
Photograph by Berle Clemensen

This kiln was made from angular granite masonry set in mud mortar.





Photo 22
Lime Kiln near Sus Picnic Ground,
Tucson Mountain Unit May 1986
Photograph by Berle Clemensen

This southernmost of the Tucson Mountain Unit kilns was built of rubble stone laid without mortar.



One camp (Camp Pima, SP-6-A), five picnic areas, thirteen dams, and two facilities to supply water for wildlife remain in the Tucson Mountain Unit. These sites and structures will be nominated to the National Register of Historic Places. Not only do they have significance by association with the CCC, but they are some of the few structures and sites now within a National Park Service unit which were designed and built by the Park Service State Parks Division for a county park. The picnic facilities are typical of a design adopted by the State Parks Division for the desert southwest.

Accomplishments of the men from Camp Tanque Verde (SP-11-A) in the Rincon Mountain Unit were not quite so evident. Many of their projects involved removal of old roads, trails, and homestead and squatter buildings, and filling in mines and prospect holes. The construction projects, on which they worked, consisted of building the loop road, several miles of fence, several dams, and an administration building which upon completion became the custodian's residence and visitor contact station. The fence and building have been removed and the dams have been greatly altered over the years by the ranchers holding grazing allotments. Although the loop road exists, it has been upgraded and paved. As a result of these changes, nothing remains of the CCC work in the Rincon Unit which is worthy of nomination to the National Register.

1. Tucson Mountain Unit

Pima County, which operated the Tucson Mountain Park, applied for two ECW camps in August 1933 for that park. The CCC men were to be used to improve the recreational potential of that area. The request was approved, and Camp Pima (SP-6-A) and Camp Papago (SP-7-A) were authorized. The former of these two camps was located in the northern part of the park, which today comprises the Tucson Mountain Unit of Saguaro National Monument, while the latter was built toward the southern end. Camp construction was accomplished by local men chosen by the Pima County Reemployment Committee. The CCC enrollees for Camp Pima arrived in Tucson several months before their camp was completed and so were occupied with work at the Tucson Rodeo Grounds. On

November 17, 1933 they were moved to the Tucson Mountain Park where they lived in a temporary tent camp until the permanent camp was completed on December 22.

Camp Pima, like other CCC camps, was initially composed of a set complement of frame buildings. These included four barracks, one mess hall, one kitchen, one recreation hall, one officers' quarters, a hospital, a latrine, and several bathrooms. The other structures such as an equipment shed, repair shops, laundry, barber shop, and reading room came later. A number of the structures built later were adobe. Presumably, some of the subsequent buildings were constructed by the enrollees, but the records mention them making adobe to erect only one. The CCC men also had a swimming pool and golf course for their use. By the time it was abandoned, Camp Pima contained thirty-two buildings.

The operation of the camp and the work performed was overseen by several groups. Although Pima County had requested the camp, it had little control except to suggest some projects. The 8th Cavalry of the United States Army administered Camp Pima and provided the commanding officer, adjutant, physician, and education adviser. The State Parks Division of the National Park Service approved and oversaw the work projects. To accomplish its end, the Park Service hired a camp superintendent, project engineer, three senior foremen, three junior foremen, a blacksmith, and a mechanic. In addition a landscape architect from the Park Service Region Three in Santa Fe made a monthly inspection of the work and reported on its progress.

Camp Pima was constructed to house 210 men, but that number was never achieved. The camp enrollment usually ranged from 150 to 200. It was not occupied on a year-round basis. During the three hottest summer months the men were taken to cooler climates. One exception to this practice occurred in the 1934-35 period. In 1934 extra money was allotted to employ more young men in what were called drought camps. In order to accommodate them in Arizona, they had to be installed in the camps vacated during the summer. As a result, Camp Pima housed

DSP-1-A for ten months starting in August 1934. After that time SP-6-A returned. The camp, however, was officially known as CP-1 from November 3, 1940 until it was abandoned on June 21, 1941.

In 1942 the CCC gave the Camp Pima buildings to the army. The army dismantled the frame structures and transported them to Phoenix to be reconstructed in a mechanics center. Only the foundations and some concrete floors remain. The adobe structures were left in place and have deteriorated to the point that only walls of various heights still stand (Photos 23-25).

Upon arriving at Camp Pima most of the men were put to work gathering several hundred tons of rock to be used in the various construction projects. In January 1934 the enrollees began to build picnic sites which consisted of ramadas, tables, benches, fireplaces, and bathrooms. The ramadas were termed "unique and attractive" because the roof support posts, with a core of reinforced steel and concrete, were covered at the base with stonework while the upper part was enveloped with woody saguaro skeleton. The timber roof trusses were also covered with saguaro ribs. Tables were made of uncoursed stone piers which supported a concrete top, while the benches were uncoursed stone capped with concrete. Fireplaces were built of uncoursed stone as well. Bathrooms were sometimes constructed of coursed and other times uncoursed stone. Since the CCC camp superintendent's monthly reports often do not specify which picnic sites were in the process of construction at any given time, one cannot be certain of the specific dates the five picnic areas in the Tucson Mountain Unit were completed. At best one can only observe that the Ez-Kim-In-Zin and Signal Hill facilities were constructed between January and May 1934, while the Sus, Cam-Boh, and Mam-A-Gah picnic areas were built in the September 1934 to June 1935 period (Photos 26-38).

After the National Park Service gained control of the Tucson Mountain Unit in 1961, it found that the five picnic grounds it acquired were in a state of decay, especially the ramadas. As a result in 1963 a

repair program was begun. The ramada roofs were removed along with the corner posts. The rock work in which the corner posts were set crumbled when the posts were removed. As a result, the ramadas were almost entirely rebuilt except for the one at Ez-Kim-In-Zin which only received a new roof. Concrete floors were also poured in each ramada. Picnic tables, benches, and fireplaces had the concrete on them renewed and pointing was done where necessary. The only structures that have survived in their original appearance are the bathrooms. As a result, it would be tempting to not include the reconstructed ramadas on the National Register. Since they do occupy the site of the original ramadas and some bear a slight resemblance to their archetypes, they will be included.

Twenty-six check dams were constructed throughout Tucson Mountain Park of which thirteen were located in the Tucson Mountain Unit. These dams were basically of two types. Earth-filled dams were placed in the lower elevations for flood control and to store water for wildlife. Six such dams are found in the monument. Masonry dams were constructed in canyons and arroyos to prevent erosion and provide water for animals. Six of these dams are located throughout the monument with the one near Sus picnic area in the most pristine condition (Photo 39). The last dam is a rock (porphyry) dam in the lower elevations of the northeast corner of the monument.

The final two CCC projects involved the construction of the Red Hills and Dobie Robinson facilities to supply water to game animals and birds. The CCC developed the two facilities in 1937. Each site included a windmill and galvanized water storage tank. In 1941 a reinforced concrete water storage reservoir was added at each location. These reservoirs remain along with the windmill tower at the Red Hills facility.

2. Rincon Mountain Unit

University of Arizona President Homer Shantz succeeded in getting a company of CCC to work on the University owned and controlled land within the monument by designating it as Saguaro Forest State Park. These men arrived in July 1935 and stayed at Camp Tanque Verde

Photo 23
Remains of Camp Pima May 1986
Photograph by Berle Clemensen

The remains of a concrete floor from a frame building and decaying adobe walls are visible.



Photo 24
Remains of Camp Pima May 1986
Photograph by Berle Clemensen

The remains of concrete foundations from frame structures are shown.

Photo 25
Adobe Wall Remains at Camp Pima May 1986
Photograph by Berle Clemensen





Photo 26
Ez-Kim-In-Zin Picnic Ramada May 1986
Photograph by Berle Clemensen

Although the structure received a new roof in the early 1960s, the rest of the ramada remains the same.

Photo 27
Ez-Kim-In-Zin Bathroom May 1986
Photograph by Berle Clemensen

This bathroom, which is well designed into a rocky hillside, has not changed from its original appearance.





Photo 28
Signal Hill Picnic Ramada May 1986
Photograph by Berle Clemensen

This ramada has changed considerably. The roof has been replaced and the stonework for the roof support posts has been taken apart and reassembled. Only one support post is now covered with saguaro ribs.

Photo 29
Signal Hill Picnic Table and Fireplace May 1986
Photograph by Berle Clemensen

Here one can see a typical CCC stone picnic table and fireplace. The table top, bench top, and fireplace have been recovered with concrete while the stone has been pointed.



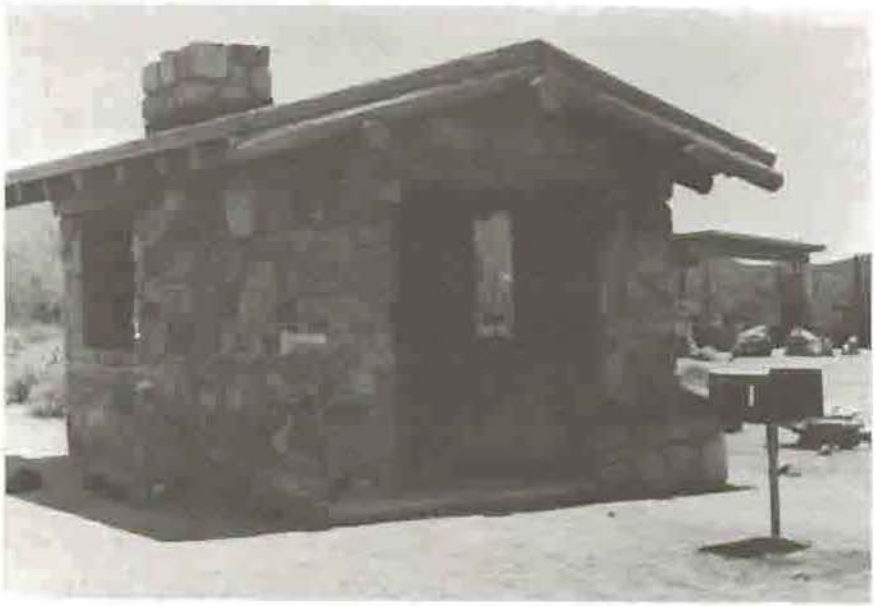


Photo 30
Signal Hill Enclosed Picnic Facility May 1986
Photograph by Berle Clemensen

This stone structure is the only one of its kind found at the five picnic sites. The roof has been replaced and the rock repointed, but it essentially remains the same as when built.

