Chace 1980+52
Jacumba Quad.
485 acres

A Cultural Resources Assessment of Jacumba

Paul G. Chace & Associates

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A CULTURAL RESOURCES ASSESSMENT OF JACUMBA, SAN DIEGO COUNTY

Prepared for:

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EXECUTIVE SUMMARY

A survey of cultural resources on the 485 acres of the Jojoba Limited and Jacumba Associates properties in and around the community of Jacumba was undertaken by Paul G. Chace & Associates. A total of 26 historical sites and 14 archaeological sites were identified, and site specific evaluations are made for each resource.

The project under consideration is an amendment to the County's General Plan to allow increased residential density and rezoning for mobile home parks. At the specific land use plan stage, measures are available to mitigate any potential adverse impacts. A well designed specific land use plan on the scale of the project area would have large open space areas in which sensitive cultural resources might be preserved or enhanced.

Therefore, it is proposed that the proposed amendment to the General Plan is acceptable with respect to the cultural resources present.

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CHAPTER I
INTRODUCTION

This report has been prepared for Jojoba Limited and for Jacumba Associates. Under their authorization of 5 June 1980, Paul G. Chace & Associates undertook an archaeological survey to locate and assess the cultural resources contained on approximately 485 acres of land in and around the community of Jacumba in southeastern San Diego County.

This report describes the archaeological survey conducted, describes the cultural resources located on the property, discusses their significance, and proposes appropriate measures for mitigating any adverse impacts on those resources.

This report follows the procedures for archaeological impact evaluation recommended by the Society for California Archaeology (King, Moratto, and Leonard 1976), as required under the California Environmental Quality Act of 1970. This survey also complies with the Federal guidelines (36 CFR 60 and 36 CFR 800) to conform with the National Historic Preservation Act of 1966 (P.L. 91-190; 42 U.S.C. 4321-4327).

The project was directed and this report was edited by Paul G. Chace, a member of the Society of Professional Archaeologists. Janet Hightower and Don Laylander, along with Paul Chace as Principal Archaeologist, served as Field Crew Supervisors. Orton Knutson, Andrea Rock and Thomas Thurber, all experienced archaeological surveyors, assisted with the field reconnaissance. David C. Burkenroad, Historian (M.A.), authored the chapter on the history of the project area. Janet Hightower and Don Laylander drafted portions of the report. The field photographs were printed by Merrilee Hall and the graphics were prepared by Janet Hightower and Andrea Rock.

CHAPTER II
PROJECT LOCATION AND ENVIRONMENTAL SETTING

Location

The unincorporated community of Jacumba is located in southeastern San Diego County, about one-half mile north of the United States-Mexico boundary and about five miles west of the San Diego County-Imperial County boundary. The general location of Jacumba is shown in Figure 1.

The Jojoba Limited and Jacumba Associates properties are located in and surrounding the community of Jacumba. Fenced fields, roads, or developed business or residential lots delimit most of the boundaries of the project area. Where boundaries are not visibly marked on the ground, they can be inferred from orienting topographic or cultural features. The specific boundaries of the project area are shown in Figure 2.

Geography

The Community of Jacumba lies on the western edge of the wide Jacumba Valley, as shown in Figure 3. The area is an alluvially filled upland valley within the mountains of the Peninsular Range. Boundary Creek wash, an intermittent watercourse which drains a large area, flows onto the valley floor from the west. The valley floor drains northward, and feeds into Carrizo Creek which flows into the Salton Basin. The narrow northern end of the valley drainage area must form a natural dyke across the basin which has trapped and accumulated the valley alluvium and which provided a high water table and historically reported marshy environment in the valley floor.

Jacumba Hot Springs, located at the westernmost edge of the valley where the hills intersect the alluviated valley floor, is a perennial

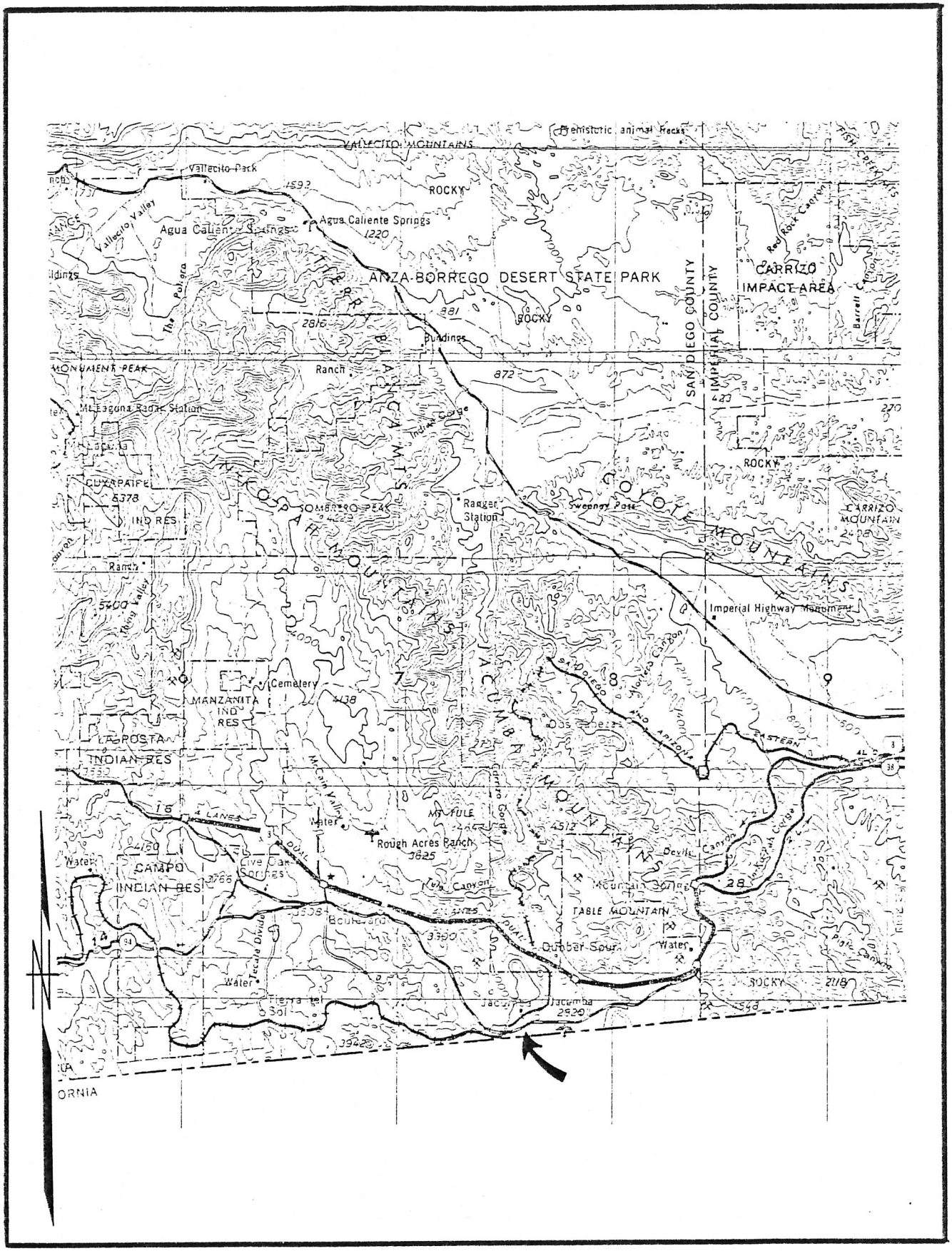

Figure 1. General location of Jacumba, shown on the U.S.G.S. San Diego 1:250,000 map. Scale 1" = 4 miles.

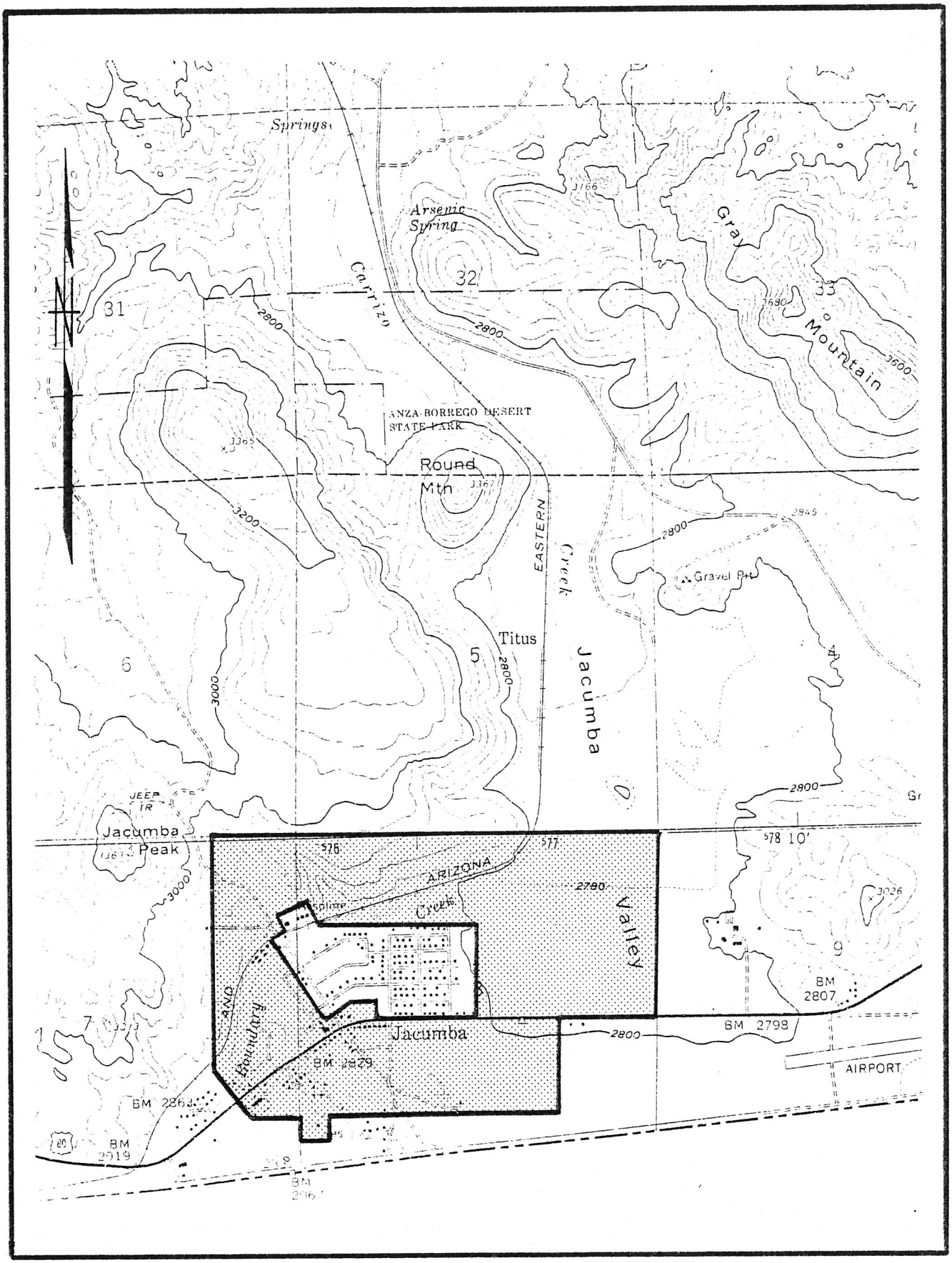

Figure 2. Boundaries of the Jacumba project area (shaded) on the U.S.G.S. Jacumba Quad map, 1957 edition. Scale 1" = 2000'.

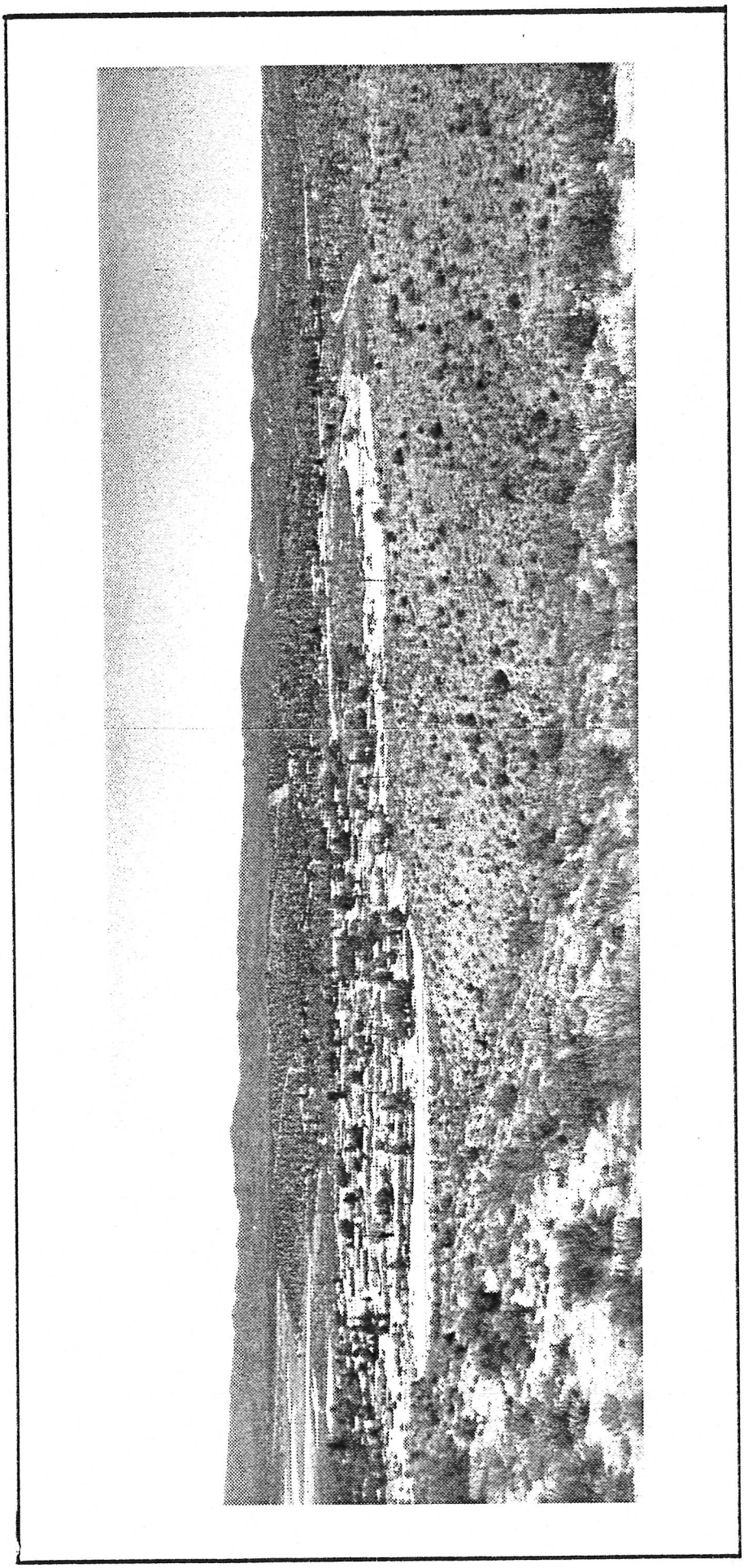

Figure 3. General overview of the community of Jacumba from the hills on the north side of town, looking south.

water source locally and the principal modern water supply for the community. The springs emerge over a line of geologic distortions mapped as a geologic fault which extends southward across the international boundary.

Geology

The predominant rock type of the general region is the Lakeview Mountain tonalite, a granitic formation composing part of the Mesozoic-age Southern California Batholith. Other rocks make up the immediate geological setting of the project area, however. In the flat portions of the valley, a deep Quaternary alluvium is present. On the western margin of the valley, granitic and metamorphic rocks of the Vitrefrax Formation, pre-Cenozoic and perhaps predating the batholith, are exposed. In and around the valley are many outcrops of andesitic volcanic rocks of Miocene age. Granitic rocks made suitable surfaces for aboriginal grinding of plant foods, while the volcanics and quartz outcrops provided material well suited to the manufacture of flaked tools.

Soils

Eight soils have been mapped for the project area, ranging from rock and stony land through gravels and sands to fine sandy and silty loams. The majority of the soils are alluvial in origin, derived from granitic material. Soils in the hilly areas to the west are generally coarsest, while the deeply alluviated valley to the east contains the loams. Many of the natural soils are light in color, facilitating the recognition of any darkly stained archaeological midden deposits which might be present.

Biota

The natural biotic communities over the valley have been disrupted by cultivation and development. In the fields and pastures of the valley floor, foxtails and grasses are the predominate growth. Domestic wheat regrowing from plantings several years ago are present in the southernmost field. Historically, the valley is reported to have been rather marshy, although the modern water table is obviously lower and the surface appears dry now.

The uncultivated hillslopes on the western side of the project properties support a sparse Juniper Woodland Community intermixed with the low, widely spaced plants of the Desert Scrub Community, the dominant plant community evident in Figure 3. Juniper, yucca, sage, buckbush, buckwheat, Mormon tea, and cholla are all present.

A very large Smoke Tree grows just below the natural spring, and is illustrated in Figure 4. Although the spring and its immediate drainage are now greatly modified and developed, they undoubtedly supported a distinctive, localized biotic community.

Historic Land Use

The area of Jacumba has been much altered by historic modifications. Aboriginal agriculture has been reported in the valley and below the springs. Late in the last century the region was forcefully resettled by Anglo-American frontier ranchers and farmers. The adobe house built about 1882 by pioneer Peter Larkin still stands just below the springs, where it is shaded by a large Smoke Tree. It is illustrated

in Figure 4. Most of the current town was developed in the 1920s as a resort spa centered around the Hotel Vaughn, shown in Figure 5. The community was on the then newly constructed line of the San Diego and Arizona Eastern Railroad. The railroad center is located on the northwestern edge of the community and is pictured in Figure 6. There has been very little change or development of the area in recent decades, and there has been little modern construction except for the fire station illustrated in Figure 6a.

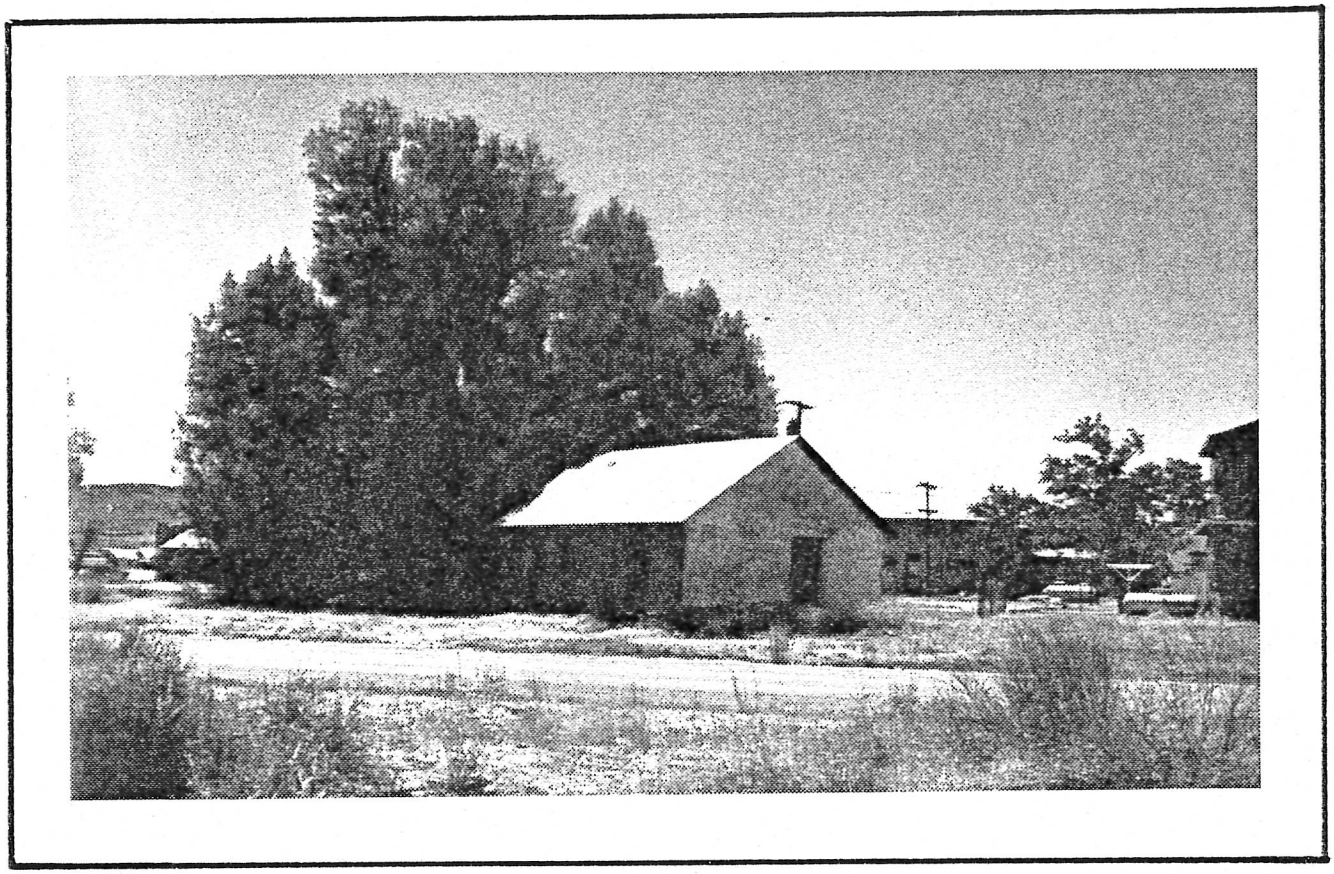

Figure 4. The adobe house of pioneer Peter Larkin, just below the springs, looking southeast.

