One Hundred Years of History in the California Desert

An Overview of Historic Archeological Resources at Joshua Tree National Monument

by
Patricia Parker

National Park Service
U.S. Department of the Interior
ONE HUNDRED YEARS OF HISTORY IN THE CALIFORNIA DESERT:
AN OVERVIEW OF HISTORIC ARCHEOLOGICAL RESOURCES AT
JOSHUA TREE NATIONAL MONUMENT

by
Patricia Parker

1980

Publications in Anthropology, No. 13
Western Archeological Center
National Park Service
Tucson, AZ
CONTENTS

Illustrations and Tables  iv
Acknowledgements  v
Abstract  vi
Introduction  vii
Method  xi

PART I. PREVIOUS HISTORICAL STUDIES  1

Chapter 1. The Records  2
  Historical Archeology within the Monument  2
  Formal Inventory of Historic Resources  2
  The Records: General Problems  5
  The Records: A Summary of Sources  7

PART II. ETHNOHISTORY OF THE MONUMENT AND ENVIRONS  12

Chapter 2. General Background  13
  The Setting  13
  Land Use  15
  Definitions  16

Chapter 3. Indian Occupation and Acculturation  18
  The Prehistoric Background  18
  Contact: The Nineteenth Century  20
  Indians at the Monument: The Twentieth Century  34
  Summary  38

Chapter 4. Mining and Miners  39
  Mining before 1900  40
  Mining Heyday: 1900-1917  50
  Mining Hiatus: 1918-1929  59
  The Last Boom: 1930-1942  61
  The Postwar Period: 1943 to the Present  70

Chapter 5. Livestock Raising  73
  Livestock Raising before 1900  73
  The Peak: 1900-1929  76
  Decline: 1930-1945  77

Chapter 6. Community Development  79
  The Beginning of a Community: Twentynine Palms in the 1920s  79
  Depression Years: the 1930s  83
  Continued Growth: The 1940s and 1950s  86

PART III. ARCHEOLOGICAL RESOURCES OF THE HISTORIC PERIOD  89

Chapter 7. Site Types and Predicted Distribution  90
PART IV. CONCLUSIONS 115

Chapter 8. Research Potential 116
   Acculturation 116
   Interaction and the Passing Frontier 117
   Mining and Miners 118
   Cattlemen and Homesteaders 118
   Scavenging 119
   Moonshining and Outlawing 120
   Myth Formation 120

Chapter 9. Recommendations 122
   Reconnaissance 122
   Study of Particular Sites 122
   Oral History 124
   Document Acquisition 124
   Summary 125

Appendix A. Review of Archeological Fieldwork 126

Appendix B. Excerpts from the Diary of the Romero-Estrudillo Expedition of 1823-1824 130

Appendix C. Nineteenth Century Descriptions of the California Desert 133

References 135
ILLUSTRATIONS

Figure 1. Known Historic Archeological Sites 4
Figure 2. Colorado/Mohave Deserts Boundary and Major Access Routes 14
Figure 3. California Indian Group Boundaries 19
Figure 4. Routes of Initial Contact 22
Figure 5. Jurisdiction of the Mission Agency, California, 1877 32
Figure 6. Twentynine Palms in 1909 36
Figure 7. Twentynine Palms Mining District and Mines, circa 1875 45
Figure 8. Mining Districts in 1895 46
Figure 9. Mines and Millsites, 1900-1917 51
Figure 10. Roads Connecting Mines, 1900-1917 53
Figure 11. Mines and Millsites, 1930-1942 68
Figure 12. Boundary Changes and U.S. Army Operations during World War II 71
Figure 13. Stockraising, circa 1925 74
Figure 14. Cattle Drive Routes and Major Grazing Areas 75
Figure 15. Twentynine Palms, circa 1935 81

TABLES

Table 1. Mining Claims Field, 1865-1881 42
Table 2. Mines and Millsites, 1900-1917 52
Table 3. Mines Operating, 1930-1942 62
Table 4. Archeological Site Types of the Historic Period 92
Table 5. Environmental Zones and Land Use 106
ACKNOWLEDGEMENTS

This study was aided immensely by the willing cooperation both of people with some official connection with the National Park Service and those with professional or other interest in the prehistory and history of the region.

Keith Anderson, Chief of the Division of Internal Archeological Studies at the Western Archeological Center, contracted with T. F. King and me for complementary overviews of the prehistoric and historic resources at the monument. His support and constructive criticism are appreciated.

Harry Lawton, Dennis and Mary O'Neil, Francis and Patricia Johnston, and Diane and Hall Kagan were particularly helpful to T. F. King, who shared with me the information given to him in interviews. At the monument I was aided by Park Naturalist Don Black, Superintendent Homer Rouse, Reino Clark, Dan McCarthy, and Pat Flanagan, as well as by VIPs Ray Camper and Fran Gibson.

Cheryl Erickson of the Twentynine Palms Branch of the San Bernardino County Public Library graciously made her interviews with local residents available to me and was kind enough to open the public library for my use on a day when it is normally closed.

I was aided in my research in the National Archives by Maria Joy of the archives staff. At the University of California, Riverside, I was assisted by Philip J. Wilke and Harry W. Lawton. Herrick Hanks, of the Bureau of Land Management in Riverside, advised us about BLM's historic preservation policy and about National Register sites in the California Desert.

The manuscript was prepared for publication by John Bancroft and Kathryn M. Ring, editors at the Western Archeological Center, and by Vonna Lou Mason, clerk/typist. The illustrations are the work of Jeannette Schloss and Susan Bancroft.

Patricia Parker
ABSTRACT

This overview describes known facts about the social and economic history of Joshua Tree National Monument from the period of Indian-European contact to the present. I summarize the archeological reports and various other written materials pertinent to the monument area, and discuss the strengths and limitations of the different source materials. Major social and economic developments are traced in chapters documenting Indian occupation and acculturation, mining, livestock raising, and the development of modern communities. These historical chapters serve as a basis for identifying types of historic properties and predicting their distributions within and across environmental zones. Included in the conclusions are a discussion of the anthropological research potential offered by various types of historic property, and general recommendations for the protection of such properties and the information they contain.
INTRODUCTION

This study represents the second phase of a coordinated effort to identify the major kinds of archeological resources known or suspected to be present in Joshua Tree National Monument. These resources represent periods ranging from the earliest prehistoric occupation of the monument through the development of contemporary communities in the surrounding area. Archeological resources from prehistoric periods were discussed in Fifty Years of Archeology in the California Desert: An Archeological Overview of Joshua Tree National Monument (King 1975). This paper will deal with archeological resources from historic periods.

As was King's, this overview is designed primarily as a tool for use in future research at the monument or in comparable places. The overview has the following objectives:

1. To critically review previous local historical analyses and compilations;
2. To synthesize the published and unpublished material concerning the past two centuries at Joshua Tree (at least that which could be collected given the constraints of time and funds);
3. To suggest the kinds of historic archeological resources that may be present in the monument and its environs, based on the synthesis of historical material; and
4. To suggest how the information contained in the archeological and ethnohistorical record may be applied to problems of anthropological concern.

King reviewed archeological studies at sites from the prehistoric period. It is not possible to do the same for historic sites. Although background studies have been done at a few historic sites (e.g., R. Levy's work at Lost Horse Mine and my own at Keys' Ranch), there has been virtually no historic archeological literature to review, except for occasional notes that historic artifacts have emerged during surveys and excavations oriented toward prehistory.

Without archeological reports, what remains for discussion is a wide range of documents concerning local history. These can be analyzed both to predict the locations of historic sites and to project the kinds
of sites that could occur. Part I discusses these sources. I have classified them as primary and secondary sources and further distinguished types of sources, such as government records, autobiographical material, personal accounts, and so on. This classification reflects, in part, my concern with how close each writer was to his information. "Closeness" is reflected in the evidence authors used to support their assertions: Did the assertion arise from direct observation? Is it a generalization based on local tradition? Is it representative of a particular point of view in the community? Dealing with such variables is required if one is to interpret what actually happened and to identify meaningful distinctions among what different individuals and interest groups have said happened. Part I also notes the existence of maps, tapes, possible informants, and continuing programs for the collection of local history.

A scientifically sound regional history covering 200 years to complex social and economic development is necessarily complicated, detailed, and heavily referenced. Nothing less could serve as an adequate basis for predicting the nature of historic resources in the region. Unfortunately, such detailed treatment can be confusing and extremely tedious to the reader who wants the overview promised by the title. I have approached this problem by presenting a concise, but general, history of the social and economic developments of the Joshua Tree region in Part II, including as appendices some of the documents (unedited and in toto) upon which the general history is based.

A personal prediction of future trends in ethnohistory has also guided my selection of data. Some of the material in the overview has been selected not necessarily because it was so, but rather because someone said it was so. When someone says something has happened, the fact that such a statement has been made represents information of historical value, regardless of whether the described event actually took place. The fact that someone thought that something happened, or at least considered it to be in his interest to behave as if it had happened, is part of the historical context of a particular time and place. My bias is that all first-hand accounts, as conflicting, illogical, and disorderly as they may seem, will be of use to future scholars. This point is developed in Part IV.
Although the overview does not deal specifically with the intricacies of managing cultural resources, one reason for its preparation is to provide planners and administrators with an outline of the kinds of historic sites that may have been produced by the activities of the past 200 years. I attempted to provide this outline by drawing up a table showing types of historic sites known or expected to be present in the monument, based on my synthesis of historic records. The table presented in Part III is organized by a major social or economic activity, such as mining, cattle ranching, subsistence, or homesteading. Sites within each category are organized chronologically, so that mining sites of the 1870s for instance, are discussed separately from mining sites of the 1930s. Within each chronological period different types of sites are suggested, such as temporary or permanent occupation sites and various specific use sites.

This table is meant simply to suggest the range of archeological resources from the historic period that may be present in the monument. Its organization into social or economic categories should in no way obscure the fact that miners interacted with ranchers, ranchers interacted with homesteaders and miners, and so on. Any historic site should be interpreted in terms of the larger social system of which it was a part. One task of ethnohistorians and archeologists is to discover what sorts of social and economic interactions took place and how they were important to general patterns of regional or national development.

It must be stressed that the table is based almost entirely on documentary records and oral testimony, rather than on archeological surveys or excavations. Library synthesis is prerequisite to adequate and meaningful interpretation of a historic site, but library research is no substitute for systematic archeological survey or other fieldwork. One way that the written record is limited as a predictor of historic site distributions is discussed in Part II, Chapter 2, "The Setting." In the history of Joshua Tree, loci of intense and frequent social interaction are richly described and precisely located, while other kinds of sites are not. We know, for example, that much activity in the region was characterized by men working and living alone as prospectors, explorers, hunters, and cowboys, but sites representing such individual activities are rarely described in detail. People simply did not write
about all the things they did, so that it is impossible to establish site types or site distributions, solely on the basis of written evidence.

King's study ended with a look at the conventional anthropological abstraction called the "ethnographic present," a term referring to a hypothetical time when preliterate peoples are first observed by others, who then describe them as if they were unaffected by the presence of foreigners armed with pen and paper. Indians living in the California desert were probably contacted by the late eighteenth century, and certainly by the early nineteenth. Ethnographers, however, have traditionally presented their data, collected, say, in 1919, as if almost two centuries of contact had not occurred. This convention is an artifact of the history of anthropology, the merits of which need not concern us here. Ethnohistorians, who try to integrate historical data with anthropological theory, are often concerned with the phenomena of culture change and interaction that early California ethnographers left out. The ethnohistorical approach taken in this overview, therefore, has been to gather data that will help us learn how social interaction systems change under specificable conditions. Ethnohistorians and archeologists who work at Joshua Tree in the future will be concerned with general problems, such as determining the role that long-term indirect contact played in indigenous culture change and identifying the processes by which new strategies developed in response to changes in the social and natural environment of the region.

The Joshua Tree region has long been a meeting place for peoples from different cultures or from different segments of the same culture. The aboriginal inhabitants of the monument during the mid-nineteenth to early twentieth centuries were Serranos, Chemehuevis, and Paiutes. These groups were linked by trade, alliances, and, sometimes, kinship to a larger social network covering most of southern California. Interrelations among local groups within this larger network were profoundly affected by contact with the Spanish, Mexicans, and Americans.

The Indians left Joshua Tree in the early twentieth century, but the region continued to be a meeting ground for very different populations. The influx of homesteaders in the 1920s, for example, was representative of social classes, background, and beliefs that were quite
different from those belonging to the settlers and miners who preceded them. Interactions between existing communities and newcomers are a persistent theme in local history and, therefore, in this overview.

Patterns of social interactions at Joshua Tree can be related to general problems in current anthropological research. Ways in which the information present or presumed to be present in the history of Joshua Tree could be applied to future anthropological research is discussed in Part IV.

Method

Data collection and analysis for this report occupied more than a year. Contracts were awarded to King and myself in October 1974 and King began his research in November of that year. He interviewed several persons knowledgeable in the prehistory and history of the region and made this material available to me prior to my first trip to the monument in January 1975. I also reviewed readily available material before that visit.

At the monument, Superintendent Homer Rouse was interested in our efforts, particularly as they related to management, and helped us locate material on mines within the monument. Naturalist Don Black has an active interest in the history of the area and has developed a "fact file" on the history of the Joshua Tree area. This file was made available to us. The file is designed to aid park staff in answering visitors' questions. Much of the material has been collected from the monument's extensive library, but some entries are eclectically drawn from miscellaneous articles that have come to the staff's attention. The file is unsystematically referenced and thus is of variable use to researchers, depending on the entry. Black himself served as an informant and willingly shared his knowledge with us. Reino Clark, under Black's direction, has been conducting taped interviews with local old-timers. Other park staff have interviewed local residents, and some of these tapes proved very useful. Dan McCarthy has been recording rock art sites in the monument. Although his interest generally is in prehistory, he has also absorbed information on local history. Trips were made to historic sites within the monument, with particular attention to Keys' Ranch.
I also visited the Twentynine Palms Branch of the San Bernardino County Public Library. There Cheryl Erickson has been conducting another oral history program as part of a larger effort to build a file of information on local history. Erickson transcribes the interviews, asks her informants to check them for any items they may want to change or delete, and files the revised transcripts in the library. She graciously made these interviews available to me, and they have proven to be an invaluable resource. The library’s extensive collection of documentary material on local history was also inspected.

The first field trip was followed by research in the National Archives in Washington, DC, where I inspected all files on Joshua Tree National Monument and collected whatever information I could find relating to economic and social processes in and around the monument. I also inspected Bureau of Indian Affairs documents on the Mission Indian Agency and the Malki Reservation. Limited time and funds prevented me from reviewing the map collection there.

I returned to Washington several months later and spent several days in the Library of Congress, where I reviewed everything I could find that was pertinent to the monument’s history. These sources included journals, articles, explorers’ accounts, and diaries.

I later was awarded a contract to write a report (Hickman 1977) discussing the anthropological research potential of Keys’ Ranch. This contract led to another trip to Joshua Tree by King and myself. Although our work was focused on Keys’ Ranch, we also collected more data pertinent to the overview. At the University of California, Riverside, we were assisted by Philip J. Wilke and Harry W. Lawton. Wilke has long term research interests in the prehistory of the California desert, and Lawton is a historian noted for Willie Boy, a history of an incident set in the Joshua Tree region (Lawton 1960). Lawton provided me with some of the materials he collected during his research on Twentynine Palms, one locus of the Willie Boy incident. I am particularly indebted to him for a map of the oasis drawn in 1909 (figure 6).

Since the history of the monument area has not been synthesized, my approach has been inductive. I have tried to immerse myself in the data, to find out what different people said had happened, and to generalize on the resulting masses of detail. As an anthropologist, I am
particularly interested in the social and economic processes that accompanied the formation of communities in the area; this interest guided my selection of data. I found that Joshua Tree is not a unit unto itself, but that the region's development has been associated with processes occurring in the Southwest and in the country as a whole. Thus I have drawn on historical sources seemingly removed from the monument in an attempt to illustrate how the inhabitants of the Joshua Tree region responded to larger patterns important in the history of the United States.
PART I. PREVIOUS HISTORICAL STUDIES

Chapter 1. The Records
Historical Archeology Within the Monument

All previous archeological fieldwork within the monument has been focused on prehistoric sites and artifacts. My own report on the archeological/anthropological research potential of the historic component of Keys' Ranch (Hickman 1977) was a general plan for suggested future research and did not include systematic survey or excavation. Other reports on historic sites, such as Levy's (1969) on Lost Horse Mine or the Historic Preservation Team's (1975) report on Keys' Desert Queen Ranch, either were directed exclusively toward management problems or toward other disciplines, such as history or architecture. In his summary of previous archeological work within the monument, King discussed the sorts of archeological problems that have interested workers in the past (King 1975, Appendix I).

It is clear that the domain of archeology has been prehistory—the older the better—and that the relevant population was Indian. Kritzman, for example, did not record caves with blackened interiors as archeological sites unless Indian artifacts were also present:

It is conceivable that many of the blackened ceilings can be directly attributed to them (modern campers) or to the prospectors who frequented the area during the 'mining era' (Kritzman 1967, p. 15).

In other reports non-Indian materials are described only if found in Indian sites and are considered of interest only if they could have been used by Indians. Non-Indian artifacts are sometimes illustrated, but only as groups in a single photograph; they are not given the analytical treatment usually accorded prehistoric materials. Data pertinent to the historic period found in archeological reports on prehistoric sites are presented in Appendix A.

Formal Inventory of Historic Resources

The limited formal recognition and inventory of historic properties within the monument have been biased toward a very restricted repertoire of historic sites. Properties within the monument thus far nominated to
the National Register of Historic Places are the following:

**William Keys' Desert Queen Ranch:** a huge collection of structures, material, artifacts, machinery, etc., representing ranching, mining, desert family life, and a wide variety of forms of social interaction.

**Desert Queen Mine:** mine shafts with associated roads, structural remains, and machinery.

**Wall Street Mine:** stamp mill with associated structures, vehicles, machinery, and artifacts; virtually in operating condition.

**Lost Horse Mine:** mine shafts, stamp mill, cyanide tanks, and associated structures, machinery, etc.

**Twentynine Palms Oasis:** site of Indian occupation, early white occupation, milling, cattle watering, homesteading, etc.

**Ryan's Ranch:** adobe structures, foundations, garbage areas, graves, corral, and well; associated with mining and ranching.

**Cottonwood Spring:** watering place for freighters; water source for mines and mill site.

**Barker Dam:** watering place associated with cattle operations.

**Cow Camp:** supposed rustlers' camp and cowboy camp; stone chimney, dam, and associated scatters of artifacts.

Figure 1 shows the locations of these properties and of all other known historic sites within the monument whose locations were clearly indicated in documents inspected during the course of this study. The nominated properties constitute only a small percentage of the known historic sites, and represent only a limited sample of the types of sites present within the monument. They are well known in local history and generally contain some kind of standing or recently collapsed structure. A wide range of site types (such as roads, smaller mines, mining camps, prospector camps, homestead cabins, and tanks) is not represented. Systematic survey is needed to determine which of these other sites might be eligible for inclusion in the National Register.
Fig. 1. Approximate Locations, Known Historic Archeological Sites.
The Records: General Problems

It is convenient to divide the records into two broad and conventional categories: primary and secondary. Primary sources are those recorded by people who purportedly witnessed the scenes they record; secondary accounts are those written by people who did not participate directly in all the events they record. Both primary and secondary accounts are important to reconstruction of the history of the monument, but I have found that certain kinds of primary and secondary sources deserve special consideration.

Recollections. Recollections of Joshua Tree's earliest history are particularly problematic. Prospectors, cowboys, and homesteaders often have been interviewed by reporters 30 to 50 years after their arrival in Joshua Tree. The interval between event and record provides opportunity not only for forgetting things, but also for the transformation of accounts to fit patterns demanded by popular literature. All perceptions are shaped by individual personalities and interests and by the general social context in which an account is recorded. As years pass, however, social contexts change and what is remembered can be, and often is, shaped by what the informant thinks should have happened.

Oral accounts are molded by listener reactions. Certain aspects of an account can be emphasized at the expense of others, elaborations can be reinforced, and so forth. At Joshua Tree, the recollections of people who have lived in or known the area have been subtly transformed into a kind of folklore. Local history contains elements which are popularly considered with romantic fascination, both nationally and locally. It is fun to recall the lofty spirit of community cooperation in the days "when we all pulled together in the Depression." Accounts treating the Joshua Tree area as part of the Old West are common in such local newspapers as the Desert Trail. The same stories are repeated again and again in special editions for annual "Pioneer Days" celebrations and in historical series like those B. Belden wrote in 1959 for the San Bernardino Sun-Times.

The printed observations of one elder have been reinforced by another. It seems clear that two old settlers, Frank Sabathe and Bill Mchaney, read accounts of what the other had said in the local papers; for example, they gave verbatim descriptions of what used to constitute
Serrano territory. Sometimes, however, newspaper articles may be a compositie of current interview and information stored in old newspaper files.

Verification. Regional history often has been written by local residents or by frequent visitors. Such accounts are directed to a local audience and/or adventure and travel magazines (Argosy, Westways, Desert, etc.). "Good stories" are, with unfortunate frequency, reported as fact and eventually are worked into local histories or National Park Service reports (S. King n.d.; Schenck and Givens 1952; Gray 1966). The recollections of Bill McHaney provide an example. McHaney arrived at the oasis at Twentynine Palms in 1879. During the 50 years he spent at the monument he was interviewed by many writers over the years, and he gave slightly different accounts of what happened at the oasis before the 1890s (Campbell 1961; Walker 1931; Spell 1962). McHaney was interviewed in 1933 by anthropologists E. Schenck and F. Givens, who were local residents. Many later articles cite this interview as a source, yet I know of no one who has any idea whether notes from this interview exist, nor has anyone considered whether McHaney had a propensity for telling "good stories." Since McHaney died in 1937 it probably is impossible to discover what modifications he made in his life story, but information purportedly taken from the Schenck and Givens interview is cited as if it actually happened (S. King n.d.; Schenck and Givens 1952).

McHaney himself has been gradually transformed in local literature from a quasi-innocent cattle rustler to the "father of Gold Park" and "beloved pioneer" (Weight 1964, p. 2).

One possible solution, of course, is that if there are no other data one might as well believe McHaney. The point, however, is that in the Joshua Tree area there has been little concern for verification of fact. Unverified information from the accounts of oldtimers finds its way into various sources, but often without being cited as such. This means that even the most standard secondary sources relate as fact information which may be purely imaginary. Vansina seems to accept the problem as an inevitable part of writing history:

How . . . shall one decide whether a statement is an error, or a lie, or is 'veracious?' Each of the three hypotheses has a
varying degree of probability, and the historian will choose the most probable one (Vansina 1961, p. 185).

The position taken in this paper is that the fact that someone said something is a piece of information regarding the purported event and the person speaking, regardless of its truthfulness. It is necessary to piece together not only what was said to have happened, but also who said what. This context allows us to interpret sequences of change in local perceptions of history. I do not propose that everything reported in Part II is "true," in the sense that it "actually happened," but rather that it represents what someone said, or what someone said that someone said.

Duplication. Another difficulty presented by local historical sources is that one finds large sections of one book appearing verbatim without citation in another. O'Neal's (1957) words appear in Miller and Miller (1967), James' (1906) in O'Neal (1957), Walker's (1931) in Russell (n.d.) and Schenck's and Givens' (1952) in S. King (n.d.). This phenomenon is interesting, not as an example of plagiarism, but because it illustrates part of the process of creating a "standard historical account" that becomes accepted as fact.

Incomplete Information. The historical record at Joshua Tree is skewed to emphasize those places in which social interactions took place. Although we know generally that much of people's lives were spent alone—prospecting, collecting, working on homesteads—very little has been written about individual activities at Joshua Tree. Much more was recorded about places where people came together—at oases, for example—than about places where a man spent time alone. This phenomenon is illustrated in Part III. The historical records from Joshua Tree, then, or from any other place, cannot tell us all that we might want to know about the past. People simply did not write about all of their activities in equal detail.

The Records: A Summary of Sources

The following discussion is not intended to be a complete bibliography of material pertinent to Joshua Tree's history; it is simply a discussion of the kinds of material available to future researchers.

An indispensable first step for future researchers is E. I. Edwards' Desert Voices (1958). Desert Voices is a bibliography of the
California desert and includes many of the sources used in this study. A quick look at Edwards will also indicate those serial publications likely to contain relevant information published after 1958, such as Desert Spotlight, Desert Magazine, and Calico Print.

Primary Sources

Personal Accounts. These sources take several forms. Among the most common is the published interpreted recollection, in which someone with recollections of the area is interviewed by someone who abstracts and edits the results for publication in a book or newspaper. Recollections of this kind are often guided by the interests of the recorder; for example, the Campbells were interested in Indians and for that reason collected ethnographic information from McHaney (Campbell 1931). Lucile Weight collected accounts of early cattlemen for an article in the Desert Trails. Maude Russell and Hazel Spell collected a variety of descriptions for their more inclusive histories of Twentynine Palms.

Another form of personal account is the taped interview. Donald Black and Reino Clark interviewed Willis Keys about his life at Keys Ranch, and Clark is continuing to interview early settlers. Cheryl Erickson has interviewed approximately twenty early settlers, transcribed the tapes, and placed these "written oral histories" in the Twentynine Palms library. One of these interviews has found its way into a published pamphlet, Legends of the High Desert (Cook 1974).

The monument library houses a collection of miscellaneous data called "the Perkins Papers," in which are to be found such items as personal correspondence of the Keys family and pages of the logbook of the Wall Street Mill for 1935-37, as well as the complete log for 1968. Some of Maude Russell's correspondence concerning the Indians who lived at the oasis at Twentynine Palms is at the Twentynine Palms library.

Travelers' accounts are another form of personal record. The monument area was visited briefly by G. W. James in 1906 and by J. S. Chase in 1919. Their descriptions are interesting because the details they contain can be assigned to a particular season, year, or place.

Autobiographical accounts are represented by E. R. C. Campbell's The Desert was Home (1961), by McHaney's purported interview with Schenck and Givens, and by William Keys' mimeographed "The True Facts
about Me" (Perkins Papers). Biographies include Henry Lawton's *Willie Boy* (1960) and short accounts about specific settlers in local newspapers, such as *Desert Trail* and *Desert Spotlight*.

**Explorers' Accounts.** The Joshua Tree area is represented, at least indirectly, in the diaries of Spanish and Mexican explorers, such as Garces in 1776 and Romero in 1822 and 1826. Twentynine Palms receives brief mention in the survey notes of Washington and Greene in 1855-56. Expeditions related to expansion of the railroads, such as those of Antisell (1857), Palmer (1869), Wheeler (1876) and Williamson (1856), supply some data. Explorers' accounts vary in material recorded; some emphasize geology and botany, while others include whole sections on the local inhabitants. Records of explorations that describe the general region of which Joshua Tree is a part, but not the monument area itself, are included in Appendix C.