Photo 31
Signal Hill Bathroom May 1986
Photograph by Berle Clemensen

This uncoursed stone bathroom retains the same appearance as when it was constructed.



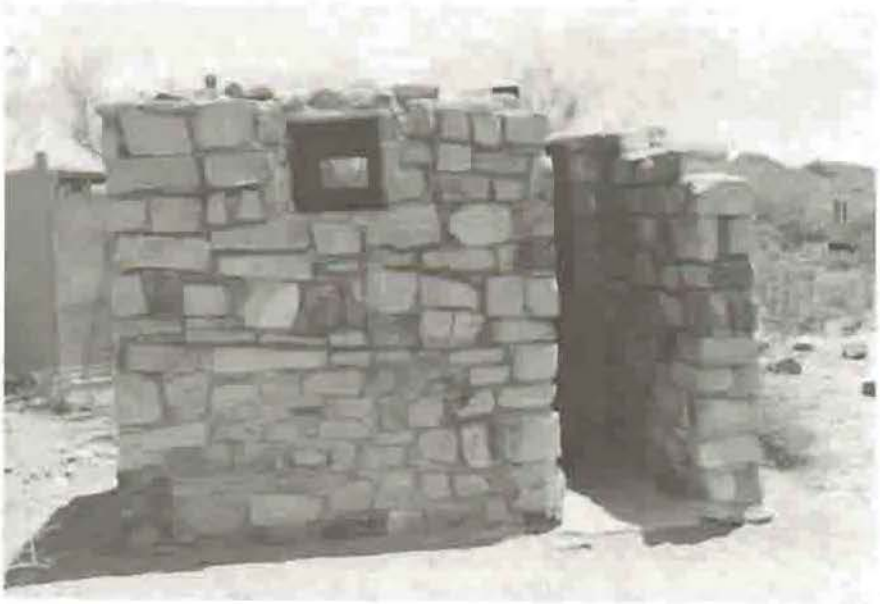
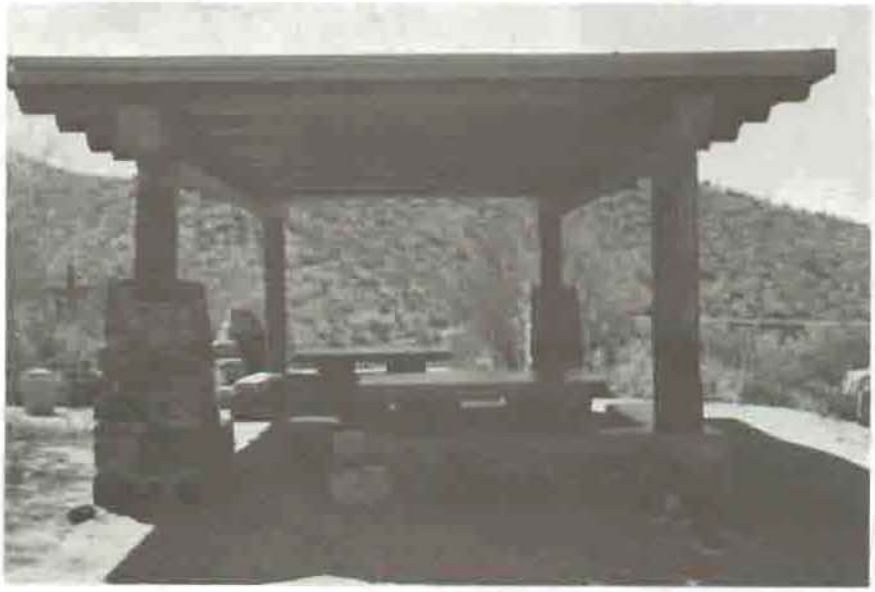


Photo 32
Man-A-Gah Picnic Ramada May 1986
Photograph by Berle Clemensen

This ramada has been extensively changed with a new roof and reassembled rock work.

Photo 33
Mam-A-Gah Picnic Tables May 1986
Photograph by Berle Clemensen

These tables and benches have been recovered with concrete and the stone pointed.



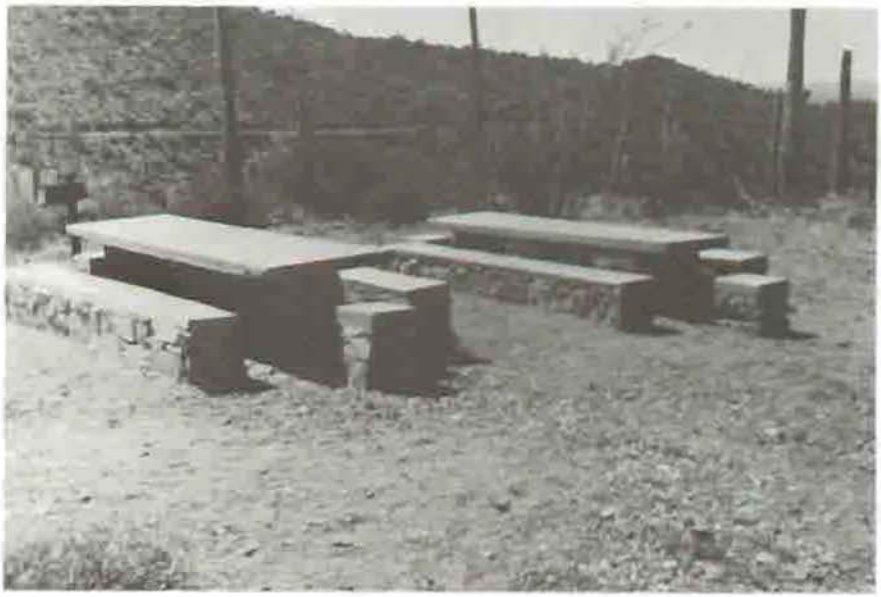


Photo 34
Mam-A-Gah Fireplace May 1986
Photograph by Berle Clemensen

As with other fireplaces the tops of the stone have been recovered with concrete and the stones pointed.

Photo 35
Mam-A-Gah Bathroom May 1986
Photograph by Berle Clemensen

This uncoursed stone structure retains its original appearance.





Photo 36
Cam-Boh Picnic Ramada May 1986
Photograph by Berle Clemensen

This ramada has also been changed with a new roof and reassembled rockwork.

Photo 37
Cam-Boh Bathroom May 1986
Photograph by Berle Clemensen

This stone building has suffered little change.





Photo 38
Sus Picnic Ramada May 1986
Photograph by Berle Clemensen

This structure has totally changed in reconstruction. Although there are typical tables, benches, and fireplaces at this site, the picnic area has changed enough to not merit nomination to the National Register.

Photo 39
CCC Stone Masonry Dam near Sus Picnic Area May 1986
Photograph by Berle Clemensen

This remains the most pristine of the CCC dams.





(SP-11-A) just north of the monument boundary. Their main effort concentrated on the construction of the skyline loop road which took three years to complete. That road was regraded and hard surfaced in 1951. Their other work on the University land was basically designed to be inconspicuous, for it involved removal of any trace of roads, trails, mines, and old buildings. Gone are the fence and custodian's residence they built. Perhaps mention could be made of their work in the interpretation of the historical activity in that unit.

E. Manning Cabin

In 1905 Levi H. Manning built a cabin in the Rincon Mountains for use as a summer home. When that area of the Rincons was attached to the Santa Catalina Division of the Coronado National Forest in 1907, Manning leased the land from the Forest Service for several years, but no longer used the cabin. It was reconditioned in 1922 by the Forest Service for use in housing a fire guard and trail crew. The National Park Service adapted it to its fire patrol needs when it inherited the fire watch duty over the monument in 1940. It was used during the fire season until 1958 when a break in its use occurred until 1977. Manning Cabin represents both the development of summer homes in the mountains and the utilitarian need to house fire control personnel. The structure is currently on the National Register of Historic Places.

F. Spud Rock Cabin Site

At some point around 1890 a man of German descent named Bock retired from the railroad and moved into the Rincon Montains where he raised potatoes. The name of his home derived from this crop. How long he resided there remains unknown. For several years after the Forest Service acquired the area, the cabin was used to house fire guards, but in 1912 that agency replaced the cabin with a new one built nearby. Only the site of the cabin remains. Although the site represents mountain settlement without tangible remains and more information it does not meet the requirements of a National Register property. Instead, it could be interpreted in the monument history program. The area on which the cabin stood has been designated a camp site.