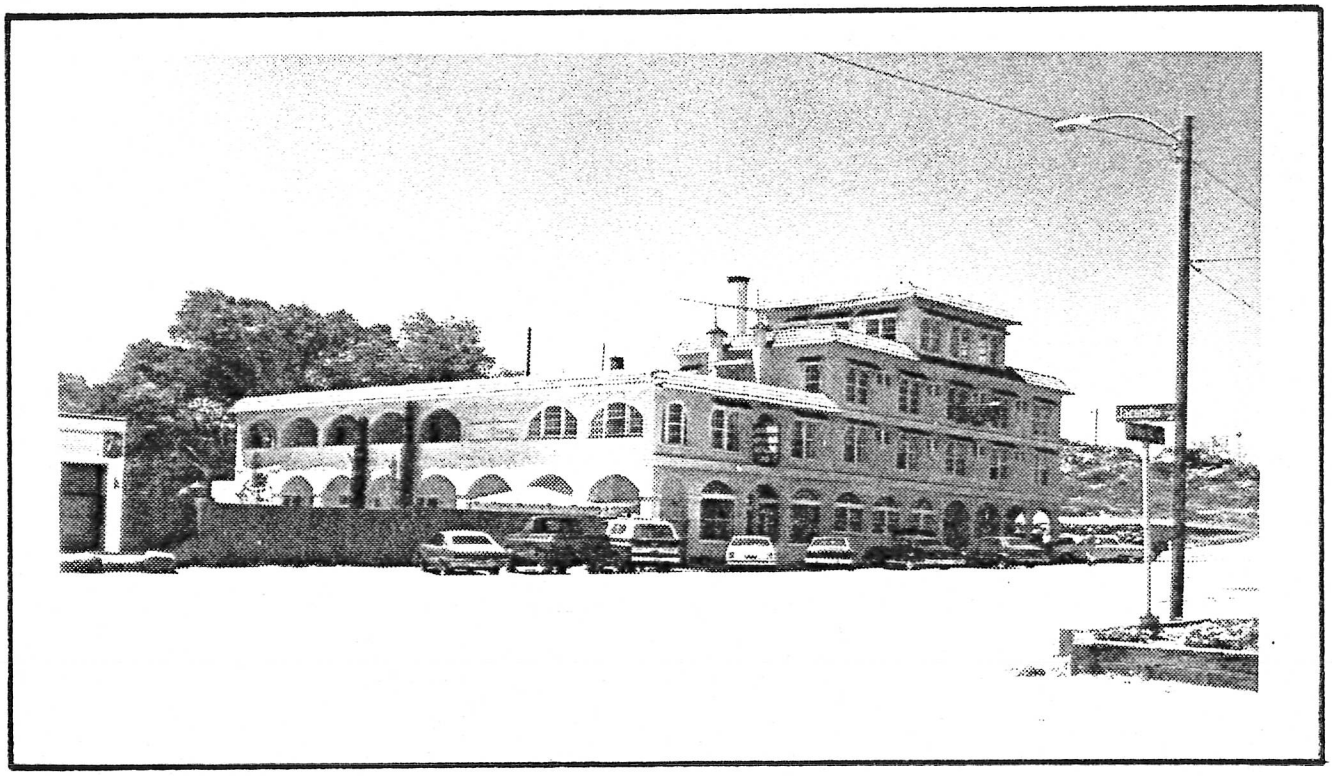

Figure 5. The spa hotel, the heart of the Jacumba community, looking southwest across old Highway 80.

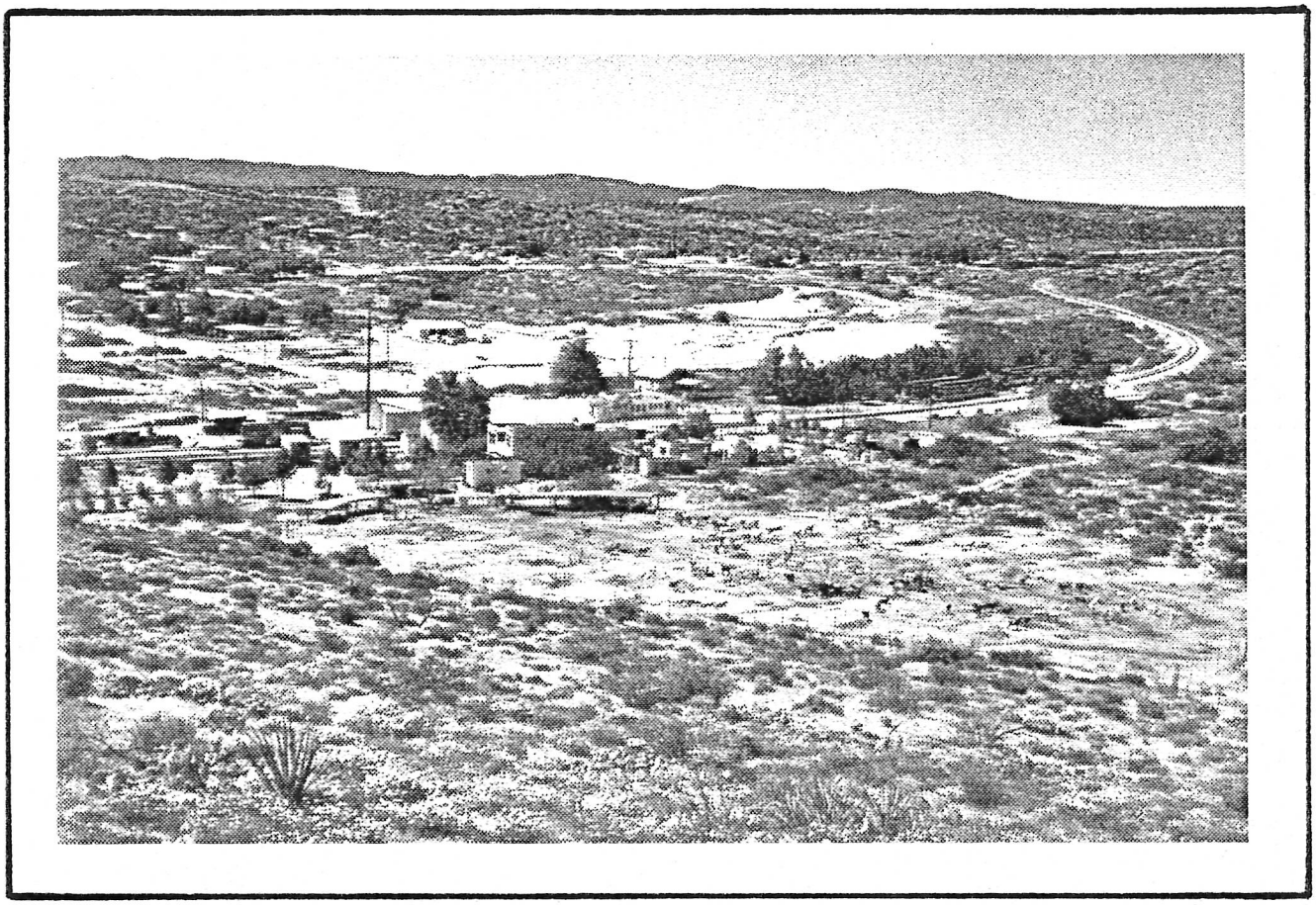

Figure 6. The railroad center on the northwestern side of Jacumba and Boundary Creek wash (with a large goat pen behind the railroad buildings), looking southwest.

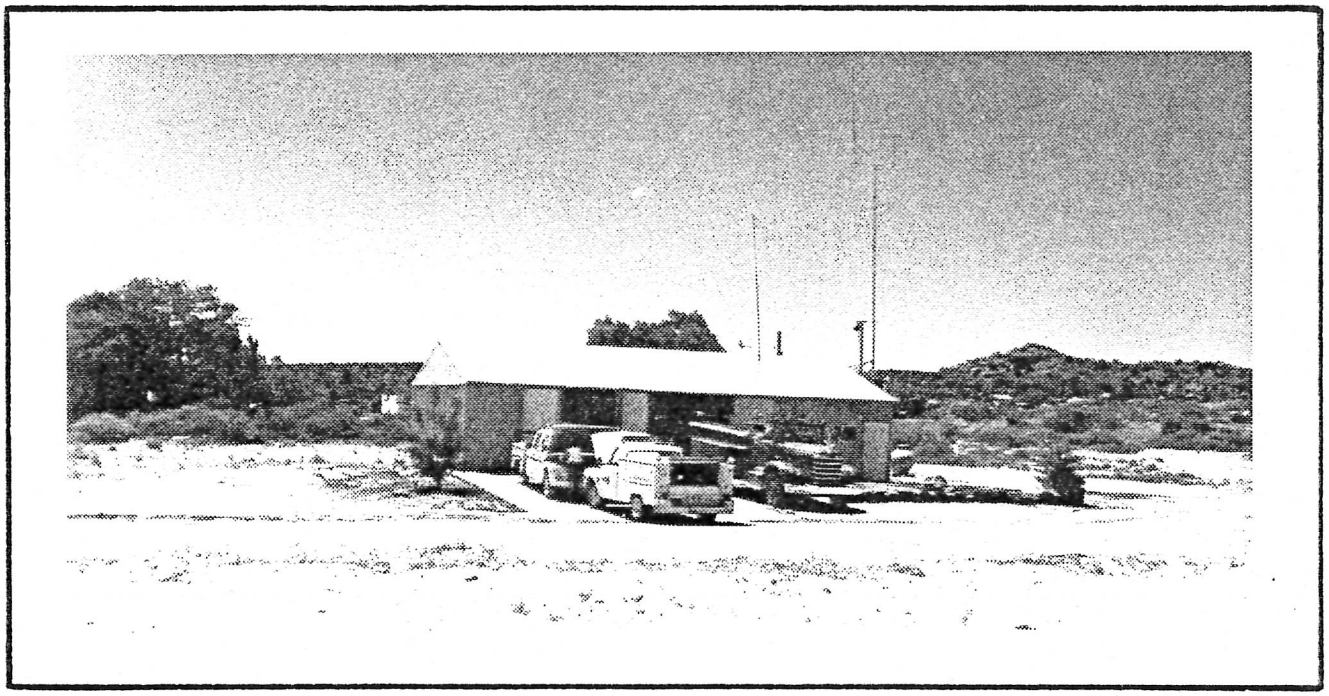

Figure 6a. The new fire station on Seeley Street, looking southwest.

CHAPTER III
METHODS OF INVESTIGATION

The research methods employed in this survey and assessment program included:

(1) a comprehensive examination of all areas of the property in an intensive field reconnaissance survey;

(2) detailed recording of bedrock milling features and auger testing to record potentially perishable information and to determine the presence and extent of subsurface resources;

(3) record file search reports for the region assembled from appropriate archaeological archives;

(4) a review of the existing archaeological and historical literature of the region; and

(5) an historical overview of Jacumba assembled from documents and interviews.

The entire project property was traversed on foot in a series of systematic transects to provide a comprehensive examination of the surface for any archaeological resources present. The field survey team members walked transects approximately 60 to 80 feet apart and scanned the terrain on both sides of the transects. Bedrock outcrops were carefully inspected for cultural features. Ground visibility over most of the property was very good to excellent. Only a few localized areas in the valley fields had dense grasses which obscured the ground surface. A generalized map of the transect routes is shown in Figure 7.

For each archaeological site located, a site record form was prepared and a photograph taken. Wherever bedrock milling features were present,

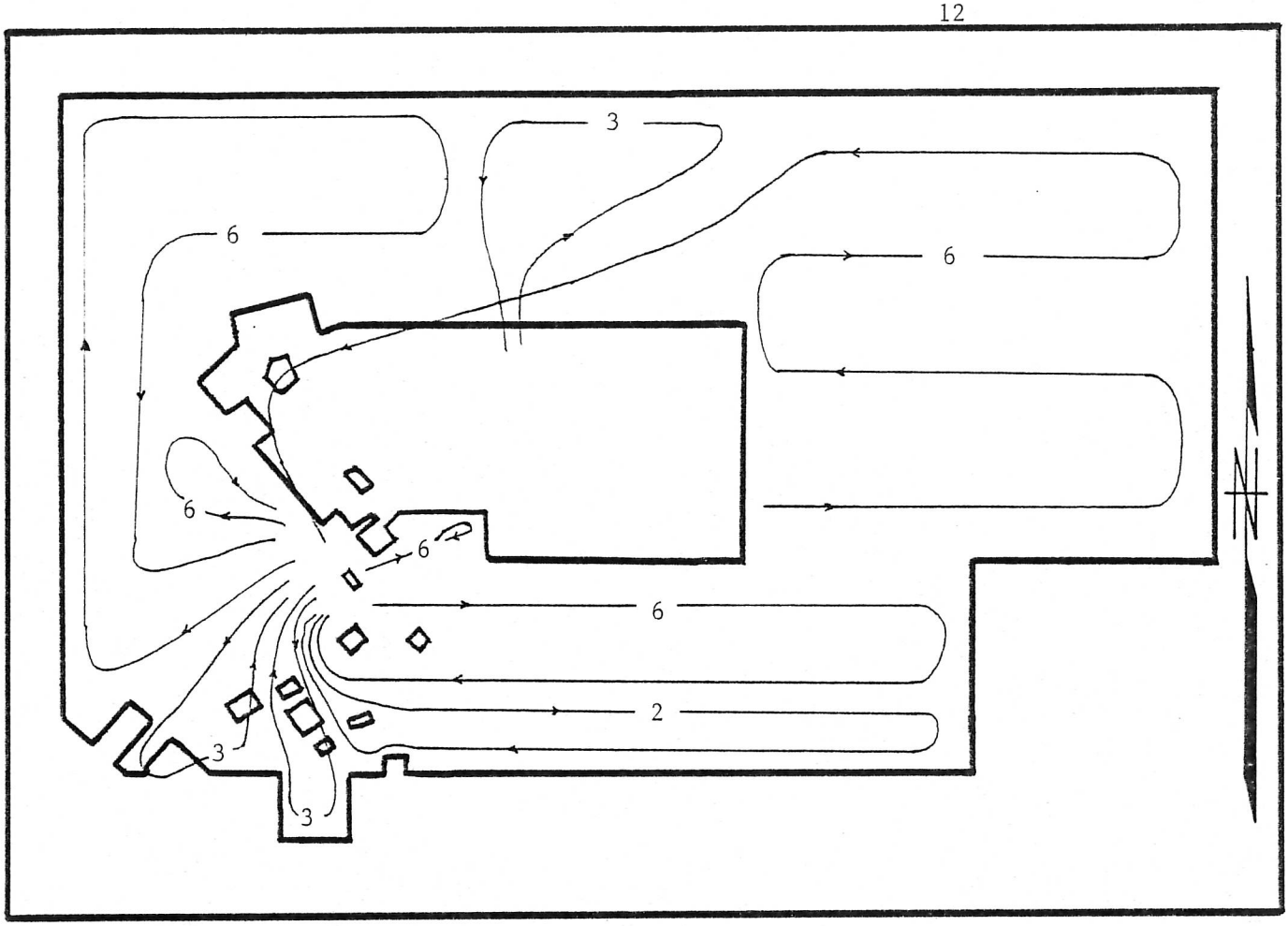

Figure 7. Generalized crew transect map, with the number of individual parallel surveyors' routes indicated. Scale 1" = 1000'.

these features were fully documented with micro-maps, measurements, and photographs. At appropriate sites several soil auger tests were excavated to verify the presence or absence of substantial subsurface archaeological deposits and to determine the character and depth of such deposits. These tests were made with a manually-operated bucket-type auger which extracts a test core 25 centimeters in diameter. All excavated dirt was screened through 1/8" mesh and searched for any artifacts, prehistoric food remains, or other unusual materials. Any changes in soil color, coarseness, or compaction with depth were noted. The test augers penetrated to underlying bedrock, subsurface rocks, or sterile soil.

The field reconnaissance and site assessment program was conducted on June 10, 11, 12, and 13, 1980. A total of 153 field hours were

expended in this work. All sites located during the survey were visited by the Principal Archaeologist in preparing the site assessments.

Archaeological record file reports for previously recorded archaeological sites were assembled from the Regional Office of the State of California's Archaeological Sites Survey (maintained at San Diego State University) and from the San Diego Museum of Man. These reports are provided as Appendix I. Inquiry also was made to the Imperial Valley College Museum, but they reported that there are no specific site reports on file there for the project property. There have been a number of archaeological sites recorded on and near the project. Besides an old and rather vague site record by Malcolm Rogers covering the supposed village of "Hakum" at the hot springs, the previously recorded sites have all resulted from two recent power-line corridor studies, one across the northwest corner of the project area and the other along the southern portion of the property. These projects are discussed in greater detail in the chapter reviewing the regional literature. Most of the property appears not to have been previously surveyed for sites in a systematic manner.

The review of the regional archaeological and historical literature provided the background information contained in the following chapters of this report. They summarize current archaeological knowledge and concerns with regard to the cultural resources present in the project area.

An historical overview and assessment of the specific historic resources located in the project area has been prepared by David C. Burkenroad, Historian. The sources of information used are detailed in the report as presented in Chapter V.

CHAPTER IV
ARCHAEOLOGICAL BACKGROUND

Current Literature and Knowledge

A comprehensive review of the existing archaeological literature is presented in graphic form as Figure 8. The thirteen named cultural patterns represent the archaeological remains of the past societies that have occupied the San Diego County region. Archaeological remains exist for both the prehistoric Indian cultures and the Hispanic-Anglo societies of the historic period.

The principal local evidence for the Wisconsin Glacial Age Bi-Polar Tool Tradition are the quartzite stone tool formed by bi-polar precussion techniques at sites in Mission Valley (Minshall 1976); however, the validity of these as man-made tools has been questioned by conservatively inclined scientists.

The Ancient Coastal People in southern California are represented by recently announced radiocarbon and amino acid dates on ancient skeletal remains: Laguna Woman at 15,000 B.C., Los Angeles Man at 24,000 B.C., the Scripps bone at 25,000 B.C., and even older examples like Del Mar Man at 46,000 B.C. (Bada and Helfman 1975). No tools or cultural materials have yet been associated with these discoveries, and only further archaeological investigations can detail the life-style of these Ancient Coastal Peoples.

The San Dieguito Tradition people are recognized as early hunters occupying lakeside and streamside camps. Their complex of stone tools was composed principally of numerous sharp edge

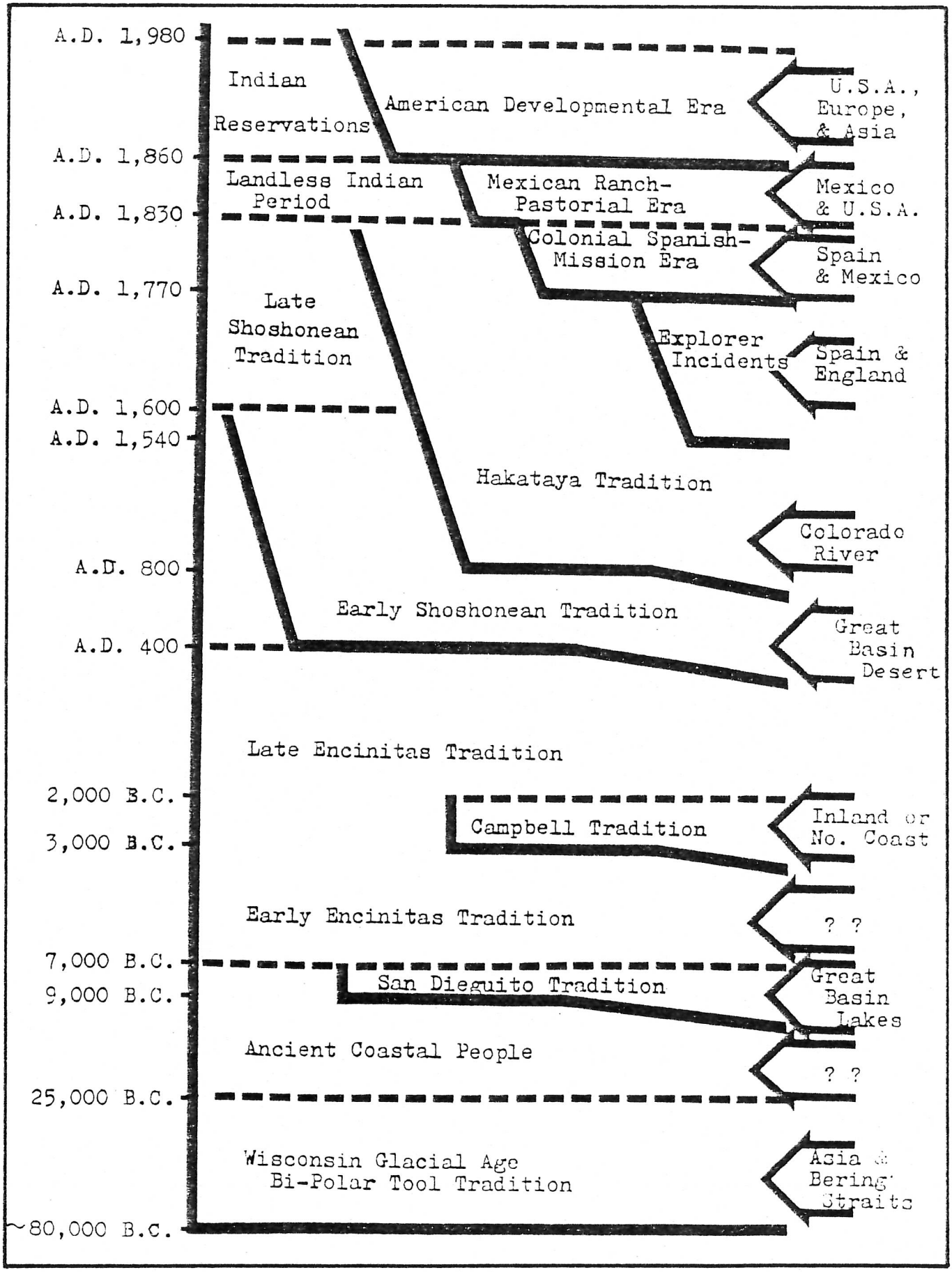

Figure 8. Cultural Patterns in San Diego County.

scrapers and long knives (Warren 1966 and Rogers 1966). Although it now seems apparent that this Tradition emerged in the Great Basin (Warren 1967 and Moriarty 1969), the causes for its apparent late flourishing in San Diego County and then its disappearance remain unresolved.