**Government Records.** The USGS Water Supply Papers describe in detail roads, road conditions, water sources, and water use. Data are often given concerning abandoned cabins, mills, windmills, mines, and so forth, together with descriptions of such population centers as ranches and mining camps. Water Supply Papers pertinent to the area are numbers 490A, 490B, 224, 225, and 497, dating from 1909 to 1923.

The Bureau of Indian Affairs (BIA) administered the reservation at Twentynine Palms and others in the region. BIA files in the National Archives include superintendents' annual reports, correspondence concerning particular problems, such as education, employment, and incidents like the Willie Boy chase. The files also include some early census data. (Harry Lawton believes that census material collected by Indian Agent Rust at Twentynine Palms in 1881 might be in the National Archives, but I was unable to locate such a document.) Some data concerning the relocation of the Indians of Twenty-Nine Palms Reservation also are available.

The National Park Service has records concerning the history and formation of Joshua Tree National Monument, private lands within the monument, grazing, mining, recreation, and other land uses. Correspondence between National Park Service officials and homesteaders within the monument was particularly interesting. Some data are collected in special reports, such as those of Cole and Guthrey on mining and grazing.
activity in the monument in 1936 and 1937. The files also contain clippings from magazines and newspapers, concerned mainly with the formation of the monument and the controversy surrounding the boundary changes of 1950.

The National Park Service also has funded archeological survey and excavation. The site reports constitute primary material, but little is pertinent to historic periods.

Secondary Sources

General Histories. County histories of the early twentieth century give information about the economic and social development of the region and include biographical material on early settlers (see Brown and Boyd 1923; Ingersoll 1904; Holmes 1912). Hazel Spell, Lulu O'Neal, and Maude Russell have written general histories of Twentynine Palms. These local syntheses are of varying quality and range. Spell concentrates on the history of Twentynine Palms in the 1920s and 1930s, while Russell mixes documentation and romance in her discussion of the Indians and the "characters" who lived at the oasis in "The Yesterdays of Twentynine Palms." O'Neal gives the most complete history and consistently credits her sources. Paxton and Campbell described their experiences as homesteaders in the Depression of the 1930s and earlier. (Paxton and Campbell can also be considered to be "personal accounts;" they are "secondary sources" in the sense that they also describe and evaluate some things that they did not directly experience.)

Several histories have been written by National Park Service staff, including those by Schenck and Givens (1952) and S. King (n.d.). These are general histories, uncritically written and poorly referenced. Both of these sources originally had bibliographies, but the bibliographies have been lost. Several compilations have also been made by the National Park Service, such as C. Gray's "Mines and Minerals of Joshua Tree National Monument" (1966), and monument personnel have written brochures for visitors on particular locations within the monument, such as Cottonwood Springs and Twentynine Palms Oasis. These were published by the Joshua Tree Natural History Association and contain some historical data. Levy's (1969) report on Lost Horse Mine included some local history besides that directly pertaining to the Lost Horse. My report
(Hickman 1977) on the anthropological significance of Keys' Ranch integrated the history of the ranch with that of the surrounding area. The "Perkins Papers" include extensive notes on mines in the area (particularly the Dale and the Desert Queen), which Perkins compiled from State Mineralogist Reports and other sources.

Euler (1977) compiled and analyzed ethnohistorical material pertinent to the Paiute, some of which is relevant to the Joshua Tree area. Willie Boy, for example, was a Las Vegas Paiute who lived at the oasis at Twentynine Palms in 1909. Manners (1974) compiled data on the Chemehuevi, but much of this information is of little independent value, since Manners relied heavily on Kroeber's material. Kroeber's classic Handbook of the Indians of California (1925) has been used by almost all researchers, often without citation. Kroeber himself was not specific about how he knew what he reported was fact.

Other valuable secondary sources are topical. Walker's introduction to Campbell's Archeological Survey of the Twentynine Palms Region (1931) provides a synopsis of McHaneyisms concerning the Indians. Miller's Mines of the High Desert (1968) is of special interest because of his attention to mining society and because he brings mining history up to the 1960s. Popular accounts of the Serrano and Chemehuevi published by the Malki Museum (Miller and Miller 1967; Johnston 1965) capsulize Indian history, relying heavily on Kroeber. The Millers complement traditional accounts with interviews with Joe Benitez, grandson of Mike Boniface.

Pertinent historical sources, then, are many and varied; the researcher constantly finds new data cropping up in unexpected places. Although these data sometimes are contradictory and often suspect as "true" representations of events and activities, they do constitute a basis for a reconstruction both of local history and of local views of history. This reconstruction, in turn, can serve as a basis for projecting the distribution of archeological resources and for considering the monument's research potential.
PART II. ETHNOHISTORY OF THE MONUMENT AND ENVIRONS

Chapter 2. General Background
Chapter 3. Indian Occupation and Acculturation
Chapter 4. Mining and Miners
Chapter 5. Livestock Raising
Chapter 6. Community Development
Chapter 2
GENERAL BACKGROUND

Most of Part II is devoted to relatively detailed descriptions of past activities in and around the monument. The physical remains of these activities, of course, constitute the region's archeological resources from the historic period. A brief discussion of the natural environment at Joshua Tree, a general description of how natural resources have been used, and a brief glossary of anthropological terms introduce the historical reconstruction to which chapters 3 through 6 are devoted.

The Setting

Joshua Tree National Monument straddles the boundary between two California deserts, the Mohave and the Colorado (figure 2). In the Mohave Desert, mountain ranges rise to over 5,000 feet and are separated by broad alluvial valleys at elevations of 2,000 feet or more. The Colorado Desert generally is lower than 3,000 feet along the Colorado River and is below sea level at points in the Salton sink.

The northern and western sections of the monument are part of the Mohave Desert. The Little San Bernardino Mountains surround high desert valleys, such as Pleasant, Queen, and Lost Horse valleys. These valleys, at 3,300 to 4,400 feet elevations, have been important in Joshua Tree's history as natural pasture lands. Twentynine Palms Valley to the north is lower, with less water and sparse vegetation. This valley has several dry lakes, or playas, which have been important historically in salt and chemical production. The Pinto Basin is part of the Colorado Desert. It is hinterland, with extreme temperatures and virtually no water, where little economic development has taken place. The Cottonwood and Eagle mountains border the Pinto Basin to the south. Cottonwood Springs, between these mountains, has been important as a stopping place along travel routes within the monument and as a water source for mines in the surrounding mountains.

The mountain and valley pattern of the monument has channeled access into its interior along three routes from the north, south, and west (figure 2). Since prehistoric times these routes have been connected with travel between the California coast and the Colorado River.
Footpaths crisscrossing the monument lead into more inaccessible regions. Periodically, roads have been maintained through some of the most difficult canyons, such as Berdoo and Fargo canyons.

Land Use

Settlement and use of the monument has generally been by people looking for particular resources, such as gold, pasture, or free land. Major economic activities have included hunting and gathering, small-scale agriculture, stockraising, mining, homesteading, and service enterprises. Stockraising, mining, homesteading, and service enterprises have always been based on capital and supplies brought in from outside the region. Prospectors carried their own food and water; homesteaders brought gasoline and groceries from Banning. Even the most independent of settlers, the miner/rancher/farmer William Keys, was not able to live off the land. The Marine Base, where thousands now live on imported supplies in one of the most inhospitable parts of the desert, represents an old pattern reproduced on a scale appropriate to a mid-twentieth century federal budget.

Dependence on the outside has meant that some historic archeological sites in the Joshua Tree area, particularly mines, are located in areas removed from water, trees, and other natural resources usually prerequisite to settlement. I have combined data on the distributions of natural environments with documented examples of land use in table 5 (see chapter 7). The table is organized by natural habitat within broad altitudinal zones, the Creosote Bush, Yucca, and Pinyon belts (following Miller and Stebbens 1964). It is clear that all major economic activities took place in all three major zones and in several habitats within the larger zones. Archeological sites of many kinds can be found in seemingly uninhabitable parts of the monument.

At the same time, however, much social activity took place near water sources. Places such as Twentynine Palms, Cottonwood Springs, Pinyon Wells, Keys' Ranch, Ryan's Ranch, and Cow Camp were meeting places where people exchanged goods, services, and gossip, as well as supplying themselves with water. Some of the same spots were selected as millsites or as occupation sites for men working mines miles away at higher elevations.
Social environments, or systems of interrelationships among people living in the monument, changed as patterns of land use changed. The remainder of this section discusses major patterns of land use and the social environments associated with them during the past century.

Definitions

I have prepared this overview from the perspective of an anthropologist, and have necessarily used some terms that might be perplexing to members of other professions. The following definitions may prove helpful.

**Acculturation**: The transformation of one cultural system by another. For example, Indian groups that have greatly changed their life styles as a result of contact with Euro-Americans are said to be acculturated.

**Anthropology**: A social science that studies human behavior within its cultural and social context. Anthropologists examine how people interact with each other and their environment, and try to determine what internal rules or standards people have that order, evaluate, justify, or explain their behavior. The primary anthropological method traditionally has been participant observation, or intensive fieldwork in a culture foreign to that of the researcher. In recent years, American anthropologists have begun to study their own culture and have increasingly come to incorporate the study of historical documents in their research.

**Archeology**: The study of the activities of human groups that have become extinct or of the past activities of groups still living, through the systematic interpretation of material remains and their distributions.

**Contact**: As used here, contact between two or more cultural groups, generally Indian societies and Anglo-European groups. The period during which this took place is the "contact period." I distinguish in this paper between "direct contact" and "indirect contact." In direct contact, two or more different groups actually interact, while in indirect contact the groups are spatially separated, and interaction typically takes place through intervening groups.

**Ethnographic Present**: A hypothetical period within which ethnographic studies are often set. The studies are made after contact, but ethnographers describe the precontact culture as their informants remember it.

**Ethnography**: The study and description of living groups or of groups that have lived recently enough that living people retain transmittable memories of them.

**Ethnohistory**: The attempt to derive anthropologically meaningful data from historical documents.
Exogamy: Marrying outside of a social unit. If one cannot marry someone who is a member of one's own group, the group is said to be exogamous.

Historic: Used here to describe documents that describe or discuss events and conditions during historic periods, and more broadly to define all time periods since the advent of written records in the general area. Periods preceding the advent of written records, of course, are prehistoric.

Lineage: A small group of kinspeople who trace their ancestry from a shared real or mythical ancestor or ancestral group.

Moiety: When a society regards itself as being divided into two parts, each of which has fixed obligations to the other, each part is commonly called a moiety.

Sib: A large group of kinspeople, usually several lineages, which traces its ancestry to a shared real or mythical ancestor or ancestral group.

Site: An archeological site; that is, a location of past human activity at which some evidence of that activity remains. An archeological site dating to a historic period may include, contain, or be represented by buildings, structures and objects, and/or by distributions of material on and in the ground; these may be studied to learn about past human activities.
Chapter 3
INDIAN OCCUPATION AND ACCULTURATION

The Prehistoric Background

King has discussed the literature pertinent to precontact California Indian groups living at Joshua Tree National Monument (King 1975). I have abstracted material from his report to provide a brief background to my discussion of postcontact occupation and acculturation.

Three California Indian groups, Chemehuevi, Serrano, and Cahuilla, occupied the monument during the late prehistoric period. The boundaries separating these groups are somewhat indistinct, but they generally seem to meet in or near the monument (figure 3). Prehistorically, all three groups (with the possible exception of precontact agriculture among the Cahuilla), were hunters and gatherers who collected a large variety of plants, mammals, reptiles, and insects.

Most Cahuilla settlements were in the Salton Basin. The Cahuilla used the western slope of the Little San Bernardino Mountains, but there is no ethnographic record of permanent Cahuilla settlements within the monument. By the twelfth century, Serranos living in the monument had intermarried with Cahuillas from settlements along the base of the Little San Bernardinos.

The Serrano occupied the Little Morongo Valley and the San Bernardino Mountains and used an undetermined amount of desert to the south and east of Twentynine Palms. According to two early settlers, the Serrano at the monument used to claim the country from the Morongo Valley to the Coxcomb Mountains and from the Bullion Mountains south to the Pintos (Sabateh in Fridley 1947, p. 2; McHaney in Rogers 1937; see figure 3). Their village of Marah at the Twentynine Palms Oasis was described in general terms by Strong (1929).

The Cahuilla and Serrano lived in permanent villages, but used other sites for food collecting, food processing, hunting, and other activities. Like other southern California desert groups, the Serrano and Cahuilla were part of larger confederations, within which military and economic aid were exchanged (White 1974). Both the Cahuilla and Serrano were organized into landholding sibs composed of landholding lineages. Each group also was divided into exogamous moieties, each with ritual
Fig. 3. California Indian Groups.  
After T. F. King 1975.
obligations to the other. Moiety division and the rule of exogamy served to extend ritual and economic ties between villages. Serrano and Cahuilla groups exchanged strings of shell money at the death of and mourning ceremonies for a group member (Strong 1929, pp. 98-99). The Serrano village of Marah was occupied by groups representing the tamianutcem, or Wildcat moiety, and the mamaitum, or Coyote moiety.

The Chemehuevi's use of the monument in prehistoric times is poorly understood. By the late eighteenth century they had moved southeastward from the desert into settlements along the Colorado River. In the late nineteenth and early twentieth centuries, people who called themselves Chemehuevi were living at Twentynine Palms Oasis. The Chemehuevi are closely related to, if not identical with, the Southern Paiute (Euler 1966, p. 11). This connection might account, in part, for conflicting accounts of the monument's Indian occupation during the late nineteenth century.

Before they settled on the Colorado River, the Chemehuevi probably followed a seasonal settlement pattern common to the Great Basin and other California desert regions. Small kin-related groups lived dispersed over large areas from early spring until late fall. Several of these small groups came together in winter camps, which were abandoned in early spring.

The Chemehuevi's role in the larger confederation is unclear. In the twentieth century, the Chemehuevi maintained kin ties over great distances; Chemehuevis at Twentynine Palms were related to, and occasionally interacted directly with, Chemehuevis in southern Nevada and along the Colorado River.

Contact: The Nineteenth Century

No detailed descriptions of the Indian occupants of Joshua Tree National Monument are known prior to 1909, when the oasis at Twentynine Palms was first visited by several Indian agents. By that time prehistoric cultural patterns had been drastically altered. Anglo miners had used the oasis for water and for processing ore for at least 30 years, and Spanish and Mexican miners may have been in the area long before that. Contact with Indian groups acculturated to mining, and farming along the Colorado River was common. Indians from the monument had
traveled to and from the Indian Agency at Colton for at least 30 years. Agriculture was practiced by some Indians at Twentynine Palms and others worked seasonally in the orchards of Coachella Valley and San Gorgonio Pass (figure 4).

Unfortunately, there are virtually no documentary materials specific to the monument that deal with these new socioeconomic patterns. Cultural changes at the monument, however, can be considered within the framework of larger regional developments during the nineteenth century. The ethnographic literature indicates that Indians living at the monument were part of a regional interaction system that at various times linked groups from the eastern desert areas and the Colorado River to areas as far west as San Gabriel. Twentieth century descriptions of Indians at the monument show that portions of the system of interrelationships had been maintained. It seems appropriate, then, to describe broad patterns of regional change in order to provide a nineteenth century context for twentieth century descriptions.

The periphery of what is now Joshua Tree National Monument was briefly explored during the early nineteenth century. Accounts from these explorations provide us with the earliest recorded descriptions of the Joshua Tree region. More importantly, they establish a general base date for indirect contact and offer some evidence for as yet undocumented direct contact with Spanish and Mexican miners prior to the first American mining boom of the 1870s.

The evidence for early contact with explorers and travelers is briefly summarized here, followed by a discussion of how Indian groups in the region were involved in late nineteenth century socioeconomic development, including mining, ranching, horticulture, and the establishment of an Indian Agency with authority over all southern California desert groups.

Spanish Exploration. The Spanish had long been interested in establishing a route connecting their settlement at Tucson with missions on the California coast, as there was no safe trail over which colonists and soldiers carrying mail and supplies could travel. Because Cocomaricopa Indians had carried mail over a seemingly direct route unknown to the Spanish, a Captain Romero was ordered to explore the "Cocomaricopa route" from San Bernardino to the Colorado River.
Fig. 4. Routes of Initial Contact.
After T. F. King 1975.
The Romero-Estudillo expedition of December 1823 and January 1824 traveled from San Gabriel Mission to somewhere near the southeastern boundary of the monument, where the party floundered in unfamiliar territory; they returned to the mission without reaching the Colorado. Romero had received instructions to accomplish several things along the way: (1) to establish friendly relations with Indians along the route, (2) to establish suitable sites for presidios and pueblos, (3) to describe the commercial possibilities of rivers, (4) to collect botanical specimens, and (5) to evaluate the mineral resources of the region (Bean and Mason 1962, p. 27).

These instructions indicate the Spaniards' general unfamiliarity with California's eastern desert regions, which are at best improbable locations for mission farms and riverine commerce. We can infer that few Spaniards, if any, had been in or around Joshua Tree by the early nineteenth century.

Spanish interest in the desert's mineral potential, however, is interesting from the point of view of culture contact in the decades following the Romero expedition. Romero's instructions on this point were quite detailed:

In order to know the nature of the land, its minerals, and productions, there shall be gathered specimens 3 or 4 square inches of all rocks that appear different from one another, indicating by references placed on them, where they had been gathered, whether they have been taken out of the mountains or from around about, whether they were from the total mass of the mountain, or are found in veins, with the directions of the veins being noted. (Bean and Mason 1962, p. 27)

If Romero's party brought back even part of this information, the knowledge would have served as impetus for further exploration of the entire region, including, of course, Joshua Tree.

Historians writing of the Joshua Tree region refer to the activities of Spanish and Mexican miners (James 1906, p. 480; Belden 1959, no. 44; Schenck and Givens 1952; O'Neal 1957, p. 49), but no specific sites have been located by these authors. Bean and Mason (1962, p. 91) conclude that Romero's explorations established desert trails used by great numbers of Sonoran miners after the discovery of gold in California in the 1840s. There seems to be some reason to believe that Spanish and Mexican miners had exploited Joshua Tree's mineral resources before the
first mining "boom" at Twentynine Palms in the 1870s. That would mean, of course, that the Indians at Joshua Tree experienced some direct contact with miners long before such meetings were recorded.

Romero's route led east from San Bernardino through San Gorgonio, Cabazon, and Palm Springs to Dos Palmas. From Dos Palmas the party traveled northeast up Salt Creek Canyon (figure 4). Romero noted several Indian trails in the canyon itself and others leading into adjacent mountains. He also found the bones of butchered horses in Salt Creek Canyon. The party camped on January 6, 1824, at a site they called "San Pascual." There they found "a little well made by hand" and "signs of basketmaking . . ., bones of horses and pieces of ollas" (Bean and Mason 1962, p. 41). Bean and Mason place this site "near what is now Desert Center in the Palen Pass area" (1962, p. 102).

Interpretation of the following day's travel is problematic. Assuming that "San Pascual" is near what is now Desert Center, the party could have skirted the southeastern slopes of the Eagle Mountains and come near the opening between the Eagle Mountains and the Coxcombs at Pinto Wash, thereby arriving at the boundary of what is now Joshua Tree National Monument (figure 4).

The complete account of this day's travel (January 7, 1824) is included in Appendix B, along with other plausible interpretation of where the party might actually have been. For the convenience of future researchers, also included in Appendix B are excerpts from the diaries describing Dos Palmas, Salt Creek Canyon, and San Pascual.

Romero returned to San Gabriel and sought Indian guides for a second attempt to find a route to Tucson (Bean and Mason 1962, p. 104). The route through the central Mohave and Colorado deserts was well known to some Indian groups and was used for long distance travel between Arizona and California. Shortly after Romero's return to San Gabriel, he met a group of Indians who had come west using the route he was attempting to find. "They told him that he had taken the wrong path, but that if he had taken a southern route, on his last day's travel, he could have reached the river by sunset of that day" (Bean and Mason 1962, p. 61).

Romero's return to Tucson was delayed for many months; in the interim he became pessimistic about the usefulness of the route:
The Cocomaricopa road was, in his opinion, 'good only as a foot road, fit only for Indians and such from the Cahuilla area to Sonora.' The route was decidedly not suitable for calvary and supply trains (Beattie in Bean and Mason 1962, p. 58).

Other officials were discouraged about the route and were frustrated by the unreliable mail service provided by the Cocomaricopa (Bean and Mason 1962, p. 110). Romero finally returned to Tucson through the desert, but attempts to open the Cocomaricopa trail to intensive use were abandoned.

Diaries from the Romero expeditions indicate that the Indians of Joshua Tree were until then isolated from direct contact with the Spanish. Indians living south of the monument were using horses for food and possibly for transport during the 1820s. Cocomaricopa mail carriers traveled throughout the region, perhaps through the monument itself, and could have traded Spanish goods to occupants of the monument. It is very probable, then, that Indians living in Joshua Tree had been exposed to the goods and stock of the Spaniards before the 1820s. It is also probable, although there is no specific documentation, that Indians in the monument were directly contacted by Mexican and Spanish miners sometime between 1826 and 1850.

American Exploration. It is possible that Indians living in the northern parts of the monument were contacted by the Spanish or Americans who traveled on the elusive "Weaver's Road" sometime before written descriptions of contact appear. Paulino Weaver had established himself in the San Gorgonio area by the middle 1840s, when he was granted Rancho San Gorgonio by Pio Pico (Brown 1974). Local tradition has it that Weaver established a road from San Gorgonio Pass to the Colorado River in the early 1850s (Belden 1959, no. 20).

Weaver's route has been equated with the infamous "Old Road to the Providence Mountains" that appears on Henry Washington's map of 1855 (cf Miller 1968, p. 8) and with a more direct eastward route (Belden 1959, no. 20). Conflicting evidence indicates that several routes to the Colorado ran eastward through Morongo Valley to the oasis at Twentynine Palms and from there proceeded either east to about the site of Dale, struck northeasterly through the Coxcomb (sic) Mts., then veered southeast from about Fenner to a river crossing around where Parker Dam has been
erected (Belden 1959, no. 44) or 'east over Clark's Pass' (Belden 1959, no. 20).

Both routes are traced on figure 4. The northerly route could not have passed through the Coxcombs without significant difficulty, and I am assuming that the author meant the Bullions or Sheephole mountains. This route generally corresponds to one drawn by Bean (1972) and labeled the "Mohave Trail." Which of these routes, if either, deserves the appellation "Weaver's Road" is unclear. Notes from Lt. Williamson's railroad survey expedition of 1853-54 include a drawing of Weaver's adobe at San Gorgonio (Williamson 1856, p. 38). Williamson apparently knew Weaver or knew of his activities. If Weaver did have a "private road to the Colorado" (Belden 1959, no. 20; Security First National Bank 1967), Williamson did not appear to be aware of it. He wrote:

A mountain range extends from San Bernardino Mountain in a southeasterly direction, nearly if not quite to the Colorado. Between these mountains and the mountains of the Mohave nothing is known of the country. I had never heard of a white man who had penetrated it. I am of the belief that it is a barren, mountainous desert, composed of a system of basins and mountain ranges. It would be an exceedingly difficult country to explore, on account of the absence of water, and there is no rainy season of consequence. I was informed by the commanding office at Fort Yuma that there they usually had but one rain during the year, which fell in August.

The country included between the mountain just mentioned, the coast range, and the Colorado, is level, but slightly undulating, and is known as the Colorado Desert. In many parts it is destitute of vegetation (Williamson 1856, p. 38).

If we take Williamson at his word (and his is the only documentary record we have for the very early 1850s) we must assume that the Joshua Tree region was virtually unknown to EuroAmericans at this time. It is likely, however, that such travelers as Weaver infrequently used Indian Trails to reach the Colorado before the U.S. government surveys were made in the early and middle 1850s. There is no record of contact with Indians from Joshua Tree until Col. Henry Washington's survey in 1855. Washington was commissioned to establish the San Bernardino Baseline in 1855. He described the Twentynine Palms Oasis:

On the south boundary of section 33--an Indian wigwam near a spring of good water, supposed to be permanent, and a small cluster of cabbage palmetto (Walker 1931, p. 10).

Clara True, Indian agent for the Mission Indian Reservations from
1908 to 1910, tried during her term to clearly define the boundaries of what had become Twenty-Nine Palms Reservation. Her efforts led her to challenge the validity of Washington's field notes. In a 1942 letter to Maude Russell she wrote:

My memory of Twentynine Palms goes back to a time when I took over five little Mission Indian reservations, which included Twentynine Palms. No Indian service employee had ever visited the place. . . . I managed to get a surveyor to visit the place with me. In fact, I made several extensive trips to try to get the proper legal boundaries. I went to Los Angeles and got the field notes of the very early survey of Col. Washington. We were never able to verify his claim of making a survey. The notes did not fit anything we were ever able to find. I came to the conclusion that he made the notes from information secondhand. . . (True 1942 in Russell n.d.).

Russell disregarded the attack, declaring the Baseline was . . . never definitely and officially established until a few years ago when the Government sent out surveyors for that purpose. . . . it was necessary to run the line from the city of San Bernardino, over mountains, using some new device for running difficult lines, such as getting bearings by means of lights from mountain tops, etc., which necessitated night work (Russell n.d.).

A. P. Greene, a deputy surveyor who followed Washington in 1856, provided more detail on the Indian settlement at Twentynine Palms:

In Section Thirty-three there are a number of fine springs. There are some large palm trees from which the springs take their name. . . . Near the springs the land has the appearance of having been cultivated by the Indians. There are Indian huts in Section Thirty-three. The Indians use the leaf of the palm tree for making baskets, hats, etc. Around the springs there is a growth of cane of which the Indians make arrows for their bows. There is some mesquite and a considerable quantity of greasewood bush in this township. The mesquite . . . is said by the Indians to be always a good indication for water, which generally can be obtained in a pure state by digging a short distance, say four to twelve feet (Walker 1931, p. 11).

These two passages represent the sum of direct ethnographic description of Joshua Tree for the next 60 years. In the early 1870s Anglo miners appeared, perhaps following or replacing Spanish or Mexican miners, and by the end of the decade cattlemen were using the high pastures of what is now the monument. Unfortunately, no detailed descriptions of the Indians at Joshua Tree during the 1870s and 1880s have yet been discovered.
The Chemehuevi. Chemehuevi were seen by Garces in 1776 in the Providence Mountains and further west. Sometime between 1820 and 1840, the Chemehuevi moved to the Colorado River at the invitation of the Mohave (Kroeber 1925, p. 595; Euler 1966, p. 74). A group of Chemehuevi moved to the oasis at Twentynine Palms in 1867 after an unsuccessful battle with the Mohave on the Colorado. An account of this battle is given by Heizer and Whipple (1971, p. 431). It is not clear whether Twentynine Palms was a camp regularly used by the Chemehuevi in times of stress or whether this was the Chemehuevi's first venture to the oasis. When they arrived at Twentynine Palms they found the oasis deserted, purportedly because of a smallpox epidemic (Miller and Miller 1967, p. 4).