G. Freeman Homestead

Homesteading played a role in the area around the Rincon Unit. The earliest homestead applications were made in the 1890s after the township subdivision lines had been surveyed. These early homesteads were located just outside the monument boundary along the Tanque Verde Creek and Rincon Wash. By 1910, however, entries began to be made on homesteads within the monument. Fermin Cruz was the first to receive such a homestead patent on October 18, 1916 for a portion of section 10, T14S R16E. At least nine others followed in making their homestead claims beginning in the early 1920s, with the last to be made in October 1930. These individuals included Rafael Carrillo, Ray Harris, Manuel Benites, Harry Riley, Christobel Valenzuela, Henry Grabenheimer, Gilmor Failor, Safford Freeman, and Jane Wentworth. The claims of Valenzuela and Grabenheimer were cancelled by the late 1920s for they had not maintained residency.

The Freemans claimed that their homestead entry in section 5, T15S R16E, for which they applied in the summer of 1929, was the last entry in the area. On that basis and because a mound of melted adobe remained from a living room wall, the homestead was nominated to the National Register in 1972, but disallowed. Their homestead entry was not the last one to have been made. Jane Wentworth applied for a stock raising homestead on October 17, 1930 for all of section 8, T14S R16E. She received a patent in 1938.

While the Freeman story may be interesting, they, like the other homesteaders in the monument, did not occupy the site on a year-round basis. Instead, they soon moved to Tucson and only lived on the homestead the minimum time required per year to receive a patent. As with the other people, they did not raise stock or produce anything on the land, but rented the property to James Converse so that he could graze his cattle there. While homesteading could be a topic for interpretation, the National Register reviewers were correct to disallow the nomination of the Freeman homestead. It, however, has been placed on the Arizona State Register of Historic Places.

H. Chimenea Canyon Chimney

In an interview Frank Escalente stated that the chimney in Chimenea Canyon had been used by individuals who brought large, ponderosa pine vigas down from the Rincon Mountains. These individuals would heat their food there. He supplied no dates for the timber cutting activity. He also did not state if the chimney were constructed by the viga cutters or if they had used an already existing chimney. While it may be a curiosity, a dearth of information on the chimney precludes its nomination to the National Register. If timber cutting is developed as an interpretive theme, then the chimney could be incorporated into that story.

I. Second World War Military Airplane Crashes

During the Second World War three planes crashed in the Rincon Mountain portion of Saguaro National Monument. The first, a B-24D heavy bomber, went down on July 30, 1943 about three-fourths mile east of Juniper Basin camp site while on a training mission. A commercial scrap firm salvaged nearly all of the remains of the aircraft between April and June 1960. The second crash occurred on November 28, 1944 when a UC-78C Cessna trainer impacted during a rainstorm one and a quarter miles northeast of Happy Valley Lookout. It was salvaged for parts in 1979 by the Pima County Air Museum. The third plane, a B-25D medium bomber, flew into the east side of Wrong Mountain on January 20, 1945 during a snowstorm. It exploded and burned, and was further destroyed by the United States Army Aircorps which used explosives on it. Since two of the planes have been salvaged and little remains of the third, none merit nomination to the National Register of Historic Places.

J. Military Heliograph Activity

Although the exact sites in the Rincon Mountains from which heliograph signals were transmitted and received during two United States Army Signal Corps field exercises could never be discovered today, the story of such activity should be included in an interpretive program. The exercises held in May 1890 and February 1893 represented a renaissance in the use of that device for field communication. Even

though the mlitary had first used the heliograph on the Northern Plains in the latter 1870s and again with some success during the Geronimo Campaign in 1886, interest in that signaling instrument had waned. It was to the credit of Major W.J. Volkmar that, in his capacity as Adjutant General of the Department of Arizona, he succeeded in reviving interest in the heliograph in 1889. Through his efforts an extensive field exercise was conducted in 1890 and resulted in the successful testing of one of the most comprehensive networks of signaling ever attempted to that date. It demonstrated that the heliograph had become a potent factor in "civilized warfare." As a result, when the Signal Corps instruction school opened at Fort Riley, Kansas in 1891, the heliograph was one of the featured instruments. Again, in 1893, an extensive field exercise was conducted with equal success. Thus the Rincon Mountains played an intangible role in the rebirth and use of the heliograph.

K. Livestock Grazing, Woodcutting, Cactus Removal, and Unrestrained Horseback Riding as Related to Ecological Destructiveness

A great deal can be done to interpret the ecological destructiveness caused by man and his animals over time to such a fragile, semi-arid area. The original appearance of the desert could be presented followed by a recounting of the vegetation changes on the monument brought about by livestock grazing, woodcutting, cactus removal, and today's horseback riders. In addition the erosion caused by such activity and the scarring of the landscape with roads and trails in association with those enterprises could be presented.

L. Archeological Resources

Considerable archeological evidence of prehistoric human occupation exists in the monument. Although a few sites have been disturbed by roads and trails, most of the sites are in good condition. The wilderness designation in the Rincon Mountain Unit and the unobtrusive nature of most of the archeological site should serve to continue to protect them. In addition most of these sites fall within the Rincon Mountain Foothills Archeological District which was listed on the National Register of Historic Places in 1979. This district comprises an area of twenty-five square

miles with approximately 110 known sites of a variety of types--lithic scatter, remains of permanent settlements, and evidence of irrigation canals which exhibit a chronological sequence to historic times.

Although prehistoric occupation occurred mainly in the Rincon Mountain Unit, archeological sites in the Tucson Mountain Unit, such as temporary campsites and petroglyphs, attest to the use of that area as well. Archeological surveys/evaluations have yet to be completed for the Tucson Mountain Unit. Upon completion, a number of archeology features will undoubtedly be found to be eligible for the National Register of Historic Places.

APPENDIX A

Proclamation 2031 Establishing Saguaro National Monument
March 1, 1933

[copy]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

WHEREAS a certain area within the Catalina Division of the Coronado National Forest in the State of Arizona and certain adjacent lands are of outstanding scientific interest because of the exceptional growth thereon of various species of cacti, including the so-called giant cactus, it appears that the public interest will be promoted by reserving as much land as may be necessary for the proper protection thereof as a national monument.

NOW, THEREFORE, I, HERBERT HOOVER, President of the United States of America, by virtue of the power in me vested by section 2 of the act of Congress approved June 8, 1906 (34 Stat. 225), entitled "AN ACT For the preservation of American antiquities," do proclaim that there are hereby reserved from all forms of appropriation under the public land laws, subject to all valid existing rights, and the right of the State of Arizona to select for the use of the University of Arizona all or any portions of secs. 11, 14, 22, 28, and E.½ 21, T. 14 S., R. 16 E. of the Gila and Salt River meridian, and set apart as a national monument, the following-described tracts of lands in the State of Arizona:

GILA AND SALT RIVER MERIDIAN

T. 14 S., R. 16 E., secs. 8 to 17 inclusive, secs. 20 to 29 inclusive, and secs. 32 to 36 inclusive.
T. 14 S., R. 17 E., secs. 7 to 36 inclusive.
T. 14 S., R. 18 E., secs. 7, 8, 9, secs. 16 to 21 inclusive, and secs. 28 to 33 inclusive.
T. 15 S., R. 16 E., secs. 1 to 5 inclusive.
T. 15 S., R. 17 E., secs. 1 to 6 inclusive and secs. 11, 12, 13, 14, 23, and 24.
T. 15 S., R. 18 E., secs. 4 to 9 inclusive and secs. 16 to 21 inclusive.

The reservation made by this proclamation is not intended to prevent the use of the lands now within the Coronado National Forest for national-forest purposes under the proclamation establishing the Coronado National Forest, and the two reservations shall both be effective on the land withdrawn; but the national monument hereby established shall be the dominant reservation, and any use of the land which interferes with the preservation or protection as a national monument is hereby forbidden.

Warning is hereby given to all unauthorized persons not to appropriate, injure, deface, remove, or destroy any feature of this national monument, or to locate or settle on any of the lands reserved by this proclamation.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 1 day of March, in the year of our Lord nineteen hundred and thirty-three, and [SEAL] of the Independence of the United States of America the one hundred and fifty-seventh.

HERBERT HOOVER

[end copy]

APPENDIX B

Grazing Allotment Owners

Tanque Verde

1933-34	James Converse (Tanque Verde Ranch)
1935-45	James Converse and Eduardo Carrillo
1945-47	James Converse and Joe Lewis Hartzell
1948-55	James Converse
1955-79	Kenneth Kaecker (Tanque Verde Ranch)

Twin Hills

1933-55	James Converse (Tanque Verde Ranch)

Rincon

1933-40	J. Rukin Jelks (Casa Blanca Ranch)
1941-47	Robert Chatfield-Taylor (X-9 Ranch)
1948-54	Gordon Packard (X-9 Ranch)
1955-68	Henry Jackson (X-9 Ranch)

Pantano

1933-38	Melvill Haskell
1939-40	Allison Armour (Bar AA Ranch)
1941-46	Helen Lichtenstein (Bar AA Ranch)
1947-49	William Veeck (Lazy V Ranch)
1950-56	W.H. Kenner (Rocking K Ranch)
1957-60	Altar Land and Cattle Company--partly owned by Kenner
1961-62	Rincon Valley Development Corporation
1963-71	Ranchlands Incorporated

Happy Valley

1943-64	Roderick MacKenzie
1965-75	Malcolm MacKenzie

APPENDIX C

Patented Claims in the Amole Mining District

Nequilla - 1872 - outside the monument
Silver Moon - 1882 - partly in the monument
Lola Lopez - 1883 - inside the monument
Buena Vista - 1884 - partly in the monument
New Strike - 1885 - partly in the monument
Cymbeline - 1892 - inside the monument
Woffenden Gold Lode - 1893 - outside the monument
Jumbo - 1909 - inside the monument
Iron Mountain - 1909 - inside the monument
Iron Chief - 1909 - inside the monument
Apex - 1909 - inside the monument
Colorado - 1909 - inside the monument

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PRIMARY SOURCES

National Archives, Washington, D.C.