The Encinitas Tradition remains appear throughout southern California as those of a society focused on the gathering of plant foods and shellfish. Cobble handstones and milling basins are the characteristic tools encountered, while sharp edge tools of flaked stone are few and noteably simple (Curtis 1964). The simplicity of the technology, its persistence, and the many known sites imply a very successful adaptation to the natural, seasonal, food resources. The specific foods utilized and the strategies employed have not yet been established or proven.

The Campbell Tradition people were a society of desert hunters who apparently migrated to the coast. Their campsites exist from Santa Barbara southward and include the Goff's Island site, the Harris Site-Locus II on the San Dieguito River, and even beyond the County to the Descanso River (Site LC-26) on the northern Baja California coast (Warren 1968:18, Brott 1966:147, and Winterbourne 1967). Campbell Tradition sites are marked by numerous land and/or sea mammal bones, large projectile points which are typically made in a side-notched style, and a variety of hunting and seed milling equipment (Warren 1968). A co-existance within the region with Encinitas Tradition people seems proven, but the ultimate merging, evoluation, or extinction of these peoples remains to be investigated.

The Shoshonean Tradition appears as another migration of desert people who moved to the coast and developed a diverse economy of hunting, fishing, and gathering. Archaeological sites of this Tradition are very numerous and indicate the presence of many populated villages and specialized satellite camps. The cultural remains vary and reflect the particular activities pursued at each location. Characteristic items of this Tradition are small triangular arrow points, shell ornaments, and mortars (Ross 1970; Hudson 1969, 1971; True, Meighan, and Crew 1974; and Chace 1975). The diversity and flexibility of the economy lead to population increases, trade, social structure elaborations, and political sophistication which resulted in increasingly greater complexity in the archaeological remains, which to date have been only partically described.

The Hakataya Tradition emerged along the Colorado River as a society of horticulturalists and food gatherers. It spread westward into the Coachella Valley and into the coastal mountain range, and it may have assimilated with the Encinitas Tradition, although this has not been established (Rogers 1945; Schroeder 1952, 1957, 1958, 1960, and 1961). The Tradition is archaeologically characterized by the manufacture of pottery, but includes numerous other tools (True 1970; May 1974 and 1976). Hakataya Tradition villages and satellite activity camps are numerous, and the tools from a number of sites have been described. However, few attempts have been made to reconstruct the life-style in which these remains were developed and employed. The disruption

resulting from historic contact greatly reduced the population, and subsequent written accounts of the life-ways are incomplete and often suspect.

The Explorer Incidents of the historic period are principally the Coronado expedition and Cabrillo exploration of 1540 and 1542, and the exploration party of Portola in 1769-70 (Bolton 1926 and Pourade 1960). The full impacts of these events on the native societies and the archaeological record have recieved only scant attention.

The Colonial Spanish-Mission Era introduced Hispanic material remains of adobe architecture, farm agriculture, cattle herding, and new crafts to this region (Webb 1952).

The Mexican Ranch-Pastoral Era cultural pattern expanded Hispanic cattle raising and ranch settlements throughout the local region (Pourade 1963 and Rush 1965).

The Landless Indian Era reflects the adjustments of shifting settlements and economies, such as ranch wage labor, for the disrupted native population following the incursion of Hispanic and Anglo ranching. Although historically documented (Caughey 1952 and Shipek 1968), such archaeological remains have not been investigated locally.

The Indian Reservation Era with the formal setting aside of reservation lands provided bases for continuing into the present many traditional customs (Strong 1929).

For the ongoing American Developmental Era with its poly-ethnic society, no single description presents a comprehensive summary of the rapidly changing cultural pattern, except possibly Pourade (1967).

Archaeology in the Jacumba-McCain Valley Region

Archaeological investigations in the Jacumba-McCain Valley Region have been limited essentially to surface reconnaissances. Treganza (1942 and 1947) early noted the abundance of late prehistoric Hakatayan Tradition sites in the Jacumba region, as well as the remains from far more ancient San Dieguito Tradition occupations. More recent, intensive surveys conducted as environmental assessments for power-line corridors across the Jacumba Valley have mapped and documented numerous late prehistoric, Hakatayan sites with pottery and other lithic materials (Johnson 1976, Meighan 1976, and Woods 1980). Interestingly, these surveys have also recorded the presence of small sites marked only by a few basalt flakes and an occasional core. These locations may represent ancient San Dieguito era sites, but might equally well be only lithic workshops or specialized activity area of the more recent Hakatayan Tradition peoples.

Rogers (1966, and in his notes on the village of "Hacum") believed that the Jacumba Pass was probably the migration corridor of the San Dieguito peoples between the inland desert and the coastal area. However, he actually recorded no major San Dieguito sites in the immediate vicinity of Jacumba.

A very extensive lithic workshop covering over 390 acres with hundreds of cores, flakes, and numerous finished tools attributed to the San Dieguito Tradition was recently reported in the hills on the eastern side of the Jacumba Valley (McCoy and Theskin 1979), although a reexamination has indicated it may be only a series of small concentrations

(Whitney-Desautels 1980). Sites attibuted to San Dieguito Tradition peoples have been recorded in the ongoing survey of the Table Mountain area on the northeast side of the Jacumba Valley (May 1975a and 1979).

Extensive, reeent reconnaissances in other parts of the region have found only Hakatayan Tradition sites. These surveys have included part of the McCain Valley (May 1974b), a Museum of Man sponsored reconnaissance of the McCain Valley by Ken Hedges and Marge Morin which recorded over 90 Hakatayan sites in relations to natural plant food resources (Chace 1975), a reconnaissance of the Fuquay Ranch at Boulevard (Chace 1979), a survey east of Live Oak Springs (Flower, Ike, Roth, and Sapone 1979), and a study of selected transects of the Bureau of Land Management's "McCain Valley Study Area" which extends throughout the local mountain range (Archaeological Systems Management 1980). Certainly, most of the currently recognized archaeological sites in the region belong to the recent Hakatayan Tradition occupation.

The most important published find locally was made in 1943, near Boulevard, where three large storage ollas and a globular cooking pot were discovered cached in the granite rocks on the western side of the valley. The cache contained six pounds of seeds from eleven different aboriginally grown plant foods. The eleven groups of seeds were individually wrapped in post-1850s textile fragments, and presumed to be seeds intended for a following year's planting. The importance of this discovery is that it suggests that wet meadows or spring irrigated agriculture was practiced aboriginally in high mountain valleys before the Anglo-American occupation of the region (Treganza 1946a, 1946b, and 1947a; the cache site is recorded as SDi-87).

The full archaeological heritage of the region only has perspective when considering a broader territory encompassing the southern Peninsular Range. A number of general surveys have been conducted in the territory (Fink 1975, May 1975a and 1975b, and Kaldenberg 1976), and a number of individual site discoveries are noteworthy.

Ancient San Dieguito Tradition sites were investigated in the mountains, at Lee Valley three miles east of Jamul, as well as at Otay Mountain and at Cottonwood Valley by Rogers (1965; 178, 182-3), and further to the southeast by Treganza (1947b) and May (1975a). Only the Otay Mountain Site has been excavated, but none of these ancient sites have yet been described in detail. Equally ancient is a unique fluted, large spear point published from Cuyamaca Peak (actually Pine Hills) (Davis and Shutler 1969).

There is very limited evidence of succeeding, pre-Hakataya Tradition occupation in the mountains. Only a few sites are recorded which appear to represent the Campbell Tradition. (These have previously been referred to as Amargosa culture.) They are not fully described or well dated but may represent an unusually late phase of this Tradition. They are known in Corte Medera Valley (Weide 1973) and Jacumba (May 1975). At Cottonwood Creek a pre-Hakataya site (described as having Amargosa culture) has been excavated and has a component dated prior to A.D. 1,000, but only preliminary reports have been published (King 1971, May 1971, 1976). A radiocarbon date of 3200 years from the archaeological deposit at Rattlesnake Rock Shelter on Mother Grundy Mountain suggests a Campbell era occupation (Bein and Pandolfi 1972).

There are numerous recorded sites of the Hakataya Tradition on the western slopes of the mountains, and many reports describing the archaeology. Pottery vessels are a distinguishing trait of this Tradition and have long been published (DuBois 1907, and Heye 1919). The most complete, scientific description of Hakataya Tradition archaeological remains is based upon materials recovered by UCLA in excavations at Dripping Springs in Cuyamaca Rancho State Park (True 1970). Numerous smaller reports described comparable materials from Hakataya Tradition sites on the lower coastal slopes of the mountains, as those for nearby Otay (McGowan 1975), Spring Valley (Carrico and Ainsworth 1974), and Singing Hills-Sweetwater (Kaldenberg 1975), and Alpine (Shields 1970).

A major scientific concern is the origin of the Hakataya Tradition in this region. Some investigators have viewed it as essentially a local development out of earlier cultural traditions in the area (Rogers 1945; True 1966, 1970; and Warren 1968). Others have noted strong resemblances with the Hohokam Tradition in Arizona and proposed trait diffusion, trade, or even immigration between the two areas (Kroeber 1920; Heizer and Beardsley 1943; Treganza 1947; Martin, Quimby, and Collier 1947; Meighan 1954; Moriarty 1966; Hayden 1970; Gonzales 1973; Hedges 1973 and May 1974). Some specifically refute the apparent similarities with Hohokam culture (Rogers 1945, and Morss 1954).

CHAPTER V
JACUMBA: THE EVOLUTION OF AN INLAND SAN DIEGO COUNTY RESOURT

By David C. Burkenroad, Historian

Introduction

This chapter, describing the historical resources of the Jacumba project area, is divided into four sections: the first lists the principal sources; the second is a brief history of the community; the third section provides a more detailed inventory of extant resources (site numbers in the text refer to inventory numbers assigned to historic sites in this section); the last section offers conclusions and recommendations about the value of extant historical resources, and means to protect and use them.

There are few undisturbed remains left dating from Jacumba's earliest Anglo-American pioneer developments. The oldest documented standing structure is Peter Larkin's adobe, built about 1882. The Jacumba Hotel and many of the nearby stuccoed buildings date form the 1920s, when Bert L. Vaughn created a resort in the town. Some surviving residences from this period are elsewhere in the area.

Sources

In order to interpret the historical evolution of the town of Jacumba, several key sources were consulted. Burkenroad (1978) has prepared an overview of the history of inland San Diego County, which includes many references to the town and its locale. McCain (1955) refers to some of the early cattle ranchers, Detzer (1973) provides a brief history of the town, and Bailey (1938), in an unpublished manuscript, provides information not otherwise available. Newspaper articles, in the form of clippings at the California Room of the

San Diego Public Library and the San Diego Historical Society Museum Library as well as on microfilm, and the San Diego Directory Company (1917-1937) provided details about Jacumba's history, both recent and early. Locational information was obtained from several sources, particularly maps, U.S. Surveyor General's Office (1884, 1923), and aerial photographs (San Diego County 1928-1929). Additional information was obtained by interviewing knowledgeable informants and by inspecting sites first-hand.

Local History

The location of Jacumba on the edge of the Colorado Desert, about midway between the slowly developing city at San Diego Bay and the Imperial Valley, developed early in the twentieth century, has been the most influential factor in its growth. The isolation of Jacumba allowed Native Americans to inhabit the area undisturbed by Spanish and Mexican colonizers, and though a few Anglo American settlers moved in during the late 1860s, the Native Americans retained partial control of the land until 1880. Beginning in 1849, however, the Jacumba Hot Springs (site #1) provided a water supply for a way station between San Diego and the Colorado River. Until 1967, Jacumba was located on the main road between San Diego and the east, and much of its history reflects the degree to which this route was used. During the prosperous 1920s, a new dimension was added, when the hot springs were used as the core of a resort established to provide Imperial Valley residents with a place to spend the summers in relative coolness, and Jacumba played a distinctive resort role in the period between the two world wars.

The three periods identified in Jacumba's history are described below.

Native American Period, "Time Immemorial" to Gold Rush

In the sixteenth century or shortly thereafter, Jacumba Valley was inhabited by Yuman-speaking people who became known as Diegueno, or Kumeyaay; the local group was known by the Spanish and their Mexican successors as Jacumenos. The Jacumeno lived in an area located at the eastern limits of the influence of the Franciscan missionaries at San Diego, although explorations into the area were made by Pedro Fages in 1785 (Bancroft 1886, I:454-455). Like other desert groups (i.e., the Quechan of the Colorado River), the Jacumeno were hostile to the Spanish (Forbes 1965:283-284). According to Bailey (1938:12), they were also involved in chronic conflict with the Cocopah, southern Colorado River enemies of the Quechan. In the 1830s, after San Diego's military presidio was vacated, the Jacumeno and their Quechan allies raided ranches throughout the County, including Jamul and San Bernardo (Forbes 1965:283-284). In 1842, there was again trouble with the natives of Jacumba (Bancroft 1886, IV:619). Special U.S. Agent O. M. Wozencraft made an attempt to negotiate peace with the natives of San Diego County in 1852, and Jacumba Valley was represented by the capitan (headman) Santiago (U.S. Congress 1857:130-133), but hostility continued until 1880 (see below). Despite their hostility to Westerners, the Jacumeno did learn the Spanish language, and, according to Lyon (1851):

> The Indians here are spread over the valley and seem in considerable numbers.... They are kindly disposed, cultivate the earth to some extent, and many have been in the settlements, and some talked a little Spanish.

It is not known whether or not the Kumeyaay Jacumeno practiced agriculture aboriginally, or learned it in recent centuries from the nearby Yuman floodwater farmers of the Colorado River or their closer

relatives the Kamia, or adopted the practice from the Spanish missionaries. According to ethnologist Gifford (1931:22; see also Treganza 1947:169-171), the Kamia planted watermelons, pumpkins, maize, tepary beans and cowpeas in the Jacumba Valley, even watering plots with ditches fed by springs; ditches are not a usual component of floodwater farming. Gifford (1931:31) also reports that the Jacumeno obtained agricultural produce by exchange with the Kamia. Shipek (1977:88) suggests that some Kumeyaay regularly went to the New River to plant.

The location of Jacumba Valley villages cannot be precisely determined from the historical record. The Lyon report suggests that they lived throughout the valley. Springs, including the ~~Jamul~~ Jacumba Hot Springs, provided water, and in fact the center of the valley was formerly marshy (Weaver 1980: pers. comm.). The U.S. Surveyor General's Office (1884) map shows the road in existence at the time dipping into Mexico just east of the Hot Springs in order to avoid this marshy area. The ridges surrounding the moist valley would have been favorable locations for winter villages. From published and unpublished historical and ethnographic sources, as well as from interviews with Native Americans, Woods (1980:6.0-30) reports the presence of villages at the hot springs (see Sweeney 1956:201, 266), in the present town, and to the north, east and south; one village was located at the hot springs south of the border, near the present town of Jacome (see Bailey 1938:2). Because of its location at the edge of the Colorado Desert and at the head of the Carrizo Gorge trail that led to the Kamia village of San Sebastian (southwest of Kane Springs), Jacumba was also a strategically located trading place.

The Jacumeno inhabited the Valley until 1880, when ranchers expelled them. There were still Indian residents in the Valley in the twentieth century, but, according to Jim Queridio, a Native American resident of Jacumba in the 1920s, his group had come to the springs from the Julian area some time before 1892 (Bailey 1938:5); this suggests that the Jacumeno were replaced by a new group of Kumeyaay.

Pioneer Anglo American Period, Gold Rush to World War I

The Jacumeno lived relatively undisturbed until the Gold Rush period. While most "Forty-Niners" reached California from the sea or via northen trails, and most of those traveling via the southern Gila Trail entered San Diego County through Warner's Pass to the north, a few emigrants began traveling through Jacumba Valley to San Diego, usually to catch a ship to San Francisco; the route through Jacumba was the shortest between San Diego and Yuma Crossing on the Colorado (see Burkenroad 1978:89-91). With the establishment of a military post at Yuma Crossing in 1849, U.S. military personnel also began using the trails via Jacumba. In 1849, Andrew Gray, Chief Surveyor of the International Boundary Commission, and Col. James Collier, pioneered the use of the Carrizo Gorge Indian Trail from Jacumba to the desert floor (Lindsay 1973:61; Powell 1931:180-183). Capt. Lyon's 1851 explorations led to the establishment of a mule train route between the military supply depot at San Diego and the post on the Colorado River. Though steamships replaced the expensive, inefficient mule trains after 1852 (Frazer 1974:48), mail carriers continued using the Jacumba Valley route. In 1853, a stone fort was built at Jacumba Hot Springs to protect the mail carriers (Sweeney 1956:201); this was the first documented Western structure

built in the valley. In the same year, members of the U.S. Army Corps of Topographic Engineers surveyed Jacumba Pass as a possible railroad route, and found it unsuitable (Williamson 1855).

Practically every old adobe in the County is regarded to have been a Butterfield Overland Mail Company stage station, but Jacumba was not even on its route. The short-lived (1858-1861) Butterfield stage route from the East to San Francisco used the Carrizo Corridor (not the Gorge) and Warner's Pass to the north. After the end of the Civil War, when emigration to the West was renewed, travelers again appeared in Jacumba Valley. The road, known then as the Smith-Groome route, had been surveyed in 1857, but John Capron's stagecoaches did not begin running between San Diego and Fort Yuma until 1865. In 1870, the steep descent to the desert floor was improved by the San Diego-Fort Yuma Turnpike Company and a toll station was established at Mountain Springs (Burkenroad 1978:90-91; see also Bailey 1938:8, 13, 14).

Peter Larkin, the toll-keeper at Mountain Springs, was one of Jacumba Valley's first settlers. The record concerning earlier settlers is not clear. A rock house (not the fort) is reported to have been built in 1865 or 1866. The builder is reported as having been Thomas Lawrence (Detzer 1973:6) or W. T. Hicks (McCain 1955:55; San Diego Union 1884:2:3). Men named Walsh (Bailey 1938:11) and Kelly (Crawford 1980: pers. comm.) are also mentioned. The rock house was located at the site of the Bath-House (Site #2) and was destroyed during its construction (Crawford 1980:pers. comm.; see also San Diego Union 1935:1:1). Settlers were certainly established in Jacumba Valley by 1868, when farmers, many of them Texan, were reported growing corn, potatoes and vegetables, and prospectors were also noted (San Diego Weekly Union 1868:3:1).

After keeping the Mountain Springs toll station, Larkin turned to cattle ranching, first at Milquatay (Campo area), where he married (San Diego Union 1873:3:1, 1876a:3:2). In 1876, there was still trouble at Jacumba with Indian and Mexican raiders (San Diego Union 1876b:3:2, 1876c:3:2). Larkin, the McCains, and other ranchers were grazing their cattle in Jacumba Valley, and the Indians were killing them. In 1880 a posse was formed to punish them, and the so-called "McCain Massacre" took place on February 17. Young William McCain foolishly exposed himself and was killed by a bullet about a mile and a half northeast of present day Jacumba (McCain 1955:56). The ranchers then proceeded to hunt down the Indians, killing a number of them; and a few days later Army observers found the village in the east end of the valley abandoned (Mills 1957:30). Less than three years later, Larkin was described as being of Jacumba (San Diego Union 1882:3:1). Larkin's adobe, which is extant (Site #8), was probably built in that year. The adobe is shown on the U.S. Surveyor General's (1884) map of the section. The area was surveyed in 1883 by S.W. Brunt (1883), who reported that "This soil is 2nd rate, is well watered by springs, and in Jacumba Valley is well adapted to grazing.... Larkin's House is in Sec. 8." Larkin was cultivating some twenty-five acres of land north and south of the hot springs. He continued ranching until 1887, when he sold out to cattlemen Chillwell and Campbell (McCain 1955:56; San Diego Union 1934:7:1).