Euler equates the Chemehuevi with the "westerly Paiutes," the "Southern Paiute-Chemehuevi," and the "Las Vegas Paiute" (1966, pp. 105, 74, and 109, respectively; see also Loew 1876, Appendix III). Isabel Kelly provides a more detailed account of the connection:

By their own statement and by that of the Vegas band, the Chemehuevis are a recent offshoot of the Las Vegas. Shortly before the middle of the last century they pushed southward, establishing themselves first in Chemehuevi Valley and later spreading downstream to occupy the area left vacant by the Yuman Halchidhoma (Kelly 1936, p. 129).

Euler's Chemehuevi and Las Vegas Paiute informants were related by kinship, and the Las Vegas Paiute did not differentiate themselves from the Chemehuevi (Euler 1966, p. 11). It is quite likely that the group of Chemehuevi who moved to the monument in 1867 maintained kinship ties with other Chemehuevi who had fled the Mohave and with the Southern Paiute of Nevada.

By the time they arrived at the monument the Chemehuevi had had ample opportunity to interact with Americans and the Spanish. The La Paz Mining District developed near Chemehuevi settlements, and its first boom in the 1860s brought hundreds of miners into the area. Fort Mohave had been built some years before. Differential access to American weapons, supplies, and stock altered the balance of power within the old alliance system of the Colorado River groups. The Chemehuevi were forced to deal with a rapidly changing social environment.

By 1869 the Chemehuevi were noted as experienced agriculturalists: . . . they are all more or less accustomed to labor in culti-
vating crops and orchards, in taking care of stock, and in
digging irrigating canals. Give them the constant opportunity
for labor, at fair wages, and with the deprivation of their
hunting grounds, I believe they will cease roving and stealing
and take to steady work (Palmer 1868, p. 189).

In 1881 an Indian agent wrote that many Chemehuevi and Paiute depended
upon mining camps and ranches for their livelihood:

They have no regular established villages but resort to some
point and remain there for a short time, living in brush
houses or 'wickee-ups,' and upon their removal or abandonment
of the camp they burn up the entire camp, at the various min­
ing camps located within this district, the men find employ­
ment in assorting ore, herding stock, chopping wood, and such
other light work as they can do, this employement is only tem­
porary as they do not remain in one place. . . .

The supply of natural products some seasons is very limited,
and were it not for the assistance they receive from the min­
ers and ranchmen, they would suffer from want of food and
clothings (Gardner 1881).

A few years later F. G. Shinn described four Chemehuevis from Twen­
tynine Palms:

They were very primitive indeed. The women were barefooted,
barelegged, bare armed, and bareheaded, their bodies covered
from neck to knees only with strips of calico severed from a
yard wide bolt of uncut bandana handkerchief fastened in front
with safety pins. They were small and thin with a half­
starved dirty appearance (Shinn 1941, p. 19).

Shinn's description from 1885 is the first documentary record of Indians
living in the monument. His direct observations accorded with the more
general comments of Gardener and Palmer.

Virtually nothing is known about how the Chemehuevi used the monu­
ment. Miller and Miller have written that the Chemehuevi followed a
seasonal round, spending 3 months at the monument and the rest of the
year near Bear Valley during pinyon harvest (usually August) and in Ban­
ning and Indio during the fruit harvest. Because harvest season in Ban­
ning ran from July to the end of October (True 1909, p. 1), it over­
lapped with optimal pinyon collecting, so that choices had to be made
among several subsistence strategies. However, the extent to which wage
labor replaced traditional subsistence patterns is unknown.

The regularity with which the Chemehuevi occupied the monument also
is unclear. I know of only one direct reference to the Chemehuevi liv­
ing at Twentynine Palms before 1900, other than the two mentioned above.
In 1891 the Chemehuevi headman, Mike Boniface, filed a claim to the water at Twentynine Palms (Miller 1968, p. 39). In 1909 Indian Agent Clara True correctly observed that "Indian history has it" that the oasis at Twentynine Palms was a "headquarters of the Colorado Desert bands," but that "there is hardly any calculating what had occurred among this little known people" (True 1909, pp. 11-12).

The Cahuilla and Serrano. During the nineteenth century, Cahuilla and Serrano were brought into the Euro-American socioeconomic system by three general developments: the establishment of Spanish mission stations as near as San Bernardino; the creation of Indian reservations throughout the southern California desert; and the growth of cattle ranching, grain farming, horticulture, and mining in the San Gorgonio/Banning area.

The Serrano and Cahuilla traditionally occupied a broad strip of territory stretching from the San Jacinto Mountains eastward to Joshua Tree and through the Coachella Valley (figure 3). Mission influence was directly felt only in the western portions of this territory. In 1810 Rancho Politana, near Colton, was established by Mission San Gabriel as a way station on the route to the Colorado River (Brown and Boyd 1923, p. 9). Oscar Loew, who accompanied Wheeler's survey expedition of 1876, briefly described the mission influence on the Mountain and Pass Cahuilla and on the western Serrano:

. . . the Kanvuyas (Cowios, Cahuillas) . . . occupy a number of ranches in the San Jacinto Mountains and the adjacent Cabezuzon Valley. The Kanvuyas had also been converted by the Jesuits, and belonged with the related tribe of the Takhtams (Serrano) to the mission of San Bernardino. One of the Kanvuyas told me that their forefathers used to burn their dead, but the padres abolished that practice, saying that 'the Great Spirit would be displeased' (se enojaria Dios). These Indians raise corn and watermelons, and serve as laborers with the whites. . . (Loew 1876, pp. 322-323).

The Cahuilla living in the Coachella Valley were never missionized. It was reported in 1883 that:

These Indians are not what are called Christianized Indians. They never belonged to the missions and have never been received into any church (Stanley 1883 in Jackson 1883, p. 32).

G. W. James thought that Spanish influence had stretched further east and wrote that the Indians living at the Mission Creek Reservation had been taught to plant and tend vines by Spanish padres (1906, p. 48).
The apparent cultivation at Twentynine Palms noted by Greene in 1856 could have resulted from Spanish influence to the east or west of the monument.

The creation of reservations for the southern California groups had a more direct and lasting influence on the Indians of the region than did the missions. Many groups were displaced from their traditional territory. The Cahuilla of the southern Coachella Valley, for example:

... appear to know nothing of any lands being set apart for them, but claim the whole territory they have always occupied ... At present there are eight villages or rancherias, each with its own captain, but all recognizing Cabezon as head chief. I ascertained from each captain the number belonging to his village and I found the aggregate to be 560 souls (Stanley in Jackson 1883, p. 32).

Twentynine Palms was established as a reservation as early as 1856, but the land never officially passed to the Indians (Russell n.d.). For some reason it was given to the State of California in 1875 without the knowledge of the Bureau of Indian Affairs, and for a long time it was considered a holding of the Southern Pacific Railroad. Reservation status was irrelevant to occupants of Joshua Tree until the Grant administration, during which the Department of Indian Affairs was reformed and reorganized. Twentynine Palms was one of many reservations assigned to the Mission Agency in 1877 (Dale 1949, p. 82; figure 5). The agency's offices at Colton were accessible by railroad, and Indians from the monument used the agency in the 1880s and 1890s. Early settler Frank Sabathe said of this period:

The Government along about this time gave these Indians blankets, wagons, horses, plows, etc. with which to work their land--these implements they picked up at Banning, some 60 miles west, but discarded long before reaching Twentynine Palms. Their only ambition was to hunt, and you could see them at all times around Cottonwood Springs, where they brought their game in and exchanged for flour, coffee, and other staples (Sabathe in Fridley 1947, p. 2).

Documents from the twentieth century show that Indians occupying the monument maintained ties with Mission Creek, Morongo, Cabazon, and Torres-Martinez reservations. Ritual and economic ties connecting Serrano from the village of Marah at Twentynine Palms with other Serrano at Mission Creek have been described in the ethnographic literature (Strong 1929, p. 13).
Fig. 5. Jurisdiction of the Mission Agency, California, 1877

JURISDICTION OF THE MISSION AGENCY, CALIFORNIA, 1877 (from Dale 1941) (not to scale)

1. Twentynine Palms
2. Mission Creek
3. Morongo
4. Agua Caliente
5. Caboron
6. Augustine
7. San Manuel
8. Soboba
9. Ramona
10. Santa Rosa
11. Cataville
12. Pechanga
13. Torres Martinez
14. La Jolla
15. Los Coyotes
16. Santa Ysabel/Mesa Grande
17. Barona Ranch
18. Inaja/Cosmit
19. Laguna
20. Cuyapiope
21. Capitan Grande
22. Vijes
23. Syssan
24. Monganita
25. La Posta
26. Campo
27. Mission
28. Rincon
29. San Pasqual
30. Pala
The town of Banning grew up near the Morongo Reservation and served as a business center for the surrounding region. In 1883, 50 Anglo-Americans lived in the town itself and 250 other settlers lived in the vicinity. Bannings' commercial and social achievements were described by a group of prominent citizens:

It has post and express offices, railroad depot, district school, church organization, general merchandise store, the flume of the San Gorgonio Fluming Company, two magistrates; and during the last year there was sold or shipped from this place alone fully 20,000 tons of baled hay, a large amount of honey, butter, eggs, poultry, livestock, etc., besides 200 cords of wood (Dunlap et al. in Jackson 1883, p. 33).

Serrano and Cahuilla living at Morongo in the late nineteenth century were brought directly into conflict with the settlers. Although several townships around Banning had been withdrawn from public entry and had been set aside for use by the Indians, the settlers managed to effectively disinherit the Indians. Helen Hunt Jackson described the Indians' difficulties:

... an Indian village called the Potrero Morongo, numbering about 60 souls; an industrious little community, with a good amount of land fenced and under cultivation. These Indians are in great trouble on account of their stock, the approaches to their stock ranges having been by degrees all fenced off by white settlers, leaving the Indians no place where they can run their cattle without the risk of being corralled and kept till fines are paid for their release. All the other springs except this one are held by white settlers, who, with one exception, we were informed, have all come on within the past 5 years. They claim, however, to have bought the rights of former settlers... (Jackson 1883, p. 33).

The confusion over title was settled officially by the Smiley Commission in 1892 (Holmes 1912, pp. 185-186). In terms of acreage, the settlement was to the Indians' disadvantage. Perhaps more important, however, was the degenerating socioeconomic position of the Indian community during the previous 20 years of land conflict. Disease and poverty accompanied disinheritance.

The condition of Indians in the Banning area must have presented an ambivalent example to the more isolated groups of Joshua Tree. On the one hand, Indians from Morongo were sophisticated in their dealings with the Anglo settlers and relatively affluent in foreign goods; on the other hand, they were readily subject to violence and disease.

In 1885 Shinn observed that Chemehuevi from Twentynine Palms were
looked down upon and ridiculed by Cahuilla at the Indian Agency office at Colton. By this time the Cahuilla were intimately involved with Anglo culture and were employed as woodcutters and as laborers in orchards, farms, and wineries. Many of the women worked as domestics (Shinn 1941, p. 24). During the later nineteenth century many Indians at Morongo started orchards, but they were hard pressed by competition from the larger growers (BIA-CCF 1913).

Serrano, Chemehuevi, and Cahuilla occupants of the monument were brought into the reservation system during the later 1870s and early 1880s. Although geographically isolated, they were in contact with Serrano and Cahuilla who had been severely exploited by Anglo-American farmers and ranchers. Interrelationships between Indians of the monument and other groups living to the east and west were, in part, patterned according to social relationships developed before the Spanish and Americans arrived and, in part, were results of the administration of the Indian Agency.

Indians at the Monument: The Twentieth Century

Twentieth century reports of Indian groups at the monument date from 1902 to 1912, after which the Indians left Twentynine Palms. The richest ethnographic descriptions are found in the letters of Clara True, Indian Agent for Twenty-Nine Palms Reservation from 1908 to 1910. Her letter of October 20, 1909 (True 1909), contains more information about the Indians of the monument during this period than any other single source. This letter has recently been published in the Journal of California Anthropology (5:1:115-6, 1978).

Virtually all direct observations were made of the settlement at the western end of the oasis at Twentynine Palms, the only exception being Frank Sabathe's recollection that Serrano frequently visited Cottonwood Springs. The extent to which the rest of the monument was used in historic times is still unknown, but there is general agreement that Indian occupants were hunting, collecting plant foods, and perhaps prospecting at the turn of the century (Chase 1919, p. 152; McHaney in Rogers 1937; and in S. King n.d., p. 9).

Although the population fluctuated both seasonally and annually, several families regularly occupied Twentynine Palms before 1910. These
were the Pines, Bonifaces, and Watermans. The Bonifaces were Chemehuevi, as were the Watermans, who were related by kinship to the Southern Paiute of Nevada (Lawton 1970, p. 22). Jim Pine has been described as a Chemehuevi (True in Russell n.d.; Johnston 1965, p. 3) and as a Serrano married to a Cahuilla woman from a village near Thermal (Strong 1929, pp. 40 and 54; see figure 3).

The resident families were visited by other groups. Clara True described such a gathering:

I once found 29 Indians at Twentynine Palms, and put them down as a census. I don't know how many really belonged there. They were not all of one tribe. Some were doubtless renegades from little known desert points. Not all spoke the same language. I don't know whether any Indians but Jim Pine and Matilda, and the Boniface family really belonged to the water hole. These were the most primitive Indians I have ever come upon (True in Russell n.d.).

Indians cultivated about five acres at the western end of the oasis (figure 6). This area was called "Indian Gardens" and is now partially covered by the Twentynine Palms Inn. In 1909 "a few vegetables . . . a few watermelons, and garden stuff" were produced with the aid of some form of irrigation (Hall 1909). Peach trees also were grown (Miller and Miller 1967, p. 9) and the Indians kept cattle (James 1906, pp. 481-482) and ponies (True 1909, p. 1). Although the extent to which the gardens and stock provided subsistence is not known, enough vegetables were grown to permit trade with or sale to miners (McHaney in Rogers 1937). The Boniface family supplemented its income with wages from the seasonal harvests in Banning (True 1909, p. 1).

Location of the Pines' home is shown on figure 6. Photographs of this house, and of that of Mike Boniface, show thatched adobe structures surrounded by a brush fence of "sticks and arrowweed" (Lawton 1970; Twentynine Palms Library: "Indians" n.d.). A temescal, or sweat house, is also shown on figure 6. Both families acquired an assortment of metal utensils, and the Pines had an iron stove.

The cemetery contained the graves of the Pines 13 or 14 children (True 1909, p. 14; True 1942) and those of members of the Boniface family (Twentynine Palms Library: "Russell" n.d.; figure 6 and figure 15). There were 50 to 60 graves in the cemetery in 1909 (Russell in F. Cook 1974, p. 26). Some burials apparently were accompanied by mourning
Fig. 6. Twentynine Palms in 1909. Redrawn from "Plat of Survey of Twenty-Nine Palms Indian Reservation," Cook 1909.
ceremonies in which the home of the deceased was burned, and possessions were broken. McHaney observed:

A wickiup would burn to the ground but an adobe hut was dismantled, all of the wood put into a pile and burned, and the adobe broken up (McHaney in Walker 1931, pp. 18-19).

Another settler remembered cremation of the Chemehuevi headman, Jim Boniface, whose remains were then interred in the cemetery. Boniface's possessions and fruit trees were burned (Sullivan in O'Neal 1957, p. 42).

In 1909 two members of the Boniface family were killed by a Southern Paiute called Willie Boy. The incident, subject of Lawton's Willie Boy (1960), included a long chase across the desert. After the Willie Boy episode the Bonifaces, Pines, and Watermans moved to other reservations. The Bonifaces went to Soboba, Agua Caliente, Cabazon, and Las Vegas. Jim and Matilda Pine moved first to Mission Creek and then to Agua Caliente (figure 5; Twentynine Palms Library: "Russell" n.d.). The extent to which the resettlement was guided by marital or other social bonds, or by administrators of the Indian Agency, is unclear.

The only Indians recorded by name as residents of the oasis after 1910 are the Pechaccos, whose numbers are unknown and who apparently were not members of the group that lived there prior to the Willie Boy incident. The Pechacco family came to live at the Twenty-Nine Palms Reservation in about 1911 and stayed two years. They previously had lived at the Chemehuevi Reservation on the Colorado River. The elder Pechacco was noted as a tracker and was hired to trail men wanted by the law. The younger Pechacco was a cowboy for C. O. Barker, one of the early cattlemen in the Joshua Tree region.

The Pechaccos did not occupy the structures abandoned by the families that preceded them at the oasis:

At Twentynine Palms, Pechacco built a house and fenced a garden and a pasture for his horses to protect them from the cattle and burros then grazing over the desert. He had a good garden, and sold the produce to the various mines at that time operating around Twentynine Palms (Russell n.d., p. 11).

The only other twentieth century reports of Indians at the monument are William Keys' recollection that there were five Indian families living at the oasis in 1912 (Miller and Miller 1967, p. 9) and Delamare's record of his trip to the oasis in 1912:
There are about 30 Indians living in the shelter of these palms. Most of them are very old and have been at some time renegades or outlaws who have left the Indian reservations and never returned to them. They are nearly all Apaches or Paiutes, cultivating an acre or two of moist soil, but their chief food is the mesquite bean. It is here that the Indian desperado, Willie Boy, was born (Delamare 1912, p. 35).

Summary

The Chemehuevi, Serrano, and Cahuilla who lived in or near the monument had interacted with Indian groups living to the east and west since prehistoric times. The Serrano and Cahuilla were brought into indirect contact with the Spanish, Mexicans, and Anglo-Americans fairly early in the historic period by way of their ritual, economic, and kinship ties with groups to the west. At least some Chemehuevi groups to the east lived in direct contact with the Spanish, Mexicans, and Anglo-Americans for almost a century prior to the time of documented Chemehuevi presence at Twentynine Palms. Although generally considered to have been Serrano territory, Twentynine Palms was extensively used by Chemehuevi from the Colorado River during the later nineteenth and early twentieth centuries. The development of a need for labor in horticulture in San Gorgonio Pass and the establishment of reservations throughout the southern California desert brought Indians from the monument area into sustained direct contact with Anglo-Americans by the early twentieth century.

In the early twentieth century, Indians occupying Twentynine Palms cultivated gardens and fruit trees, hunted and collected plant food, and worked for wages in the Banning area. Most left the area for other reservations in about 1910; the last Indian family to occupy the oasis left in 1913.
Chapter 4
MINING AND MINERS

Mining was the earliest and long the only industry in this part of the southern California desert. The region has been characterized as mineral-rich since the mid-nineteenth century (cf. Palmer 1869). Delamare, a tourist, expressed a common pre-World War I attitude about the attraction of the Joshua Tree area:

Hidden under its unprepossessing exterior are untold treasures in the way of mines of gold, silver, copper, and turquoise. Here too are inexhaustible deposits of borax, great quantities of mica and many other valuable products which are sources of golden opportunities for wealth and greater prosperity for California (Delamare 1912, p. 34).

Of course, the great object of going on in the desert is to discover minerals, and scattered about here and there one finds greater or smaller mining camps. In some there are only a few men working with simplest of instruments and machinery; others are more pretentious, and, again, others are quite extensive and wealthy and employ hundreds (Delamare 1912, p. 56).

Mining by companies with outside capital followed the boom/bust pattern common to many areas of the Southwest. Periods of intensive activity ended abruptly, and mines and camps within the monument were abandoned until new strikes brought people with capital and equipment back to try again. Mining also was done by prospectors, who located and worked claims individually. This kind of mining has continued within the monument regardless of the fluctuating activities of larger companies. Although other minerals have been taken from the monument, gold was by far the most important ore until World War II.

All miners in the region had to deal with problems brought about by geographic isolation and scarcity of water. Until the 1930s, when Twentynine Palms was able to effectively service the mines, supplies were hauled in by freight wagon from Banning, Amboy, and Mecca. Mining in the area has always been expensive; since the 1870s most significant mine development has been financed by investors living outside the region. Even lone prospectors were often supported by outsiders or, more recently, by local investors.

The communities of miners that developed in the monument varied
considerably in size, duration of occupation, and digging and processing
techniques. The composition of mining camps also varied; a few were
populated by men and their families, but most were predominately male
communities.

Major mining activity in the Joshua Tree region is discussed by
period in this chapter. I have described the distribution of mining
activities in detail and identified the types of communities associated
with these activities.

Mining Before 1900

Early Interest in the Region. The Spanish had been interested in
the mineral potential of the area at least since Romero's explorations
in the 1820s. The "Weaver Route" (see figure 4) was reportedly used in
the 1850s and 1860s:

... first by Sonora miners returning to Mexico from the
Mother Lode, and later by desert prospectors who often mar­
veled that anyone had preceded them in that near trackless
expanse (Belden 1959, no. 44).

A southern route connecting the gold fields of La Paz with San Bernar­
dino was marked out during this period, and teamsters traveling the
route often prospected around their campsites. Occasionally they took a
northerly cutoff that took them through the monument (Schenck and Givens
1952, p. 92).

Within the monument the Santa Domingo de Lopez mine was relocated
in 1889 as the Lelia Dale. Schenck and Givens (1952, p. 94) and O'Neal
(1957, p. 49) comment that the Spanish name might indicate previous
Spanish ownership. The only material evidence for the presence of
Spanish or Mexican mining in the monument is that in 1870 a "Mexican-
type" smelter was found "somewhere in the hills above Rattlesnake Can­
yon" (Schenck and Givens 1952, p. 94), although some "old Spanish coins"
were found by Bill McHaney near Barker Dam (Willis Keys 1975, tape 6).

The Twentynine Palms Mining District. In 1865 the first claim was
filed on a mine within the monument. This was the "Jeff Davis" in Ratt­
lesnake Canyon (Schenck and Givens 1952, p. 94). Many other claims
were filed during the 1870s, and the Twentynine Palms Mining District
was created (Ingersoll 1904, p. 161). The district was described in
1890:
It includes the greater portion of Townships 1, 2 and 3 North, ranges 6, 9, and 10 East, beginning near the vague and not well-defined boundary between the Mohave and the Colorado deserts. There are many metalliferous lodes in this district, most of them gold-bearing. . . . While many of these lodes have been prospected, little work has been done. Some of the ore worked years ago by arrastras yielded as high as $100 per ton, and nearly all of that worked by the two small mills in the district has been of high grade.

This district being well out in the desert, neither wood nor water is in large supply. There are, however, several large springs in the vicinity. From one of these issue a stream sufficiently strong to flow for 2 or 3 miles before it disappears into the sand. Most of this flow could be dammed and stored, there being near the spring a suitable site for a reservoir (State Mineralogist 1890 in O'Neal 1957, pp. 55-56).

Table 1 lists claims filed in the Twentynine Palms District from 1865 to 1881; some general locations are shown on figure 7. O'Neal has identified several groups of men who, in various combinations, filed most of the claims in the 1870s (O'Neal 1957, pp. 53-54). Several of these men became prominent figures in regional economic and political affairs.

The only documentary evidence found during this study regarding mining technology before 1900 is the mention of "two small mills," the "Mexican-type smelter," and the arrastras mentioned above. Arrastras are rude drag-stone mills used for processing ore.

The Dale District. By the early 1880s mining in the Twentynine Palms District had come to a standstill, but new mining activity began east of the monument in what was to become the Dale District (figure 8). Sufficient placer gold was discovered east of Twentynine Palms to create a small rush, and the town of Dale, as a consequence, was built on the shore of Dale Dry Lake. There miners successfully drilled for water, but because the supply was limited, ore was processed by arrastras (Miller 1968, pp. 13-17). As the placer fields were played out, attention was directed to lodes in the surrounding mountains.

Some of the earliest lode claims were the Blue Bird, Aunt Sallie, and Lucky Miner. All were located in 1883 and recorded in the spring of 1884. The Aunt Sallie was renamed the Virginia Dale (figure 8), and the Virginia Dale Mining Company brought a five-stamp mill to the mine in 1887. Operation of the mill proved too costly, however, and was stopped.
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Location</th>
<th>Owner</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1865</td>
<td>Jeff Davis</td>
<td>&quot;Rattlesnake Canyon, then known as Lone Valley and now confused with Indian Cove&quot;</td>
<td>M. Brown</td>
<td>Schenck and Givens 1937</td>
</tr>
<tr>
<td>1873</td>
<td>Blue Jay</td>
<td>&quot;situated in a range of hills in Palm District, S. B. Co., about 8 miles north of Twentynine Palms, ... in T2N, R9E, of S. B. base and meridian&quot;</td>
<td>McDonald group, Emich group, and Gowan group</td>
<td>O'Neal 1957, pp. 50 and 53</td>
</tr>
<tr>
<td>1873</td>
<td>Cora</td>
<td></td>
<td></td>
<td>O'Neal 1957</td>
</tr>
<tr>
<td>1873</td>
<td>Hornet</td>
<td></td>
<td></td>
<td>Ibid.</td>
</tr>
<tr>
<td>1873</td>
<td>Eagle</td>
<td></td>
<td></td>
<td>Ibid.</td>
</tr>
<tr>
<td>1873</td>
<td>Gowan</td>
<td></td>
<td></td>
<td>Ibid.</td>
</tr>
<tr>
<td>1873</td>
<td>Frying Pan</td>
<td></td>
<td></td>
<td>Ibid.</td>
</tr>
<tr>
<td>1873</td>
<td>Valentine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1873</td>
<td>Peru</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1873</td>
<td>California</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1873</td>
<td>Poor Man</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 1—Continued

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Location</th>
<th>Owner</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1873</td>
<td>Emich and Moore Springs</td>
<td>&quot;5 acres of land and these springs for mining and milling purposes . . . in Twentynine Palms District, about 6 miles north of Twentynine Palms and 2 miles south of Mesquite Springs&quot;</td>
<td>G. E. Moore and C. N. Emich</td>
<td>O'Neal 1957, p. 53</td>
</tr>
<tr>
<td>?</td>
<td>&quot;5 acres and springs&quot;</td>
<td></td>
<td>D. Gowan and H. H. Pattridge</td>
<td>Ibid.</td>
</tr>
<tr>
<td>1873</td>
<td>millsite</td>
<td>&quot;at Twentynine Palms&quot;</td>
<td>G. E. Moore</td>
<td>Ibid.</td>
</tr>
<tr>
<td>1873</td>
<td>homestead</td>
<td>Twentynine Palms Oasis; &quot;the Chemehuevi camp&quot;</td>
<td>J. Boshay (sic)</td>
<td>Schenck and Givens 1937; Miller 1968, p. 9</td>
</tr>
<tr>
<td>1874</td>
<td>Last Chance</td>
<td>&quot;7 miles south of Twentynine Palms Springs&quot;</td>
<td>Charles and A. Hoff with P. Pfefferle</td>
<td>O'Neal 1957, p. 54</td>
</tr>
<tr>
<td>1874</td>
<td>Little Giant</td>
<td>&quot;6 miles south of Twentynine Palms Springs&quot;</td>
<td>Charles and A. Hoff with P. Pfefferle</td>
<td>Ibid.</td>
</tr>
<tr>
<td>1874</td>
<td>Little Joker</td>
<td></td>
<td>Charles Hoff</td>
<td>Ibid.</td>
</tr>
<tr>
<td>1874</td>
<td>Shoo Fly</td>
<td>&quot;8 miles south of Twentynine Palms Springs&quot;</td>
<td>Charles and A. Hoff</td>
<td>Ibid.</td>
</tr>
<tr>
<td>Date</td>
<td>Name</td>
<td>Location</td>
<td>Owner</td>
<td>Source</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------</td>
<td>-----------------------------------------------</td>
<td>--------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>1874</td>
<td>Drummer Boy</td>
<td>&quot;4½ miles south of Twentynine Springs&quot;</td>
<td>P. Pfefferle and J. Schlemmer</td>
<td>Ibid.</td>
</tr>
<tr>
<td>1874</td>
<td>Captain Jencks</td>
<td></td>
<td>G. Gray 1966</td>
<td></td>
</tr>
<tr>
<td>1876</td>
<td>Winter's Claim</td>
<td>&quot;90 miles east of S. B. in Twentynine Palms District on south extension of the Blue Jay Lead&quot;</td>
<td>from William Germain to J. Dore</td>
<td></td>
</tr>
<tr>
<td>1880</td>
<td>?</td>
<td>? in Palm.District</td>
<td>William MacDonald</td>
<td>Ibid., p. 55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>William Levick</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>J. P. Clark</td>
<td></td>
</tr>
<tr>
<td>1881</td>
<td>Good Hope</td>
<td></td>
<td>M. M. Kincaid</td>
<td>Ibid.</td>
</tr>
</tbody>
</table>
Fig. 7. Twentynine Palms Mining District and Mines, circa 1875, Approximate Locations. Drawn from U.S. Department of the Interior, "Environmental Statement, Proposed Wilderness Area, Joshua Tree National Monument, 1973."
in 1889 (O'Neal 1957, p. 57).