Abandoned Military Reservation File--Arizona, Fort Lowell. Record Group 49, Records of the Bureau of Land Management. Contains some interesting material and a map on early settlement along the north boundary of the present-day Rincon Unit.

CCC Projects, Arizona. Entry 41. Box 7, SP-4, SP-5, SP-6. Record Group 79, Records of the National Park Service. The Camp Superintendent monthly reports on work activities are found here as well as information on camp establishments and closures.

CCC Projects, Arizona. Entry 41. Box 8, SP-7, SP-8, SP-9, SP-10, SP-11. Record Group 79, Records of the National Park Service. A continuation of the previous entry.

Central Classified File 1933-1949. National Monuments, Saguaro. Record Group 79, Records of the National Park Service. Numerous reports and correspondence dealing with the monument are found here.

Monthly Narrative Reports of Regional Landscape Architects. Region III-1936. Record Group 79, Records of the National Park Service. Monthly reports filed by the Regional Landscape Architects responsible for inspecting CCC work projects are found here.

Monthly Narrative Reports of Regional Landscape Architects. Region III-January-May 1937. Record Group 79, Records of the National Park Service. A continuation of the above entry.

Monthly Narrative Reports of Regional Landscape Architects. Region III-June-December 1937. Record Group 79, Records of the National Park Service. A continuation of the above entries.

Monthly Narrative Reports of Regional Landscape Architects. Regions II and III-1938. Record Group 79, Records of the National Park Service. A continuation of the above entries.

Annual Reports of CSO 1862-63, 1867-68, Reports of Instruments and Methods of Signalling, 1887-1893. Record Group 111, Records of the Office of the Chief Signal Officer. Reports on the 1890 heliograph field exercise are found here.

Saguaro National Monument Files

The monument files contain numerous reports and correspondence dating back to 1934. Most of this material escaped being sent to the National Archives for the central classified file. This material complements that found in the National Archives.

Coronado National Forest Headquarters, Tucson

File 2230 - Permits - 2 C&H. Rincon Valley Development Corps. (Pantano Allotment). This file contains some information on the Pantano Allotment.

File G, Cooperation, Coronado (Chiracahua Nat'l Monument). Despite the identification with Chiracahua NM, this file contains material on Saguaro NM.

File G, Cooperation, National Park Service (Saguaro National Monument). Memoranda of agreement and correspondence dealing with allotments in general are found here.

File G, Permits - C&H - Coronado. Converse, Jas. P. This file contains information on the Tanque Verde Allotment.

Happy Valley Allotment File. Begins with the activation of that grazing allotment in 1943 and the approach the Forest Service took to it.

Pantano Allotment File. Contains range inspection reports and agreements with the various allotment owners.

Rincon Allotment File. Essentially the same as the Pantano file.

Bureau of Land Management, Phoenix

This agency office contains the survey field note books of the various Arizona townships. In addition to their survey work the men would indicate residents or abandoned homes in a given section, some mines, lime kiln, and vegetation. This office also contains homestead applications, homestead patent certificates, mineral surveys in the various mining districts and mine patent certificates.

United States Bureau of Mines, Denver

Columbia (Gould) Mine File. Amole Mining District, Pima County, Arizona. Although mine owners were required to make annual production reports to the U.S. Bureau of Mines starting in 1902, this source proved disappointing for the Amole Mining District file contained an entry for only one mine--the Gould--and that for only the 1953-54 period.

Harpers Ferry Center (NPS), West Virginia

Box SAGU. Folder - Saguaro NM. Contains very little information and much of that can be obtained elsewhere.

Master Plan for the Preservation and Use of Saguaro National Monument, Mission 66 Edition. 1963. Harpers Ferry had the only copy of this master plan.

Western Regional Office (NPS), San Francisco

District Ranger, Tucson Mountain Division, Saguaro NM to Chief Ranger, Saguaro NM. April 28, 1968. This correspondence contained an interview of L. Martain Waer's descendents who visited the Tucson Mountain Unit.

Western Archeology Center (NPS), Tucson

Southwestern Monuments Monthly Reports (Saguaro), 1934-53.

Custodian's Monthly Reports (Saguaro), November 1939-1948.

Superintendent's Monthly Reports (Saguaro), 1949-1967.

Arizona Historical Society, Tucson

James Lee Folder in the Hayden File. This folder contained information on James Lee who developed the Nequilla mine.

Mines - Arizona - Nequilla (Nahuila). Ephemera File. This file had information on the first mine to be patented in the Amole District.

Reminiscences of Octaviano O. Gastelum. Juan I. Telles Ephemera File. Gastelum was kidnapped at the Telles ranch by Apaches in 1886.

Juan I. Telles Folder. Ephemera File. Contains information on the Telles ranch near the present-day Rincon Unit.

Vail, Edward L. "The Diary of a Desert Trail." In the Edward L. Vail papers. He recounts a cattle drive about 1890.

University of Arizona Library Special Collections

Range Conditions in Arizona, 1900-1909 as Recorded by Various Observers in a Series of Miscellaneous Papers. Collected and bound by the University of Arizona Library. Several area individuals report on southern Arizona range conditions.

"Reports on Tonnage in Pima and Santa Cruz Cos, Arizona." ca. 1906. Recount of mining company production reports which are accepted uncritically.

Arizona Department of Mineral Resources, Phoenix

"Active Mines in Southern District." January 1944-February 1948. These are monthly reports of mining activity in southern Arizona. There are no reports involving the Amole District mines after January 1946.

Folder - Gould Mine, Pima County, Arizona. This file contains letters and reports dealing with the Gould mine from 1908 to 1959.

"Owners Mine Report." October 16, 1940. This report dealt with the Old Yuma mine. Although the Arizona Department of Mineral Resources requested reports on mining activity from mine owners, it had no police authority and, as a result, rarely received such reports.

Arizona Bureau of Geology and Mineral Technology, Tucson

Formerly the Arizona Bureau of Mines, this state agency has a very good newspaper clipping file of Arizona mining districts and mines.

Bonanza Park Mining Company File. Contains a 1918 promotional pamphlet extolling the virtues of the Bonanza Park mines.

Copper King Mining Co. - Tucson Mountains File. Contains a small amount of material on the Mile Wide mine.

Gould Copper Mining Company File. Very little material of which most deals with the early period around 1907-08.

Arizona State Archives, Phoenix

Assessment Rolls for the County of Pima, 1879-1912. These rolls contain an alphabetical listing of property owners and the value of their real estate.

Personal Papers

John Harrison Papers. University of Arizona Library Special Collections. These papers contain much information about the University of Arizona's relationship to the monument.

Carl Hayden Papers. Arizona Foundation. Arizona State University Library. These papers fill in many blanks left by the National Park Service records in the National Archives and Saguaro National Monument.

Homar Shantz Papers. University of Arizona Library Special Collections. Shantz was University president from the late 1920s to 1936. These papers contain little in regard to the national monument.

Edward L. Vail Papers. Arizona Historical Society. Vail and his brother Walter were probably the largest ranchers in southern Arizona in the Anglo period. Vail gives a picture of their life and ranching.

Printed United States Government Document

Annual Report of the Secretary of the Interior For the Fiscal Year Ended June 20, 1933. Washington, D.C.: Government Printing Office, 1933. Tells of the June 10, 1933 Executive Order which transferred a number of national monuments to the Park Service.

Annual Report of the Secretary of the Interior For the Fiscal Year Ended June 20, 1934. Washington, D.C.: Government Printing Office, 1934. Tells of the transfer of sixteen national monuments to the Park Service.

Federal Register, November 22, 1961. Contains a copy of the presidential proclamation which added the Tucson Mountain Unit to Saguaro National Monument.

Gale, First Lieutenant G.H.G. "Report of Reconnaissance for a Central Station, Connecting Lowell, Huachuca, Bowie and Grant Heliograph Divisions." March 28, 1890. In Instructions for Guidance of Signal Officers, in Charge of Heliograph Divisions and Stations During General Practice Department Heliograph Systems, May 1890. Gale tells of his search in the Rincon Mountains for a suitable site to set up a heliograph station for the coming 1890 field exercise.

"Reports of the Chief Signal Officer." October 1, 1890. October 9, 1893. October 1, 1895. In Reports of the Secretary of War, 1890, 1893, 1895. Washington, D.C.: Government Printing Office, 1890, 1893, 1895. These reports contain various information on the heliograph as it mainly pertained to southern Arizona.

Statutes of the United States of America Passed at the Second Session of the Seventy-Second Congress 1932-33 and Concurrent Resolutions, Recent Treaties, Executive Proclamations, and Agreements, Proposed Amendments to the Constitution, Twentieth Amendment to the Constitution. Washington, D.C.: Government Printing Office, 1933. Contains the March 1, 1933 presidential proclamation which established Saguaro National Monument.

Twenty-First Annual Report of the United States Geological Survey to the Secretary of the Interior 1899-1900. Part IV. Washington, D.C.: Government Printing Office, 1901. Mentions the recovery of the copper industry and its importance to Arizona.