Cattle ranching continued to provide a livelihood to most of the Valley residents throughout the rest of the century. The dry heat of the area, cooled by breezes, also began to attract people with respiratory health problems. While the economy of the area did not change significantly until the period following World War I (see below), the development of Imperial Valley as an agricultural empire stimulated the growth of

Jacumba as a way station on the road between the valley and San Diego. Irrigation water was first diverted out of the Colorado River into the Imperial Valley in 1901 though damage caused by spring floods in 1905 was not repaired until 1907. In 1907, Mr. and Mrs. Jack Haenssler arrived in Jacumba, where two whites, Mr. and Mrs. Foster, lived presumably with Indians and Mexicans. Several others lived nearby, including a few prospectors (Detzer 1973:7; Archaeological Systems Management 1980:258). In 1911, when an automobile "stage" service between San Diego and Imperial Valley was initiated (Zink 1972:22), the Haensslers established a store, and by 1915 a post office came into existence (Detzer 1973:8).

The construction of the San Diego and Arizona Eastern Railway gave impetus to Jacumba's economic growth. Financed by the Southern Pacific and former San Franciscan John D. Spreckels, who bought up most of San Diego during the depression of the 1890s, the railway was to serve as San Diego's direct transcontinental link to the East, as well as to carry Imperial Valley produce to San Diego Bay. Construction began in 1907, but was delayed by financial difficulties, the Mexican Revolution, and difficult terrain. Construction crews were working in the Jacumba area in 1918 (San Diego Union 1918:1:8; see also O'Bannon 1977). By 1917, when a listing first appears in the San Diego Directory Company (1917:1217), forty-six heads of households were living in, and around, Jacumba. The list included postmistress Grace Haenssler, blacksmith William Barce, who lived near the present day airport (Gastellum 1980: pers. comm.), two residents of Mountain Springs, a barber, a teacher, a (railroad ?) engineer, a miner, five ranchers three laborers, two of them with Spanish surnames, as well as

three other men with Spanish surnames, and twenty-seven others with no professions listed, many of whom lived here for health reasons. Others were undoubtedly employed by the railroad. The railroad was completed in 1919, and a railroad station was established at Jacumba (Grosdidier 1980: pers. comm.).

Resort Period, World War I to the Present

With the San Diego and Arizona Eastern Railway completed, Bert L. Vaughn, who had owned El Centro's Barbara Worth Hotel, became interested in developing Jacumba Hot Springs as a resort. Vaughn bought the land surrounding the hot springs in 1919 from the Spreckels interests. Vaughn's financial partner was Louis F. Weggeman (Crawford 1980: pers. comm.; see also San Diego Directory Company 1920:1064). At that time, the town consisted primarily of Larkin's adobe, the Mountain Commercial Company store (#23; Crawford 1980: pers comm.), a tin garage, and a few other scattered "huts" (San Diego Union 1934: 1:4, 1:3). Construction began in about 1923 (Detzer 1973:7). The U.S. Surveyor General's Office (1923) map of the section, surveyed in February, shows only a swimming pool besides Larkin's adobe. Actual construction was done by a cement contractor named Lewis (Gastellum 1980: pers. comm.) and carpenter Henry O. Burton (Crawford 1980: pers. comm.). The hotel (Site #2) was in Mission Revival style but of Vaughn's own design. A Bath-House (#3) at the springs and a two-story apartment building (#26) were also built. The hotel opened for business in the summer of 1925 (San Diego Union 1925:1:1-6). Besides the hotel, bath-house and apartment house, the town eventually also included a cafe-dance hall (#24) known as "The Casino", a hot-and-cold plunge, a lake, a racetrack-rodeo (#25), a movie theatre (location unknown; see photo

San Diego Union 1925:1:1-6), several garages (including #15), several stores and cafes (#s 4, 9-12, 13), as well as numerous residences and housekeeping cottages (e.g., #s 6, 7, 17, 18). Vaughn also subdivided the town and sold lots (see San Diego County 1919). The state of the town in 1928 or 1929 is shown on an aerial photograph (San Diego County 1928-1929), which is reproduced here as Figures 29 and 30.

Vaughn's clients came principally from the Imperial Valley to escape the oppressive heat of summer. According to Bill Duflock of the El Centro Chamber of Commerce:

> In the summer we became a colony of men. We were too dumb or too poor to get out of the valley. But all the women and children went to Jacumba, or maybe Banning or Beaumont. (San Diego Union 1979:B-2).

The normal population of about 500 would reach 5,000 during the summer. Many simply camped out in tents (Blackwood 1980: pers. comm.). The resort also attracted highway travelers, especially since the highway through the town (Old Highway 80, then known as Imperial Avenue) had been part of the Lee Transcontinental Highway since 1923. The Mountain Springs grade, however, was not paved until 1928 (Pourade 1967, IV:38, 86).

Though Vaughn sold the town in the 1930s, he subsequently returned and ran the resort until he finally sold it in 1944. Between that time and the present the resort complex was owned by a succession of owners, including W. A. Hansen, Thomas Lee, Leonard A. Guiton, Harve E. Carter, Henry Lazare, and the present owners (See San Diego Union 1948:4:1, 1952:18-4-5, 1963). The town did not change very much over the years. In 1949, for example, it still included virtually the same buildings (San Diego Union 1949:a-6). Most, if not all, of the stone

residences in the hills south of the hotel, however, were built after 1928-29 (Blackwood 1980: pers. comm. The 1928-1929 photograph does not seem to show any structures south of the hotel, although the image is too fuzzy to be entirely sure).

After World War II the resort declined due to the development of air conditioning, which allowed residents of the Imperial Valley to comfortably tolerate the summers, and the appearance of faster, more comfortable automobiles, which allowed them to drive all the way to the coast. Henry Lazare, an electrical contractor and physical therapist, attempted to revitalize the resort during the 1950s. Lazare renovated the hotel and installed a new well and water supply system for the town (San Diego Union 1954, 1957:F-5:2-5). He also tore down the store canopies along the north side of present-day Old Highway 80 as well as 60 or 70 of the older cottages located between the Bath-House (#3) and Heber Street (San Diego Union 1965:B-6). After 1967 the town, however, lost its highway business when Interstate 8 was built through Walker Canyon to the north (San Diego Union 1969:B-3). Since that time the town has been quiet, though a devoted group of people keep coming to the hotel-spa for health, relaxation, and vacations.

Site Inventory

Several areas can be identified in the town of Jacumba. The area surrounding the Hotel (#2), including the Larkin Adobe (#8), is its central and oldest section. The business area was, and still is, located along the highway between the Hotel and Railroad Street. The garage (#15) at the intersection of the highway and Railroad Street has been torn down. Railroad Street leads to the railroad complex, which included the station (#21), the railroad workers'

quarters (#20), as well as warehouses and oil and water tanks. The area between the Boundary Creek wash south of the railroad tracks and the Bath-House (#3) was formerly occupied by numerous cottages, all of which have since been removed. Housekeeping cottages (#s 16, 17, 18) remain east of Railroad Street along the sourth side of the highway, and on the east side of Jacumba Street just east of the Bath-House (#s 6 and 7). A rodeo-racetrack (#25) was formerly located between Railroad and Heber Streets, an area which was subdivided in 1957 (see San Diego County 1957). Most of the houses in this area were built recently. The subdivision at the east end of town with the Imperial Valley street names was subdivided by Vaughn (see San Diego County 1919), and by 1929, numerous houses had been built here. Many of the current houses, however, are newer. The older houses in this subdivision have not been described individually, although file photographs were taken of a few. South of the Hotel are several private residences, all of which seem to date from the 1930s or later. These include the so-called "Chinese Palace" House (shown in Figure 31), built by Frank Battle (Crawford 1980: pers. comm.), as well as several distinctive stone houses, such as the example in Figure 32. To the east of town are fields that were once part of the Mountain Meadow Dairy, first owned by J. Hartley Taylor of the Los Angeles Milling Company and later by Ed Adams, his daughter Gloria and her husband Bill Ketchum (Blackwood 1980: pers. comm.; Gastellum 1980: pers. comm.).

In the section below, historically notable structures, preliminarily inventoried by the historian on June 12 and 13, 1980, are very briefly described. While virtually the entire area of the town was inventoried,

most of the noteable buildings are included within the project area. The still standing structures that predate the 1930s, as could be determined from the aerial photograph taken in 1928 or 1929, are easily identified. The approximate date of construction is given for each of the 26 inventoried historic sites.

Site #1. Jacumba Hot Springs. (Figure 9)

Since prehistoric times this sulphurous hot springs has been the source of Jacumba's water, and of its reputation as a health resort. Previous to the earthquake of 1892, the water was much hotter (Bailey 1938:5; McCain 1955:56). The water is now piped into the Hotel and the town. The Native Americans of the region consider this spring to be a sacred location (Woods 1980:6.1-30).

Site #2. Jacumba Hotel (c. 1924). (Figure 10)

Also known as Vaughn Hotel. This is Jacumba's resort period "centerpiece". Conceived by Bert Vaughn and financed in part by Louis Weggeman, this modified Mission Revival-style hotel was built in 1923-24 and opened in the summer of 1925. The Mission Revival style is typified by stucco, arches and decorative roof tiles. The structural elements are of concrete. There was once an "Annex" on the east side, but it has since been torn down and replaced by a pool and jacuzzi. A cafe-dance hall known as "The Casino" (#24) once stood on the west side.

Site #3. Bath-House (c. 1924). (Figure 11)

This stuccoed building was built at the same time as the Hotel and is also Mission Revival style (although quieter). Previous to its construction, spring water was impounded in a dug hole lined with redwood planks (Gastellum 1980: pers. comm.). First run by Tell Berggren (Crawford 1980: pers. comm. See San Diego Directory Company 1924:1071). The Bath-House was the resort's "spa".

Site #s 4, 9-12. "Drugstore Corner" (Commerical Block (pre-1929). (Figure 12)

This stuccoed building was the town's business block. Built by Vaughn, its space was leased or sold to merchants (Crawford 1980: pers. comm.). Like many other buildings in town, its architectural style known as (Modern) Streamlined (Tarasuck 1980: pers. comm.), although roof tiles were still used as decorations. Before 1957 the building was fronted by a "canopy" extending over the sidewalk (see San Diego Union 1957: F5:2-5). Its rounded corners suggests Art Moderne, a style which prevailed in the pre-World War II period (Blumenson 1977:78-79).

Site #5. Residence (pre-1929). (Figure 13)

This was a residence attached to the business block.

Site #6. Triplex (pre-1929). (Figure 14)

This stuccoed housekeeping cottage is a "streamlined" bungalow. It was a rather fancy one for its time and place (Crawford 1980: pers. comm.). The car canopies between the residences seem to have been put in after 1929.

Site #7. Two-story House (post-1929?). (Figure 15)

Built by Vaughn, this was the only two-story residence in town (Crawford 1980: pers. comm.).

Site #8. Larkin Adobe (c. 1882). (Figures 16 and 17)

This is the oldest documented standing structure in town. Its early construction date is apparent because it is not aligned with the street and the rest of the subdivided town. Larkin's Adobe has been modifed by the addition of a cement floor, and the original tule roof has long since been replaced. The old adobe brick walls are preserved beneath a modern chickenwire and plaster wall covering and

felt-paper roofing.

Site #s 9-12. (see #4)

Site #13. Barbara Worth Cafe (pre-1929: remodelled c. 1932). (Figure 18)

Although there was a building here previous to 1929, in its present form, with its Art Deco tower, this building dates from the early 1930s (Blackwood 1980: pers. comm.; San Diego Directory Company 1932:1101). The Barbara Worth Cafe was for a long time the "bus-stop" cafe.

Site #14. Jacumba Glass Company building (pre-1929). (Figure 19)

This squarish cement-block building is a later addition to the commerical block.

Site #15. Garage (pre-1929). (Figure 20)

The cement foundations of a garage are located here. James Fowble was an early manager (Blackwood 1980: pers. comm.; San Diego County 1937; San Diego Directory Company 1920:1064).

Site #16, 17a-1. Housekeeping Cottages (pre-1929 through post 1937). (Figures 21 and 22)

This row of one-bedroom, stuccoed buildings were housekeeping cottages for visitors. A San Diego County branch library now occupies the westernmost one (#16). The cottages are not all identical, varying in the roofline and the presence of a porch stoop. The 1928-1929 photograph shows seven cottages (with what were probably tents adjacent). The 1937 map (San Diego County 1937) also shows seven structures. The other cottages, and the car canopies, were built later.

Site #18. House (pre-1929). (Figure 23)

This simple stuccoed structure was probably another housekeeping cottage for tourists.

Site #19. Jacumba Women's Club (pre-1929). (Figure 24)

This is a partially shingled wooden house built by Vaughn (Crawford 1980: pers. comm.).

Site #20. Section Gang Quarters (c. early 1930s). (Figure 25)

These railroad passenger cars were installed to house railroad workers in the early 1930s. Previously, the workers had been living in box cars (Blackwood 1980: pers. comm.).

Site #21. Jacumba Railroad Station (c. 1920). (Figure 26)

This simple, linear, hollow-tile-and-stucco railroad station was built soon after the completion of the San Diego and Arizona Eastern Railway (Grosdidier 1980: pers. comm.).

Site #22. Pool Hall (pre-1929?). (Figure 27)

This small, tin-and-stucco building at first was a pool hall, later a plumbing shop (Blackwood 1980: pers. comm. A "billiards" operator was listed in San Diego Directory Company 1920:1064). It is now occupied by the Jacumba Glass Company.

Site #23. Mountain Commercial Company store (pre-1919). (Figure 28)

The Mountain Commercial Company, an inland county enterprise, ran a store at Jacumba before Vaughn's development. Known as Skinner's today, the building has been much altered over the years. Before the 1920s it was apparently built up on stilts (Crawford 1980: pers. comm.).

Site #24. "The Casino" (c. 1924).

Only the foundations of this building remain. This was a large, wooden, barn-like building housing a dance hall, a cafe, and, for a time, a roller skating rink.

Site #25. Rodeo-Racetrack (c. 1925). (Figure 29)

The roughly circular road shown on the 1928-1929 photograph was

the site of a racetrack and rodeo (Blackwood 1980: pers. comm. See also San Diego Union 1925:1:1-6).

Site #26. Apartment Building (c. 1924).

Only the foundations of this two-story, 18 unit apartment building remain. Pillars and a balcony are apparent in early photographs (San Diego Union 1925:1:1-6).

Conclusions and Recommendations

Jacumba has several noteworthy and historically significant resources:

1) The Larkin Adobe (#8), a pioneer period structure built around 1882.

2) The Hotel (#2) and Bath-House (#3), Mission Revival-style structures representative of Jacumba's life as a resort-spa in the period between the world wars.

3) Residential and commercial structures dating from the 1920s (#s 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 21, 22; as well as other, mostly later, residential structures.)

4) A railroad complex (#s 20 and 21).

A case can undoubtedly be made for nominating the Jacumba Hotel to the National Register of Historic Places because of its regional importance as a 1920s resort-spa. The other buildings in town also derive most of their historical importance from their association with Bert Vaughn's resort. On the whole, however, the architecture of the town buildings can be considered typical of their time, but not distinctive; and because of their late date of construction they are not unique.

As far as the railroad goes, the Pacific Southwest Railway Museum Association (1977) has plans to run vintage steam-powered trains from

a museum-station at Campo to the Carrizo Gorge. While plans are not final, Jacumba is being considered as a secondary station (Lindquist 1980: pers. comm.).

In order to mitigate potential adverse impacts to Jacumba's historical resources, the following recommendations are proposed:

1) That the Larkin Adobe be preserved; and that if development is to take place near it, that protective measures be taken to protect it from direct and indirect impacts.

2) That development in the immediate vicinity of the Hotel (#2) and Bath-House (#3) not take place without due consideration of the historical significance of these buildings, the integrity of their setting, and the possibility of their continued use.

3) That the plans of the Pacific Southwest Railway Museum Association (and of the San Diego Metropolitan Transit Development Board) for the use of the railroad and of Jacumba as a possible station, be taken into consideration in planning development near the railroad. Therefore, the Jacumba Railroad Station (#21) outside the project, and the Section Gang Quarters (#20) inside the project, should be preserved until these plans are implemented or until the proposed plans are curtailed.

4) The commercial area along Old Highway 80 between the Hotel and just beyond Railroad Street has preserved a relatively unified look, but it is not of great historical significance. Because of the razing of a considerable number of cottages north of the highway and west of Heber Street, and continued building in that and other residential sections of town, the overall integrity of the residential section of town has not been well preserved. Therefore,

this historian does not consider the historical residential-commercial resources of Jacumba, other than the ones noted above, as being very sensitive to adverse impacts due to development.

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1884 27 May.
1925 17 May (Automotive Section).
1934 25 March.
1948 1 June.
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1952 25 April.
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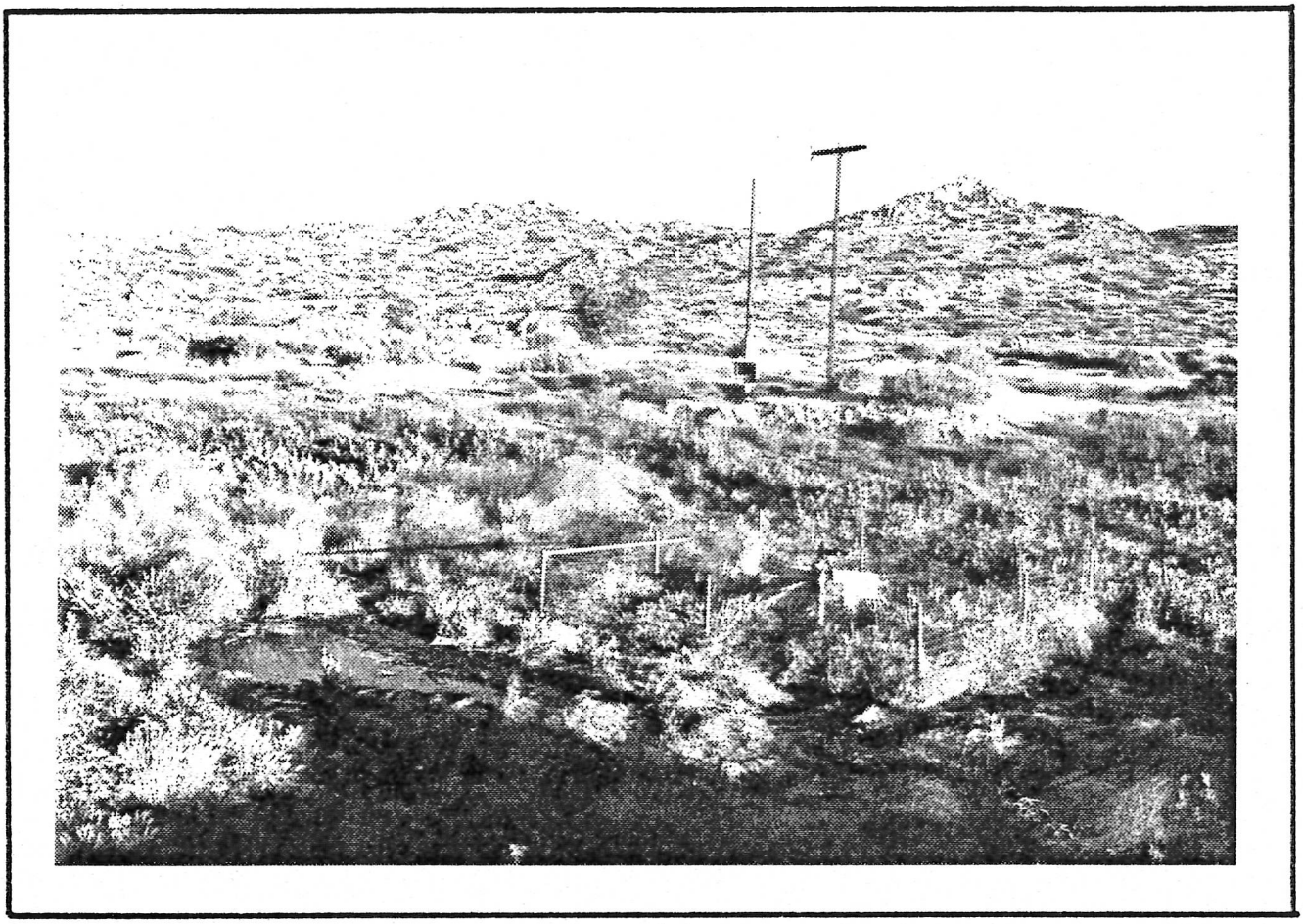

Figure 9. Jacumba Hot Springs (Site #1), now tapped with an electric pump, looking northwest.