In the early 1890s the Sherman Act forced the U.S. government to buy large quantities of silver at a price lower than that of gold. Gold mining, particularly in isolated areas like Joshua Tree, became too costly to continue. Mining in the region slowed until the middle 1890s, when the Sherman Act lost effect, and the Dale District experienced a second boom.

A five-stamp mill was brought to Dale from Twentynine Palms in 1896. The Gypsey mine, about 4 miles west of the Virginia Dale, operated with a one-stamp mill powered by a gasoline engine. Hoisting was done by horsewhim (State Mineralogist 1896, pp. 310-315).

Despite the fact that more mills were available, milling was still difficult and often unprofitable. The Virginia Dale's chilean mill recovered gold values of only 60 to 70 percent. Many of the smaller miners could not profit under these conditions, and mining at Dale reached another low. By 1898 the town that once had a population of more than 1,000 was reduced to 34 residents. These included:

... 21 miners, two teamsters, three millmen, a cook, blacksmith, hotelman, assayer, lawyer, whiskey store proprietor, carpenter, and a postman (Miller 1968, p. 19).

From 1895 to 1896 a stageline ran from Palm Springs to Dale. The first regular freight service from Banning to Dale via Twentynine Palms was established in 1898 and continued until 1902 (Sabathe in Russell n.d.). Teamsters also used the rough road constructed during this period that lead through Cottonwood Spring (figure 8) north to Dale (Moore 1972; James 1906, p. 431).

The Montenegro District. The Montenegro (Monte Negras) District was "between the Virginia Dale and the Eagle Mountains" (State Mineralogist 1896). An updated map of Riverside County places the district in the area that became known as Gold Park after the turn of the century (Perkins n.d.; figure 8). This area was first noticed in 1892, when the Columbus, Procupine, Republic, Summit, and Venus claims were filed. These were abandoned, then relocated. The SS mine was listed in the State Mineralogist's Report for 1892-94 as "about 4 miles south of the Virginia Dale, and 55 miles northeast of Walters Station" (Mecca). It was discovered in about 1894 and had produced "some very high-grade ore," but the State Mineralogist in this year reported that:
... very little has been done here since 1892. A few tons were packed out and worked in the small stamp mill at Virginia Dale.

The Pinyon District. The Pinyon District, organized in 1892, was entirely within what is now the monument. It was bounded on the west by Lost Horse mine, on the north by the San Bernardino-Riverside county line, on the east by White Tanks, and on the southeast by the Golden Bee mine. From the Golden Bee the district boundary extended southwest to include Fargo and Berdoo canyons and returned north to the Lost Horse (Perkins n.d.; figure 8). Major holdings include the Pinyon Mountain mine, the Homestake, and the Dewey, all owned by Tingman and Holland of Indio; the Hexahedron, owned by the Montegue-Garrison Mining Co.; a group of mines in Pleasant Valley, owned by the German-American Mining Co.; and the Golden Bee and El Dorado mines (figure 8). Tingman and Holland installed a two-stamp mill at Pinyon Wells, to which ore was brought from all of the above mines and from the Desert Queen and Lost Horse before mills were established at Keys' Ranch and Ryan's Ranch. An arrastra also operated at Pinyon Wells (William Keys 1966a).

The Lost Horse and the Desert Queen. The operation of the Desert Queen affected mining activities in the Pinyon District. The Desert Queen and the Lost Horse were discovered at about the same time (1893-94), and their development brought about social changes in the monument area. Pastures in the northwestern part of the monument, such as Lost Horse, Queen, and Pleasant valleys, as well as Cow Camp, had been informally claimed by a group of cattlemen headed by the McHaney brothers. Local legend has it that the Lost Horse was discovered as a by-product of the McHaney's territoriality (P. Johnston 1934; Taylor 1968; Vroman 1953). John Lang, one of the Lost Horse's early owners, felt it was necessary to negotiate with Jim McHaney before locating at Witch Springs (now Lost Horse Well). This area became the headquarters for operations of the Lost Horse mine. Lang owned the mine for only a year, during which he deliberately avoided the area claimed by the McHaneyes. Instead of using the direct route through Quail Spring to Banning, Lang took his gold out through Berdoo Canyon to Indio and/or past Keys' View through Fan Hill Canyon to Thousand Palms (Belden 1959; figure 8). The Ryan brothers, who bought the Lost Horse in 1895, were able to establish
the Lost Horse mine and ranch as a separate community powerful enough to ignore the real or imagined McHaney threat. They shipped ore and supplies past Keys' Ranch to Banning.

The Lost Horse operation included a new steam-powered 10-stamp mill, which was brought from the Colorado River and set up at the mine. Five buildings were built at the mine (William Keys 1966b) and six more at the ranch (Vroman 1953). Buildings at the mine included a bunkhouse, several stone cabins, a kitchen-dining room, and an assay office. At the ranch were a large adobe house, a small adobe tool house, three or more buildings constructed of Joshua tree logs, and a shake kitchen-dining room, as well as several other structures and corrals (Vroman 1953). The mine and mill were worked by a crew of 35 to 40 men in the late 1890s (William Keys 1966b). Water was run up to the mine from Lost Horse Well with a steam-powered pump (Levy 1969, p. 12). Chester Pinkham, one of the old miners in the area, asserted that "a crew of Mexicans and Indians cut juniper, cedar, and pinyon pine from the adjoining hills" (Pinkham n.d.), presumably to fuel the mill. The Lost Horse was most productive in the 1890s, and soon after 1899 the Ryans leased the mine to other companies (William Keys 1966b).

The Desert Queen mine, discovered by an ill-fated Mr. James (O'Neal 1957, p. 73), was owned and worked by the McHaney brothers in 1895 and 1896. They took between $27,000 (William Keys 1960) and $40,000 (William Keys 1959) worth of gold from it. After a year the McHaney brothers separated, and the Desert Queen was purchased by the Zambro Bank, which installed a five-stamp mill at Keys' Ranch. William Keys (1960) thought that ore was milled in the five-stamp mill and shipped to Palm Springs and thence to El Paso, Texas.

The years 1883 to 1900 featured the growth of different kinds of mining communities. The Dale District had a large population living in dispersed settlements, with the town of Dale serving as a supply center. Little is known about the Montenegro District; apparently, the same mill and supply center served both Montenegro and Dale. The Pinyon District was dominated by several companies, but the organization of the communities associated with these companies is unknown. At Lost Horse mine and Ryan's Ranch, a community developed with two interacting loci of occupation and a common water supply at Lost Horse Well. The Lost Horse com-
munity received its supplies from Banning. Keys' Ranch and the Desert Queen mine represented another two-locus community; each locus had a separate water supply, but the entire community was provisioned by Banning.

The documents indicate that all the mining communities of this period were occupied exclusively by males; at least, women are not mentioned as being in residence. Little information is available on the organization of the communities.

**Mining Heyday: 1900-1917**

The most extensive mining in and around the monument was done during the early part of the twentieth century. Figure 9 shows and table 2 lists those mines recorded as active during this period. The figure is not complete; not all mines were recorded, and records often do not show precise locations. It is possible, however, to identify loci of mining activity. Three areas of obvious activity were Gold Park, New Dale, and the Eagle Mountains, all of which lie outside monument boundaries. They are important to the history of Joshua Tree, however, because many of these mining operations depended upon resources within the monument, such as water and millsites. The Iron Chief (figure 9) pumped water from Cottonwood Spring 18 miles away and had a man stationed at the springs to care for the pump. In the early days of the Booklyn mine's operation (figure 9), water was hauled from Cottonwood Spring. The Gold Park area was dependent on the oasis at Twentynine Palms for water, and the Gold Park Mining Company had several mills operating at the oasis during this period.

Within the monument, mining activity continued in the Lost Horse and Desert Queen areas and around Pinyon Well. New mines were active in the Hexie Mountains and in the mountains east of Quail Springs.

These mining clusters were connected by a system of roads leading north to Amboy, south to Walters Station (Mecca), and west to Banning. The roads have been described in detail in USGS Water Supply Papers (cf. Mendenhall 1909) and in the accounts of such travelers as James (1906), Delamare (1912), and Chase (1919); they are reconstructed on figure 10. Ore was shipped out of the area in freighters drawn by teams of 8, 12, or 16 mules (Miller 1968, p. 35; William Keys 1966a). The teamsters and
### TABLE 2
MINES AND MILLSITES, 1900-1917. (See figure 9.)

<table>
<thead>
<tr>
<th>Dale/Virginia Dale Area</th>
<th>Desert Queen Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Iron Age (Eaton's Camp 1903)</td>
<td>36 Desert Queen</td>
</tr>
<tr>
<td>11 Brooklyn/Los Angeles</td>
<td>2 Granite Hills</td>
</tr>
<tr>
<td>23 Monterey</td>
<td>5 Black Warrior</td>
</tr>
<tr>
<td>24 Imperial</td>
<td>14 Crown Prince</td>
</tr>
<tr>
<td>22 Gypsy</td>
<td>28 Tulley(?)</td>
</tr>
<tr>
<td>21 Maria</td>
<td>20 Dellydro</td>
</tr>
<tr>
<td>12 Supply (Gold Crown?)/OK</td>
<td>39 Anaconda</td>
</tr>
<tr>
<td>16 Ivanhoe</td>
<td></td>
</tr>
<tr>
<td>18 Carlyle</td>
<td></td>
</tr>
<tr>
<td>19 Gold Standard</td>
<td></td>
</tr>
<tr>
<td>29 Golden Egg</td>
<td></td>
</tr>
<tr>
<td><strong>Gold Park Area</strong></td>
<td></td>
</tr>
<tr>
<td>25 Little Italy</td>
<td></td>
</tr>
<tr>
<td>26 Atlanta</td>
<td></td>
</tr>
<tr>
<td>27 Pinto Extension</td>
<td></td>
</tr>
<tr>
<td>34 Gold Park 1, 2, 27</td>
<td></td>
</tr>
<tr>
<td>35 North Star (Atlanta?)</td>
<td></td>
</tr>
<tr>
<td>8 Paymaster</td>
<td></td>
</tr>
<tr>
<td>31 Oro Copio</td>
<td></td>
</tr>
<tr>
<td>33 Boss</td>
<td></td>
</tr>
<tr>
<td>40 California Boy</td>
<td></td>
</tr>
<tr>
<td>41 Caledonia</td>
<td></td>
</tr>
<tr>
<td>42 Goat Basin</td>
<td></td>
</tr>
<tr>
<td>43 Pinto Peters</td>
<td></td>
</tr>
<tr>
<td>44 Marvel A</td>
<td></td>
</tr>
<tr>
<td>45 Virginia Irene</td>
<td></td>
</tr>
<tr>
<td>38 Gold Standard - Keys</td>
<td></td>
</tr>
<tr>
<td>37 Lost Horse</td>
<td></td>
</tr>
<tr>
<td>13 Blue Cut</td>
<td></td>
</tr>
<tr>
<td>32 Bonanza</td>
<td></td>
</tr>
<tr>
<td>17 Snowcloud</td>
<td></td>
</tr>
<tr>
<td><strong>Little San Bernardino Mountains</strong></td>
<td></td>
</tr>
<tr>
<td>9 ET Dorado</td>
<td></td>
</tr>
<tr>
<td>1 Golden Bee/Dickey Boy</td>
<td></td>
</tr>
<tr>
<td><strong>Hexie Mountains Area</strong></td>
<td></td>
</tr>
<tr>
<td>7 Black Eagle</td>
<td></td>
</tr>
<tr>
<td>10 Eagle Mountain/Iron Chief</td>
<td></td>
</tr>
<tr>
<td>15 Iron Chief</td>
<td></td>
</tr>
</tbody>
</table>
Fig. 10. Roads Connecting Mines, 1900-17. After Lands Office Maps, Joshua Tree National Monument, n.d.
"swampers," who cared for the stock along the way, provided a social link among mining communities in the area and between Joshua Tree and the outside.

From Dale, the round trip to Banning took six days, to Walters Station five days, to Amboy three days (Miller 1968, p. 35). The road to Amboy was difficult and often choked with sand. The route to Banning was longer but more easily traveled. Delamare described general travel conditions in 1912:

Again, in the opinion of prospectors, some parts of the desert are quite attractive. They consist of stretches of fairly level land, sparsely covered with sagebrush and other desert vegetation and crossed by good trails. These are easily followed in a mule wagon, which is the usual mode of traveling long distances, though the prospector often leaves it to proceed on foot for side trips and in order to reach places inaccessible to a vehicle. With the mule wagon on a good trail, one can make about 16 miles a day. Prospectors, traveling alone often have only a burro to carry their tools and provisions, and barely make 8 miles a day (Delamare 1912, p. 35).

Isolation and difficult transportation also meant that some mines simply were inaccessible. William Keys let a claim go in the southwestern part of the Little San Bernardinos (the Snowcloud?) because:

... we had to pack the ore out on burros and on here (Keys' Ranch) to the mill, about 40 miles. That was about 40 years ago (circa 1915) (California Mining Journal 1957, p. 28).

Mining population was organized in clusters. New Dale, for example, was a company town for the Supply mine. The saloon, store, and post office drew miners from the Dale District and Gold Park. The composition of the mining communities had changed. The El Dorado was worked by family groups (James 1906, p. 483), and there were women at Gold Park and New Dale between 1905 and 1910 (Twentynine Palms Library: "Gold Park" n.d.). Some of the women were cooks, as at Eaton's Camp at Dale and in Gold Park, but others have been recorded simply as "girls." A few men brought their wives and children to New Dale. This was rare, however, since construction materials were scarce, and mining companies were hesitant to invest in housing more elaborate than bunkhouses. The family groups at the El Dorado lived in cabins and tents, as did families at the Hersey mine.

Technological advances distinguish this period from the preceding one. At Lost Horse Well, for example, a gasoline pump replaced a steam-
powered pump. The cyanide flotation method was introduced at Dale in 1914. This method allowed for more complete gold recovery and has been described by Miller:

The ore was broken to about an inch-size by a crusher and conveyed to a set of rollers for grinding to the proper fineness. This fine ore was taken by an ore car to circular tanks which were about 20 feet in diameter. About 8 inches above the base of these tanks were false bottoms of wooden slats. A heavy canvas was laid over the slats to act as a filter. The ore was spread on top of the canvas. A cyanide solution was then applied from the bottom of the tanks and allowed to work on the ore until the gold had been dissolved from it. This solution was then drawn off and sent to a tank where it was precipitated. Finally, the precipitates were melted in a furnace and poured into molds (Miller 1968, p. 21).

Large capital investments were another feature of early twentieth century mining. After mining was curtailed during World War I, the region was left cluttered with expensive mining debris. This material was rather systematically collected by one of the local residents, William Keys, who deposited it on his ranch and used it over the next 50 years (Hickman 1977). The investments of outside capitalists prior to 1917 made permanent adaptation to the Joshua Tree area much easier, at least in Keys' case. For his investment of time and energy, Keys was able to accumulate resources that were otherwise beyond his or any other single resident's means.

Dale: The Supply and OK Mines. Activity in the Dale District shifted to the south during this period. Once the Virginia Dale area had been played out, the buildings and materials of the old town were moved to New Dale. Miller (1968: 12) provides a sketch map of New Dale in 1910, showing three residences, two saloons (the Shamrock and the Dale), a store, a barbershop, a blacksmith, a corral, and a "Redlight District." He does not say how large the new town became, but it was never as populous as Old Dale. Old Dale was deserted; J. S. Chased described it in 1915:

Fifty years after its palmy days, I could hardly find shelter from the wind in what was left of Virginia Dale. The historian of a mining camp must be early on the scene if he is to find anything more than the ground on which it stood (Chase 1916 in Miller 1968, p. 17).

New Dale became the company town of the Supply and OK mines. Water was pumped to both mines from Dale Dry Lake. The OK had a 10-stamp
mill, and the Supply had three two-stamp arrangements in its mill. The mines were owned by the Seal of Gold Company, which included several early settlers (Miller 1968, p. 19). United Greenwater took over the Supply and OK in 1914. A large cyanide plant was installed, and during its 3-year lease, United Greenwater was able to take out about a million dollars worth of gold (Miller 1968, p. 22).

The town of New Dale had grown:

There was a residence area at the mine, consisting of a score of temporary-looking houses and cabins, a store, with a kitchen and dining room attached, and a cashier's office of stone. The post office shared quarters with a clubroom, containing an antique pool table; the felt covering 'worn to a curiosity and pockets as hopeless as a bachelor's' (Miller 1968, pp. 25-26).

J. S. Chase described the population of New Dale in 1915 as "50 or 60 men, half a dozen women, a half-score of children, and one badly spoiled baby" (in Miller 1968, p. 25). The population of Dale Township in 1900 was 63, in 1910 it was 41, and by 1920 it had been reduced to 8 (Water Supply Paper 578 in O'Neal 1957, p. 57). Miners had come to New Dale from all over the United States, as well as from England and Chile (Miller 1968, p. 26). O'Neal reported that in the early 1900s the Virginia Dale was worked by "some Armenians from Los Angeles" (O'Neal 1957, p. 80).

The Brooklyn Group. This cluster of mines included the Brooklyn and Los Angeles and the Monterey (figure 9). The Brooklyn Mining Company, which was in continuous operation from 1909 to 1916 (Miller 1968, p. 29), was owned for a time by Frank Cram and John P. Coy of San Bernardino. Many wealthy nonresidents made overlapping investments in the Joshua Tree area. Coy and Cram, for example, were also involved in cattle raising in the monument and vicinity (Belden 1959, no. 32). Water was first brought to the Brooklyn Group from Cottonwood Springs, but when that proved too expensive a pumping plant was established at Dale Dry Lake.

G. W. James detailed the difficulties caused by isolation and by the nature of the ore at the Brooklyn. He also commented on the social organization at the mine:

Up a steep hill cut into the face of the granite, on the side of which the new mill (for dealing with the Brooklyn's slimey ore) is erected, on to its crest, and there, snugly ensconced in a granite "pocket" we found the camp. Houses, kitchen,
dining rooms, stable, quarters for the men, and the mill, the latter perched on a knoll above the former, had changed the aspect from one of wild, untamed wilderness of rocky grandeur, to one of man's occupancy (James 1906, p. 318).

The difficulties of mining in such inhospitable localities are hard to appreciate. Some of these I have already referred to. But in addition there is the great distance from supplies. Even suppose a mine has telephonic communication with the 'inside,' that does but little to relieve the pressure. Something goes wrong with the engine, a cam of a machine breaks, a new wheel is required. Everything must stop until it comes. A telephone and telegraphic message is sent to the foundry in Los Angeles or San Francisco. The urgency of the case is stated. The required article has to be made perhaps. Then it must be shipped. If heavy, it comes by freight. If lighter, by express. It reaches the nearest station, as, for instance, on the Southern Pacific. Palm Springs, Indio, Mecca, or Ogilby, or, on the Santa Fey, Amboy, Bagdad. From thence it must be hauled either on the express stage at a ruinously heavy charge, or wait until a wagon can be sent in—a trip which requires not less than five or six days. So that even when dispatch is used and things come by express at five times the original cost of the article, from one to two weeks are required, while if they come by freight and wagon, from three or four weeks are expended. During all this time the mill, or engine, or pumping plant is at a standstill. Other work must be found for the man thus thrown out of employment, as it would be unreasonable to expect such circumstances, even if it were not impossible to secure fresh men to take their places were they dismissed or allowed to return 'inside' (James 1906, pp. 320-321).

The 8 to 10 men who were employed by the Brooklyn were traveling 12 to 18 miles from the mine to secure mesquite for firewood. When the mesquite was gone the company had to purchase coal (James 1906, p. 322; Miller 1968, p. 25).

The mine camp was an all-male society:

The refining influences of women can seldom be felt, for lumber and labor are so expensive that the mine owners cannot afford to make provision for housing the wives and families of their men, and even if they could and did there are few wives who would be willing to submit to the social isolation and physical discomforts of desert life (James 1906, p. 321).

**Gold Park.** The Gold Park Consolidated Mining Company of Los Angeles dominated mining activity in this area. The company owned 52 claims, the most active being the Atlanta, Black Warrior, Boss, Caledonia, Gold Park 1, 2, 27, and the Oro Copio (Weight 1975). At least 10 mines were operating in the Gold Park Area in 1907, and at least 18 men
were employed. Photographs of Gold Park, taken between 1905 and 1910, show the distribution of structures at some of the mines and a large camp at the California Boy. In addition to the usual mill and cabins, Gold Park had an assay office, blacksmith shop, cookhouse (with a female cook), bunkhouses, and an owner's residence (Twentynine Palms Library: "Gold Park" n.d.).

Gold Park miners hauled water from Twentynine Palms Oasis until a dam and pump were installed at Ivanpah. The oasis was used as a campsite at least until 1910. One miner recalled a bunkhouse, assayer's cabin, office, barns, corrals, blacksmith shop, and powder house at the oasis in 1910 (Weight 1975).

Gold Park was also mined by individuals. Bill McHaney, for example, worked in Music Valley from the 1880s until his death in 1937 (see figure 9).

The Pinyon District. The El Dorado, one of the most active mines in the Pinyon District, in 1906 was operating "under very favorable conditions" (James 1906, p. 483; figure 9). The El Dorado Consolidated Mining Company had a mill at Pinyon Wells, which serviced other mines in the district. Water was pumped to the El Dorado from Pinyon Wells via a 9-mile pipeline. An abandoned cabin and mill were located near a faucet on the pipeline 3 miles from the mine (Miller 1968, p. 49). Several families were living at Pinyon Wells in 1906 (James 1906, p. 483).

The New El Dorado mine operated at least from 1915 to 1916, but little more than assessment work was done and no production was maintained (Perkins n.d.). It is not clear whether the New El Dorado was near or identical with the El Dorado.

The Hersey mine was located 4 miles from the El Dorado and in 1906 James saw a rock house and a tent at the site (James 1906, p. 483). Miners later abandoned the Hersey, "leaving a scattering of tools, pipelines, and the remains of a stamp mill" (O'Neal 1957, p. 68).

The Lost Horse had seen peak production before the turn of the century and was operated only sporadically from 1900 to 1917. In 1905, a well was dug at Lost Horse Springs on the Ryan homestead. A gasoline engine, replacing the older steam-powered machinery, pumped water to a reservoir 750 feet above the spring (Levy 1969, p. 12).

The Desert Queen Area. William Morgan bought the Desert Queen in
1910 and hired the settler William Keys as "watchman," "guard," "supervisor" and "assayer" (William Keys 1960). Morgan apparently was an absentee owner and was not in control of events at the mine. Keys stayed on at the Desert Queen, working even after his wages were stopped, and in 1917 asserted that the Desert Queen was his property, owed him in lieu of unpaid wages. He was able to convince attorneys that this was the case and became owner of what he had controlled for some years. The mill for the Desert Queen was at Keys' Ranch.

Another mill was located at the site now occupied by the Wall Street mill (figure 9). Bill McHaney dug a well there before the turn of the century. About 1900 a man named Tulley built an arrastra and milled ore there (presumably from the Tulley mine) until 1905. The area was then taken over by a stockman, Joe Reynolds. It was purchased in 1911 by the mining company that owned the Gold Tiger mine, but the company did not use it as a mill site. In 1911 Keys worked both for Reynolds in a roundup and at the Tulley mine. Multiple skills were characteristic of those settlers who remained in the area, as Keys did.

The Iron Chief and Mines Southeast of the Monument. The Iron Chief was discovered just before the turn of the century. It was operated during this period by several partners, who built a five-stamp mill at the mine. Water was pumped from Cottonwood Spring. Chase reported meeting a "Crusoe-like figure" who cared for the pumping plant; the man had planted a vegetable garden and was caring for some apple trees (Miller 1968, p. 38). Miners from the Iron Chief also built corrals, water troughs, and an engine house at Cottonwood Spring (Mendenhall 1909, p. 224; figure 9).

Iron "spuds," hard potato-sized lumps of magnetic iron, were used as tumbler balls in a mill at Cottonwood Spring. These "spuds" made work difficult at the Iron Chief, and the mine was almost shut down in 1907 (Miller 1968, p. 54). By 1912, however, the value of the iron lumps had been recognized by railroad magnate Henry Harriman. Harriman's death put an end to plans for developing the iron deposits of Eagle Mountain until after World War II.