U.S. Congress, Senate. Committee on Public Lands and Surveys. "Hearings Before a Subcommittee of the Committee on Public Lands and Surveys, Pursuant to S. Res. 347 to Investigate all Matters Relating to National Forests and the Public Domain and Their Administration." 3 vols. 69 Cong. 1 Sess. Washington, D.C.: Government Printing Office, 1926. Covers the Forest Service grazing policy through 1925.

National Park Service Publications

O'Brien, Robert D. and L.S. Zentner. "Report of the Mining Property Investigations, Saguaro National Monument, Tucson Mountain Section." 2 vols. San Francisco: National Park Service, Western Region Office, April 1973. The report covers the location of seventy-six mines and prospect holes. The authors found that it was difficult, if not impossible, to define claim locations because the descriptions on file were very ambiguous.

Simpson, Kay and Susan J. Wells. "Archeological Survey in the Eastern Tucson Basin: Saguaro National Monument." 3 vols. Tucson: National Park Service, Western Archeological and Conservation Center, Publications in Anthropology No. 22, 1983. This three-volume work contains an overview as well as specific site descriptions of the archeology of the Rincon Mountain Unit of the monument.

Stacy, V.K. Pheriba and Julian Hayden. "Saguaro National Monument: An Archeological Overview." Tucson: National Park Service, Western Archeological Center, 1975. This work is a clearly presented discussion of the archeological sequences found in the two units of Saguaro National Monument.

Interviews

Conversation Between Park Technician Thomas Carroll and Mrs. Freeman of the Freeman Homestead. Folder - Mrs. Freeman Day. Saguaro National Monument Files.

Conversation with James Converse by H. Coss, National Monument Employee. November 17, 1968. Folder - Mrs. Freeman Day. Saguaro National Monument Files.

Statement by David Faust, Superintendent of Fort Lowell State Park, to Berle Clemensen. May 2, 1986.

Telephone conversation with E.D. (Ed) Herreras by Berle Clemensen. April 28, 1986.

Telephone conversation with Theodore Knipe by Berle Clemensen. May 14, 1986.

Transcript of Tape Conversation of Frank Escalante and Charles Maguire by Bob Jones, SAGU Superintendent, Hal Coss, Park Naturalist, and Tom Carroll, Park Technician. December 11, 1969. Saguaro National Monument Files.

Newspapers

Arizona Citizen (Tucson), 1875-1940.

Arizona Republic (Phoenix), 1929, 1978.

Arizona Republican (Phoenix), 1900.

Arizona Star (Tucson), 1879-1985.

Arizona Weekly Enterprise (Tucson), 1893.

Chamber News (Tucson Chamber of Commerce), 1949.

Los Angeles Times, 1901.

Tucson Citizen, 1941-1985.

SECONDARY WORKS

Articles

Allen, Milton A. "Mines of Pima County." Arizona Mining Journal. 3(June 1919), 76-77. Concentrates mostly on the larger mines and not on the Amole District.

Bahr, Donald M. "Pima and Papago Social Organization." In Handbook of North American Indians, Volume 10: Southwest. Edited by Alfonso Ortiz and William C. Sturtevant. Washington, D.C.: Smithsonian Institution, 1983. Pima and Papago social organization is clearly described in this article--rules of descent, of residence at marriage, and the groups formed by such principles as well as local government and cultural values.

Barker, Robert M. "The Economics of Cattle Ranching in the Southwest." The American Monthly Review of Reviews. (September 1901) 305-313. The author dwells mostly on Texas and has sympathy for cattle raisers.

Brinckerhoff, Sidney B. "The Last Years of Spanish Arizona, 1786-1821." Arizona and the West. 9(Spring 1967), 5-20. Excellent article dealing with the Spanish pacification program and settlement policy.

Canby, Thomas Y. "The Search for the First Americans." National Geogrpahic. 156(September 1979), 330-363. The author provided a summary of the distribution and chronology of Paleo-Indian sites in the New World.

Clausen, John. "Dude Ranches." Tucson Magazine. 3(December 1977), 16, 18. Brief article on dude ranches in the Tucson area.

"Concentrated Mining Activities from Arizona, Western New Mexico, Sonora." Arizona Mining Journal. 4(October 15, 1920), 21. The article gives a brief history of the Old Yuma mine and reported that a New York firm had leased it.

Crosswhite, Frank S. "The Annual Saguaro Harvest and Crop Cycle of the Papago with Reference to Ecology and Symbolism." Desert Plants 2 (Spring 1980), 3-61. This article discusses in detail the place of Saguaro wine in the cultural ecology of the Papago.

Davis, Elmer E. "Where the Ancient and Modern Meet - Tanque Verde Ranch." Progressive Arizona and the Great Southwest. (September 1928), 22-24. The author gives a brief history of the Tanque Verde ranch and states the new owner, James Converse, was adding a dude ranch.

"The Distaff Wrangles Dudes." The Magazine Tucson. 2(October 1949), 24-25. Mentions some dude ranches near Saguaro NM and says horseback riding was the most popular sport.

Dixon, E. James. "The Origins of the First Americans." Archaeology 38 (March-April 1985), 22-27. This article is a brief but comprehensive discussion of Beringia or the Bering Land Bridge, "the presumed avenue by which humans first entered the Americas," sometime between 50,000 and 15,000 years ago.

Doelle, William H. "The Papago Indians." In Archaeological and Historical Investigations at Nolic Papago Indian Reservation, Arizona. Tucson: Institute for American Research, Anthropological Papers No. 2, 1983. This concise section on the Papago deals with their linguistic subdivisions or dialectal geographic areas and their political history in the nineteenth and twentieth centuries.

Doyel, David E. "From Foraging to Farming: An Overview of the Preclassic in the Tucson Basin." The Kiva. 49(Spring-Summer 1984), 147-165. The author discusses in detail the beginning of prehistoric farming in the Tucson Basin.

Eaton, W. Clement. "Frontier Life in Arizona, 1858-1861." Southwestern Historical Quarterly. 36(January 1933), 173-192. Eaton writes of the mining which took place in the Tubac area and its ending with the onset of the Civil War.

Ezell, Paul H. "History of the Pima." In Handbook of North American Indians, Volume 10: Southwest. Edited by Alfonso Ortiz and William C. Sturtevant. Washington, D.C.: Smithsonian Institution, 1983. The author gives a comprehensive historical and cultural treatment of the Pima beginning with their first, unfortunate exposure to the presence of Europeans' infectious diseases.

Fontana, Bernard L. "History of the Papago." In Handbook of North American Indians, Volume 10: Southwest. Edited by Alfonso Ortiz and William C. Sturtevant. Washington, D.C.: Smithsonian Institution, 1983. This article is a general introduction to Papago history beginning with European contact and ending with issues of modern tribal government.

_____. "The Papagos." Arizona Highways 59 (April 1983), 34-37, 40-42, 44-45. This article is a treatment of Papago culture and history for the general reader.

Gumerman, George J. and Emil W. Haury. "Prehistory: Hohokam." In Handbook of North American Indians, Volume 10: Southwest. Edited by Alfonso Ortiz and William C. Sturtevant. Washington, D.C.: Smithsonian Institution, 1979. The authors discuss in a reasonably detailed manner the "long-count" theory of Hohokam migration from Mexico beginning about 2300 years ago.

Hackenberg, Robert A. "Pima and Papago Ecological Adaptations." In Handbook of North American Indians, Volume 10: Southwest. Edited by Alfonso Ortiz and William C. Sturtevant. Washington, D.C.: Smithsonian Institution, 1983. In this article the respective riverine and desert habitats of the Pima and Papago are discussed in terms of economic exchange and cooperation between these two peoples to best utilize the somewhat different resources of each micro-environment.

Hayden, Julian D. "Of Hohokam Origins and Other Matters." American Antiquity. 35(January 1970), 87-93. Various theories of the origins and demise of the Hohokam culture are discussed in this article.

"Hi-Ho Sisson." The Magazine Tucson. 2(October 1949), 20. The article deals with dude ranching.

Hoover, J.W. "Generic Descent of the Papago Villages." American Anthropologist. 37(April-June 1935), 257-264. This article contains a summary of what happened to the Sobaipuri Indians as they fled attacking Apaches in the eighteenth century and were absorbed by their fellow Piman-speakers to the west of their traditional territory.

Huckell, Bruce B. "The Paleo-Indian and Archaic Occupation of the Tucson Basin: An Overview." The Kiva. 49(Spring-Summer 1984), 133-145. The transition in the Tucson Basin from Paleo-Indian big-game hunting to Archaic localized, intensive hunting and gathering is discussed in this article.

Mattison, Ray H. "Early Spanish and Mexican Settlements in Arizona." New Mexico Historical Review. 21(October 1946), 273-327. An excellent account of seventeenth and eighteenth centuries ranching in southern Arizona.

McGuire, Randall H. "Ethnographic Studies." In Hohokam and Patayan: Prehistory of Southwestern Arizona. Edited by Randall H. McGuire and Michael B. Schiffer. N.Y.: Academic Press, 1982. This section contains a short ethnographic profile of the Pima and Papago.

"Mining in Arizona." The Engineering and Mining Journal. 45(May 19, 1888), 362. The article reports silver strikes in the Tucson Mountains and conveyed the idea that those mountains contained massive tons of that ore.

"Mining in Arizona." The Engineering and Mining Journal. 47(May 4, 1889), 409. The article reports the dishonest sale of claims.

"Mining Review." Arizona Mining Journal. 1(October 1917), 22. Glowing report of the copper ore found in the Mile Wide mine.