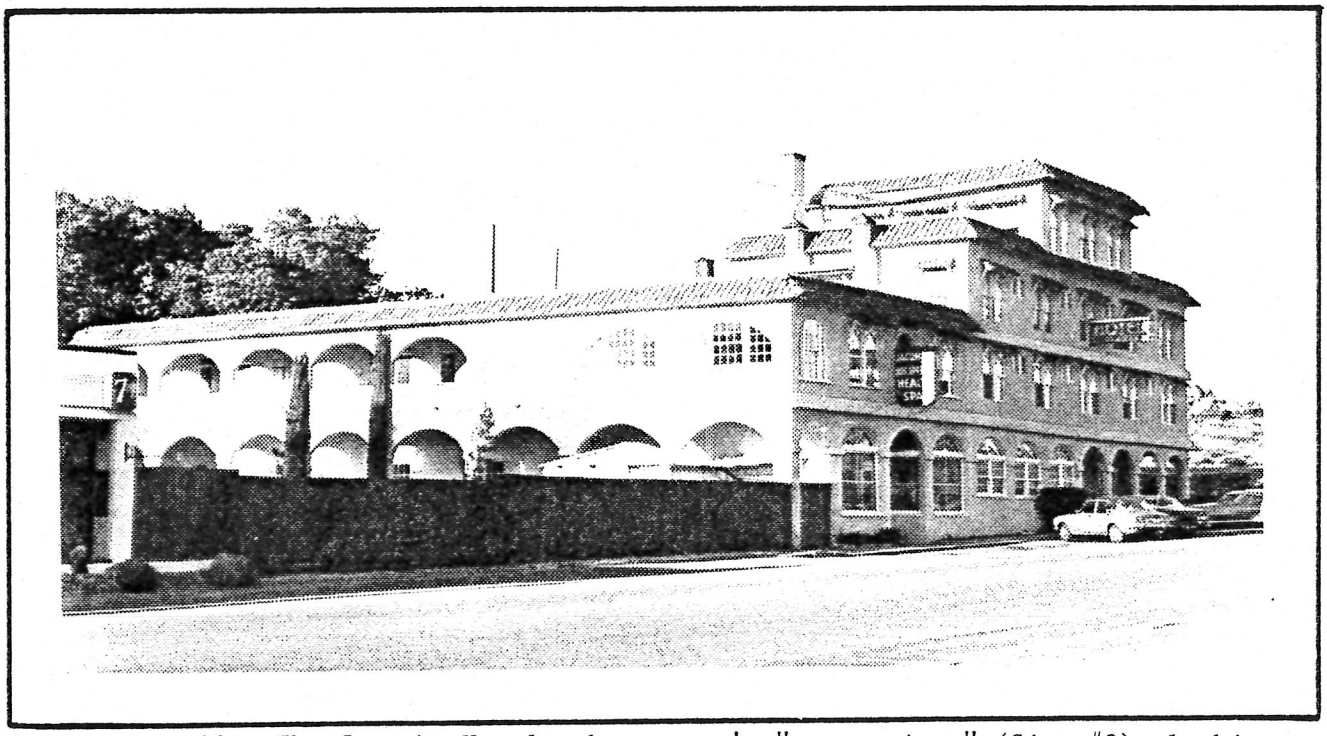

Figure 10. The Jacumba Hotel, the resort's "centerpiece" (Site #2), looking southeast along Old Highway 80.

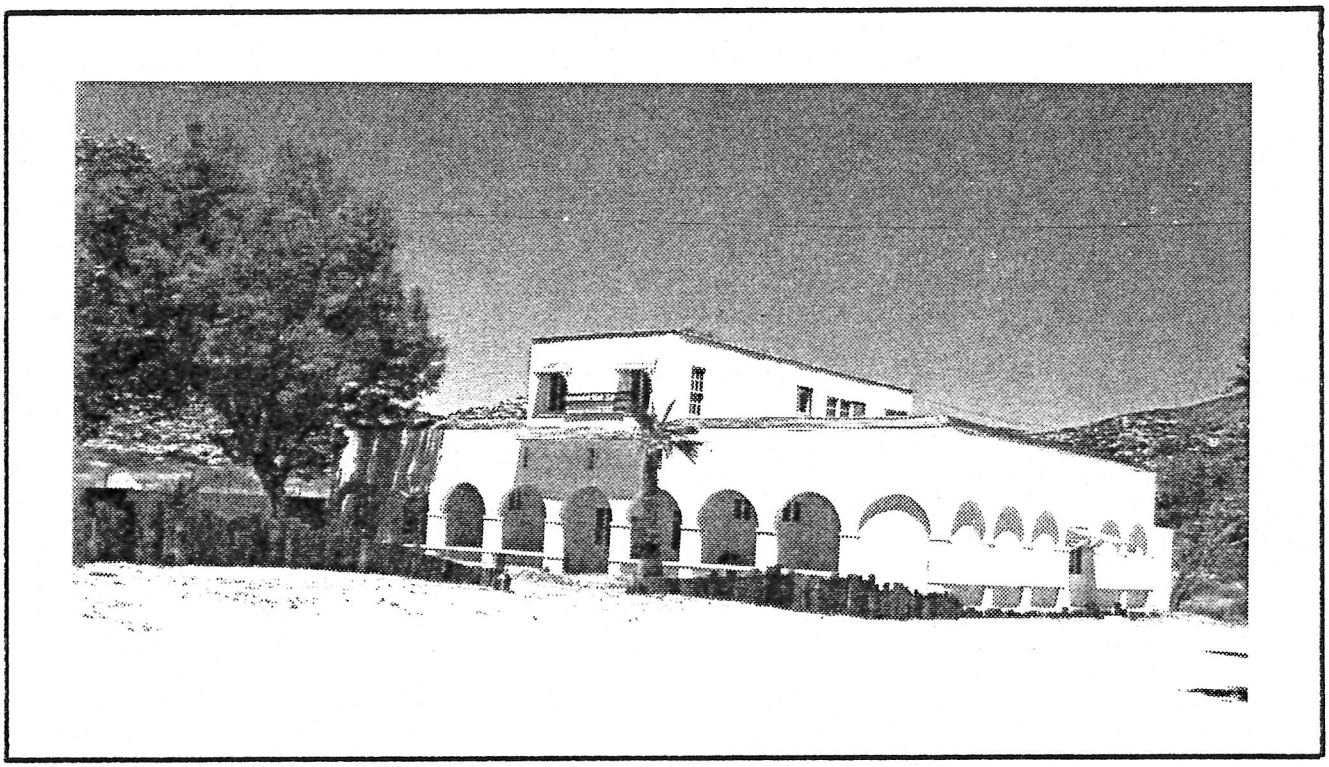

Figure 11. The Bath-House (Site #3) below the spring, looking northwest.

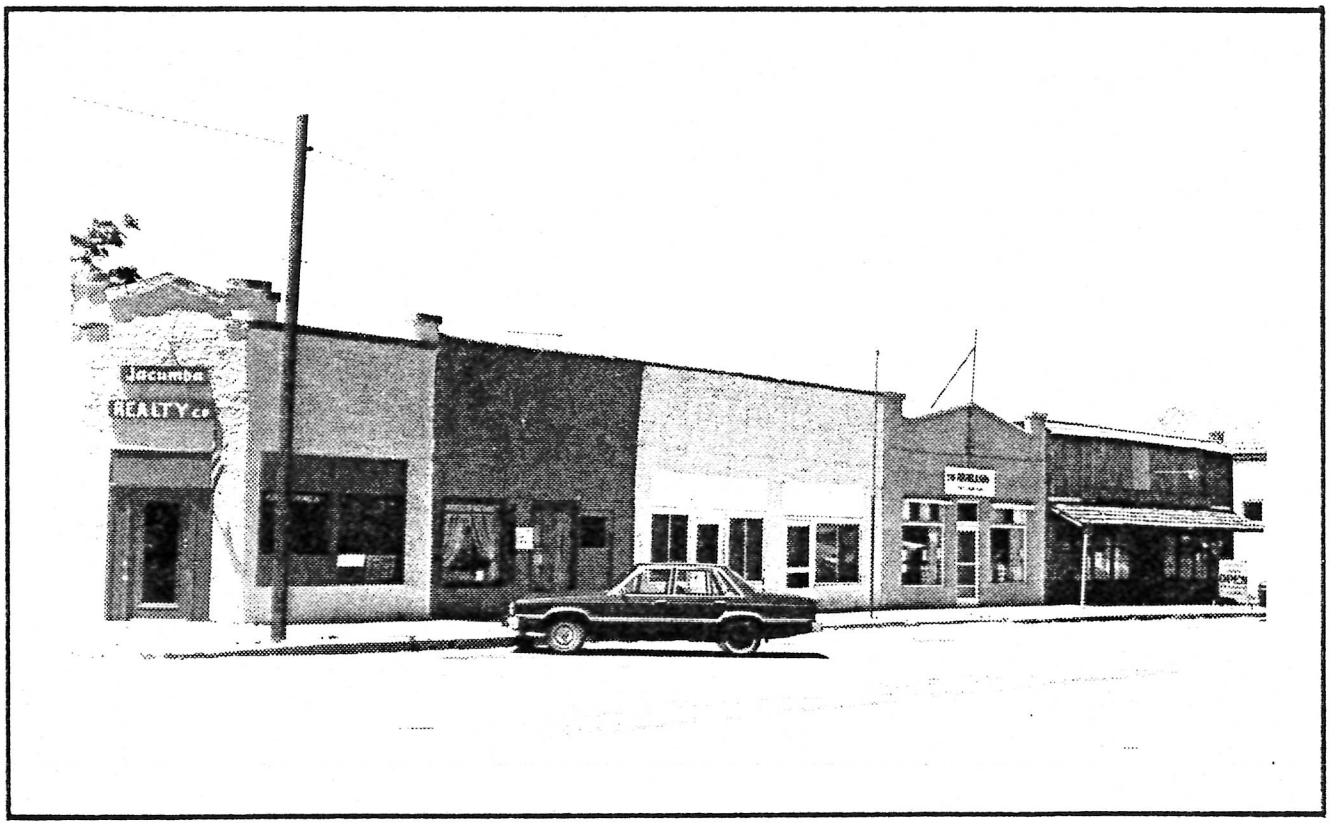

Figure 12. The "Drugstore Corner" (Site #4) and commercial block (Sites #9-12) looking north.

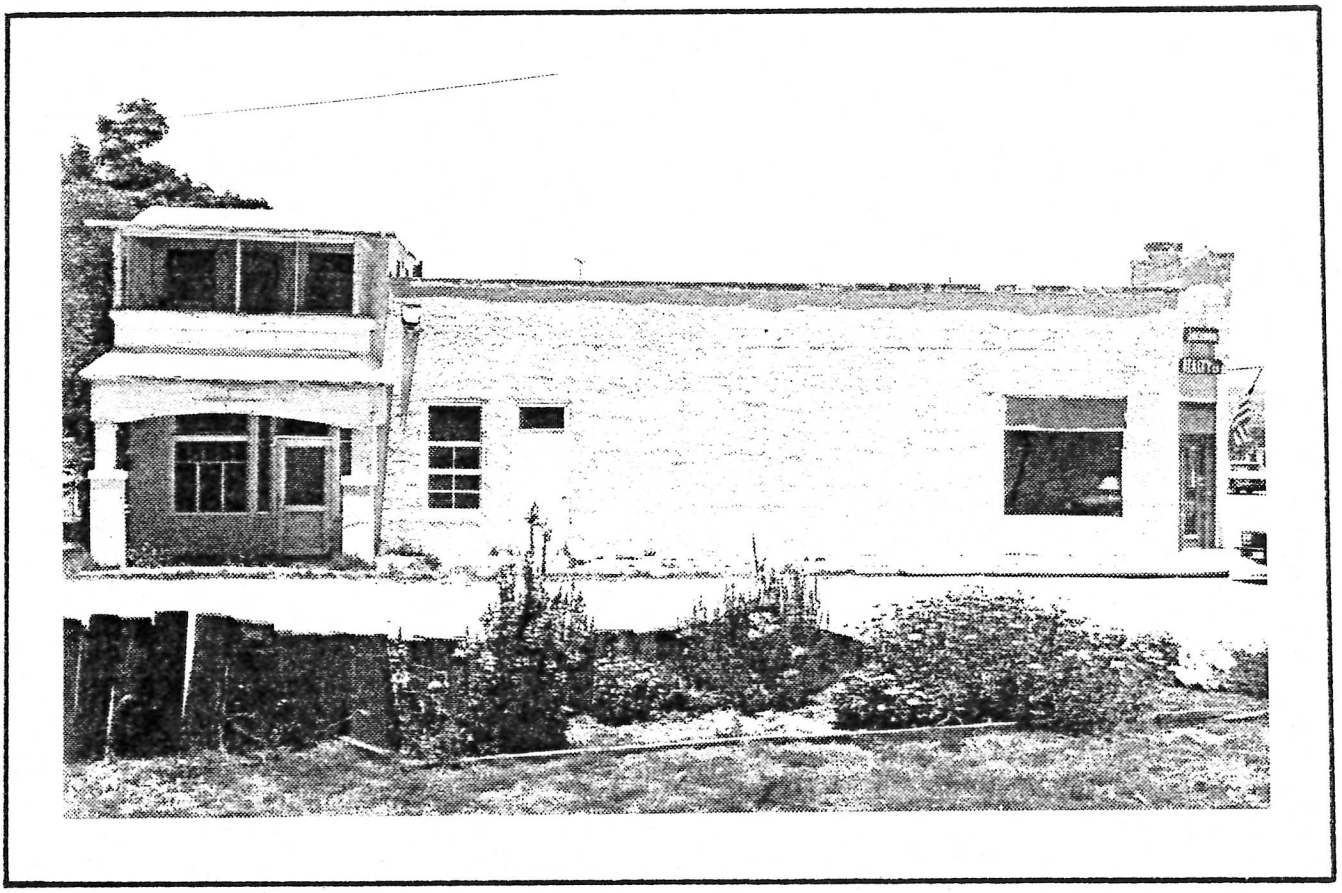

Figure 13. The 1920s residence (Site #5) attached to the commercial block, looking northeast.

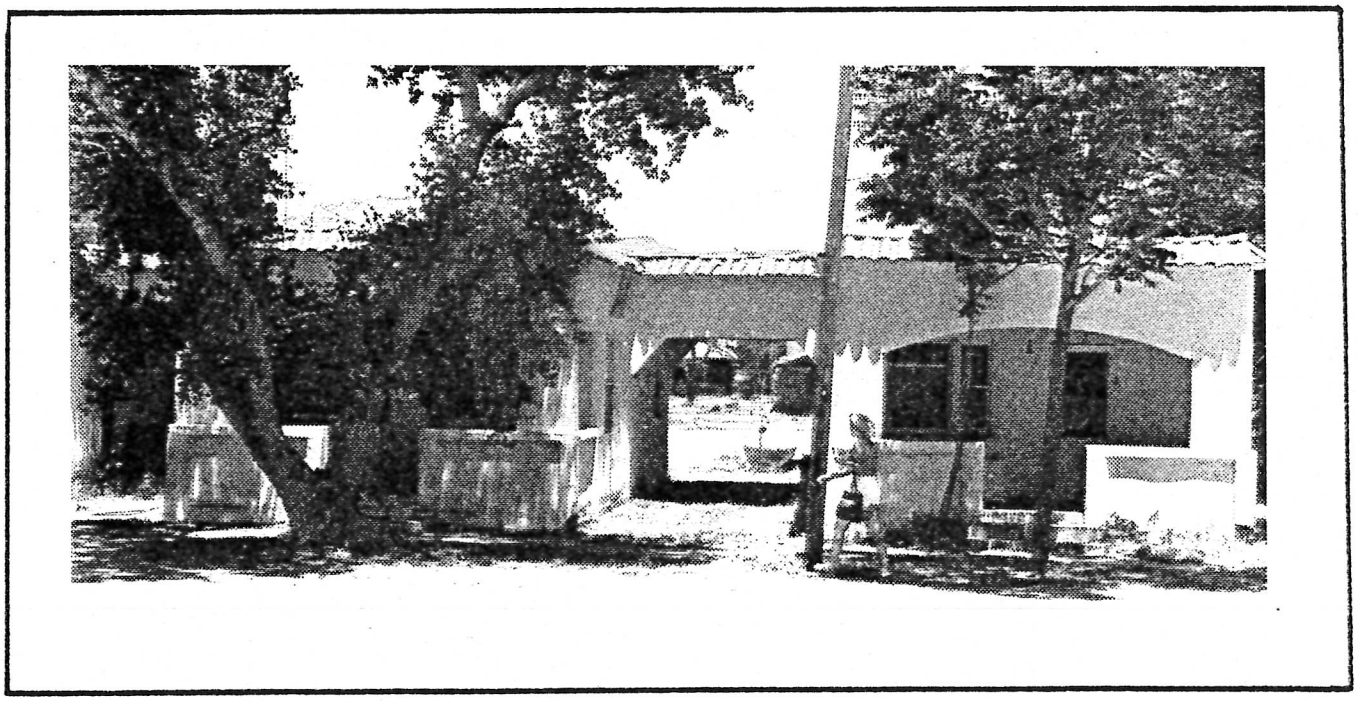

Figure 14. The triplex cottage (Site #6) on Jacumba Street, looking northeast.

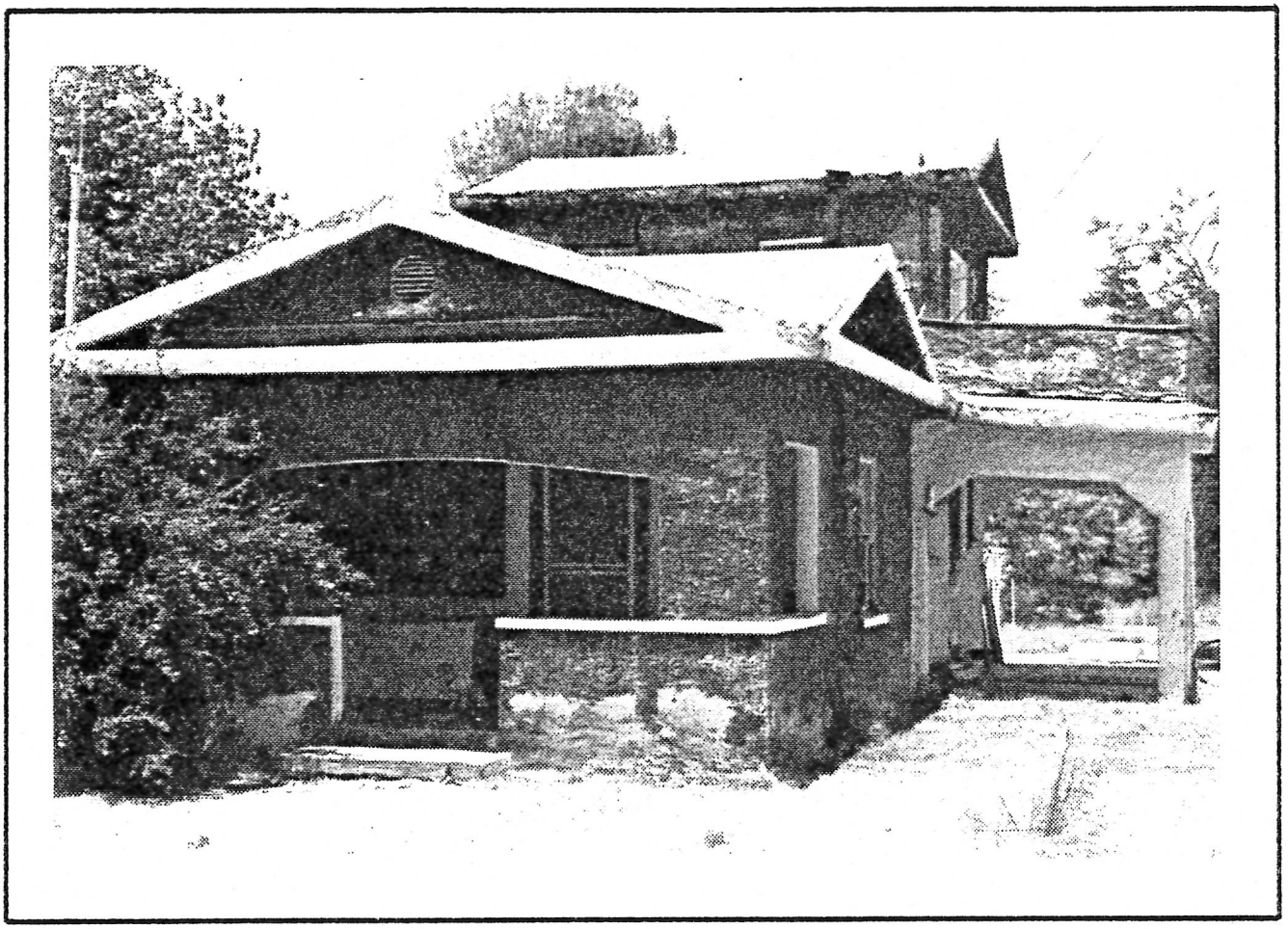

Figure 15. The only two-story residence in town (Site #7), on Jacumba Street, looking northeast.