Mining Hiatus: 1918-1929

Mining was all but halted by World War I and did not resume until
the Depression of the 1930s. Labor and supplies had always been expensive, but shortages during the war made prices prohibitive. A few mines continued to operate, but with less intensity than before. Freight and mail services were abandoned along the roads to Banning, Amboy, and Mecca.

The Anaconda and El Dorado were worked in 1918 (Perkins n.d.), and in the southern part of the monument a gold mine was worked at Mastodon Peak. Gold from this mine was milled at the Winona mill in the 1920s (Moore 1972). Today, foundations of buildings remain, along with introduced trees and shrubs. William Keys operated the Snowcloud, the Pinyon, and the Gold Standard. He improved the Gold Standard with a cabin, reservoir, and millsite (F. Keys 1960, p. 1). He also claimed the Black Warrior, Silver Bell Lode, Gold Coin, Big Chief, and Pleasant Valley Quartz mines, along with Hansen's millsite and the Lang millsite (Hickman 1977).

In the 1920s the Desert Queen was leased to a Pasadena jeweler, who entrusted its operation to a middleman. A cookhouse and a bunkhouse were built, and a crew was hired. Activity ceased after a side pocket of ore was exhausted; the middleman disappeared, and Keys repossessed the mine (Morgan 1971, p. 1).

There was no one living at New Dale in January 1918, and no one remained at Pinyon Wells in 1920 (Brown 1920, pp. 74-76). At this time Pinto Basin had no settlements or watering places (Brown 1923, p. 99).

During the 1920s, then local residents were free to expand claims and to collect from abandoned mining operations. Immediately upon the withdrawal of major mining interests, William Keys began collecting from abandoned properties (Hickman 1977). In 1926, a visitor reported that "on the site of the Desert Queen Mill (Keys' Ranch), many pieces of old machinery are sitting around rusting in idleness" (Archer 1926). Many people moved to Joshua Tree and settled around Twentynine Palms. These people were not miners but homesteaders, many of them veterans of World War I. Material scarcity affected all comers, however, and homesteaders also collected from abandoned mines, hoping to find something useful (Michels in Cook 1974, p. 23).
The Last Boom: 1930-1942

During the Depression "the area was sort of booming, when it was supposed to be hard times" (Willis Keys 1975, tape 3). It is difficult to quantify this boom. Special Agent S. E. Guthrey estimated that 250 people were employed in mining activities in the monument in May 1937 (Guthrey 1937). Park Naturalist Cole of Joshua Tree National Monument reported that in 1938 there were 20 to 40 groups of mining claims producing ore in 150 locations. These were all gold mines; some silver was recovered, but no attempt was made to recover copper or iron. Table 3 lists all mines described as active during the depression. Information regarding the social organization of the mines or mine-mill relationships is included when available. Figure 11 illustrates the distribution of these mining activities. Many of the mines, such as the Lost Horse, Gold Fields of America, Gold Crown, and Golden Bee were active only briefly. Much of the work was done on mine tailings from previously worked mines (Willis Keys 1975, tape 4).

William Keys worked the Hidden Gold, Desert Queen, Black Eagle, and Snowcloud mines and leased out others, such as the Black Warrior (Hickman 1977). He collected debris left by dispirited and departed lessees and brought it to his ranch (Willis Keys 1975, tapes 1 and 4). Keys moved a two-stamp mill to Pushawalla Canyon to process ore from the nearby Hidden Gold Mine. He also repossessed the Desert Queen, added pumps, and worked it sporadically (Willis Keys 1975, tape 2).

The two-stamp mill at Wall Street was brought from the El Dorado by Keys and installed in 1932-33. The property had been located by O. Booth and his partners, who built a house and dug a well in 1929. Keys bought the property in 1930. It has been claimed that Keys milled for 50 miners (G. Keys 1962), but this probably is an exaggeration. A single log page from "Keys Mining and Milling" at Wall Street shows that ore was processed from the Gold Point, Gold Fields of America, Paymaster, and Dickey Boy mines (Perkins n.d.).

Millsites, whether owned by local residents like Keys or by outside companies, were important nuclei of social activity. Many miners could not afford their own mills and so brought ore to convenient millsites. Mill owners often would not be paid for their services until those who brought the ore had been paid by the government for their gold (Willis
## TABLE 3
MINES OPERATING 1930-1942. (See figure 11 for locations.)

<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>Mine Name</th>
<th>Crew Size</th>
<th>Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hidden Gold (Willis Keys)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Black Warrior (Willis Keys)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gold Point (Keys logbook)</td>
<td>5 in 1935</td>
<td>Idle 1938 (Cole 1938)</td>
</tr>
<tr>
<td>4</td>
<td>Gold Fields of America (Keys logbook)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Paymaster (Keys logbook)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Gold Crown* (Benito 1975)</td>
<td>30 in 1937 (Cole 1938)</td>
<td>Active until 1936-37 and again in 1938 (NPS-CCF, Box 2259); extensive settlement; photos of 3-4 clusters of structures (Twentynine Palms Library); profit on reprocessing tailings continued 1935-40 (Jones 1946)</td>
</tr>
<tr>
<td>7</td>
<td>O.K. (Benito 1975; Belden 1959, no. 32)</td>
<td>6 in 1937 (Cole 1938)</td>
<td>Idle 1938 (Cole 1938)</td>
</tr>
</tbody>
</table>

*"Gold Crown Mining Co." also operated Supply mine; may be source of confusion.
<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>Mine Name</th>
<th>Crew Size</th>
<th>Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Ivanhoe (Benito 1974)</td>
<td>6 in 1937 (NPS-CCF, Box 2259)</td>
<td>Idle 1938 (Cole 1938)</td>
</tr>
<tr>
<td>9</td>
<td>Golden Bee/Dicky Boy/Mabel (Benito 1974; Keys logbook; Guthrey 1937)</td>
<td>30 to 50 (NPS-CCF, Box 2259)</td>
<td>Idle 1937; active 1938 (NPS-CCF, Box 2259); mill at Dale; operated by E. Auclair w/partners, Golden Bee Mining Co. (Guthrey 1937)</td>
</tr>
<tr>
<td>10</td>
<td>Carlyle (Miller 1968)</td>
<td>30 to 50 (NPS-CCF, Box 2259)</td>
<td>Idle 1938 (Cole 1938)</td>
</tr>
<tr>
<td>11</td>
<td>Gold Park (Miller 1968)</td>
<td></td>
<td>18 claims (Miller 1968)</td>
</tr>
<tr>
<td></td>
<td>Morton's Millsite (Moore 1972)</td>
<td></td>
<td>3 claims; cabin 1930; 5-stamp mill 1934; abandoned 1939 (Moore 1972)</td>
</tr>
<tr>
<td>12</td>
<td>Brooklyn (Miller 1968)</td>
<td>15 in 1931, 6(?) in 1937 (Belden 1959, no. 32; Cole 1938; Miller 1968)</td>
<td>Idle 1938 (Cole 1938)</td>
</tr>
<tr>
<td>13</td>
<td>Supply (Thompson 1937; Guthrey 1937)</td>
<td></td>
<td>Idle 1938 (Cole 1938)</td>
</tr>
<tr>
<td>14</td>
<td>Desert King (Thompson 1937)</td>
<td></td>
<td>Idle 1938 (Cole 1938)</td>
</tr>
<tr>
<td>15</td>
<td>Lost Horse (Thompson 1937)</td>
<td>5 or 6 (Thompson 1937)</td>
<td>Small mill in 1937 (Thompson 1937); used cyanide 1931-36 (Miller 1968); inactive 1938 (Cole 1938)</td>
</tr>
<tr>
<td>Map Ref.</td>
<td>Mine Name</td>
<td>Crew Size</td>
<td>Other Information</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------</td>
<td>-----------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>16</td>
<td>Desert Queen</td>
<td>Idle 1938</td>
<td>(Cole 1938)</td>
</tr>
<tr>
<td>17</td>
<td>Jupiter (NPS-CCF, Box 2259)</td>
<td>10 in 1937</td>
<td>Idle 1938 (Cole 1938)</td>
</tr>
<tr>
<td>18</td>
<td>Big Boze (Cole 1938; Guthrey 1937)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Frank Hill Group (Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Lena (Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Lureman (Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>McKeith (Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Star (Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Virginia Dale (Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Map Ref.</td>
<td>Mine Name</td>
<td>Crew Size</td>
<td>Other Information</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------</td>
<td>----------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>25</td>
<td>Golden Rod Group</td>
<td>3 in 1937-38 (Cole 1938)</td>
<td>(Cole 1938; Guthrey 1937)</td>
</tr>
<tr>
<td>26</td>
<td>Heeley and Cross</td>
<td></td>
<td>(Ibid.)</td>
</tr>
<tr>
<td>27</td>
<td>Meek Group</td>
<td></td>
<td>(Ibid.)</td>
</tr>
<tr>
<td>28</td>
<td>Gold Coin</td>
<td></td>
<td>(Ibid.)</td>
</tr>
<tr>
<td>29</td>
<td>Blue Bell</td>
<td></td>
<td>(Ibid.)</td>
</tr>
<tr>
<td>30</td>
<td>El Dorado</td>
<td></td>
<td>(Ibid.)</td>
</tr>
<tr>
<td>31</td>
<td>Yellow Jacket</td>
<td></td>
<td>(Ibid.)</td>
</tr>
<tr>
<td></td>
<td>Desert Star</td>
<td></td>
<td>(Ibid.)</td>
</tr>
<tr>
<td></td>
<td>Iron Chief</td>
<td></td>
<td>10-stamp and cyanide plant at Iron (Guthrey 1937); Black Eagle took over &quot;working in and around Iron Chief&quot; (Jones 1946)</td>
</tr>
<tr>
<td>Map Ref.</td>
<td>Mine Name</td>
<td>Crew Size</td>
<td>Other Information</td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>(Cole 1938; Guthrey 1937)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Snow Cloud</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Sunrise</td>
<td>10 in 1937 (Cole 1938)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grassy Hills</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rainbow Hole</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Coyote Lode</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Mastodon</td>
<td></td>
<td>Millsite; ball mill and 5-stamp in Cottonwood Wash; Hopper Mill (Guthrey 1937)</td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Southern Cross Lode</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Yucca Butte</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jim Reed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Guthrey 1937)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Map Ref.</td>
<td>Mine Name</td>
<td>Crew Size</td>
<td>Other Information</td>
</tr>
<tr>
<td>----------</td>
<td>---------------</td>
<td>-----------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Dianne</td>
<td>38 Gypsey</td>
<td>Idle 1938; ore milled at Virginia Dale 1930-31; (Cole 1938)</td>
</tr>
<tr>
<td></td>
<td>(Guthrey 1937)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mystery</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mule Shoe</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Ibid.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Gypsey</td>
<td>Idle 1938</td>
<td>Idle 1938; ore milled at Virginia Dale 1930-31; (Cole 1938)</td>
</tr>
<tr>
<td></td>
<td>(Belden 1959)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The practice of delayed payments also was common in other transactions. The businessman Clovis Benito, for example, described his relationship with the miners:

So that's kind of the story of our land up there. We had a garage, filling station, wrecking yard, grocery store, mail route—you couldn't make a living on just one thing. We gave credit to quite a few people who come out here and was broke, you know. A lot of 'em was sick and we carried them and they paid us and we done a lot of business with the miners—the mines was going then. The Gold Crown was runnin', the OK was runnin', the Top Nest, and the Ivanhoe, and the miners was comin' in and gettin' groceries from me and some of 'em didn't have no money so we just... Bagleys did the same thing... You know something—I never had a miner beat me out of a penny... (Benito and Benito 1974, p. 9).

Unlike their predecessors, the miners of this period brought their families with them to the mining camps. Photos in the Twentynine Palms Public Library, for instance, show family groups at Gold Park (Twentynine Palms Library: "Gold Park" n.d.).

In Park Naturalist Cole's opinion, mining was not terribly important economically because large companies were not interested in investing, the ore was deep underground, and yields per ton were small (Cole 1938, p. 15). These problems were compounded by geographic isolation and water shortages. Many miners, of course, did not share Cole's view and protested restrictions that accompanied the establishment of Joshua Tree as a national monument. The monument originally covered a much larger area, including the mining districts of Dale, Gold Park, and the Eagle Mountains; the Pinyon and Desert Queen areas remain within monument boundaries. Monument status meant that although activity on previously claimed mines could be continued, no new claims could be made in new locations or as extensions of ore bodies then being worked. Dissatisfaction with these restrictions was immediate, as indicated in a State Mineralogist's Report:

The same situation ensued several years ago when the Death Valley National Monument was created; and was subsequently corrected by Congressional amendment, permitting location and operation of mining claims within the withdraw area. This will have to be done for the Joshua Tree National Monument; otherwise the State of California and the Nation will lose much by the retarded development of the valuable mineral resources of the area involved (State Mineralogist 1936, p. 382).
In 1950 the boundaries of the monument were redrawn to exclude the largest mining regions (figure 12). Mining continued in the monument until 1942, when gold mining was suspended for the duration of World War II.

The Postwar Period: 1943 to the Present

After monument boundaries were changed, gold mining resumed in the Brooklyn Group, the Golden Egg, Gold Rose, and Ivanhoe mines (Belden 1959, no. 32). People also came to the desert to "mine for brass" after the war; General Patton had commanded an extensive training operation southeast of the monument (figure 12), and thousands of valuable brass shell casings were left by his troops. After the war, companies were formed to retrieve the casings (Miller 1968, p. 64).

The Dale area was looted by scrap metal dealers during the war, and most mines in the monument were also scavenged. Vandals have destroyed miners' camps and cabins. Mrs. William Keys complained that:

Just recently a group of Twentynine Palms boys came out to our Desert Queen Mine and completely demolished the five-room cabin. They have wrecked every cabin on the mines in this area. . . (F. Keys 1946, p. 2).

In the 1950s people prospected in the region again, but for uranium and rare earths. Only one source with commercial potential has been discovered in the area (Miller 1968, p. 65). Gold Park contains sources of thorium in the rare earths monazite and xenotime (Miller 1968, pp. 62-63). The deposits were considered valuable, and an experimental gravity concentrator was built near Twentynine Palms.

Sodium sulfate was mined by the Dale Chemical Company at Dale Dry Lake from 1939 to 1948. Many local residents were employed at Dale Chemical until competition with Leslie Salt's operations on San Francisco Bay put the company out of business (F. Cook 1974, p. 29).

By far the most extensive mining operation in the Joshua Tree area is the Kaiser Company's iron mine on Eagle Mountain. Ore from Eagle Mountain is shipped via private railroad to Ferrum and from there to the Kaiser steel mills in Fontana. Kaiser's activities are much larger and more heavily financed than any in Joshua Tree's past. The mine complex was built after World War II and included administration buildings, warehouses, commissary, homes, dormitories, and a trailer camp (Hilton
Fig. 12. Boundary Changes and U.S. Army Operations during World War II
1949, p. 7). A few years ago the Eagle Mountain community was described:

There are hundreds of employees living with their families in a model village built on the claims. This relatively isolated town of Eagle Mountain, with a payroll of over a million dollars, has comforts never dreamed of at New Dale. There is a swimming pool, school, auditorium, and a store. Television programs are piped into every home. The spirit of the old-time mining towns is not to be found here (Miller 1968, p. 54).

Mining at Eagle Mountain has limited influence on Joshua Tree National Monument. Population at the mines now numbers in the thousands, but these people generally have little to do with communities north of the monument.
Chapter 5

LIVESTOCK RAISING

Most ranchers who used Joshua Tree for pasture raised cattle, but some sheep were kept at Indian Cove and Rattlesnake Canyon, and goats were raised for a time at Keys' Ranch (Seeley 1975; Willis Keys 1975, tape 4). Grazing was a seasonal activity. The higher pastures of Lost Horse, Queen, and Pleasant valleys were used as summer range, with headquarters at Barker Dam, Cow Camp, Keys' Ranch, and Ryan's Ranch. Lower areas, such as Twentynine Palms and Sunfair (Coyote Wells), served as winter headquarters. Some of the larger cattle companies had headquarters outside the monument (figure 13).

Livestock Raising Before 1900

The drought of 1862-63 ruined California's cattle industry, and by the 1870s California cattlemen were no longer able to supply demands for beef in the state's expanding population centers. The Joshua Tree region became one stop on the route taken by cattlemen driving herds into California from the east.

Longhorn cattle may have been brought into Joshua Tree as early as 1870 (Wanrow 1973); they were present by 1879 at the latest (William Keys 1961). The cattle were driven from Arizona and New Mexico via the Coachella Valley and then northward through Cottonwood Spring. The herds were pastured in Queen, Lost Horse, and Pleasant valleys in spring and summer, before they were driven down the Morongo Valley to be sold in southern California markets (Mitchell 1974, p. 8; figures 13 and 14).

Local legends have it that during the 1870s and 1880s the Keys' Ranch/Cow Camp area was used by a gang of cattle rustlers. Cattle stolen in Mexico (William Keys 1966b) or in Arizona and California (P. Johnston 1934) were brought to Cow Camp to be branded or rebranded before being sold. Horses were purchased in California and driven east on the return journey. The cattle were pastured in Pleasant, Queen, and Lost Horse valleys, as well as in the "Old Hidden Valley" north of Keys' Ranch (William Keys 1966a). The people usually associated with illegal cattle trading are the "McHaney Gang" (Miller 1968, p. 43) and later Meyers, who bought Bill McHaney's cattle rights (William Keys 1966a).
Another spot reportedly used by Meyers and other outlaws was "Little Reservoir" on Olson's property within the monument (William Keys 1966a). According to another legend, these were not the only outlaws of Joshua Tree's early history, for at about the same time the monument was used by a gang of Mexican bandits (F. Johnston 1974, personal communication to T. King).

In 1881 Chuck Warren dug Warren's Well (figure 13), an important watering spot for 50 years. Several years later Warren moved down to Morongo Valley and bought what became Warren's Ranch (Belden 1959, no. 45). In the 1890s the de Crevecours grazed sheep and cattle in the Morongo Valley and eastward. The de Crevecours searched the area for suitable grazing land as far east as Twentynine Palms (Russell n.d., p. 6).

By the 1880s and 1890s small permanent ranches were being established within the monument. Bill McHaney and his colleagues had a substantial establishment at what was to become Keys' Ranch, including an adobe barn, a bunkhouse, and a cookhouse (Willis Keys 1975, tape 4); it is not clear whether their ranching activities were entirely legitimate. Ryan's Ranch was established by 1895, both as a mining center and as a cattle ranch; Ryan ran 100 head in Lost Horse Valley in that year (Cole 1938, p. 15).

The Peak: 1900-1929

Stockraising reached its peak during the first quarter of the twentieth century. Large cattle companies ran thousands of head in and around the monument (Seeley 1975). The most famous of these companies included Barker and Shay, the Talmadge brothers, Cram and Coy, and Stocker and Stacy. J. D. Ryan and William Keys were smaller ranchers, who lived within the monument and competed with the larger companies for pasture and water.

Possession of water rights was crucial in the cattle business. The cattlemen dug wells and developed tanks and springs from Whitewater near San Gorgonio Pass north to Old Woman Springs and east to Dale Dry Lake (figure 13). Some of the most important water sources developed by cattlemen include the well at Twentynine Palms (dug by Barker), Ivanpah, Live Oak, Squaw, Rattlesnake and White tanks, Barker Dam, Willow Holes,
Stubbe Spring, Coyote Holes (Sunfair), Quail Spring, Warren's Well, the Pipes, the Windmill, and Cottonwood Spring (Belden 1959, no. 20). Wells for watering stock had been dug at Keys' Ranch, Ryan's Ranch, and the Wall Street millsite before the turn of the century.

By 1905, Barker and Shay had moved into Cow Camp (Willis Keys 1975, tape 6), where they put up four wooden houses, a blacksmith shop, and a barn. "Barker's House" is shown at the southern edge of Cow Camp on a 1914 map (Joshua Tree National Monument n.d.). All of the structures eventually were removed by Barker and Shay cowboys.

Cattlemen had to compete with miners for water. In the early twentieth century miners from Gold Park hauled water from Twentynine Palms to their mines in the mountains. Similarly, Cram had to compete with the miners who pumped water from Cottonwood Spring to the Iron Chief and Brooklyn mines (James 1906, p. 139; Mendenhall 1909, p. 78).

Cattlemen also competed among themselves for water and pasture. There was constant tension between William Keys of Keys' Ranch and cowboys riding for Barker and Shay, and later for Stocker. In 1917 Keys claimed Cow Camp as part of his homestead, but Barker and Shay were using it for summer headquarters as late as 1923 (Twentynine Palms Library: "Twentynine Palms" n.d.). Keys informally claimed Barker Dam. He rebuilt the original dam (built by Meyer?) and attempted to establish claim to its water, although the water had been declared public in 1914 (Cole 1938). The other cattlemen were not impressed with Keys' attempt to control access to the dam, and there was at least one shooting near the dam in the 1920s, when Keys avenged himself on one of Barker's and Shay's cowboys (Malone 1974).

Decline: 1930-1945

Cattle ranching in Joshua Tree declined after the 1920s for several reasons. The early 1930s were drought years; pastures dried up and have not yet recovered their predrought lushness. The Joshua Tree area was being homesteaded in the 1930s, and fences and roads blocked off what had been open range. Finally, the monument was established in 1936, and restrictions were placed on the use of pastures within monument boundaries.

It is difficult to quantify grazing activity during this period.
Keys and Ryan kept between 20 (Cole 1938) and 75 head apiece (Willis Keys 1975, tape 4). Keys had corrals at his ranch and at Barker Dam. Ryan pastured his herds in Lost Horse Valley.

A National Park Service investigator found that "cattle are grazed in and around Lost Horse Valley and around Cottonwood Spring, but 50 percent of the area could be grazed" (Guthrey 1937) and that:

"The continued use or future use of the territory for grazing cattle cannot in any way diminish, modify, injure, or destroy the value of the land for recreational purposes. . . . It is not believed that the livestock interest should be disturbed" (A. Wilheim 1937).

In 1940 the Taylor Grazing Act restricted grazing in the monument, and most stockmen were eliminated. In 1943 it was decided that permits allowing grazing within monument boundaries would be granted to aid the war effort. Stocker received the first permit and grazed from 80 to 150 head in the monument from 1943 to 1946 (NPS-CCF, file 901-01). Stocker's seems to have been the only permit issued, however, and grazing was terminated after the war.
Chapter 6
COMMUNITY DEVELOPMENT

Most people who came to Joshua Tree before World War I came on a temporary basis to extract ore, to graze cattle, or simply to visit. By 1920 people were coming to stay, to settle on the 160-acre plots made available by the Homestead Act of 1862 (Ainsworth 1955, p. 9). Many more people came during the depression of the 1930s; in 1938, land was made available in 2½- and 5-acre plots (Jones 1946). By the 1950s settlement of these "baby homesteads" or "jackrabbit claims" was managed by land development companies, which attracted those pioneers willing to settle in a desert equipped with electricity, swimming pools, television, and air conditioning.

The Beginning of a Community: Twentynine Palms in the 1920s

Many of the first settlers were veterans of World War I, who came with the hope that the climate of the high desert would clear their lungs of poison gas and tuberculosis. Dr. James Luckie surveyed desert regions in search of a suitable climate in which veterans could settle. He "discovered" Twentynine Palms, which had an optimal combination of altitude, aridity, and available medical services in metropolitan centers on the coast (Spell 1962, p. 28). A committee was formed at the American Legion Post in Pasadena to encourage veterans to settle in the area. About 28 veterans came to Twentynine Palms within a few years (McClure 1955), and when Frank Bagley arrived in 1925 there were about 40 people living in Twentynine Palms Valley (Bagley and Bagley 1968).

Homesteading in other parts of the United States has featured subsistence farming and relative independence from people "back home." In Joshua Tree, however, this was virtually impossible; a few successful gardens were grown after wells had been sunk and fences put up to keep cattle and smaller pests away, but most people lived on pensions of some sort, or on aid from their families on the "inside" (local vernacular for the Pacific Coast), or on savings which permitted them to invest in service enterprises.

With most of the mines closed in the 1920s, it was difficult to find wage labor in the desert. The Michels, who came in 1922, found
work building the Gold Park Inn at the eastern end of the oasis at Twentynine Palms. Some years later, when the mines reopened, Michels followed a well-established local tradition and "appropriated" an old mill at the oasis, where he tried to make a living milling for others (Michels in F. Cook 1974, p. 21). Fred Shortz, who also arrived in 1922, was a carpenter for local residents (Spell 1962, p. 17). The Benitos homesteaded a site within the monument and started a poultry business. Clovis Benito brought 3,000 chickens to the monument, but within a year he was forced to sell because they "went light" (lost weight) in the desert heat (Benito and Benito 1974, p. 2).

During the 1920s some people could make a little money, if not a living, by concocting and selling bootleg liquor. Elizabeth Campbell, who came to Twentynine Palms with her husband in 1925, wrote that she was afraid to walk alone in the desert for fear of bootleggers (Campbell 1961, pp. 26-27). Dan Malone remembered that people did not take jokes about moonshiners lightly and that there were stills "all over the place." Malone thinks, however, that most of the liquor was for home consumption, rather than for sale.

Frank and Helen Bagley came to Twentynine Palms in 1925 or 1926. They settled at what became the Plaza (figure 15), where they soon opened the community's first grocery store (Jones 1946). The Plaza rapidly became a center of activity. When something was needed from the store or when someone went to pick up the mail everyone went along, if possible, for going to the Plaza was an "excursion" (Malone 1974, p. 5).

The American Legion property was another social center. Local residents donated 140 acres to the American Legion out of gratitude for Dr. Luckie's efforts; Luckie himself would not accept payment for his referrals (Bagley and Bagley 1968). Veterans built a clubhouse in which many meetings were held, as well as high school classes and court trails. The clubhouse also held medical supplies and a small library. Men also donated their labor to build several cabins and a swimming pool in what is now called Luckie Park (Spell 1962, p. 36; figure 15). By the time the Malones arrived in 1929 they were able to rent one of the cabins while their own home was being built (Malone 1974, p. 3).

The Gold Park Inn was also built to house homesteaders while they located their land and built their homes. The inn was purchased in 1928.
Fig. 15. Twentynine Palms, circa 1935
by the 29 Palms Corporation and was moved from its original location at the eastern edge of the oasis to "Indian Gardens" at the western end (O'Neal 1957, p. 156; figure 15; see also figure 6). The inn, too, was a social center. For a brief period mail was held there, and the proprietors kept a small supply of canned goods (McClure 1955).

The Smith Ranch and well were another center for people at the northern end of the valley. Within the monument, Keys' Ranch was developing into a center of activity that reached a peak in the next decade.