Niering, W.A. and R.H. Whittaker. "The Saguaro Problem and Grazing in Southwestern National Monuments." National Parks Magazine. 39(June 1965), 4-9. A good article on the destructiveness of livestock grazing on the ecology.

Niering, W.A., R.H. Whittaker, and C.H. Lowe. "The Saguaro: A Population in Relation to Environment." Science. 142(October 4, 1963), 15-23. Very similar to the above article.

Pablo, Sally G. "Contemporary Pima." In Handbook of North American Indians, Volume 10: Southwest. Edited by Alfonso Ortiz and William C. Sturtevant. Washington, D.C.: Smithsonian Institution, 1983. The author cites problems of economic development and cultural change among the modern Pima.

Penn, Susan. "Tucson's Ranch Resorts Fewer But Booming." Tempo. 2(January 24-February 6, 1980), 4-5. The article is better than the average, for it gives some history of dude ranching in the Tucson area.

"Pima County Review." Arizona Mining Journal. 2(June 1918), 38. A report on the Mile Wide mine.

Potter, Albert F. "Report of Examination of the Proposed Santa Rita Forest Reserve." March 1902. In Range Conditions in Arizona, 1900-1909 as Recorded by Various Observers in a Series of Miscellaneous Papers. University of Arizona Library Special Collections. Potter notes that there were only one-third the number of cattle compared to ten years earlier. The higher elevations were severely overgrazed, he found.

Russell, Frank. "The Pima Indians." In Twenty-Sixth Annual Report of the Bureau of American Ethnology for 1904-05. Washington, D.C.: Government Printing Office, 1908. This is the classic ethnography of the Pima and should be consulted for comparison with more recent studies.

Serven, James E. "The Military Posts on Sonoita Creek: A Review of the Brief But Important Roles of Fort Buchanan 1857-1861 and Camp Crittenden 1868-1873." The Smoke Signal (Fall 1965), 26-48. A good article on the protection offered to settlers and miners of southern Arizona by the army.

"Silver Lillie Copper Mines of Arizona." Arizona Mining Journal. 6(June 15, 1922), 40. An article touting the superb copper strike in the Amole Mining District.

Stevens, Robert C. "The Apache Menace in Sonora 1831-1849." Arizona and the West. 6(Autumn 1964), 211-226. The author goes back as far as 1692 for background. It is a very good account of the Spanish and Mexican response to the Apache.

Tenney, J.B. "History of Gold Mining in Arizona." In History of Mining in Arizona. Phoenix: Arizona Department of Mineral Resources, 1963. Despite the title, the article covers Arizona mining in general.

"They were City Folk Once, Too!" The Magazine Tucson. 2(October 1949), 26. A brief article on dude ranch owners.

Todd, Cecil. "Metal Mining and Its Associated Industries in Tucson." Journal of Arizona History. 22(Spring 1981), 99-128. A very good article in which the author contends that Tucson was never a mining town. After 1880 it became a supply center for the mining areas of southern Arizona.

van Willigen, John. "Case Study: The Papago Community Development Program." In Applied Anthropology: An Introduction. South Hadley, Mass.: Bergin and Garvey, Publishers, 1986. This article is a commentary on how Papago village councils remain vital forces today as traditional expressions of consensus-based democracy and how they fit into community development programs.

Wagoner, J.J. "History of the Cattle Industry in Southern Arizona, 1540-1940." University of Arizona, Social Science Bulletin No. 20. 23(April 1952), 1-132. The author covers all aspects of cattle raising in southern Arizona including grazing in the National Forests.

"What Hurts Mining in Arizona." The Engineering and Mining Journal. 45(January 21, 1888), 51. The article complains of fraudulent mining claim sales.

Willis, Charles F. "Mining Opportunities Around Tucson Hold Great Promise." Arizona Mining Journal. 6(October 15, 1922), 26-28, 30-31, 33. The article title explains the optimism for the Amole Mining District.

Books

Bancroft, Hubert H. History of Arizona and New Mexico. San Francisco: The History Co., 1889. Still a standard work on Arizona and New Mexico to 1888.

Barter, G.W. Directory of the City of Tucson for the Year 1881, Containing a Comprehensive List of Inhabitants with Their Occupations and Places of Residence; The Public Officers and Their Offices; with a Review of the Past, A Glance at the Present, and a Forecast of the Future of this City; Together with Other Useful Information Concerning the Same. San Francisco: H.S. Crocker & Co., 1881. A standard city directory.

Bartlett, John Russell. Personal Narrative of Explorations and Incidents in Texas, New Mexico, California, Sonora, and Chihuahua, Connected with the United States and Mexican Boundary Commission, During the Years 1850, '51, '52, and '53. 2 vols. Chicago: The Rio Grande Press, Inc., 1965. Bartlett tells of his experiences while head of the U.S. Boundary Commission.

Bieber, Ralph P. ed. Southern Trails to California in 1849. Glendale, Calif.: Arthur H. Clark Co., 1937. The diaries of three parties that took different southern routes to California.

Blake, William P. Sketches of Pima County, Arizona: Its Mining Districts, Minerals, Climate, Ariculture, and Other Resources. Tucson: Chamber of Commerce, 1910. Although Blake was the territorial geologist, the book reads like a chamber of commerce tract. Much of his history is incorrect.

Cordell, Linda S. Prehistory of the Southwest. N.Y.: Academic Press, 1984. This work represents a detailed and definitive treatment of the various archeological horizons of the Southwest and the different theories that may account for them.

Cross, Jack L., Elizabeth H. Shaw, and Kathleen Scheifele. eds. Arizona: Its People and Resources. Tucson: University of Arizona Press, 1960. The work exuberantly views Arizona.

Dobyns, Henry F. The Papago People. Phoenix: Indian Tribal Series, 1972. This book is a general history of the Papago people that deals mostly with the different types of Euro-American contact to which the Papago have had to adjust over the years.

Dutton, Bertha P. American Indians of the Southwest. Albuquerque: University of New Mexico Press, 1983. This work is a very general treatment of the history and ethnography of the Indian peoples of the Southwest. It is useful for data on the estabishment of Indian reservations.

Gregonis, Linda M. and Karl J. Reinhard. The Hohokam Indians of the Tucson Basin. Tucson: University of Arizona Press, 1979. These authors have written a very readable, general history and ethnography of the people we know as the Hohokam from archeology.

Hamilton, Patrick. The Resources of Arizona: A Description of Its Minerals, Farming, Grazing and Timber Lands; Its Rivers, Mountains, Valleys and Plains; Its Cities, Towns and Mining Camps; Its Climate and Productions; with Brief Sketches of Its Early History, Pre-Historic Ruins, Indian Tribes, Spanish Missionaries, Past and Present, Etc., Etc. Prescott, Az.: Under the Authority of the Legislature, 1881. Hamilton wrote this propaganda tract at the request of the territorial legislature. His pre-Anglo period history is incorrect.

Haury, Emil W. The Hohokam: Desert Farmers and Craftsmen - Excavations at Snaketown, 1964-1965. Tucson: University of Arizona Press, 1976. The most distinguished archeologist of the Hohokam keenly provides in this work a very detailed description of Hohokam pottery and other artifacts.

Hinton, Richard J. The Handbook of Arizona: Its Resources, History, Towns, Mines, Ruins and Scenery. N.Y.: American News Co., 1878. Hinton makes it seem as if half of the world's mineral resources could be found in Arizona.

History of Arizona Territory Showing Its Resources and Advantages; with Illustrations, Descriptive of Its Scenery, Residences, Farms, Mines, Mills, Hotels, Business Houses, Schools, Churches, Etc. San Francisco: Wallace W. Elliott & Co., 1884. Arizona was a paradise.

Kessell, John L. Friars, Soldiers, and Reformers: Hispanic Arizona and the Sonora Missions Frontier 1767-1856. Tucson: University of Arizona Press, 1976. Excellent work on the later Spanish and Mexican periods in southern Arizona.

Kroeber, Alfred L. A Roster of Civilizations and Culture. Chicago: Aldine Publishing Co., 1962. The author, a distinguished anthropologist, provides a summary of Hohokam culture in the context of a discussion of world civilizations.

Lister, Robert H. and Florence C. Lister. Those Who Came Before. Tucson: University of Arizona Press, 1983. The Listers provide a thoughtful and insightful treatment of Southwestern prehistory that emphasizes significant changes in man's life during each stage of prehistory.

Lockwood, Frank C. Pioneer Days in Arizona: From Spanish Occupation to Statehood. N.Y.: Macmillan Co., 1932. A factual chronical of Arizona history.

_____. Apaches & Longhorns: The Reminiscences of Will C. Barnes. Tucson: University of Arizona Press, 1982. An interesting account of Barnes' life.

McClintock, James H. Arizona: Prehistoric-Aboriginal-Pioneer-Modern. 3 vols. Chicago: The S.J. Clarke Pub. Co., 1916. A very general work. Volume three contains biographies.

Rowley, William D. U.S. Forest Service Grazing and Rangelands: A History. College Station, Texas: Texas A&M University Press, 1985. This work is a general history of grazing policy in national forests both under the General Land Office (1891-1905) and the Forest Service which took over in 1905. Although it does not focus on Arizona, it is a good history of the grazing policy in national forests with a national focus.

Safford, A.P.K. The Territory of Arizona: A Brief History and Summary of the Territory's Acquisition, Organization, and Mineral, Agricultural and Grazing Resources; Embracing a Review of Its Indian Tribes - Their Depredations and Subjugation; and Showing in Brief the Present Condition and Prospects of the Territory. Tucson: The Arizona Citizen, 1874. This work is a tract extolling the virtues of Arizona.