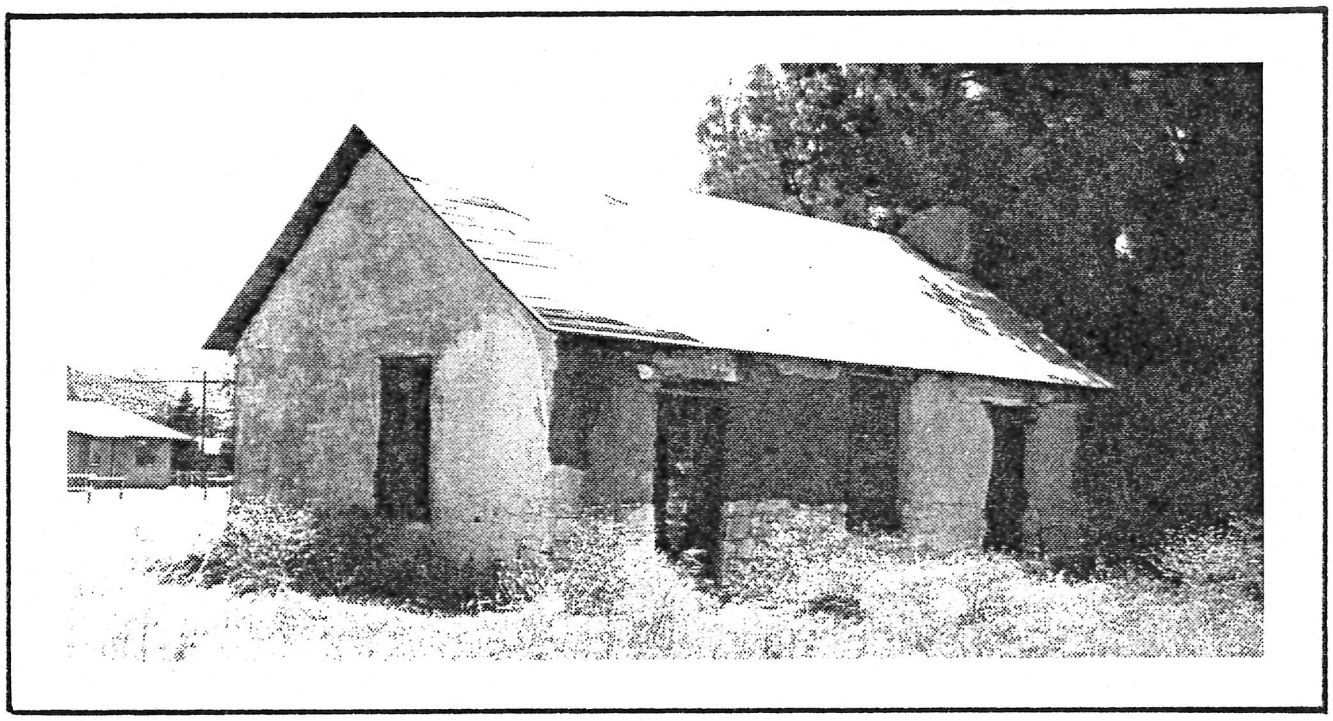

Figure 16. The Larkin Adobe (Site #8) built about 1882, looking west from Jacumba Street.

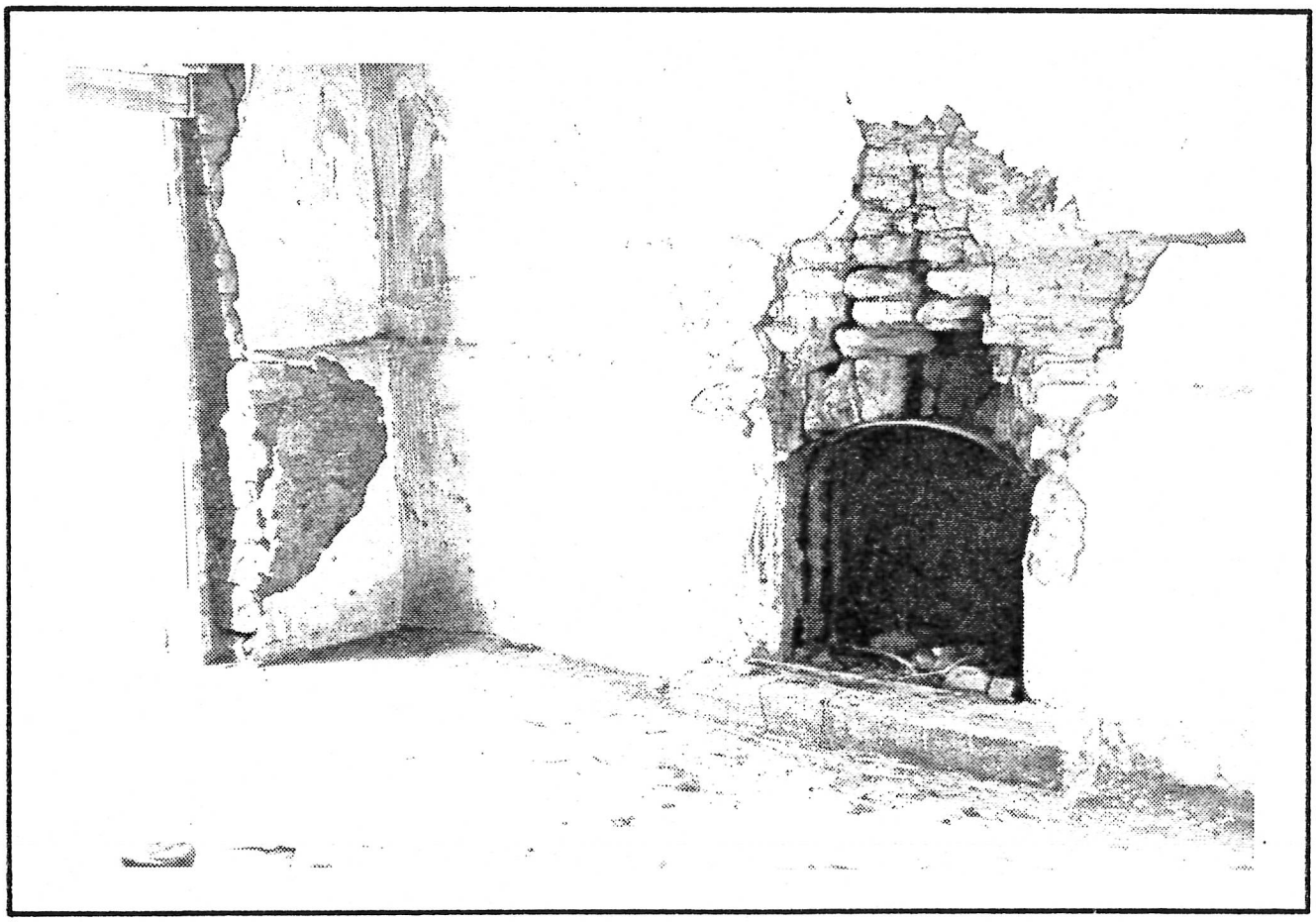

Figure 17. The fireplace inside the southeastern end of the Larkin Adobe (Site #8).

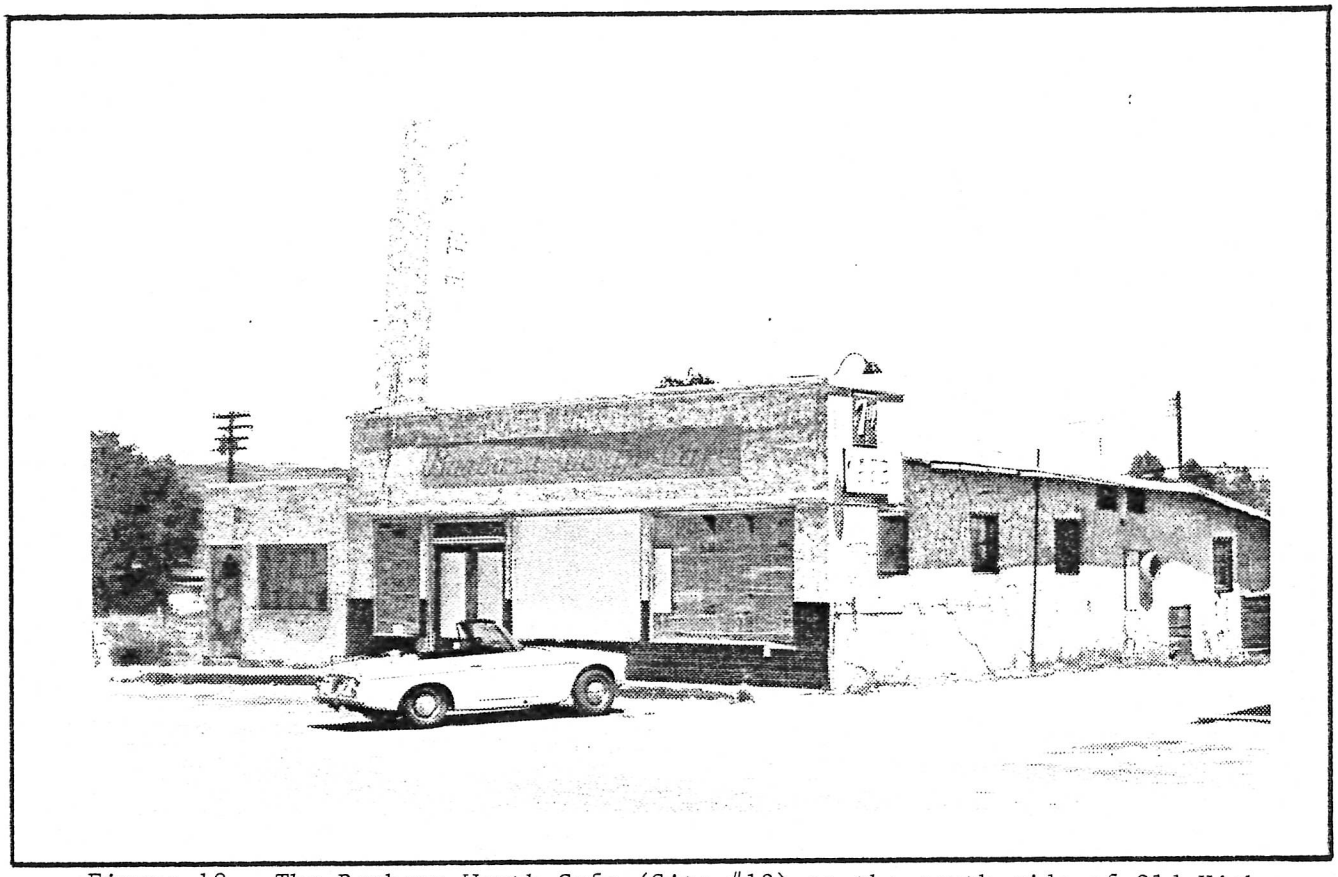

Figure 18. The Barbara Worth Cafe (Site #13) on the south side of Old Highway 80, looking west.

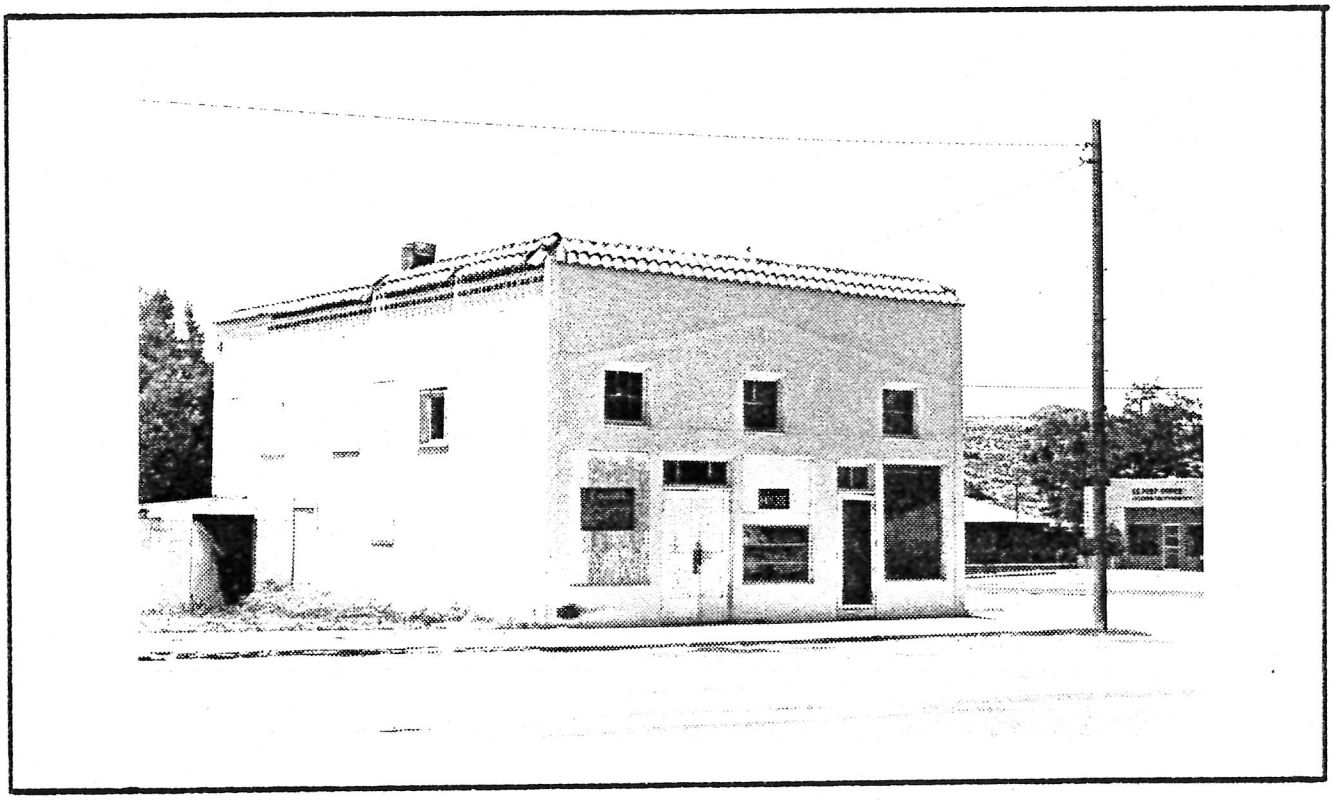

Figure 19. The Jacumba Glass Company building (Site #14) on Old Highway 80, looking north.

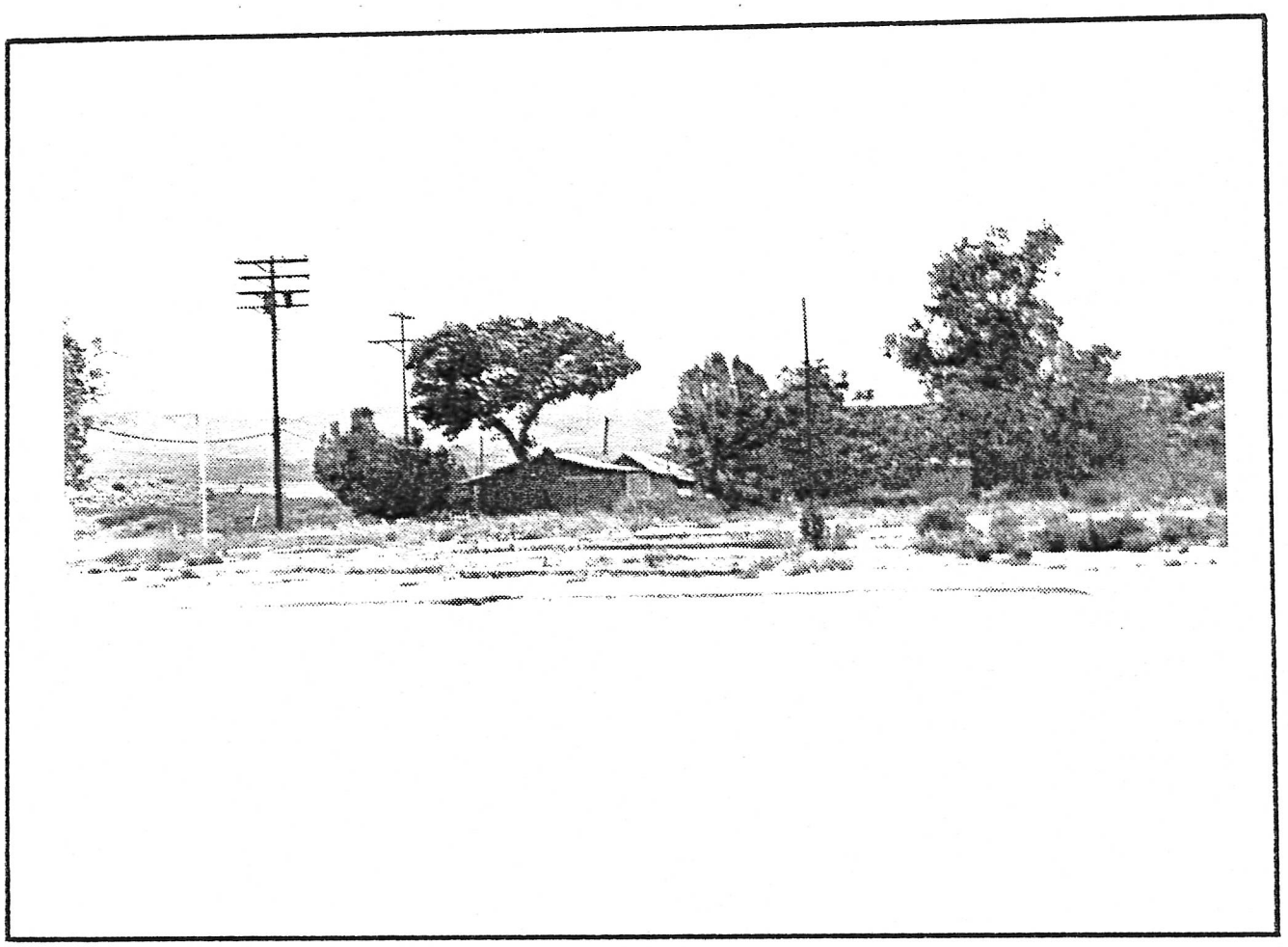

Figure 20. The site of James Fowble's Garage (Site #15) on the south side of Old Highway 80 at Railroad Street, looking southeast.

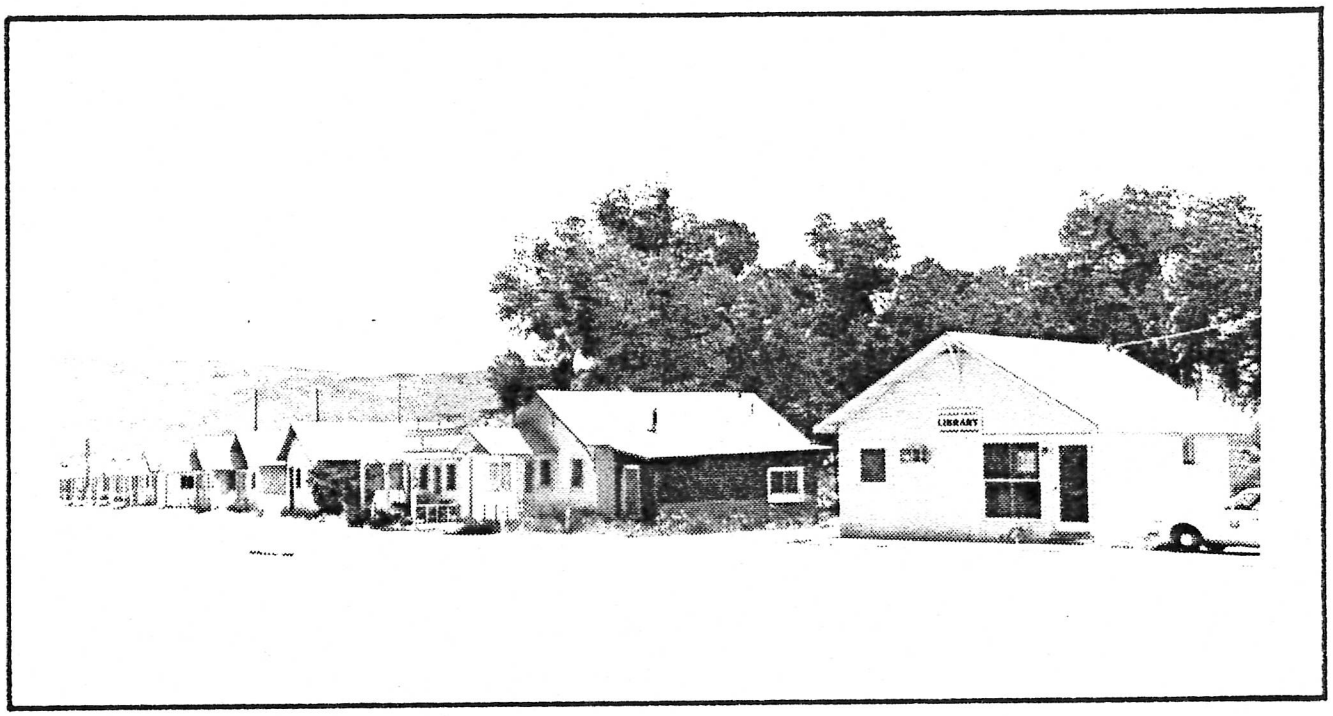

Figure 21. The library (Site #16) in the westernmost housekeeping cottage, looking northeast along Old Highway 80.