Although roads remained rutted and unpaved for some time, several new roads were built in the 1920s. Many veterans donated their labor to build roads within Twentynine Palms (O'Neal 1957, p. 157; Desert Trail 1964). William Keys single-handedly built at least two roads in the monument, one leading into the previously inaccessible ("new") Hidden Valley and the other to Keys' View. Road building became a hotly contested issue in the next decade (Belden 1959, no. 45).

By the late 1920s connections with the outside were regularized. The Benitos carried the mail three times weekly over difficult dirt roads (Benito 1974, p. 2). They also shopped for their neighbors, charging a set amount per box of goods, plus an additional fee for delivery (Benito and Benito 1974, p. 5).

The earliest school in the area was held in a rock structure on the east side of what became Utah Trail (figure 15). The building had been built in about 1912 and was used by teamsters and mining companies before it became a school in 1923. The superintendent, Mrs. Bernice Tucker, drove to surrounding homes every day to pick up the six students needed to justify a county salary for the teacher (Russell n.d., p. 7). By 1928 another school was built at the corner of Utah Trail and Two Mile Road (Spell 1962, p. 32; figure 15).

The life of homesteaders in the 1920s and 1930s has been vividly described by several women. Mrs. Michels has written about how meat was preserved by hanging it in the air at night, taking it down at daybreak, wrapping it carefully, and storing it in a dark place (Michels in F. Cook 1974, p. 22). Vegetables, when available, were stored in the sand. Elizabeth Campbell has described the "desert cooler," a wooden construction covered with burlap, which when kept moist produced a cool storage place for fresh food (1961, p. 49). June Paxton, who moved to Morongo
Valley when it was in the "final stages of frontier existence," described her ingenuity in furnishing her cabin, using spools for cupboard handles and covering knotholes with the ends of tin cans (Paxton 1957, p. 12). Some of these desert adaptations have been made within the monument, notably at Keys' Ranch.

In the 1920s women sometimes came to settle in Twentynine Palms alone or with their children, in distinct contrast to the male-dominated settlement patterns of previous periods. Mrs. Bernice Tucker and her children homesteaded in Fortynine Palms Canyon, where they built a dam and portions of a road (Henderson 1940, p. 26). Hazel Spell and her children homesteaded in Twentynine Palms in 1929 (Spell 1962, p. 14), and after World War II several women established their own homesteads (Steadman 1949, p. 11).

Even in its earliest stages, Twentynine Palms suffered the tensions of factionalism. For Elizabeth Campbell, the factions lined up as "law-abiding" and "outlaws" (1961, p. 70). For others, factions were localized in the various center of activity developing in the community and dominated by key groups--the Campbellites, Baleyites, Benitos, and so forth (Malone 1974, p. 18). Mrs. Campbell understood that whatever the tensions among different groups of homesteaders, the arrival of fences, gardens, and cabins scattered over the valley necessarily conflicted with the interests of the cattlemen and the older settlers:

All that was needed to make a man see red was a few strands of barbed wire and a 'No Trespassing' or 'Private Property' sign. Out would come the cutting pliers and down would go the wire, while the occupant of the rickety desert car drove in state over the tracks he had always traveled. It was his desert, anyway, and he wasn't going to be thrown off by some blankety-blank homesteader (1961, p. 71).

Mrs. Campbell also notes that the cattlemen were always decent to the homesteaders, even if they suffered from poaching and encroachment on what had been open pastures. Their worst fault was "subtle shielding of any element that might have kept the country wild" (1961, p. 75).

**Depression Years: The 1930s**

During the 1930s many people left "languishing businesses" (Trigg 1945, p. 65) and unemployment lines to try their luck at gold mining or homesteading in the desert. Although money was scarce for most, busi-
nesses in Twentynine Palms grew with the expanding population. The developing social and economic centers of Twentynine Palms are shown on figure 15. The Benitos run a store/garage/gas station at Four Corners (Benito 1974, p. 12). A cafe and restaurant were located nearby at Sullivan and Adobe roads (Spell 1962, p. 39). The Plaza had expanded to include a new grocery store, restaurant, garage, post office, and ice plant (Spell 1962, p. 39). Several homes and a hotel were built in the Smoke Tree area (Spell 1962, p. 40). At the northern end of Twentynine Palms, Bill Smith ran an ice delivery service, a store, and a dairy service (Spell 1962, p. 41).

Pinto Basin had been subdivided in the 1920s (Benito 1974, p. 1), Pleasant Valley even earlier (Miller 1968, p. 28), but no permanent settlement had developed. Subdivision began in earnest during the 1930s; the earliest was near the Twentynine Palms Inn, and others followed at Four Corners and in the area south of the oasis (Spell 1962, pp. 40-42). Some of the early subdividers included Southwest Subdividers, Hamilton Sales, Smoke Tree Village, Twentynine Palms Townsite, Adobe Acres, Ole Hanson, Joshua Tree Estates, Sinder and Bunker, and Desert Estates Tract (Jones 1946).

Limited electricity and telephone services were installed in the late 1930s (Spell 1962, p. 44), and a regular bar service was started between Twentynine Palms and Banning (Evans 1965, p. 23).

As permanent residence in the area became the rule, concern for the future of the community increased. Local residents saw that better roads were essential to community development; some dreamed of Twentynine Palms' future as a crossroad on highways leading from Mexico to Canada and from the California coast to Arizona. The Utah Trail Association was formed to promote the north-south route. Despite local enthusiasm, however, Utah Trail did not become a major thoroughfare, because another route was established through Sheephole Pass to Amboy and because after 1936 the National Park Service controlled access from the south through the monument (Desert Trail 1964).

The Twentynine Palms ("Pines to Palms") Highway was improved during this period under the direction of the Works Progress Administration (Paxton 1957, p. 14). Several roads were built in and through Twentynine Palms, and there was some controversy over which should be main-
tained by the county. The Donnells, who had built a motel at Smoke Tree, wanted the "One Mile Road" (one mile north of the San Bernardino Baseline, now Twenty Nine Palms Highway) to be maintained, while others preferred the "Two Mile Road" through the Plaza. It was finally decided to maintain the One Mile Road east to Four Corners, Adobe Road to the Plaza, and the Two Mile Road to the school on Utah Trail (Belden 1959, no. 45; see figure 15).

Men sought work during this period in mines (Spell 1962, p. 15), in highway construction (Paxton 1957, p. 29), as cowhands (Ibid., p. 40), and in fruit-packing houses near Colton (Ibid., p. 29). The American Legion Post at Twenty Nine Palms had established a concrete block business that supplied local men with jobs and the community with needed construction materials (Belden 1959, no. 46).

Despite expansion and the social tensions mentioned above, Twenty Nine Palms has generally been described as a "close" community (Spell 1962; Malone 1974, p. 6; Benito and Benito 1974, p. 15; Evans 1964, p. 23). Store owners like the Bagleys and Benitos and ranchers like William Keys often provided goods and services on credit (Benito and Benito 1974, p. 9). People did favors for one another; it is said, for example, that Johnny Hastie would bank and shop for people who couldn't ride his bus into Banning and would stop at a homestead on the way to feed the livestock of a friend who was away (Evans 1965, p. 23). Paxton described how homesteaders, strapped for funds, would help one another:

There is very little work by which a man can make a living, especially if he has a family to support. This is unfortunate for the people who are desperately in need of this type of climate. The veterans are receiving very little help from the government, so each must rely on his own labor to build and maintain his home. Any help that he extends to a neighbor is given with no thought of pay—with only a happy feeling of having been of service (Paxton 1957, p. 24).

One indication of the community's growing integration in the 1930s is that miners, previously an isolated social group, began marrying homesteaders (Spell 1962, p. 26).

At Keys' Ranch William Keys developed a separate community, made up of his family, school teachers, hired help, and miners who came to Keys for a milling or tool repair. Keys, at this time, had several extensive gardens, an orchard, and barley and hay fields (Willis Keys 1975, tape 5).
Joshua Tree National Monument was established during this period, largely through the efforts of Minerva Hoyt. Mrs. Hoyt had conducted an active campaign for preservation of the natural beauty of a section of the high desert. When the monument was created in 1936 the interests of both mining companies and cattlemen were affected, as well as the lives of settlers, such as the Keys and the Ryans, who lived within monument boundaries. New tensions were created between those who favored monument status and those who did not. Frances Keys, for example, was bitter toward real estate and business interests, which she thought wanted to develop Twentynine Palms at the expense of the natural beauty of the desert and, of course, her family's opportunity to use areas in the monument that they had developed over many years (Frances Keys 1946, p. 3).

With the establishment of the monument businessmen became increasingly interested in promoting tourism-related enterprises. The Twentynine Palms Corporation, owned by Hamilton Sales of Los Angeles, planned to build "Twentynine Palms Village." This development was described as "a community development designed to provide winter homes and hotel accommodations in a unique and picturesque setting, and where horseback riding, desert trails, and outdoor sports offer recreation in happy contrast to city life" (NPS-CCF: file 0.35-207, Box 2259). Other developers proposed construction of a $100,000 hotel in Yucca Valley, at the west entrance to the monument (NPS-CCF: file 0.35-207, Box 2260).

Continued Growth: The 1940s and 1950s

After 1936 social and economic development was curtailed in the monument. The surrounding area, however, developed rapidly. This growth was generally shaped by the establishment of military installations in the Twentynine Palms Valley, by the implementation of the 5-acre homestead act, and by continued subdivision and promotion of Twentynine Palms and the surrounding region.

From 1940 to 1943 the U.S. Army used the area 4 miles north of Twentynine Palms as a Glider Training Base. Once glider training was abandoned, the base became an Air Academy and was used to train fighter pilots (Twentynine Palms Library: "Military Base" n.d.). The U.S. Navy took it over in 1945 for use as a rocket and gunnery range and for rocket training. After the war the base was abandoned for a few years, and
military activities were replaced by small-scale mining. In the early 1950s the U.S. Marine Corps resumed control of the property, and within a few years Twentynine Palms became the largest marine base in the world (Armed Services Press n.d., pp. 4-5).

According to local residents, the establishment of Condor Field, as the glider base was called, changed the character of Twentynine Palms (Benito and Benito 1975, p. 15). Bars, cafes, slot machines, and a theater were added to the local economy (Belden 1959, no. 45; Malone 1974, p. 23). A local inn, the Adobe Hotel, was used as bachelor officer quarters (Flying Condor 1943). Women war workers also came to the base (Trigg 1945, p. 105).

The presence of the military base has affected the local community in many ways: large portions of servicemen's salaries are spent at local businesses, about half of the local school children are from federally connected families, and many local residents are civil service employees at the base. The servicemen and their families make Twentynine Palms more cosmopolitan than earlier was the case (Weight 1967).

Although a law providing for small homesteads had been passed in 1938, it was not implemented for another decade. People could lease property, however, and were lured to Joshua Tree by the promise of cheap land and by the ideal communities promised by land promoters. All of the California desert had experienced continuous growth since the 1920s, and by the 1940s people "who could not, or would not, afford Palm Springs" moved into Twentynine Palms, Yucca Valley, and Joshua Tree (Lantis 1963, p. 53). After the war, promoters sent out advertisements stressing the beauty and healing properties of the desert, as well as the economic opportunities awaiting those who invested in hotels, motels, and other businesses (Desert Spotlight 1946). This apparently was what people wanted to hear, for 10 years later the Twentynine Palms Chamber of Commerce reported that half of the inquiries it received asked about the climate in relationship to health and the other half asked about business opportunities (San Bernardino Sun-Telegram 1957).

The postwar boom of 5-acre settlers has been called a "joyous mass movement . . . transforming the face of the desert" (Ainsworth 1955, p. 2). The idea behind the "baby homesteads" was to bring men and the Creator closer together; the boom was viewed by some as a "phenomenon of
social release ... emblematic of spiritual renaissance" (Ainsworth 1955, p. 2). Yucca Valley had been subdivided as early as 1926, but development was stopped by the Depression. In 1946 it was described as "the cream of the desert," and by 1948 it had "schools, stores, churches, a hotel, and an airport, and (it) is hardly 5 years old" (Woon 1948, p. 5).

The town of Joshua Tree developed a few years later. An attempted subdivision in the 1930s had failed to bring large numbers of people to Joshua Tree, but growth was rapid after the war. The Joshua Tree Townsite Company promised that 1946 would bring new modern stores, new courts, hotels, dude ranches, parks, and public buildings (Bunker Land Company 1945). At least some development was realized, since in 1946 Joshua Tree was described as "already a town" (Woon 1948, p. 6).

Many of the people who moved to Joshua Tree and Yucca Valley were war veterans, encouraged by Col. E. B. Moore. Moore successfully campaigned to have 172,640 acres of former Marine Base land made available to 5-acres homesteaders and helped to locate newcomers on their property from his headquarters in Joshua Tree (Ainsworth 1955, pp. 20-27). By 1967 the Yucca Valley American Legion had set aside 100,000 acres for American War veterans (Egerton 1967).

The influx of settlers, as well as of visitors, affected activity within the monument. William Keys bought cabins and outhouses and lettered signs directing tourists to his ranch (Hickman 1977).

Some people came to build permanent homes and to raise their families. Others came to lay claim to land on which they might later build a summer home or a vacation cabin. The latter were willing to make only minimal improvements, and by the mid-1950s the desert was littered with closely spaced make-shift cabins, rusting trailers, and trash of all sorts. Local residents, who did not need to make use of this trash as they had during the 1920s and 1930s, formed associations to prevent continued littering (Clark 1955). Twentynine Palms was changing from a "frontier" community on the fringes of civilization to the semisuburban recreation and service center it is today.
Part III. ARCHEOLOGICAL RESOURCES OF THE HISTORIC PERIOD

Chapter 7. Site Types and Predicted Distribution
Chapter 7
SITE TYPES AND PREDICTED DISTRIBUTION

The ethnohistorical synopsis presented in Part II provides a documentary basis from which to predict the kinds and, to some extent, the distributions of historic archeological sites that may be present in and around Joshua Tree National Monument. Two approaches to predicting site types and distributions are presented in this section. In table 4 the documentary material presented in Part II is compiled to illustrate the variety of sites that may be associated with the major economic and land use patterns that have characterized the monument area's history. The table, organized in consonance with Part II, presents predicted site types and their projected general distributions relative to such identifiable features of the modern environment as springs, canyons, mines, and roads. Table 5 lists known examples of particular site types that may occur in different environmental zones. The table is divided into three altitudinal zones, the Creosote Bush Belt (up to 3,000 feet), the Yucca Belt (3,000 feet to 4,200 feet), and the Pinyon Belt (4,200 feet to 5,500 feet), following Miller and Stebbens (1964). A variety of habitats is found within each belt, each containing distinctive resources. Miller's and Stebbens' classification was combined with historical data on resource use and environmental change, in an attempt to characterize local land use patterns and changes in these patterns over time. This characterization, in turn, can be used as a basis for predicting what kinds of historic archeological resources may be expected in the various habitats.

Although it is the purpose of these tables to give both future researchers and land managers some idea of what archeological resources to expect in particular parts of the monument and/or under specific environmental conditions, it must be emphasized that these predictions are of only the most general nature. It must also be recognized, as was pointed out in Part I, that historical records are an incomplete source of data on human activities in an area because people do not characteristically describe all of their activities, or the activities of others, that may result in the creation of archeological sites. Other kinds of sites, neither known at present nor predicted in these tables, will
probably be found in and around the monument. The tables are to be taken, then, only as partial listings of expected site types and their general distributions, based on documentary research, and cannot in any way substitute for archeological survey.
<table>
<thead>
<tr>
<th>Socioeconomic Pattern and Period</th>
<th>Social Groups</th>
<th>Projected Site Types</th>
<th>Projected Distribution</th>
<th>Known Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian 18th century - late 19th century</td>
<td>Serrano, Chemehuevi, Cahuilla, &quot;Paiute&quot;</td>
<td>Trails</td>
<td>Coincident with modern and historic roads and trails; through passes, canyons</td>
<td>See Johnston &amp; Johnston 1957</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occupation sites with horse bones possibly wells, historic artifacts</td>
<td>Near water sources</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rock art portraying nonaboriginal themes</td>
<td>Unpredictable</td>
<td>Barker Dam area?</td>
</tr>
<tr>
<td>Late 19th century - 1913</td>
<td>Serrano, Chemehuevi, Cahuilla, &quot;Paiute&quot;</td>
<td>Occupation sites for refugees from political upheavals in west and east; may contain little or no metal, glass, etc., but should contain objects typical of aboriginal material culture on the Colorado River, in the San Bernardino Valley, San Gorgonio Pass and Coachella Valley</td>
<td>Near water sources</td>
<td>Oasis of Mara</td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------</td>
<td>---------------------</td>
<td>-----------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Indian Late 19th century - 1913 (cont.)</td>
<td>Serrano, Cheme-huevi, Cahuilla, &quot;Paiute&quot; (cont.)</td>
<td>Major occupation sites, sometimes with adobe huts, gardens, irrigation ditches, etc.; increasing incidence of metal, glass, machine-made items, etc: bones of cattle, horses, etc.; cemeteries</td>
<td>Near water sources, especially where irrigation is possible</td>
<td>Oasis of Mara</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hideouts for raiders on white travelers, etc.; caches of food, weapons, remains of captured stock, etc.</td>
<td>Coincident with travel routes, prospecting areas?</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporary employment campsites for exploitation of wage labor opportunities; temporary huts, tools for brush and wood cutting, etc.</td>
<td>Near mines, mills, mining camps, ranch headquarters, railroad camps</td>
<td>&quot;Pechacco Spring&quot; (east of monument)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indian-white residential sites; locus of</td>
<td>At mines, stage stops, rail stops,</td>
<td>Chuckawalla (south of monument)</td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Indian</td>
<td>Serrano, Chemehuevi, Cahuilla, &quot;Paiute&quot; (cont.)</td>
<td>Indian occupation as servants and/or wives to whites</td>
<td>ranch headquarters</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporary occupation sites for trade with whites</td>
<td>Freighters stops, stage stops, mines, etc.</td>
<td>Cottonwood Spring</td>
</tr>
<tr>
<td>Late 19th century - 1913 (cont.)</td>
<td></td>
<td>Pinyon gathering sites; occupation loci with tools (axes, hammerstones, hooks, grinding tools, etc.) for gathering and processing pinyon seeds</td>
<td>Near water sources in pinyon woodlands</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hunting sites, with arrowpoints, flakes, knives, bullets, etc.</td>
<td>Along game trails</td>
<td>None</td>
</tr>
<tr>
<td>Mining and mining-related - Pre-1870</td>
<td>Spanish-Mexican prospectors and miners</td>
<td>Small pits, shafts, tunnels; probably closely associated with campsites, trails, arrastras, smelters?</td>
<td>Anywhere in mountains</td>
<td>&quot;Mexican-type&quot; smelter near Rattlesnake Canyon</td>
</tr>
</tbody>
</table>
TABLE 4--Continued

<table>
<thead>
<tr>
<th>Socioeconomic Pattern and Period</th>
<th>Social Groups</th>
<th>Projected Site Types</th>
<th>Projected Distribution</th>
<th>Known Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining and mining-related - Pre-1870 (cont.)</td>
<td>Spanish-Mexican prospectors and miners (cont.)</td>
<td>Roads and trails</td>
<td>Weaver Route, Cocomaricopa Route</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Campsites with refuse of period</td>
<td>Associated with roads, trails, mines</td>
<td>None</td>
</tr>
<tr>
<td>1870s</td>
<td>Anglo prospectors and miners</td>
<td>Prospects, shafts and adits</td>
<td>Twentynine Palms Mining District</td>
<td>None located on ground</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Millsites, with arrastras, stamp-mills?</td>
<td>Near mines and/or roads and/or water sources</td>
<td>Twentynine Palms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Campsites with evidence of tents, perhaps cabins, period refuse; probably all-male occupants</td>
<td>Near mines and/or mills and/or roads and/or water sources</td>
<td>Twentynine Palms</td>
</tr>
</tbody>
</table>

Note: Distinctions may be apparent between crews of camps working for absentee owners and those of independent mine operators

<p>| Freighters | Roads | North and south of monument; through monument via Cottonwood Spring | None |</p>
<table>
<thead>
<tr>
<th>Socioeconomic Pattern and Period</th>
<th>Social Groups</th>
<th>Projected Site Types</th>
<th>Projected Distribution</th>
<th>Known Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mining and mining-related - 1870s (cont.)</strong></td>
<td>Freighters (cont.)</td>
<td>Campsites</td>
<td>At water sources along roads</td>
<td>Cottonwood Spring</td>
</tr>
<tr>
<td>1880s - 1890s</td>
<td>Prospectors</td>
<td>Prospect pits and associated tools</td>
<td>Anywhere in mountains</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Campsites used temporarily by one or more males</td>
<td>Anywhere in mountains</td>
<td>None</td>
</tr>
<tr>
<td><strong>Placer miners</strong></td>
<td>Excavations in alluvial deposits</td>
<td>Vicinity of Dale Dry Lake</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arrastra mills</td>
<td>Vicinity of Dale Dry Lake</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupation sites; evidence of tents, shacks, etc.</td>
<td>Vicinity of Dale Dry Lake</td>
<td>Old Dale</td>
<td></td>
</tr>
<tr>
<td><strong>Lode miners</strong></td>
<td>Shafts, adits, and associated facilities, buildings, etc.</td>
<td>Dale, Rattler, Montenegro, and Pinyon Districts</td>
<td>Virginia Dale, Eldorado, Golden Bee</td>
<td></td>
</tr>
<tr>
<td>Mills (stamp and chilean)</td>
<td>At mines and occupation sites</td>
<td>Gypsy, Virginia Dale, Pinyon Well</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Mining and mining-related - 1880s - 1890s (cont.)</td>
<td>Lode miners (cont.)</td>
<td>Campsites with tents, shacks, houses; all-male population</td>
<td>At or near mines</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occupation sites with substantial clusters of buildings; sometimes commercial establishments, large populations, occupationally differentiated, virtually all-male</td>
<td>Near water sources convenient to mine and/or at mine</td>
<td>Old Dale, Lost Horse/Ryan's Well</td>
</tr>
<tr>
<td>Mexican and Indian workers</td>
<td>Campsites for woodcutters; evidence of tents and huts, tools for woodcutting</td>
<td>Near mines and/or mining occupation sites</td>
<td>None</td>
<td>Mexican and Indian workers</td>
</tr>
<tr>
<td>Freighters</td>
<td>Roads</td>
<td>Berdoo Canyon, Quail Springs area, Cottonwood Springs area, etc.</td>
<td>&quot;Little Chilcoot Pass&quot;</td>
<td>Cottonwood Spring</td>
</tr>
<tr>
<td></td>
<td>Campsites</td>
<td>At water sources along roads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------</td>
<td>----------------------</td>
<td>------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Mining and mining-related - 1900 - 1917</td>
<td>Prospectors</td>
<td>Prospect pits and associated tools</td>
<td>Anywhere in mountains</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Campsites used temporarily by one or more males</td>
<td>Anywhere in mountains</td>
<td>None</td>
</tr>
<tr>
<td>Miners</td>
<td></td>
<td>Shafts, adits, etc., with associated structures and machinery; occasional gasoline engines, hydraulic pumps, etc.</td>
<td>Dale, Gold Park, Pinyon District, and elsewhere in mountains</td>
<td>Lost Horse, Desert Queen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pipelines and pump stations, associated structures</td>
<td>At water sources and between water sources and mines</td>
<td>Ryan's Well, Cottonwood, Pinyon Well</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All-male communities with differentiated populations, good-sized residential groups, substantial clusters of structures</td>
<td>At or near mines</td>
<td>Brooklyn Mine</td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------</td>
<td>---------------------</td>
<td>-----------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Mining and mining-related - 1900 - 1917 (cont.)</td>
<td>Miners (cont.)</td>
<td>Communities like the above, but with sexually mixed populations</td>
<td>At or near mines</td>
<td>New Dale, Gold Park, Eldorado</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mills and other processing facilities (e.g., cyanide tanks), often including considerable machinery</td>
<td>At mines and/or communities and/or water sources</td>
<td>Keys' Ranch, Supply Mine, Lost Horse</td>
</tr>
<tr>
<td></td>
<td>Freighters</td>
<td>Roads; campsites; with auto parts and other machinery</td>
<td>Routes north to Amboy, south to Mecca, etc.</td>
<td>None</td>
</tr>
<tr>
<td>1917 - 1929</td>
<td>Subsistence miners</td>
<td>Small scale mine operations and associated occupation sites, mills</td>
<td>Generally associated with old mines, water sources</td>
<td>Desert Queen, Mastodon Mine, Winona Mill</td>
</tr>
<tr>
<td></td>
<td>Scavengers of mining equipment from previous period</td>
<td>Concentrations of material from mines, mills, communities</td>
<td>At surviving population centers</td>
<td>Keys' Ranch</td>
</tr>
<tr>
<td>1930 - 1942</td>
<td>Miners</td>
<td>Shafts, tunnels, adits, roads, and associated facilities and equipment</td>
<td>Widespread throughout western and southern portions of monument</td>
<td>Gold Point, Paymaster</td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------</td>
<td>---------------------</td>
<td>-----------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Mining and mining-related - 1930 - 1942 (cont.)</td>
<td>Miners (cont.)</td>
<td>Mills (stamp and ball)</td>
<td>Near mines, population centers, water sources</td>
<td>Wall Street, Mastodon Mountain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small mining communities; may tend to be family-centered</td>
<td>Near mines and/or mills, water sources</td>
<td>Keys' Ranch, Gold Point</td>
</tr>
<tr>
<td>1943 - present</td>
<td>Gold miners</td>
<td>Shafts, tunnels, adits, road, cyanide tanks, and other facilities and equipment</td>
<td>Dale District and inholdings within monument</td>
<td>Brooklyn Group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small and/or temporary occupation sites</td>
<td>Near mines</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Water pipelines and pump stations, wells</td>
<td>Drilled wells, especially at north edge of Pinto Basin</td>
<td>Mission Well</td>
</tr>
<tr>
<td>&quot;Brass miners&quot;: scavengers of shell casings</td>
<td>Small temporary campsites in Patton training area?</td>
<td>Associated with bomb craters, tank tracks, etc.</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------</td>
<td>-----------------------------------------------</td>
<td>------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td><strong>Mining and mining-related - 1943 - present (cont.)</strong></td>
<td>Miscellaneous miners</td>
<td>Specialized extraction facilities</td>
<td>Dale Dry Lake, Gold Park</td>
<td>Dale Lake salt plant</td>
</tr>
<tr>
<td></td>
<td>Iron miners</td>
<td>Open-pit mines, with associated permanent community, railroad, etc.</td>
<td>Eagle Mountain</td>
<td>Eagle Mountain Mine</td>
</tr>
<tr>
<td><strong>Livestock raising 1870 - 1900</strong></td>
<td>Rustlers</td>
<td>Temporary occupation sites for holding cattle prior to marketing; living and storage structures, remains of stock, tools, debris</td>
<td>Near isolated sources of water and grass</td>
<td>Keys' Ranch/Cow Camp area?, Olson's Place</td>
</tr>
<tr>
<td></td>
<td>Ranchers</td>
<td>Temporary campsites associated with cattle drives through area and with temporary grazing</td>
<td>Near sources of water and grass</td>
<td>Cottonwood Spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ranch headquarters; permanent structures, corrals, wells, fences, etc.</td>
<td>Near substantial water and grass sources, often associated with mines</td>
<td>Keys' Ranch, Ryan's Ranch</td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Livestock raising (cont.)</td>
<td>Resident ranchers</td>
<td>Ranch headquarters; permanent structures, corrals, wells, fences, automobiles, etc.</td>
<td>Near substantial water and grass sources, often associated with mines and mills</td>
<td>Keys' Ranch, Ryan's Ranch</td>
</tr>
<tr>
<td>1900-1929</td>
<td></td>
<td>Temporary campsites associated with temporary grazing; often associated with tanks and other water improvements</td>
<td>Near sources of water and grass</td>
<td>Squaw Tank</td>
</tr>
<tr>
<td></td>
<td>Nonresident ranchers</td>
<td>Temporary headquarters; bunkhouses, etc., of impermanent or moveable construction</td>
<td>Near water and grass sources</td>
<td>Cow Camp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporary campsites associated with temporary grazing; often associated with tanks and other water improvements</td>
<td>Near sources of water and grass</td>
<td>Barker Dam</td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td><strong>Livestock raising (cont.)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1929 - 1946</td>
<td>Resident ranchers</td>
<td>Ranch headquarters; permanent structures, etc., usually associated with evidence of mining or other nonranch related activity</td>
<td>Same locations occupied by predecessors</td>
<td>Keys' Ranch, Ryan's Ranch</td>
</tr>
<tr>
<td></td>
<td>Nonresident ranchers</td>
<td>Temporary campsites associated with temporary grazing</td>
<td>Same locations occupied by predecessors</td>
<td>Barker Dam</td>
</tr>
<tr>
<td><strong>Community development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-1920</td>
<td>&quot;Homesteaders&quot; engaged in mining, prospecting, etc.</td>
<td>Isolated cabins</td>
<td>Near water and prospecting, mining or millsites</td>
<td>Johnny Lang's cabin, Lang Canyon</td>
</tr>
<tr>
<td>1920 - early 1930s</td>
<td>World War I veterans and others on 160-acre homesteads</td>
<td>Cabins, outbuildings, gardens, orchards, etc.</td>
<td>Vicinity of Twenty-nine Palms</td>
<td>Campbell's original homestead</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Service centers; small population centers with facilities providing water, food, goods, social interaction</td>
<td>Along major roads; especially at crossroads, near water</td>
<td>Twentynine Palms, Keys' Ranch</td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------</td>
<td>----------------------</td>
<td>------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Community development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1920 - early 1930s (cont.)</td>
<td>Moonshiners</td>
<td>Stills</td>
<td>Near isolated water</td>
<td>Pipe Springs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cabins, etc.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Near less isolated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>water sources,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>roads?</td>
<td></td>
</tr>
<tr>
<td>1930s</td>
<td>Depression-era immigrants</td>
<td>Cabins, outbuildings, etc.; on subdivisions</td>
<td>Vicinity of Twentynine Palms</td>
<td>Twentynine Palms</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Service centers;</td>
<td>Twentynine Palms</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>stores, garages, post</td>
<td>Twentynine Palms</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>offices, restaurants,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>etc.</td>
<td></td>
</tr>
<tr>
<td>1940s</td>
<td>World War I veterans and other earlier homesteaders</td>
<td>Improved houses and facilities</td>
<td>Vicinity of Twentynine Palms</td>
<td>Campbells' home</td>
</tr>
<tr>
<td>1950s</td>
<td>&quot;Jackrabbit&quot; homesteaders</td>
<td>Cabins and minor facilities on 5-acre plots</td>
<td>Vicinity of Twentynine Palms</td>
<td>Utah Trail area</td>
</tr>
<tr>
<td>Socioeconomic Pattern and Period</td>
<td>Social Groups</td>
<td>Projected Site Types</td>
<td>Projected Distribution</td>
<td>Known Examples</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----------------------------</td>
<td>--------------------------------------</td>
<td>---------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Community development</td>
<td>Other new residents</td>
<td>Subdivisions with associated service centers</td>
<td>Along major travel routes</td>
<td>Yucca Valley, Joshua Tree</td>
</tr>
<tr>
<td>Habitat</td>
<td>Examples Within Monument</td>
<td>General Use Pattern</td>
<td>Documented Environmental Change</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Sand dunes</td>
<td>Pinto Basin, area around Virginia Dale Mine</td>
<td>Wells dug in drainage sinks; mesquite in desert wash a major food and fuel source for Indians; miners (1870-1915) used mesquite to fuel steam equipment and as salable fuel on coast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desert wash (drainage channels carrying flood waters; underground water)</td>
<td>Washes, areas surrounding springs</td>
<td>Area denuded of mesquite and other fuel woods; 1890s, crew of 10 cutting for Lost Horse Mine (Levy 1969, p. 15); 1906, area surrounding Brookly Mine devoid of mesquite (James 1906, p. 322); area around lake at Keys' Ranch denuded to fuel 5-stamp mill at ranch (William Keys 1966b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creosote bush</td>
<td>Desert valley (below 3,000 ft.), alluvial fans</td>
<td>Hunting of mammals and game birds drawn to water source (e.g., rabbits, mule deer, quail, dove); Twenty-nine Palms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholla cactus</td>
<td>Cactus garden</td>
<td>Indians burned oasis periodically; now more shrubby plants, fewer grasses (Nelson 1974); previously were ponds of open water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oases (site of natural springs, sometimes modified by wells; presence of California Fan Palm in this belt)</td>
<td>Twentynine Palms</td>
<td>Hunting of mammals and game birds drawn to water source (e.g., rabbits, mule deer, quail, dove); Twenty-nine Palms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Area denuded of mesquite and other fuel woods; 1890s, crew of 10 cutting for Lost Horse Mine (Levy 1969, p. 15); 1906, area surrounding Brookly Mine devoid of mesquite (James 1906, p. 322); area around lake at Keys' Ranch denuded to fuel 5-stamp mill at ranch (William Keys 1966b)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 5**