Smith, Cornelius C. Jr. Tanque Verde: The Story of a Frontier Ranch, Tucson, Arizona. Tucson: Published by the Author, 1978. This work contains little useful information on the Tanque Verde Ranch. Smith lacks knowledge of the history of southern Arizona.

Sorin, T.R. Hand-book of Tucson and Surroundings Embracing Statistics of the Mineral Fields of Southern Arizona. Tucson: Citizen Print, 1880. The book is better than most written in that era. Sorin, however, overstates the importance of mining in the Amole District.

Spencer, Robert F. and Jesse D. Jennings. The Native Americans. N.Y.: Harper and Row, 1977. The authors provide a well-written summary of Papago and Pima archeology and ethnography.

Spicer, Edward H. Cycles of Conquests: The Impact of Spain, Mexico, and the United States on the Indians of the Southwest, 1533-1960. Tucson: University of Arizona Press, 1962. This book is a classic.

Steenbergh, Warren F. and Charles H. Lowe. Ecology of the Saguaro: II, Reproduction, Germination, Establishment, Growth, and Survival of the Young Plant. National Park Service Scientific Monograph Series No. 8. Tucson: University of Arizona Press, 1977. An excellent study which details many causes for lack of survival among the saguaro not the least of which is freezing.

The Resources of Arizona: Its Minerals, Farming and Grazing Lands, Towns and Mining Camps; Its Rivers, Mountains, Plains and Mesas; with a Brief Summary of Its Indian Tribes, Early History, Ancient Ruins, Climate, Etc., Etc. No publisher, ca. 1882. Another propaganda tract proclaiming the greatness of Arizona.

The Restoration of La Casa Cordova. Tucson: The Junior League of Tucson, Inc., 1978. This study is similar to a National Park Service historic structure report. La Casa Cordova is a historic house in Tucson.

Tuck, Frank. History of Mining in Arizona. Phoenix: Arizona Department of Mineral Resources, revised 1963. This work is mainly a compilation of dates for mining activity by district. It does not mention the Amole District.

Underhill, Ruth M. Social Organization of the Papago Indians. N.Y.: Columbia University Press, 1939. The author is the classic ethnographer of the Papago. Her work on Papago social organization is basic, and very useful, for example, in learning when and for what purposes the Papago employ bilateral descent on the one hand and patrilineal descent on the other.

_____. The Papago Indians of Arizona and Their Relatives the Pima. Washington, D.C.: Bureau of Indian Affairs, 1941. This is a delightfully written ethnography of the Papago and Pima for the general reader.

_____. Papago Indian Religion. N.Y.: Columbia University Press, 1946. Underhill should always be consulted when doing work on the Papago, especially on their religion for which this description is the standard ethnography.

Waldman, Carl. Atlas of the North American Indian. N.Y.: Facts On File Publications, 1985. This is a useful general reference for archeology and ethnography that gives the salient points about the major movements, historical periods, and cultural groups of the native peoples of North America.

Bulletins

Anderson, C.A. "Copper." In "Mineral and Water Resources of Arizona." Arizona Bureau of Mines Bulletin No. 180, 1969. A good overview of Arizona copper mining.

Castetter, Edward F. and Ruth M. Underhill. "The Ethnobiology of the Papago Indians." University of New Mexico Bulletin, Biological Series No. 4, October 1935. This technical book on Papago natural resources contains a good introduction to the Papago culture.

Elsing, Morris J. and Robert E.S. Heineman. "Arizona Metal Production." University of Arizona Bulletin No. 140, Economic Series No. 19, February 15, 1936. The authors list mineral production by county. There is a breakdown of production by mine in seven districts. Although the Amole District was one of the seven, only production for the Gould, Mile Wide, and Old Yuma mines was listed.

Jenkins, Olaf P. and Eldred D. Wilson. "A Geological Reconnaissance of the Tucson and Amole Mountains." University of Arizona Bulletin No. 106, Geological Series No. 2, 1920. The work covers the geology of the Tucson Mountains and the kinds of mineral formations there.

"Mineral and Water Resources of Arizona." Arizona Bureau of Mines Bulletin No. 180, 1969. This work contains a good summary of mining in Arizona dating from the Spanish period.

Tenney, J.B. "Second Report on the Mineral Industries of Arizona." University of Arizona Bulletin No. 129, Biennial Review Series No. 2, July 1, 1930. Tenney presents a geological history of the Tucson Mountains and notes that the Mile Wide mine was still active.

_____. "The Mineral Industries of Arizona." University of Arizona Bulletin No. 125, Annual Review Series No. 1, February 15, 1928. The author writes of the geological formation of the Tucson Mountains.

Pamphlets

"Arizona Ranches, Resorts, Hotels." Compiled and distributed by the Valley National Bank. September 1947. A list of places to stay with address, occupancy, and cost.

"General Description of the Mining Districts of Pima County, Arizona." Tucson: Commercial Printing Co., January 1932. This pamphlet, distributed by the Tucson Chamber of Commerce, assessed the Amole and Rincon Mining Districts as very minor ones.

Knight, Frank P. "Mining in Arizona: Its Past, Its Present, Its Future." Phoenix: Arizona Department of Mineral Resources, January 1958. Knight gave a brief history of Arizona mining in which he dwelled on the larger districts and mines.

List of Guest Ranches along Southern Pacific Lines and Resort Hotels and Ranch Schools in Southern Arizona." September 1, 1947. This pamphlet lists accommodations, their location, price, and capacity.

"The Pima and Santa Cruz Mining Fields." Tucson: The Arizona Citizen, May 1907. A brief history of mining in the two counties. Copper was said to predominate in the Amole District, but only the Old Yuma mine was mentioned.

"Tucson Vacation Living: Places to Stay, Things to See, Places to Go, Outstanding Events." No publisher, 1967. A promotional pamphlet which included a list of dude ranches in the area.

Wilson, Eldred D. "History of Mining in Pima County, Arizona." Tucson: Tucson Chamber of Commerce, ca. 1952. A brief history of Pima County mining, but factually incorrect on occasion.

Journals

Arizona Mining Journal, 1917-1946.

Army and Navy Journal, 1889-1896.

The Engineering and Mining Journal, 1885-1940.

Mining and Scientific Press, 1903.

Mining Journal (Denver), 1942-1943.

Typescripts

Harrsion, Anne E. "The Santa Catalinas: A Description and History." Summer 1972. In the Coronado National Forest Headquarters and Saguaro National Monument library. This work is a useful history of the Santa Catalina Division of Coronado National Forest.

Jones, Dick. "Old Yuma Mine." September 4, 1980. In the Arizona Department of Mineral Resources, Phoenix. A brief history of the Old Yuma mine by an individual who held the claim on it at one time. It is biased in favor of a miner's viewpoint.

Stone, Lyle M. "A Description of two Lime Kilns Located in Saguaro National Monument, Arizona." Prepared for the National Park Service, Western Archeology Center, October 1976. Stone described the two kilns in the Rincon Mountain Unit.

Tagg, Lawrence V. "Aircraft Crashes in the Rincon Mountains." March 15, 1984. Copy courtesy of the author. Through several sources, including the air force, Tagg has pieced together basic information on all the air crashes in the Rincon Mountains.

Tenney, James Brand. "History of Mining in Arizona." 2 vols. 1927-29. In the University of Arizona Library Special Collections. An excellent study on Arizona mining except for the early period in which he credited the Jesuit padres with much influence on mining. Tenney presented the Amole Mining District as one of unimportance.

"Tucson Mountain Park History." no date. In the Saguaro National Monument Files. A good general history of the county park.

Wells, Susan J. "An Archeological Survey of the Camp Pima Environmental Study Area." Saguaro NM Tucson Mountain Unit. May 1984. In the Western Archeological and Conservation Center, Tucson. The author presented a brief history of the camp and dwelled mainly on identification of structure sites.

Technical Report

Shand, Terry D. and A. Heaton Underhill. "Saguaro National Monument: Recreational Use by Visitors, Neighbors, and Organized Groups." Technical Report No. 15. Tucson: University of Arizona. May 1985. The authors sought to determine the amount of horseback riding on the monument. They found it to be significant.

Papers

Hastings, James R. "Vegetation Change and Arroyo Cutting in Southeastern Arizona During the Past Century: An Historical Review." Read at the Arid Lands Colloquia, University of Arizona, 1958-1959. An excellent paper in which the author dispelled the traditional beliefs of vegetation as myth.

Lowe, Charles H. "Life and Death of the Saguaro in Arizona." Extract of a paper presented at the annual meeting of the American Institute of Biological Science, University of Maryland. August 17, 1966. In this paper, Lowe presented the idea that freezing, not bacterial disease, was the cause of death in older saguaro.

Masters' Thesis and Doctoral Dissertations

Clark, Martin S. "Some Factors Affecting Vegetation Changes on a Semidesert Grass-Shrub Cattle Range in Arizona." Doctoral dissertation, University of Arizona, 1964. Clark reported on a five-year study of the effects of winter, summer, and year-long grazing on semidesert cattle range in the Santa Rita Experimental Range. Summer grazing proved as destructive as year-round grazing.

Haskell, Horace S. "Effects of Conservative Grazing on a Desert Grassland Range as Shown by Vegetational Analysis." Masters' thesis, University of Arizona, 1945. The experiment took place on an area near Oracle, Arizona. Conservative grazing, of course, proved beneficial.