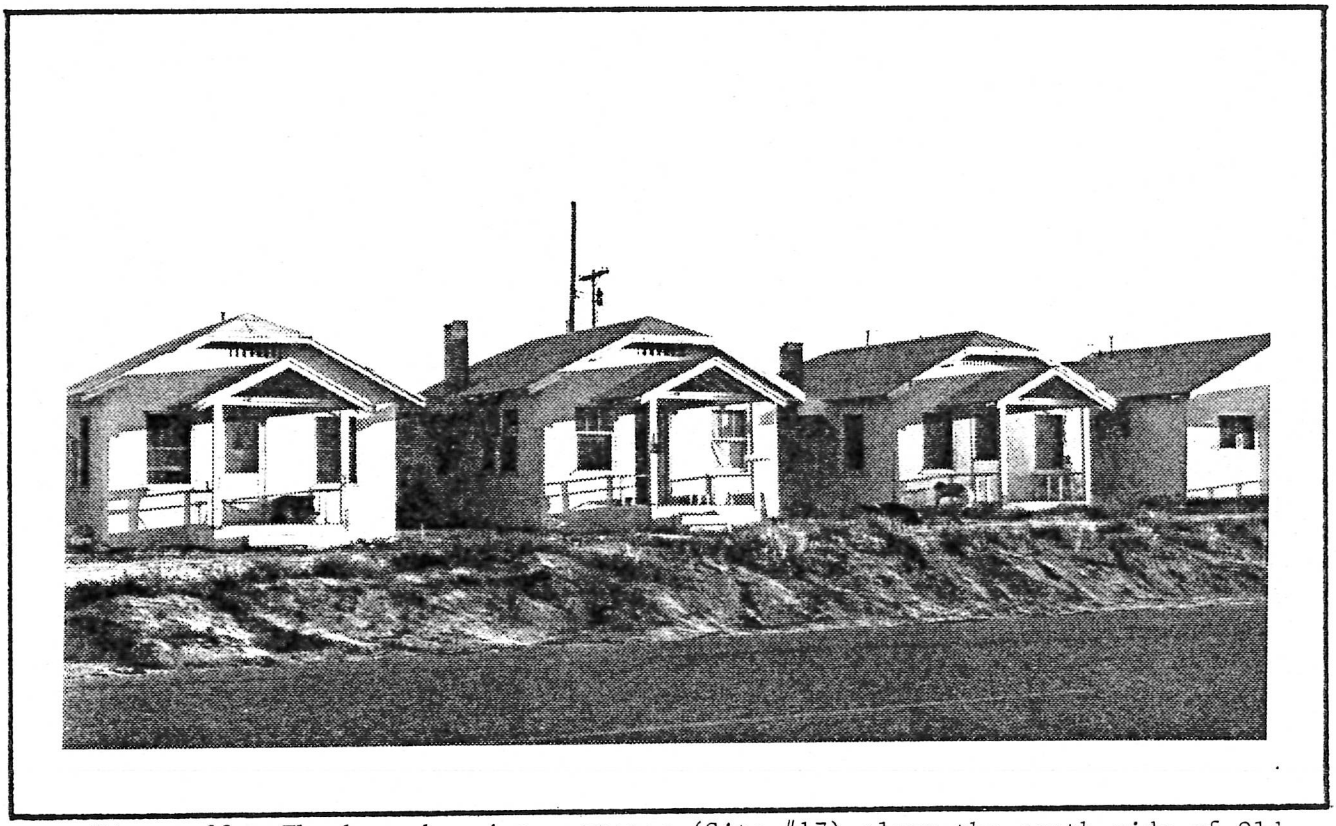

Figure 22. The housekeeping cottages (Site #17) along the south side of Old Highway 80, looking south.

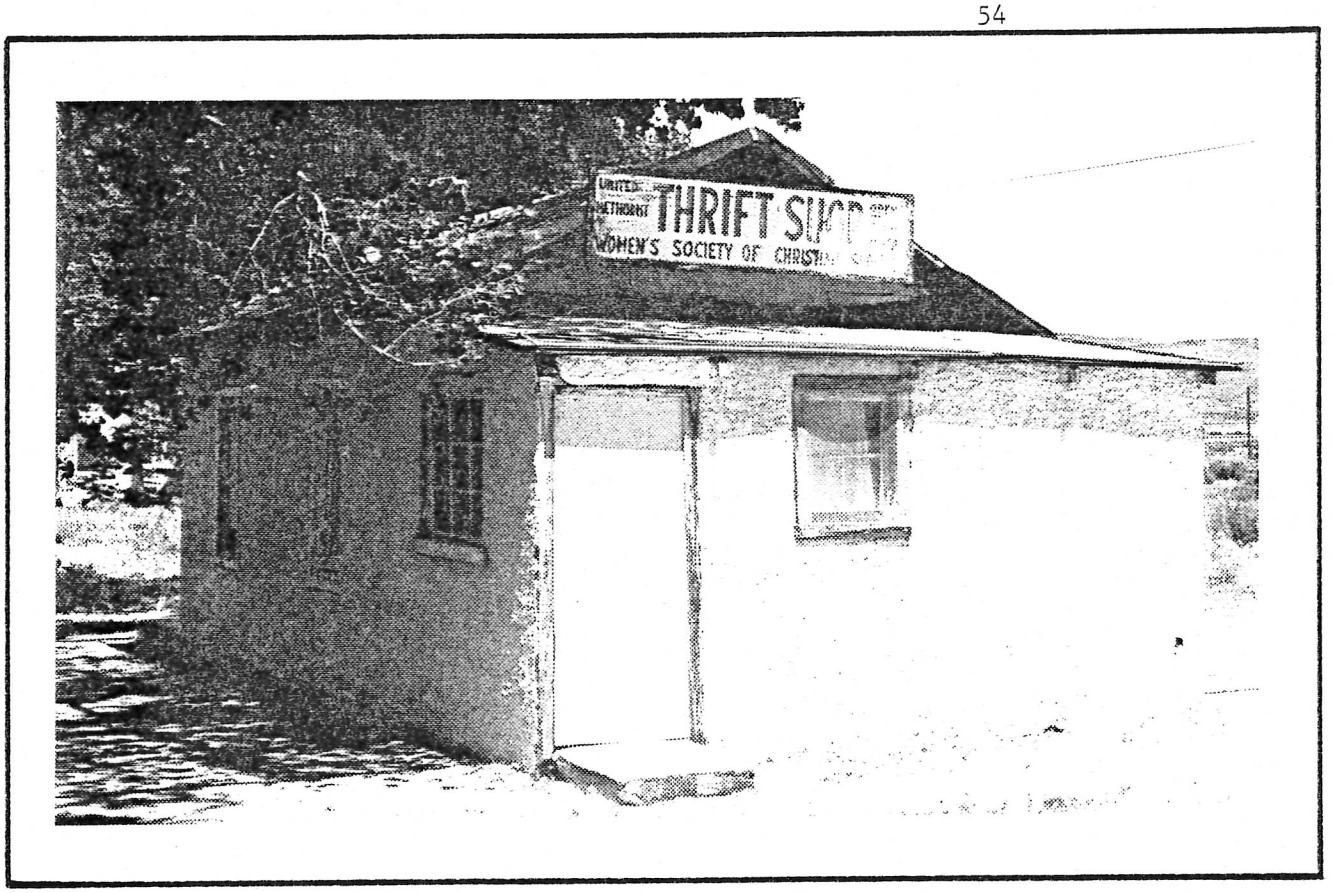

Figure 23. A small cottage (Site #18) now used as a thrift shop, looking east.

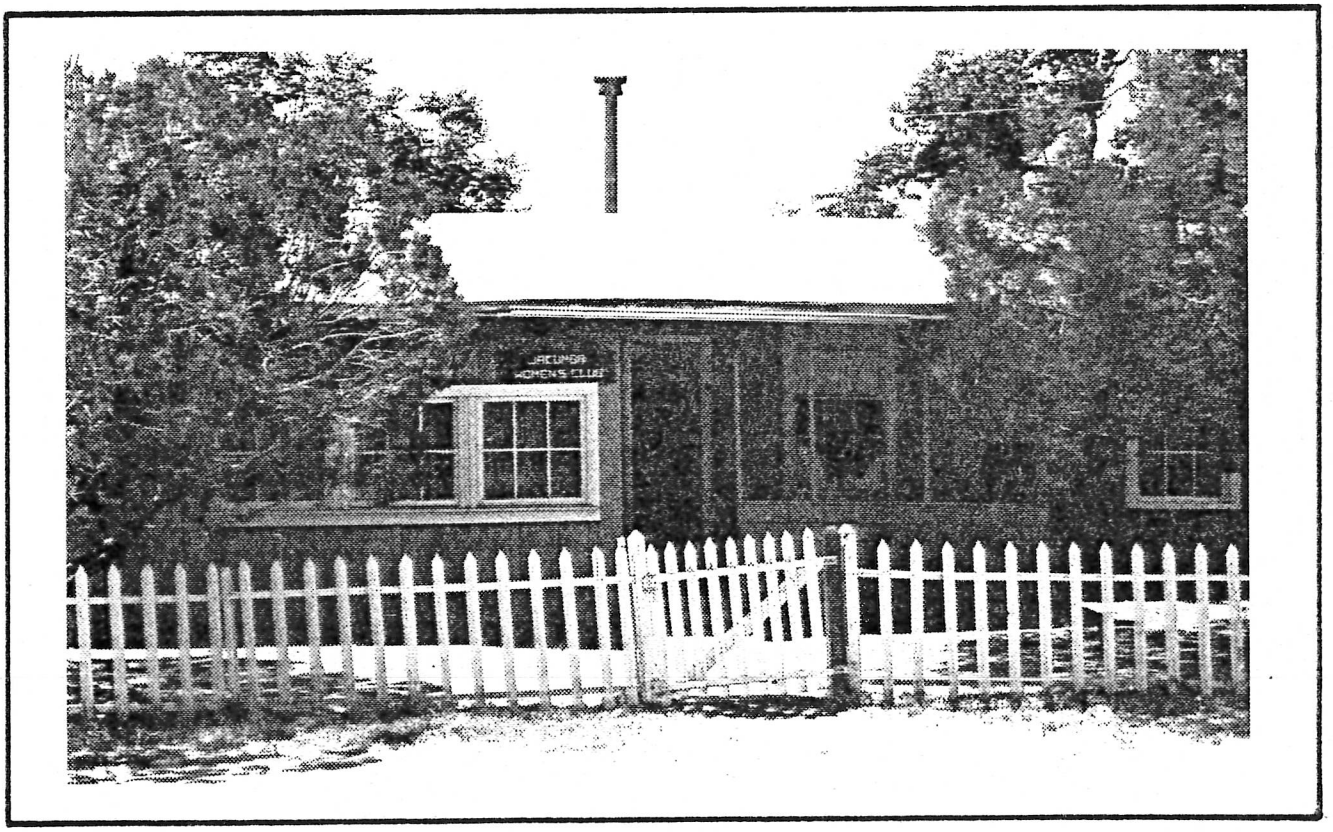

Figure 24. The Jacumba Women's Club building (Site #19), looking southwest

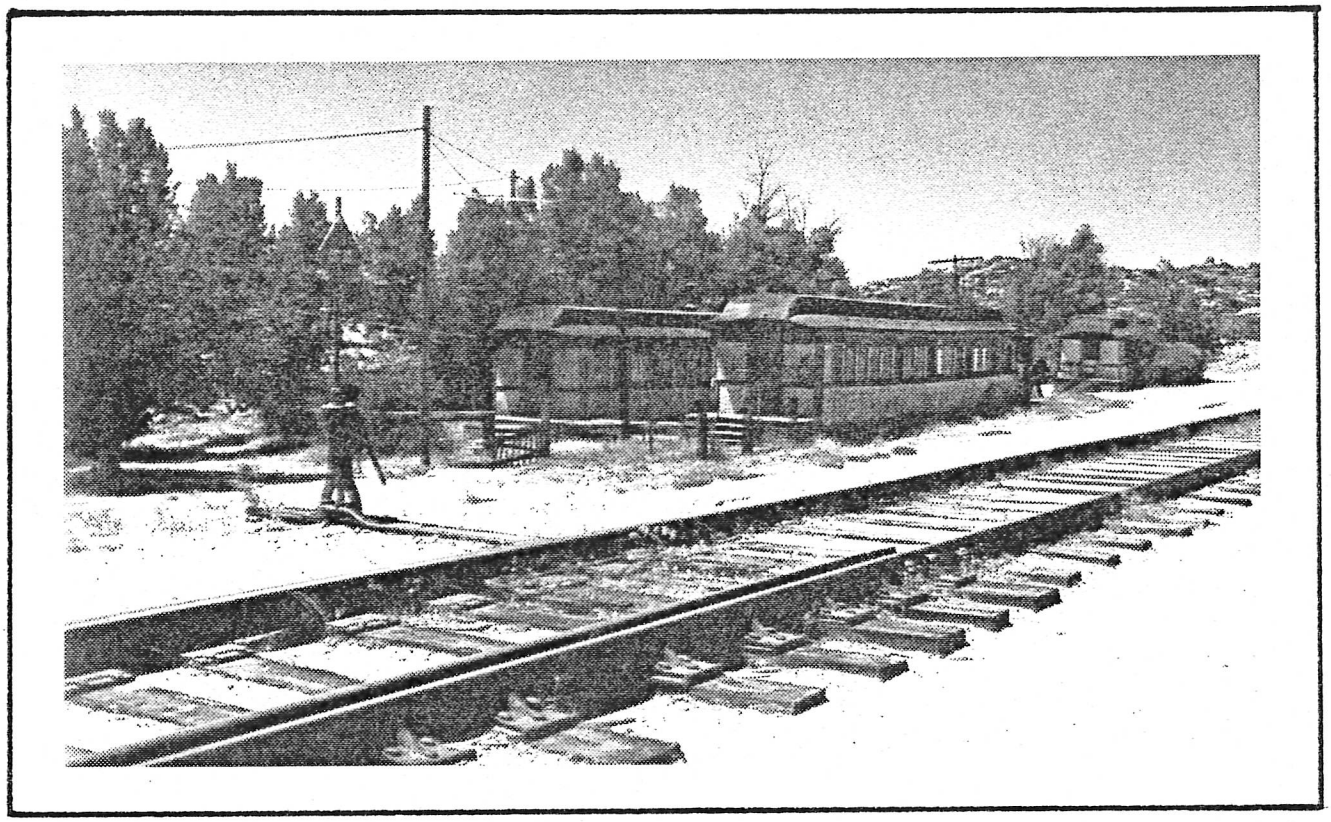

Figure 25. The old railroad cars used as Section Gang Quarters (Site #20), looking southeast.

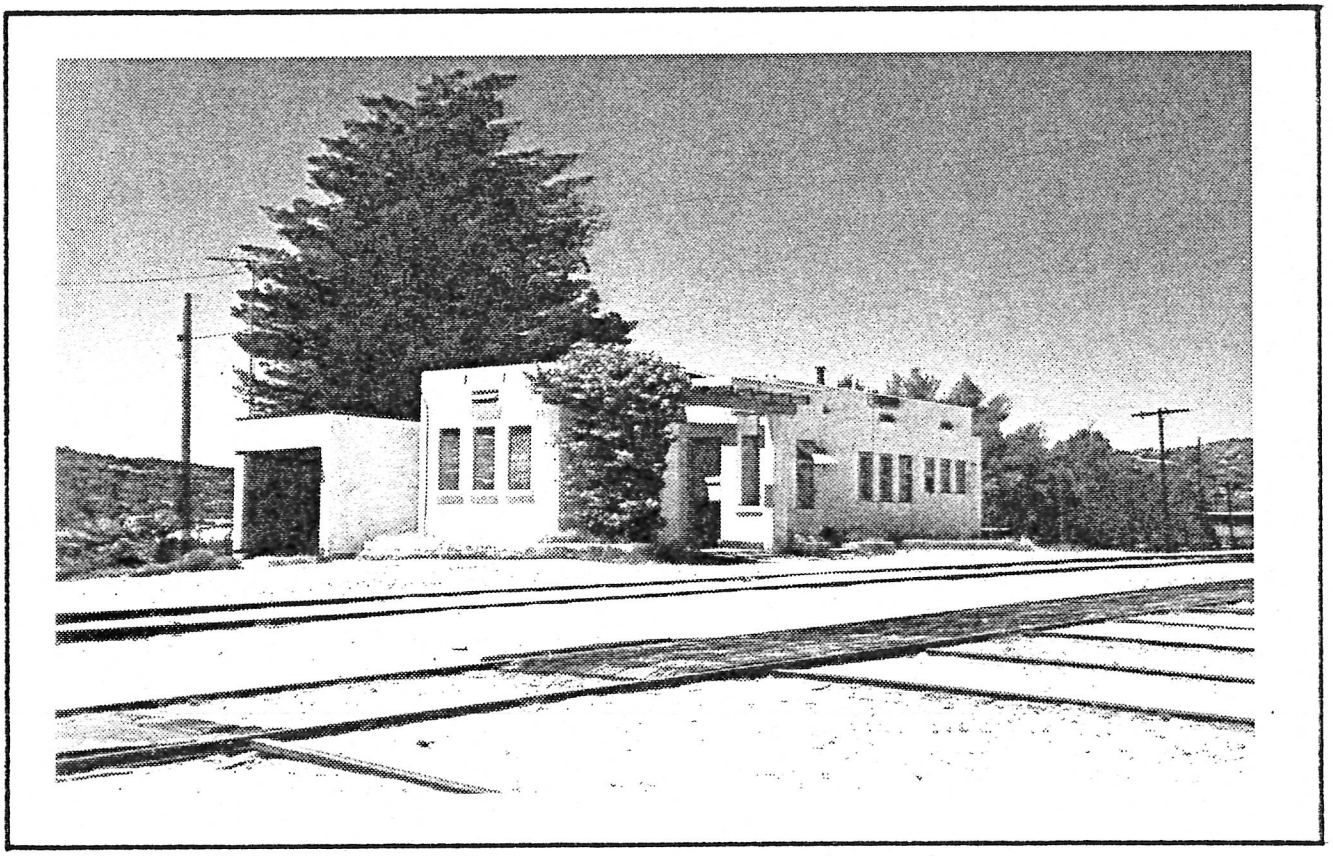

Figure 26. The Jacumba Railroad Station (Site #21), looking southwest.

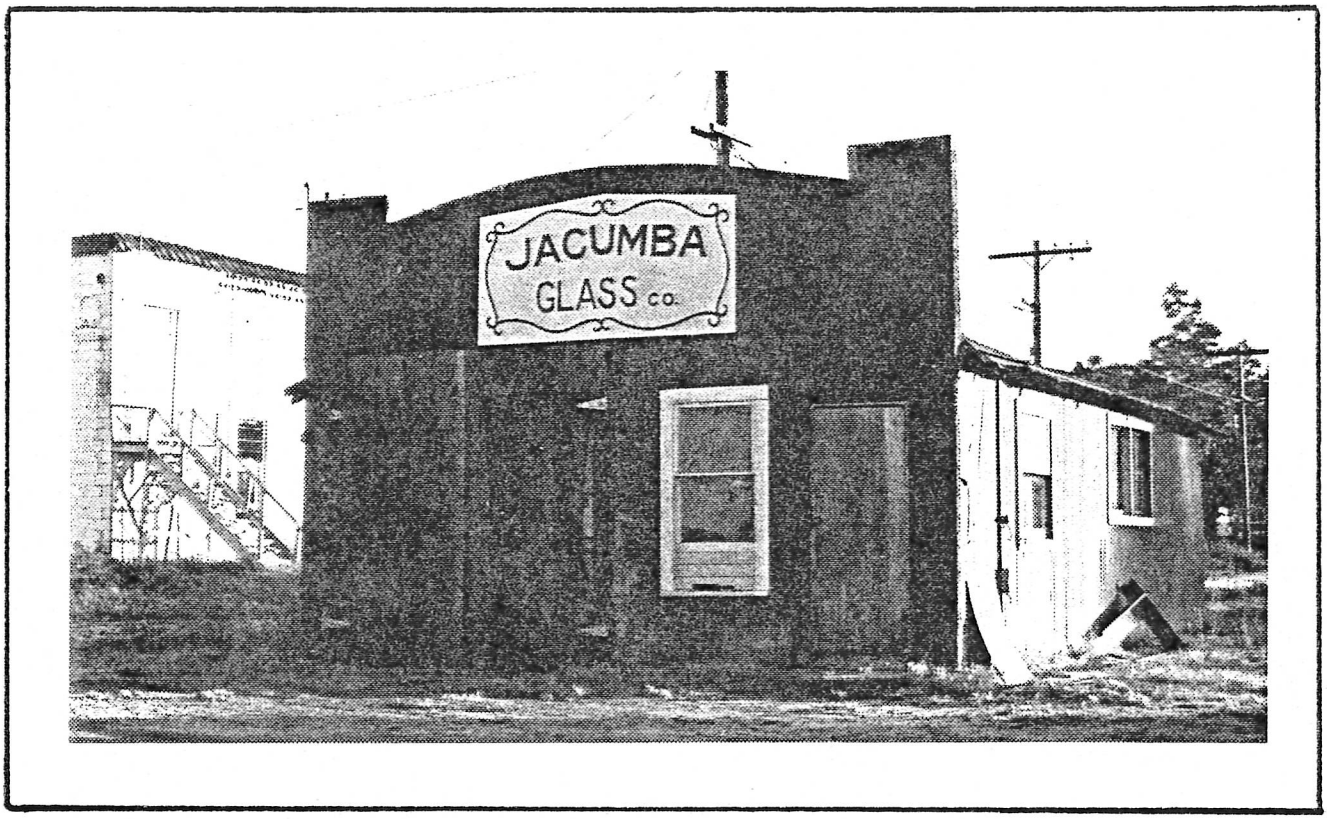

Figure 27. The old Pool Hall building (Site #22) on Railroad Street, looking southeast.