ENVIRONMENTAL ZONES AND LAND USE

**Creosote Bush Belt: Up to 3,000 ft.**
TABLE 5—Continued

Creosote Bush Belt: Up to 3,000 ft. (cont.)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Examples Within Monument</th>
<th>General Use Pattern</th>
<th>Documented Environmental Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oases, cont.</td>
<td>nine Palms Oasis most important water supply in northern end of monument area; continuous use year-round and seasonally; used by almost all visitors to area prior to World War II; small-scale agriculture practiced by Indians</td>
<td>(Miller and Stebbens 1964, p. 24); general drying; 1917, five springs, only two with water (Weight 1975); 1920, two or three springs (Brown 1920, p. 74); open ponds, cienegas (Chase 1919, p. 149); 1909, enough water to supply surrounding mining camps (Mendenhall 1909, p. 76), but fuel scarce around all oases (1909, p. 16); wells dug by 1900 (Miller 1968, p. 39)</td>
<td></td>
</tr>
<tr>
<td>Other water</td>
<td>Surprise Well, Mission Well, Dale Pump</td>
<td>Supply mining camps, cattle</td>
<td>Dale Pump supplied water for cattle, 1920 (Brown 1920, p. 74); had been built to supply Dale Mining District</td>
</tr>
</tbody>
</table>

Yucca Belt: 3,000 ft. to 4,200 ft.

Yucca (Joshua tree) - juniper open woodland

Large areas of this belt west of Twentynine Palms

Joshua trees used for fuel, fencing; preferred
### TABLE 5—Continued

**Yucca Belt: 3,000 ft. to 4,200 ft. (cont.)**

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Examples Within Monument</th>
<th>General Use Pattern</th>
<th>Documented Environmental Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yucca (cont.)</td>
<td>longitude</td>
<td>after coke for forge fires (Willis Keys 1975, tape 1)</td>
<td></td>
</tr>
<tr>
<td>Desert grassland</td>
<td>Pleasant Valley</td>
<td>Natural pasture for pronghorns; important as stock pasture since 1870s; used as stop on cattle drives from Texas-Arizona to California coast; 20th century, seasonal use by ranchers based in Banning, Indio or in monument; mining interests competed for resources in this zone; &quot;fairly good supply of bunch grass but the only water is Pinyon Well, and that is taken over by mining companies&quot; (Brown 1923, p. 99); drilling to bedrock unsuccessful as of 1923; rye, barley, rice cultivation attempted in 1930s (Willis Keys 1975, tape 4)</td>
<td>Amount of grass varies with annual rainfall; in 1960 fileree and pepper-grass (2 in. to 1 ft.) covered valley floor (Miller and Stebbins 1964, p. 38)</td>
</tr>
</tbody>
</table>
TABLE 5--Continued

Yucca Belt: 3,000 ft. to 4,200 ft. (cont.)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Examples Within Monument</th>
<th>General Use Pattern</th>
<th>Documented Environmental Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocky canyon</td>
<td>Slopes of drainage chan-</td>
<td>Prospecting, placers</td>
<td>Fire 1925 (Henderson 1940,</td>
</tr>
<tr>
<td></td>
<td>nels and mountain slopes</td>
<td></td>
<td>pp. 25-26); underbrush</td>
</tr>
<tr>
<td></td>
<td>apart from drainages</td>
<td></td>
<td>cleared, dam built, begin-</td>
</tr>
<tr>
<td>Oases</td>
<td>Fortynine Palms</td>
<td>Isolated campsite; relatively inaccessible pinyons behind oasis</td>
<td>ning of road to Twentynine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Palms 1923-33</td>
</tr>
<tr>
<td></td>
<td>Lost Palms</td>
<td>Relatively inaccessible</td>
<td>Water from spring decreasing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Moore 1972)</td>
</tr>
<tr>
<td></td>
<td>Cottonwood Spring</td>
<td>Major water supply in southern part of monument; oasis became stop for freight wagons supply-</td>
<td>Output declines from 3,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>plying early miners from Mecca; water pumped to mines, e.g., the Iron</td>
<td>gallons in early 1900s to a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chief in Eagle Mountains and Brooklyn in Dale District (Miller 1968, p. 31); camp</td>
<td>few gallons; output increased</td>
</tr>
<tr>
<td></td>
<td></td>
<td>for miners in area; camp for cattle-</td>
<td>after San Fernando</td>
</tr>
<tr>
<td></td>
<td></td>
<td>men Guthrey 1937); apple trees, garden 1916 (Miller 1968, p. 38)</td>
<td>earthquake to 30 gallons per</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>hour (Moore 1972)</td>
</tr>
</tbody>
</table>
TABLE 5--Continued

Yucca Belt: 3,000 ft. to 4,200 ft. (cont.)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Examples Within Monument</th>
<th>General Use Pattern</th>
<th>Documented Environmental Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oases (cont.)</td>
<td>Quail Spring</td>
<td>Source of water for cattle, deer, game birds; winter water</td>
<td>1909: &quot;Water excellent, and supply can be increased&quot; (Mendenhall 1909, p. 75); reservoir 1920 (Brown 1920, p. 75); dry 1959 (Belden 1959, no. 20)</td>
</tr>
<tr>
<td></td>
<td>Pinyon Well</td>
<td>Water for mines (e.g., El Dorado) turn of century to 1917; on route Coachella Valley-Twenty-nine Palms via Pushawalla Canyon; family occupation 1906 (James 1906, p. 184)</td>
<td>two-stamp mill, well with good supply of water (Mendenhall 1909, p. 78); good water available (Brown 1920, p. 76)</td>
</tr>
</tbody>
</table>

Other water:

*Tanks

- White Tanks
- Ivanpah Tanks
- Squaw Tank

All of the tanks listed were developed by early cattlemen to increase water supply; they have

*Tanks: "... natural reservoirs or basins formed in various ways in rocks and filled by rainwater. Water may remain in the tank from a few days to several months, the time depending upon the size of the basin and other conditions" (D. C. Thompson 1921).
TABLE 5—Continued

Yucca Belt: 3,000 ft. to 4,200 ft. (cont.)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Examples Within Monument</th>
<th>General Use Pattern</th>
<th>Documented Environmental Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other water:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanks (cont.)</td>
<td></td>
<td>been periodically maintained since the late 19th century</td>
<td></td>
</tr>
<tr>
<td>Stirrup Tank</td>
<td></td>
<td></td>
<td>Water of excellent quality;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>did not dry up in decade 1899-1909, a period of generally low rainfall in region (Mendenhall 1909, p. 78)</td>
</tr>
<tr>
<td>Red Tanks</td>
<td></td>
<td></td>
<td>Reported by Mendenhall (1909) as 3 mi. southeast of Pinyon Well, where &quot;water collected in bowl of granite;&quot; not on maps</td>
</tr>
<tr>
<td>Wells</td>
<td>Coyote Holes</td>
<td>Winter headquarters for cattle companies 1920s (Seeley 1975)</td>
<td>Choked with sand (ibid., p. 75); windmill in 1920 (Brown 1920, p. 72)</td>
</tr>
</tbody>
</table>

Pinyon Belt: 4,200 ft. to 5,500 ft.

Yucca

Same as in Yucca Belt
### TABLE 5—Continued

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Examples Within Monument</th>
<th>General Use Pattern</th>
<th>Documented Environmental Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desert grassland</td>
<td>Queen Valley</td>
<td>Summer pasture for cattle</td>
<td>In 1921 William Keys built a road from Barker Dam to Hidden Valley, where he grazed horses</td>
</tr>
<tr>
<td></td>
<td>Lost Horse Valley</td>
<td></td>
<td>&quot;Old Hidden Valley&quot; was above and behind Cow Camp and Keys' Ranch; area now covered by reservoirs (William Keys 1966a)</td>
</tr>
<tr>
<td></td>
<td>Hidden Valley</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Old Hidden Valley&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rocky canyon</td>
<td></td>
<td>Prospecting; grass between rocks collected as horse feed (Willis Keys 1975, tape 4); rocky heights is range of mountain sheep (game animal)</td>
<td></td>
</tr>
<tr>
<td>Pinyon (usually inter-</td>
<td>Crests of Little San</td>
<td></td>
<td>Pinyon nuts collected by Indians in historic period</td>
</tr>
<tr>
<td>spersed with juniper and</td>
<td>Bernardinos; slopes on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joshua trees)</td>
<td>western part of monument</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>along crests to slopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>behind Pinyon Well;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>scattered clumps in</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>northern and eastern</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ranges</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 5—Continued

Pinyon Belt: 4,200 ft. 5,500 ft. (cont.)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Examples Within Monument</th>
<th>General Use Pattern</th>
<th>Documented Environmental Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chaparral (manzanita and</td>
<td>Between Black Rock Springs and Upper Covington</td>
<td>Acorns and manzanita berries collected by Indians in historic period (Walker 1931, p. 15)</td>
<td></td>
</tr>
<tr>
<td>scrub oak)</td>
<td>Flat; patches around Pinyon Well</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other water:</td>
<td>Lost Horse Springs</td>
<td>Bedrock mortars present; water source used by Indians in historic periods (Vroman 1953); wells dug to supply Lost Horse Mine and Ryan's Ranch</td>
<td>Called &quot;Little Springs&quot; or &quot;Witch Springs&quot; (William Keys 1966a); well causes spring to dry up (Miller 1968, p. 45); well dug in 1905 (Levy 1969, p. 12)</td>
</tr>
<tr>
<td>Springs</td>
<td>Black Rock Springs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stubby Spring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanks</td>
<td>Live Oak Tank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barker Dam</td>
<td>Barker Dam and Cow Camp</td>
<td></td>
<td>Construction of dams at</td>
</tr>
</tbody>
</table>
TABLE 5—Continued

Pinyon Belt: 4,200 ft. 5,500 ft. (cont.)

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Examples Within Monument</th>
<th>General Use Pattern</th>
<th>Documented Environmental Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other water:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanks (cont.)</td>
<td>Cow Camp</td>
<td>were the most extensive water supplies for summer grazing and as such were sources of continuous competition among cattlemen, 1890s-1940s</td>
<td>Barker and Cow Camp required substantially more effort than at other tanks; reservoirs flooded larger areas; water levels in lake vary with rainfall; generally much lower now than in past 50 years</td>
</tr>
<tr>
<td>Wells</td>
<td>Desert Queen Well</td>
<td>Lakes attracted water fowl; lake at Keys' Ranch stocked with fish</td>
<td></td>
</tr>
</tbody>
</table>
PART IV. CONCLUSIONS

Chapter 8. Research Potential
Chapter 9. Recommendations
Chapter 8
RESEARCH POTENTIAL

The historical resources of Joshua Tree National Monument represent 100 years or more of varied and changing social, economic, and technological conditions. The area is a good one in which to study linkages among these variables. It obviously is impossible to predict all the forms that future research may take, but some possibilities present themselves.

Acculturation

The direct and indirect forms of contact with Euro-Americans experienced by the Indians of the monument area should be reflected in the archeological record. It should be possible to use this record to learn about how aboriginal society changed in response to different kinds of contact situations. For the period of indirect contact, archeology might be informative about the effects of native in-migration from the east and west. Presumably there was a resident population of Serrano at the Oasis of Mara; it would be valuable to understand how this population and the incoming Chemehuevi and/or others interacted with one another. Service (1962, pp. 83-107) has suggested that the formation of composite bands of representatives of more than one social group, such as the one that apparently was present at the oasis in the early twentieth century, is an artifact of cultural disintegration in the face of contact. Steward (1955, pp. 143-150), on the other hand, believes that composite band formation is a common response by desert people to the variability of their natural environment.

If Steward is correct, we might expect that the development of composite bands at Joshua Tree, whether begun in prehistoric times or not, would have occurred with little interference during the period of indirect contact. If Service is correct, we might expect the archeology of this period to reflect population stress (indicated by the use of unusual food resources, occupation of new and inhospitable areas, etc.); intergroup hostility (indicated by the presence of weapons and evidence of violent death, if burials are found); and organization of communities into distinct subareas representing particular groups.
Once the local population had been subject to direct contact, new methods of coping with Euro-Americans as features of the environment must have developed. Anthropologists are increasingly coming to regard acculturation as a complex of processes by which both acculturator and acculturated adapt to one another and to the acculturation condition itself; in terms of maintaining the social integrity or physical existence of both parties, some adaptations are more effective than others. Determining the dynamics of local acculturation would provide data useful for future comparative research. Such determination would require both documentary and archeological research. It will be necessary to seek evidence of Indian involvement with mines, ranches, and orchards, and to determine how, or if, the Indians integrated labor among Euro-Americans into their precontact seasonal rounds.

Evidence should be sought concerning the possibility that acculturation proceeded at different rates or in different ways among different segments of the community, among men versus women, old versus young, high-status versus low-status individuals, etc. Archeological evidence of such phenomena can be sought both in the distribution of Indian settlements representing different groups and time periods, vis-à-vis mines, ranches, etc., and in the distribution within individual sites of material acquired from Euro-Americans.

Rock art (petroglyphs and pictographs) might be studied with reference to the changes wrought by acculturation in the self-images of the Indians. What sorts of impacts did different sorts of media (i.e., mirrors, cowboy and Indian magazines, etc.) have on the local people? Did the Serrano and Chemehuevi begin to regard themselves as "Indians" once that identity had been applied to them? How might rock art reflect such changes?

Interaction and the Passing Frontier

As I have pointed out elsewhere (Hickman 1977), the passing of the frontier in the Joshua Tree region can be studied as an example of changing frontier conditions in general, in terms of intercommunity and interpersonal patterns of interaction. The passing of the frontier in the area was characterized by the rise and decline of many interaction loci, such as Twentynine Palms, Keys' Ranch, Old and New Dale, Ryan's
Ranch, Gold Park, Pinyon Well, and Cottonwood Springs, and of many residence and activity loci connected to such interaction nodes. The study of how patterns of interaction changed and of how those changes were perceived as population, capital, networks of roads, and concentrations of services shifted over the landscape can provide a basis for testing notions about the nature of frontiers and about the social concommitants of economic and community development. (For a more detailed discussion of the area's potential for such studies see Hickman 1977).

Mining and Miners

The execution of acculturation studies demands that we know more about whether Spanish or Mexicans were present in the area prior to the known period of Anglo-American mining operations. Clues to the presence of early miners or explorers might exist in written records, but systematic archeological survey will undoubtedly be necessary to identify early sites.

During the periods when mining was a dominant activity in the area, significant anthropological questions have to do with the relationships between the activities and organization of mining and the nature of local society. How did changes in mining technology, capital investments, and external conditions (such as World War I) affect the social milieu in which mining occurred? Although much information can be gained from documentary and oral sources, much will have to be obtained archeologically. The organization of mining camps and the accoutrements of life there can be revealed by archeological investigation; the results of such investigation can then be compared with other areas and between time periods. Archeology will also be needed in order to understand the kinds of technology that were applied to mining at various times. Willis Keys (1975, tape 4) has pointed out, for instance, that subsistence miners during the 1930s used crude mining techniques that had gone out of general fashion in about 1910; details of such adaptations and of their distribution among various mines and companies will have to be sought archeologically.

Cattlemen and Homesteaders

Research could be directed to the relationships between cattlemen
and homesteaders as they began to share the land and resources of the area. How were these relationships affected by environmental changes such as the cumulative drought conditions of the 1930s? What was the effect of external events, such as fluctuating markets, adjudication of water rights, passage of homestead acts, the formation of the national monument, etc.? Questions could also be asked about the development of the homestead-based community: How did homesteaders originally connect with the outside? What sorts of things did they bring with them, and what did they improvise? What sorts of strategies were developed to deal with desert, and how have these strategies changed with the development of better transportation, telephone service, electricity, etc.? In turn, how have these changes affected self-perceptions among local residents?

The most recent and current aspects of local community organization could also be fruitfully investigated. Twentynine Palms is obviously no "fun city" retirement center (Jacobs 1972), but it has attracted people concerned about their health and an undetermined number of retirees. How has Twentynine Palms dealt with the mobile age, and how does this community's adaptation compare with those of such newer communities as Joshua Tree and Yucca Valley? What sorts of internal divisions existed between veterans and nonveterans, both of World War I and of World War II? What are the ways in which different segments of the community respond to the presence of the marines?

Most of these questions are not amenable to archeological investigation and can be most successfully dealt with using documentary and (especially) oral sources. In some cases, however, archeology will be able to provide supplementary data.

Scavenging

Scavenging—the removal and recycling of materials from old sites for new uses—was a major characteristic of the area throughout its history until the later 1950s. Elsewhere I have suggested that the ways in which scavenged materials are used or not used, retained, maintained, and displayed may represent the scavenger's patterns of interaction and perception of himself with respect to his society (Hickman 1977). Archeological research at such locations as Keys' Ranch, where scavenged
material has accumulated, is necessary in order to reconstruct scaveng­
ing patterns and changing methods of use and display.

Moonshing and Outlawing

The presence of outlaws—rustlers, moonshiners, and others—in close proximity to the respectable elements of the community is a per­
sistent element of local lore. The relationships between outlaws and "respectable citizens" are worthy of exploration. Some documentary data are available, and people still alive (e.g., the Benitos and the Ma­
lones) recall interactions with the outlaw elements. Archeology could be of assistance in exploring such relationships by supplementing the data available from informants and documents with physical information from outlaw and moonshiner sites. Archeology could help reveal how outlaws provisioned themselves, with what areas they interacted, and so on.

Myth Formation

I pointed out in Part I how local people and events have been gradu­ually transformed into myth through the passage of time and the repeti­tion of stories. The body of local lore at Joshua Tree is sufficiently rich and has developed within a short enough time in the presence of a sufficiently large body of documentary data to permit the systematic study of myth formation. What sorts of consistencies and inconsistен­cies have accompanied the transformation of Chuckawalla Wilson, Bill McHaney, Johnny Lang, Bill Keys, and Elizabeth Campbell into folk fig­ures? Although most of the data useful to the study of such a topic would come from oral and documentary sources, archeology could supplement these data by assisting in the definition of the nonmythic lifeways of the mythified characters. Moreover, as I have pointed out elsewhere, archeology may help define how the self-image of mythified individuals change in response to their mythification, by providing data on how such individuals organized their lifespaces (Hickman 1977).

Such research questions may be addressed at Joshua Tree National Monument if a sufficient body of archeological, historical, and oral-historical data is preserved to make such research fruitful. Although this overview is not directly oriented to cultural resource management
needs in the monument, it is appropriate to offer here certain basic recommendations for actions that would help insure retention of such a body of data.
Chapter 9
RECOMMENDATIONS

Reconnaissance

As in the case with prehistoric archeology (see T. F. King 1975), the needs of historic research eventually will require a full survey and inventory of all sites representing the historic period. The kind of predictive reconnaissance recommended by King as a first step toward full survey also would serve the needs of historic archeology. King (1975) has suggested that:

A rational approach to the archeological survey of the monument, then, would be to begin with an intensive study of all land surfaces lying along roads and trails—both established and abandoned. This survey should be tied into the BLM's Desert Study remote sensing program; aerial photos should be obtained of the monument, and used to (a) identify roads, including those long abandoned, and (b) identify topographic features and environmental zones to be sampled. Any geographic areas or landscape types that are consistently not sampled by following roads and trails should be specially sampled. Special attention should be given to the high, rocky areas, which have been essentially ignored by archeologists since Campbell's day, and which are probably regularly entered by intrepid visitors.

This strategy would introduce certain biases into the inventory of historic properties. It would result, for example, in the recording of virtually all ranch headquarters and major mines, but of only an unknown percentage of temporary camps, prospect sites, stills, etc. These variations can be allowed for in the interpretation of survey results, however.

Study of Particular Sites

Certain key sites, already known, could provide important data to guide future research and/or need further study to determine their potential. Specifically:

1. Twentynine Palms Oasis obviously is a very important site in terms of Indian-Anglo acculturation, but it has been so modified by modern activities that it is impossible to say what kinds of data may remain. Test excavations are needed (a) to sample the locations of structures and activity areas indicated
on the 1909 Cook map (figure 6), (b) to determine whether the site is stratified--vertically or horizontally--in such a way as to make it possible to sort out the archeological evidence of the different periods of acculturation, and (c) to seek evidence of the occupation of different parts of the oasis by different immigrant groups during the earliest acculturative period.

2. Keys' Ranch (Hickman 1977) is of great potential anthropological significance as a reflection of the processes of community nucleation, but detailed study is needed to define the character of the data it contains (Hickman 1977 for detailed recommendations).