Lauver, Mary Ellen. "A History of the Use and Management of the Forest Lands of Arizona, 1862-1936." Masters' thesis, University of Arizona, 1938. This thesis has little value. It is filled with generalities and Forest Service propaganda.

Mark, Albyn K. "Description of and Variables Relating to Ecological Change in the History of the Papago Indian Population." Masters' thesis, University of Arizona, 1961. This work is useful for detailed plant and animal subsistence data of the Papago Indians.

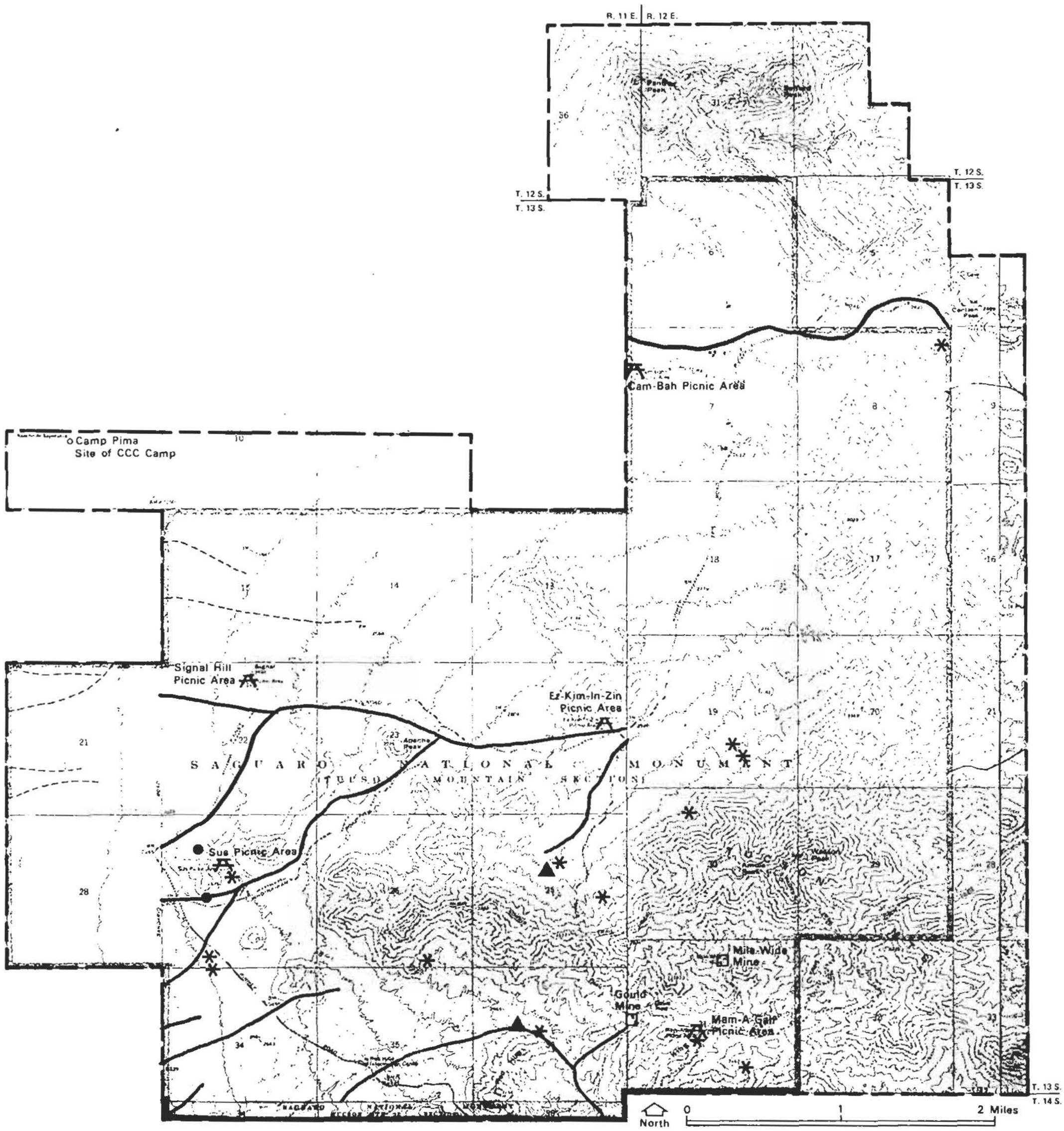
McAllister, Martin E. "Hohokam Social Organizations: A Reconstruction." Masters' thesis, San Diego State University, 1976. Reprinted in Arizona Archaeologist 14(1980). The author infers from archeological evidence that Hohokam government was highly organized with some form of centralized authority.

Term Papers

Allen, Donna B. "A Preliminary Survey of Camp Pima, Saguaro National Monument West, Tucson, Az." University of Arizona, Historical Archaeology Course, May 1979. Contains useful information on that CCC camp.

Copenhaver, Larry. "CCC Camps in Arizona." University of Arizona History 216, June 1966. Although there are a few minor errors, the author presents some good general information.

Rozen, Kenneth. "A Brief History of the Manufacture and Use of Lime with Special Reference to Two Lime Kilns in Southern Arizona." University of Arizona, History/Anthropology course, May 2, 1977. The brief history of the manufacture and use of lime has nothing to do with Arizona. The two lime kilns are located in the Tucson Mountain Unit, but the author merely describes them with no historical background.



OLD TRAIL

OLD ROAD

CCC DAM SITE

CCC WELL, WINDMILL, AND RESERVOIR SITES

CCC BUILT PICNIC AREA

LIME KILN

2 MINES

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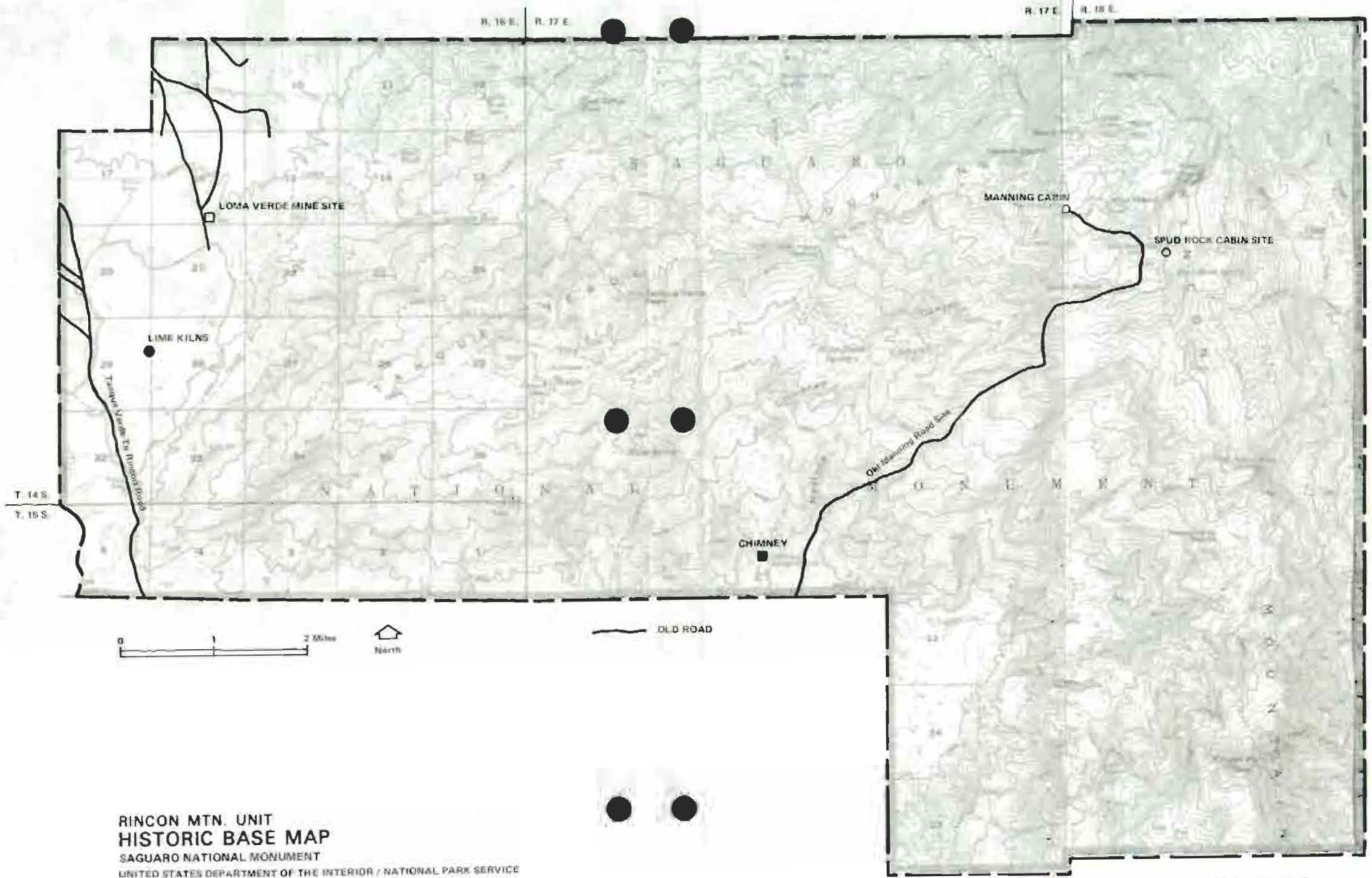
HISTORIC BASE MAP

SAGUARO NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / AUG 1986 / 151-25001

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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