3. Ryan's Ranch is an important resource for comparative study and needs some preliminary investigation to define its potential.

4. Mining and mill sites are one of the dominant forms of cultural resources at the monument. To my knowledge, no one has studied such sites archeologically to see what sorts of data are contained in different types of mining sites. In the monument, there are many mines near roads that are considered to be hazardous to public safety by monument staff. King and I visited one of these mines (Gold Point) in the summer of 1975. Besides the open shaft, the area below the mine was littered with trash of various sorts. We were able to locate occupation areas in the form of tent foundations or the loci of temporary cabins. These areas were also covered with cultural debris. It should be possible to design a reconnaissance program that would systematically record kinds of surface materials present at these mines near roads. This information would be useful in structuring further research on specific mining sites.

A survey of the mines on the "hazardous mines list" would also be useful to the monument staff, particularly if it resulted in suggestions about how impacts on these sites could be avoided or minimized. Plans are being developed to fill in these dangerous open shafts. If these plans are carried forward, arrangements should be made to minimize adverse effects on the archeological significance of the sites; bulldozers
should not be routed over occupation areas or surface work locations, and reasonable attempts should be made to determine whether the shafts themselves contain material or characteristics of archeological importance.

Oral History
One significant advantage to conducting historical research in the Joshua Tree area is that many of the major social and land use changes that might constitute fruitful research topics have occurred recently enough that people still alive can provide valuable data about them. The oral history programs now being conducted both by the monument staff and by the public library at Twentynine Palms are of great importance, therefore, and deserve to be expanded and systematized.

At present there is some conflict between the approaches taken by recorders for the monument and those of the library staff, and some resentment and confusion on the part of informants is resulting. This problem could be alleviated through greater and more systematic coordination of the two efforts. It is also important that decisions be made about what kinds of information are desired and that these decisions guide the work of both sets of recorders. It is hoped that this overview will provide some assistance in the making of those decisions.

Finally, professional training in elicitation and recording techniques for those conducting interviews would be helpful, and great care should be taken in editing and storing the tapes collected. At the time of our visits to the monument some tapes could not be located, and others had been edited in such a way as to seriously impair their value.

Document Acquisition
The efforts of the monument and of the public library should be coordinated in the acquisition and curation of documents. Maps, photos, diaries, letters, and such unselfconscious records as receipts, cancelled checks, logbooks, and grocery lists should all be sought, acquired, and carefully stored in an orderly and organized fashion. Special efforts should be made to contact people, or descendents of people, involved in the major economic and social activities discussed in this overview before this data is lost.
Summary

Joshua Tree National Monument and environs have been the setting for a sequence of economic, technological, and social events that typify the coming and passing of the American frontier and the development of modern American patterns of land use and social relations. These events have occurred recently enough that they are still richly represented in the memories of local people and in surviving documents of many kinds. They also have left a substantial archeological record in and on the ground. The research potential of the area merits systematic interdisciplinary study, as well as an organized effort by both the monument and local agencies to protect the physical, documentary, and remembered records of local history.
Appendix A
REVIEW OF ARCHEOLOGICAL FIELDWORK

Campbell, E. W. C.  
1931: "An Archaeological Survey of the Twentynine Palms Region."

Campbell noted the possibility of relatively recent seismic activity in the monument, as she consistently found painted pottery but not plainware in caves with loosened ceilings (1931, p. 90). Campbell's comments on possible archeological evidence of earthquakes in the monument are interesting for historic, as well as for prehistoric periods. James (1906, p. 477) said that a lake in Mission Creek Valley was destroyed by an earthquake sometime after the Indians had been taught horticulture by Spanish missionaries. Another (or the same?) earthquake in 1812 was reported by Bean (1972) and others.

Johnston, F. J. and P. H. Johnston  

The Johnstons described a system of trails connecting the Colorado River area near Blythe with the San Gorgonio Pass via the northern Coachella Valley. A branch of this system led to Thousand Palms Oasis and into the interior of Joshua Tree National Monument. Barrows thought that the Thousand Palms area was a meeting place for Serrano and Cahuilla. In 1935, P. Wilhelm was visited at Thousand Palms by Indians from Mission Creek Reservation. Spanish explorers of the early nineteenth century may have come close to the southern boundary of the monument while searching for this trail system.

Wallace, W. J. and E. S. Taylor  

Wallace and Taylor were looking for sites occupied by Indians (1959, p. 4). Although they say that little is known about the early history of the area and of Indian-white contact, they are of the opinion that "the country and its Indian inhabitants were, until quite late in the nineteenth century, relatively untouched by Western civilization" (1959, p. 4). Artifacts made by non-Indians were reported from 3 of the
23 prehistoric sites recorded. Porcelain chips, a square nail, a buckle and a textile scrap were found at J.T.-16. An "old-type" lard can came from J.R.-15, and an "early-type" metal bucket from J.T.-17. It is not clear what "old" or "early" mean in this context. A kerosene can modified into a bucket was found at J.T.-15, and a short-handled shovel had been "cached" at J.T.-16. The authors noted modifications of the artifacts and recorded manufacturers' marks if present (1959, p. 14). The four largest artifacts were illustrated in a single photograph.

It is impossible to say whether Taylor and Wallace would have reported these artifacts had they not been found in association with Indian sites. Comments on historic material are directed toward the possibility of Indian use:

Metal containers of this sort replaced pottery vessels of native manufacture soon after the Indians came into contact with Whites. They were easily obtainable around White settlements and were less fragile than their pottery (1959, p. 14).

And:

There is no way of telling whether the shovel was used by Indians or Caucasians (1959, p. 14).

Wallace, W. J. (with R. Desautels and G. Kritzman) 1959: "An Excavation at the Squaw Tank (JT-1) Site, Joshua Tree National Monument, California."

Fifty-seven "articles of Caucasian manufacture" were found. These articles were classified in some cases by function (for example, "tin pouring spout") and in other cases by material alone (for example, "cast iron fragment") (1959, p. 12). Depth distribution was plotted by 6-inch intervals, and most material came from the uppermost level. The only comment on this collection was that although the area had been disturbed considerably by pothunters, campers, rodents, and so forth, "it is quite possible, however, that a few of the objects were used by Indians" (1959, p. 12). Someone apparently had tried to flake a piece of broken glass into a projectile point. The authors also noted that a knife blade was of an "old type frequently used by the Indians" and that a .41 caliber cartridge case and "several other articles date back some years and could be 'contact goods'" (1959, p. 13). Since none of these artifacts are illustrated, it is not possible to see what sort of knife was "frequently" used by the Indians" and the "several other articles" are not identified.
Wallace, W. J.
1964: "An Archeological Reconnaissance in Joshua Tree National Monument."

In this report on the Sheep Pass districts in the monument, Wallace reported finding a "variety of commercially manufactured objects ... at several sites." He does not state what he found or where he found it. We are told that none of the objects appear to date prior to 1880 to 1890, and thus "it seems dubious that they represent 'contact' or 'trade' items used by Indians. Rather they appear to be discards from nearby prospectors' camps" (1964, pp. 97-98).

Kritzman, G.

Kritzman's bias toward Indian sites has already been noted. He noted the absence of contact items and seemed to think that the presence or absence of such items would indicate whether Indian Cove had been occupied by Indians in historic times (1967, p. 39). Kritzman noted a cement/rock cistern (important in cattle ranching) at site JTM-IC-2, and went so far as to describe a rock circle as "the site," even though it might have been of "Caucasian origin" (1967, p. 43).

O'Neil, D.
1968: "An Archaeological Reconnaissance of the Barker Dam Region, Joshua Tree National Monument."

O'Neil found five non-Indian artifacts and described and illustrated them all. BD-8 contains petroglyphs modified by painting. McCarthy thinks the original petroglyphs were elaborated by filmmakers in the 1920s. Some isolated petroglyphs at this site are wearing "skirts," a phenomenon not unknown from pictographs in the vicinity, but one not authenticated for petroglyphs; McCarthy believes that these, too, may have been created or modified by the filmmakers (D. McCarthy 1974: personal communication; King 1975: Appendix I). It is doubtful, therefore, whether the skirted petroglyphs indicate postcontact influences on Indians of the monument. I found no concrete evidence that a film was made near Barker Dam in the 1920s, but this is a likely guess-date, since had such a film been made after the monument was established...
(as several were), some record of its occurrence and of shooting activities that might justify modern pictography probably would be found. I found no such record in the National Archives or elsewhere.

Jefferson, G.
1973: "Twelve Small Archeological Clearance Surveys." (Pertinent sites are Keys' Ranch and Oasis of Mara.)

Jefferson's reports describe brief surveys of areas selected for proposed development. The sort of proposed development at Keys' Ranch was not specified. Jefferson, standing in the midst of the most complex and extensive historic site in the region—a site covered with thousands of surface artifacts—mentions only a group of metates stored by the ranch house and two crates of brownware pottery sherds. As far as he is concerned, "no archeological materials were discovered on the specific site to be developed." Historic occupation at the Oasis of Mara also was ignored. Keys' Ranch and the Oasis of Mara were two of the most important loci of interaction in historic times.

Anderson, K.

In the fall of 1973 Anderson surveyed Keys' Ranch, the Oasis of Mara, and Fortynine Palms Oasis. Anderson's perception of Keys' Ranch as "an outstanding resource of historic artifacts of the early 1900s and mining technology" is the first indication of interest by an archeologist in a historic site sui generis. Anderson was concerned that the material at Keys' Ranch be protected and made recommendations to that effect. Anderson also noted historical features at the Oasis of Mara and documented them on a map.
Appendix B

EXCERPTS FROM THE DIARY OF THE ROMERO-ESTRUDILLO EXPEDITION OF 1823-24

Dos Palmas

The situation of the place in which we have halted is that of two swamps, the distance between one and another being about a half a league, surrounded by tules, and a little bit of pasture, bush and alkali. With hoes which I brought from the Rancho of San Bernardino, it has been necessary to make ditches, letting the animals drink. (Jan. 2, 1824, quoted in Bean and Mason 1962, p. 39)

Salt Creek Canyon

... At 10:00 in the morning we took our leave enroute north, going around the swamp to take the pass and opening of the canyon of the sierra in which the one of San Gabriel ends, in order to skirt it. All of the land is alkaline and has pools of alkaline water, with Matorral, and scattered with pumice-stone. This ended at 12:30, after traveling three leagues, and we entered the opening of the canyon, following the same northern route until 5:00 in the afternoon. We then took a northeast route, now obscured by very rocky mesas, and several canyons which we crossed with plenty of trouble, until 9:00 when we halted in one of them, without water, wood, or pasture. For this reason it was given the name of Vale of Tears. Distance since entering eight leagues; and since the departure: (leagues 11). ... We have noticed, since entering the canyon, several paths and trails of the Indians, on foot and on horseback, some from east to west, and others from north to south; with others which go to the mountains, some with fresh tracks a few days old, and the bones of horses which they have eaten. (Jan. 5, 1824, quoted in Bean and Mason 1962, p. 40)

San Pascual

Tuesday. We left at 7:45 in the morning, enroute east through the same rocks, canyons, and rocky mesas as the trail of the night before, doing so today with much work and delay. At 12:50 we went north for four leagues. At 2:30 in the afternoon we again went east for two leagues, and at 5:00 we halted at the entrance of a canyon which went north. At the entrance we found a little well made by hand, with very little water for the men, which we called San Pascual. Distance this day: (leagues 8). Three tired horses have been left on the trail and a mule belonging to the troops. The plants that grow in the soil at the entrance of the canyon are Palo Adan, Palo Fierro (Olneya tesota), Una de gato (Acacia greggii), Choyas (Opuntia bigelovii), Gobernadora (Sarreya divaricata), Mesquitillo (Prosopis pubescens), Tuna (Opuntia tuna), and some clumps of yerba de venado ("deer weed"), on the edges of the arroyos.
At the well of San Pascual we found signs of basketmaking by the Indian women on several occasions, bones of horses and pieces of ollas. There are also several bones on the trail traveled today. Today at 11:00 in the morning, from the mesa, we began to pick out a great distance landmarks which must be in Sonora. All are content, judging the river to be near. (Jan. 6, 1924, quoted in Bean and Mason 1962, p. 41; botanical names, p. 102).

Unnamed camp, presumably near the monument

Wednesday. At 8:30 in the morning we went east through the same canyon which forms the dry arroyo, very rocky for one and one-quarter leagues, in which we took a northern route through dry arroyos, and several very rocky mesas, which the guide Salvador said were necessary to go through in order to go around several hills which were to the east, in sight of the great plain. At 5:00 in the afternoon we arrived at a very long portal on the same route north, very rocky and with only an Indian footpath, having left several horse-paths and foot-paths behind. We found that we were mistaken in our choice, and that the path we should have taken was above. The guide Salvador, who as I have said introduced himself in San Bernardino, began to waiver, and perhaps this was from maliciousness; and that some soldiers said they knew the sierra madre to the west at some distance to be the same one to which Lieutenant Moraga arrived in search of the Mohaves and had to return. The Sonorans, from the configuration of the sierra seen to the east, said we were close to them and to the Apaches called Tontos, friends of the Mohaves for which reasons and because the guide Salvador had declared or confessed to the Sergeant and others who accompanied him while guiding, that he did not know where he was, and that he had gone on only to find the river, we went back from the pass one league to situate ourselves in sight of and at the entrance of another to the east. Distance today: (leagues 12).

Since the Sergeant and some of the troops suspected Salvador of having malice and contact with the gentiles, I ordered both him and his companion Celestino to be secured. Having consulted with Captain Romero at 8:00 at night, concerning the condition in which we found ourselves, and upon what we must do, the two of us agreed that it was necessary to climb the pass to the east which we had in sight, following the trail it has on horseback, whose tracks we had seen from east to west, and from west to east, although some are days old, believing that we could soon come upon the Colorado River.

At 11:00 that night the entire troop presented itself to Captain Romero and had him take note of the state that they were in, the losses they had sustained on the trip thus far, and in case we did find the river the next day or the day after, I had to return with my troops. They (the Sonorans) being left alone, and not being more than 11 men were to expose themselves to be victims, whether from want in traveling through unknown lands, or from the gentiles. They wished to return to the point of departure, to make the return
trip on a known trail with the trips of Don Pablo de la Portilla. Having communicated this to me, as well as the condition of the horses who had not had water for three days, nor eaten except for dry branches which they found, it was judged impossible to continue. We resolved to return to where we had come from, and in order to do so, and to revive the pack-mules, Romero at once distributed a box of crockery, two jugs of oil, and other heavy items to those who wished to carry them, leaving only the clothing, and the troops with their provisions, which are now low. (Jan. 7, 1824, quoted in Bean and Mason 1962, pp. 42-43)

If San Pascual was near what is now called Palen Pass, the party could have been skirting the Palen and McCoy mountains to the east of the mountain (figure 4). It is possible that the Indian guide was searching for a well marked trail described by Johnston and Johnston as a section of Riv-53T (1957, p. 23). According to the Johnstons, a trail moves westward from the Colorado River through a natural pass in the Big Maria Mountains and then disappears. It is observable again east of the McCoy Mountains. In the McCoys it runs through a small pass at the southern base of the mountains to the west. It then runs north within the McCoys to McCoy Springs (Johnston and Johnston 1957, p. 23).
Upon no part of the Mohave River were there any traces of cultivation, although where it enters the valleys between ranges and widens its bed it is capable of producing fine growths; and as it occasionally rises and falls in its bed, dependent upon rains or snowmelt in the San Bernardino Mountains, irrigation might be adopted with success. The Indians travel along these trails and live in the mountains, 60 miles down the Mohave are the Cucomphers, not speaking the same tongue as the Mohaves or Pay-utes, nor apparently so advanced in civilization—lizards, rabbits, and roots constituting their main fare.

Upon the portion of the plain near the Colorado the Chemihuevas have cultivated their grounds. The Mohave Indians are on the opposite banks of the river, and occasionally these latter travel south along this plain to make incursions upon the peaceful Maricopas. (Antisell 1857, pp. 104-105)

This water (from the Mohave River) and all the other drainage probably finds its way by underground channels into the Gulf of California, of which estuary the Great Basin was apparently at one time the northern continuation. The drainage has perhaps been disturbed by the eruption of the numerous mountain ranges, and the dry climate and sandy soil, the result of interposition of high mountain ranges between this tract and the moist currents from the sea, have not favored the formation of long and continuous river channels. Agriculturally, this basin will not probably be valuable within our day. Although there are many patches of good soil, requiring nothing but water to make them productive, and although, in the mountain valleys, as for instance, on Paiute Creek and elsewhere, we find good grass, and small tracts of rich soil, where the Indians have cultivated wheat and corn; yet as long as so much good land is to be found on both sides of the basin, equally accessible, this forbidding region will not probably be sought during our generation by any but miners, the richest gold, silver and copper veins being found abundantly in these desert mountains. (Palmer 1869, pp. 131-132)

From Chukawalla Peak northward to the Mohave River extend a series of low mountain ranges and shallow valleys, almost destitute of
vegetation and water. It is a dangerous undertaking to cross this stretch in summertime, and several parties who attempted to pass from San Bernardino in a direct easterly line to the Colorado have never been heard from. Two years ago an enterprising man, intending to establish a short road to Arizona from that town, succeeded in crossing with a wagon provided with sufficient water for himself and animals. (Wheeler 1876, p. 219)
REFERENCES

Ainsworth, E.
1955 Five Acres of Heaven. Col. E. B. Moore, Publisher, Joshua Tree, CA.

Anderson, K.
1973 "Trip Report: Joshua Tree National Monument, November 26, 1973." Manuscript on file at Western Archeological Center, Tucson, AZ.

Antisell, T.

Archer, L.

Armed Services Press

Bagley, F. and H. Bagley
1968 Taped interview with Mr. and Mrs. Bagley re the early history of Twentynine Palms. On file at Joshua Tree National Monument Library.

Barrows, D. P.

Bean, L. J.

Bean, L. and W. Mason

Beattie, G. W.
1933 "Reopening the Anza Road," Pacific Historical Review, March: pp. 52-71.

Belden, B.
1959 Series of articles in San Bernardino Sun-Telegram:
#20: "Cattlemen, Mine Operators Give Way to Tourists"
#21: "Mine Camps of Yesterday Dot Monument Area"
#31: "$100 Ore from Dale Noted by Mint's Director"
#32: "Valley Leaders are Owners of Brooklyn Group"
#44: "Early Miners Trod Risky Trails"
Belden, B. (cont.)
1959 #45: "Desert's Wealth Based on Cattle and Climate"
#46: "Civilization in Desert Conquest; Monument Comes"

Benito, C. and M. Benito
1974 Taped interview with Mr. and Mrs. Benito by Cheryl Erickson. On file at Twentynine Palms Branch of San Bernardino County Public Library.

Brown, J. S.

Brown, J. and J. Boyd
1923 History of San Bernardino and Riverside Counties, (3 Vol.). Western Historical Association, San Bernardino, CA.

Brown, M. A.

Bunker Land Company
1945 "1945 vs. 1946." Advertisement in Joshua Journal, December 27, Joshua Tree, CA.

Bureau of Indian Affairs, Central Classified Files
1913 Letters from several employees of BIA to BIA Commissioner, re need for better markets for produce of Indians of Malki Reservation. Document No. 120-961-2.

California Mining Journal

Campbell, E. R. C.
1961 The Desert was Home. Westernlore Press, Los Angeles.

Chase, J. S.

Clark, N. M.
1955 "Bargain Home on the Range." The Saturday Evening Post, 10 December.
Cole, J.  
1938  "Report on Field Inspection Trip by Superintendent Lawrence, C. Merriam, and In-Park Naturalist James Cole of Joshua Tree National Monument, April 14 and 15, 1938." National Park Service, Central Classified Files, Box 2260, Joshua Tree National Monument.

Cook, F.  

Cook, M. L.  
1909  Plat of the Survey of the Twentynine Palms Indian Reservation.

Dale, E. E.  

Delamare, H. E.  
1912  "The Desert Lands of California," Travel, October.

Desert Spotlight  
1946  "Yucca Village" Advertisement, Desert Spotlight, April.

Desert Trail  

Dunlap et al.  

Edwards, E. I.  

Egerton, K.  

Euler, R.  

Evans, C.  
1965  A Glimpse into the History of Yucca Valley, Morongo Valley, Palm Wells, and Yucca Mesa, California. Artcraft Print Shop, Yucca Valley, CA.

Flying Condor  
Fridley, J.  

Gardener, R.  

Gray, C.  

Guthrey, S. E.  

Hall, H.  

Heizer, R. F. and M. A. Whipple  

Henderson, R.  

Hickman, P. P.  

Hilton, J.  

Historic Preservation Team  
1975 "Keys' Desert Queen Ranch, Joshua Tree National Monument." Manuscript on file at National Park Service, Western Regional Office, and Joshua Tree National Monument.

Holmes, E. W. et al.  
1912 *History of Riverside County, California, with Biographical Sketches of the Leading Men and Women of the County who have been Identified with its Growth and Development from the Early Days to the Present*. Historic Record Company, Los Angeles.
Ingersoll, L.
1904  Ingersoll's Century Annals: San Bernardino County 1769-1904. Ingersoll, Los Angeles.

Jackson, H. H.

Jacobs, J.

James, G. W.

Jefferson, G.

Johnston, F.
1975  Personal communication to T. King re early history of Joshua Tree.

Johnston, F. J. and P. H. Johnston

Johnston, P.

Jones, H. W.

Joshua Tree National Monument

Kelly, I.

Keys, F.
Keys, F. (cont.)

Keys, G.

Keys, Wm.
1966a Taped interview with William Keys by Joshua Tree National Monument staff. On file at Joshua Tree National Monument.
1966b Taped interview with William Keys by Joshua Tree National Monument staff. On file at Joshua Tree National Monument.

Keys, Ws.
1975 Taped interview with Willis Keys by Don Black and Reino Clark. Six sides of three cassettes; tapes referred to in text by number of side. On file at Joshua Tree National Monument.

King, S.

King, T. F.
1975 Fifty Years of Archeology in the California Desert: An Archeological Overview of Joshua Tree National Monument, Western Archeological Center, Tucson.

Kritzman, G.
1967 "An Archeological Reconnaissance of the Indian Cave Area, Joshua Tree National Monument." Manuscript on file at Western Archeological Center, Tucson.

Kroeber, A. L.

Lantis, D. W.


McCarthy, D. 1975 Personal communication to T. F. King re petroglyphs at BD-8.

McClure 1955 "High Desert's 'Hub' is Twentynine Palms." San Bernardino Sun-Telegram, 16 October.


Miller, R. 1968 Mines of the High Desert. La Siesta Press, Glendale, CA.


Moore, J. A.
1972 A Day at Cottonwood Springs. Joshua Tree Natural History Association, Twentynine Palms.

Morgan, B.
1971 "High Grading at the Desert Queen." Manuscript on file at Joshua Tree National Monument Library.

National Park Service, Central Classified Files
n.d. Joshua Tree National Monument files:
2. File 0.35-207, Box 2260. Collection of documents re land development and promotion in Twentynine Palms.
3. File 0.35-207, Box 2259. Collection of documents re land development in Twentynine Palms and Yucca Valley.

Nelson, S.

O'Neal, L.

O'Neil, D.
1968 "An Archeological Reconnaissance of the Barker Dam Region, Joshua Tree National Monument." Manuscript on file at Western Archeological Center, Tucson.

Palmer, W. J.
1869 Report of Surveys Across the Continent in 1867-1868 on the Continent in 1867-1868 on the Thirty-fifth and Thirty-second Parallels for a Route Extending the Kansas Pacific Railway to the Pacific Ocean at San Francisco and San Diego. W. B. Schelheimer, Philadelphia.

Paxton, J.

Perkins, M.

Pinkham, C.

Rogers, F. J.
Russell, M.
n.d. "Early Days of Twentynine Palms." Published article found in Perkins Papers, not referenced as to source or date.

San Bernardino Sun-Telegram

Schenck, W. E. and F. Givens

Security First National Bank

Seeley, B.
1975 Taped interview with B. Seeley by Cheryl Erickson and Harold Wright. On file at Twentynine Palms Branch, San Bernardino County Public Library.

Service, E. R.

Shinn, G. H.

Spell, H.

Stanley, J. G.

State Minerologist
1890 Report of the California State Minerologist. Office of the State Minerologist, Sacramento.
1892 Report of the California State Minerologist. Office of the State Minerologist, Sacramento.
State Minerologist (cont.)
1896 Report of the California State Minerologist. Office of the
State Minerologist, Sacramento.
1936 Report of the California State Minerologist. Office of the
State Minerologist, Sacramento.

Steadman, M. B.

Steward, J. H.

Strong, W. D.
1929 "Aboriginal Society in Southern California." University of
California Publications in American Archaeology and Ethnology,

Taylor, F.
16-17.

Thompson, D. C.
1921 "Routes to Desert Watering Places in the Mohave Desert Re-

gion, California." U.S.G.S. Water Supply Paper No. 490-B.

Thompson, P.
1937 February 24 letter to Director, National Park Service, re
status of mining operations. National Park Service, Central
Classified Files, Box 2259.

Trigg, M. van Tuyl
1945 "Twentynine Palms: Homesteading in the Desert," Atlantic
Monthly, March and May.

True, C.
1909 "The Willie Boy Case and Attendant Circumstances." Letter
from Clara D. True, Superintendent of Mission Indians, to
Commissioner of Indian Affairs, October 20. Published with
notes by H. Lawton: in Journal of California Anthropology

1942 May 2 letter to Maude Russell, in "The Yesterdays of Twenty-
ine Palms," by M. Russell. Manuscript on file at Joshua
Tree National Monument.

Twentynine Palms Library
n.d. Folders on local history, containing newspaper and magazine
clippings, photographs, etc. On file at Twentynine Palms
Branch, San Bernardino County Public Library.

Vansina, J.
Vroman, H.
1953 "Lost Horse and Found Gold," Calico Print, November.

Walker, E. F.

Wallace, W. J.

Wallace, W. J. (with R. Desautels and G. Kritzman)
1959 "An Excavation at the Squaw Tank (JT-1) Site, Joshua Tree National Monument, California." Manuscript on file at Western Archeological Center, Tucson.

Wallace, W. J. and E. S. Taylor

Wanrow, E.

Weight, L.


1975 Untitled article, Desert Trails, 24 April.

Wheeler, G. M.

White, C.

Wilheim, A.
Wilhelm, P.

Williamson, R. S.

Woon, B.
The Western Archeological Center regularly prepares reports on the archeology and ethnography of various parks, monuments, and Indian reservations in Arizona and California. For a list of titles available, write to:

Chief
Western Archeological Center
National Park Service
P. O. Box 41058
Tucson, AZ 85717