Figure 28. The Mountain Commercial Company store building (Site #23) on Old Highway 80, looking southeast.

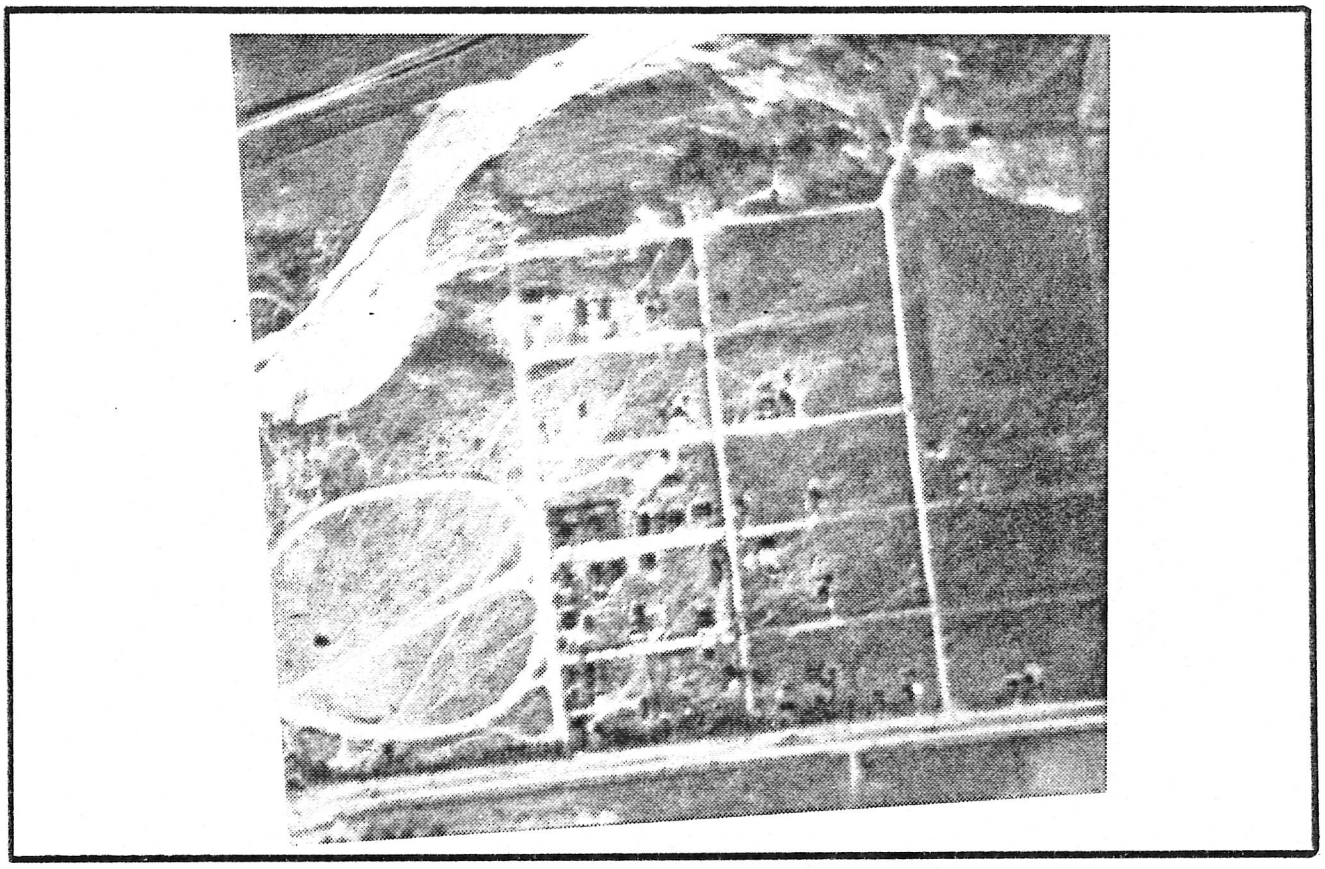

Figure 29. Aerial view of the Rodeo-Racetrack (Site #25) and eastern portion of the community in 1928-29.

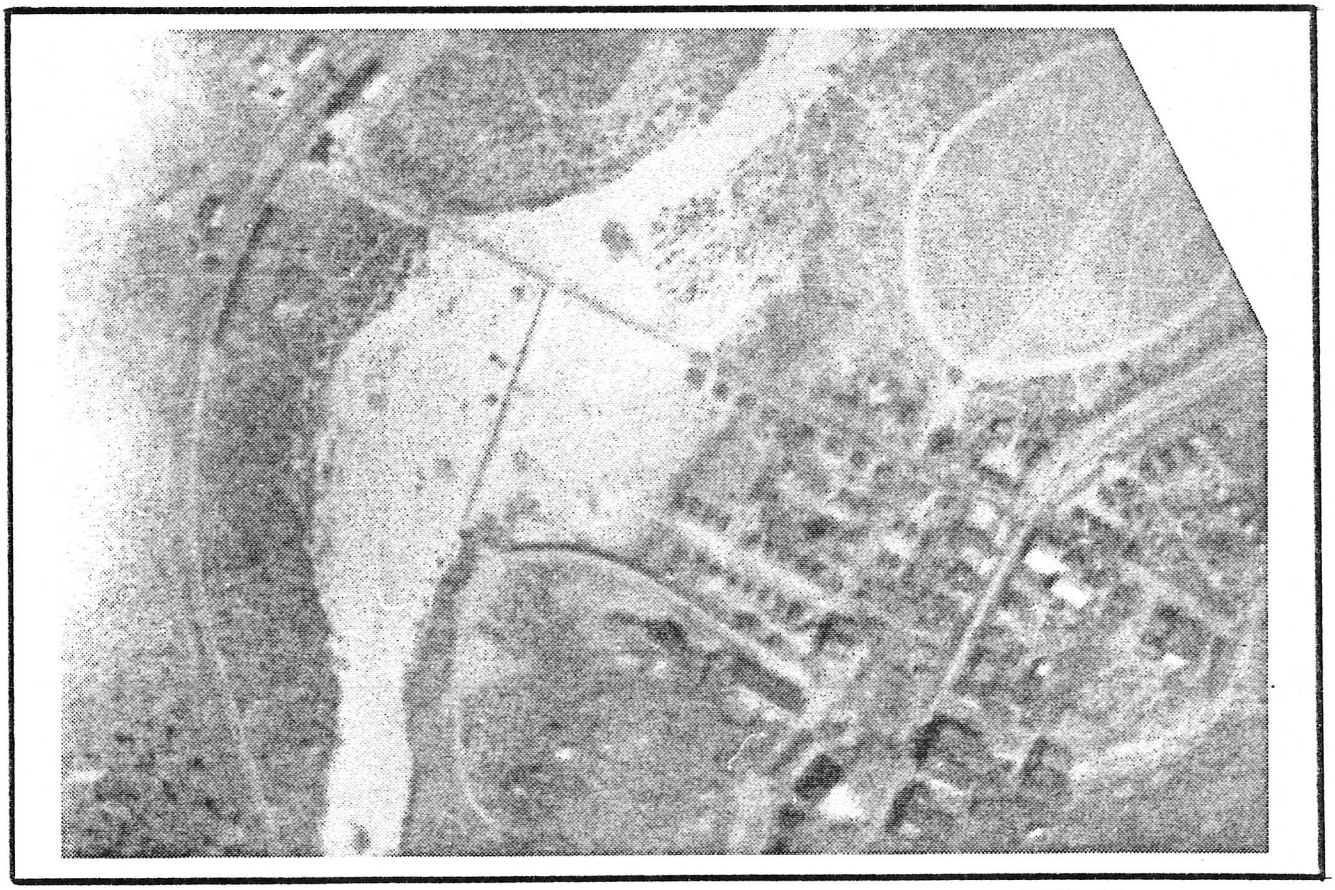

Figure 30. Aerial view of the western portion of Jacumba in 1928-29.

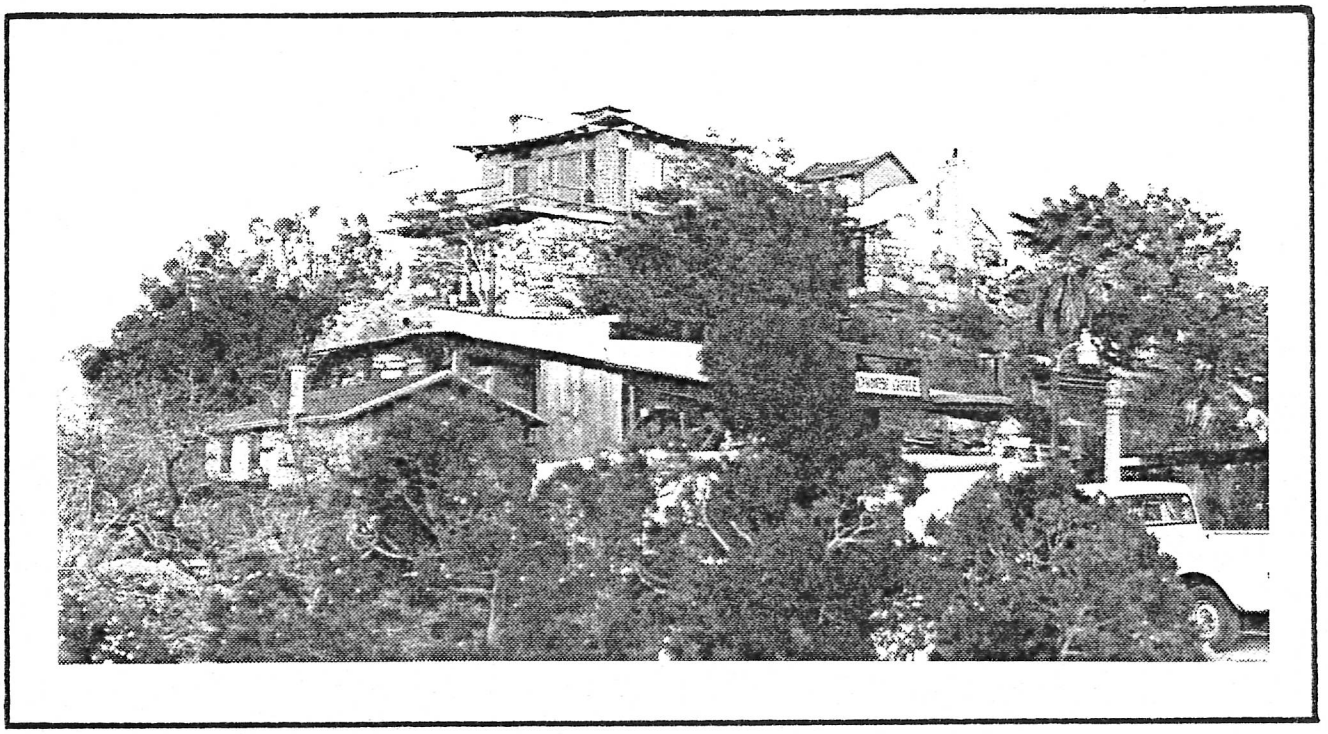

Figure 31. The "Chinese Palace" built by Frank Battle, at the southwestern edge of Jacumba, looking southeast.

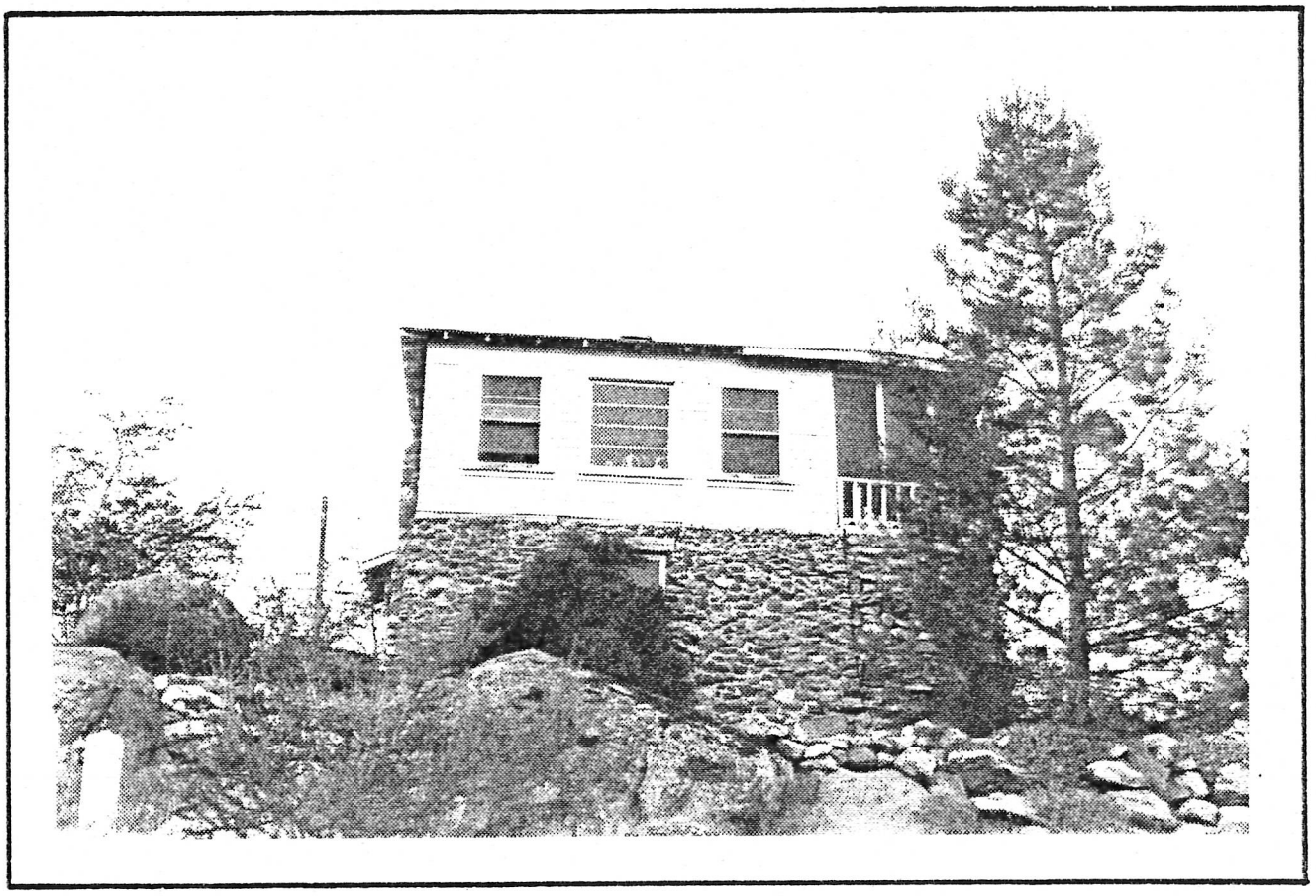

Figure 32. One of the homes built of stone, on the ridge at the western end of the community, looking northeast.

CHAPTER VI
FINDINGS

The investigation located fourteen archaeological sites and a group of isolated finds on the project properties at Jacumba. Two of the previously recorded sites are actually composed of multiple loci, which are designated and described individually in this report. Site records for each of the prehistoric sites have been filed with the State of California's Archaeological Sites Survey at the Regional Office at San Diego State University, and official site numbers have been assigned. The specific locations of the sites are shown on a large map of the project area, at a scale of 1" = 200'; as Appendix IV, for planning purposes this map is included in selected copies of this report in a rear pocket. The noteworthy historic sites inventoried are also identified on this map. In keeping with the policies of the County of San Diego and the State of California, this map is NOT FOR PUBLIC DISTRIBUTION.

In this chapter are presented brief descriptions of each site and the investigations made at each location. Complete technical descriptions of the sites have been prepared as Appendix III of this report (which is not intended for public distribution). Because these detailed technical site reports are so lengthy, for planning purposes the summaries provided in this chapter provide a succinct review of pertinent aspects of each site.

The original field notes, photographs, and project records, along with the materials analyzed from the soil auger tests and the surface obsidian samples collected from two sites, are being curated by Paul G. Chace & Associates.

SDi-4455

The SDi-4455 site is a major Hakatayan Tradition settlement and the

presumed village of Jacum. It was first recorded by Malcolm Rogers in the 1920s and again recorded in 1976 by Wendy Waldron, when it was considered as potentially eligible for inclusion on the National Register of Historic Places (Johnson 1976: 18). The site as recorded is actually composed of a series of seven distinct loci, and some of the other more distant sites in the vicinity are part of this dispersed settlement.

Reservoir Locus. The Reservoir Locus of the SDi-4455 site is a major occupation site with numerous bedrock milling features and an extensive deposit containing archaeological materials. This locus is situated on the top and eastern slope of a wide knoll on the north side of the springs. It is demarked by a medium brown, loamy, archaeological soil deposit extending over an area approximately 550 feet by 400 feet. Three auger tests demonstrated the deposit is about 8 to 12 inches thick over much of the knoll and contains a variety of archaeological materials. Milling features are located on 18 different granitic outcrops and include 79 milling basins, 27 milling slicks, and five mortars, as well as 17 small cupules which occur clustered on two outcrops. Noteworthy items on the surface of the deposit had been previously collected, but the deposit is substantially intact and contains diverse archaeological materials which would substantially enhance an understanding and appreciation of the heritage of the region.

It is proposed that this locus constitutes a significant cultural resource closely associated with the springs and should be preserved.

Roadway Locus. The Roadway Locus of the SDi-4455 site is another major occupation site with a dark midden soil deposit containing a very rich concentration of archaeological materials and numerous bedrock outcrops with milling features. This locus is located on the crest and eastern flank of the ridge immediately south of the springs. The locus now covers an area

about 400 feet by 250 feet; however, the site has been truncated along the northwestern side by Old Highway 80, and a private, unpaved roadway has been graded through the eastern portion of the deposit. A series of five auger tests in various portions of the deposit yielded rich concentrations of archaeological materials, as well as some historic trash in some areas. The tests revealed that the distinctly dark brown, loamy deposit extends to a depth of 9 to 15 inches over most of the locus. There are 14 bedrock outcrops with a total of 68 milling basins, 19 milling slicks, and seven mortars. Most noteworthy items from the surface of the locus have been previously collected, and series of collectors' excavations are evident in the southern portion of the deposit. However, several flakes of exotic obsidian were collected from the surface and several more tiny flakes were recovered in the auger testing which are being submitted for dating by hydration analysis.

It is proposed that this locus, although slightly disrupted, still has significant potential to contribute to the archaeological heritage of the region. It is closely associated with the springs and should be preserved.

Intermediate Locus. The Intermediate Locus of the SDi-4455 site is a series of milling stations. These bedrock features are located along the eastern side of the ridge south of the Roadway Locus. In all, 22 of the many outcrops along the slope have milling features, which include 73 milling basins and 25 milling slicks. These features have been mapped within an area extending 500 feet by 400 feet.

There are no apparent archaeological midden soil deposits associated with these bedrock features. An occasional flake of basalt and a few isolated sherds of pottery occur along the eastern flank of the ridge, but no significant concentrations of archaeological materials occur. Most of the

locus appears to have only a shallow and very coarse decomposed granitic soil. Three of the more promising areas within the locus were tested by augering. Two of the tests proved to be culturally sterile, and the third yielded only two basalt flakes and a piece of metal wire in a 20 inch deep accumulation of presumably natural soil deposits.

The significant cultural features of this locus have all been mapped, photographed, measured, and micro-mapped. It is proposed that this locus has been recorded in sufficient detail to preserve the heritage present, and that no further consideration for this locus is warranted.

Three Rock Locus. The Three Rock Locus of the SDi-4455 site is another occupation area with a cluster of bedrock milling features and a deep deposit with archaeological materials. This locus is situated around an outcropping of bedrock with three huge rocks, at the eastern foot of the ridge southeast of the Intermediate Locus and the Roadway Locus. Archaeological materials are evident over an area 170 feet by 130 feet. Three soil auger tests demonstrated the dark brown, loamy, archaeological soil deposit extends to a depth of at least 21 inches in some portions of the site and contains a variety of materials. Milling features are present on nine different bedrock outcrops and include 37 milling basins, 16 milling slicks, and six mortars. This locus appears to be undisturbed, although any spectacular tools on the surface have been previously removed.

It is proposed that this locus contains significant potential to contribute to the archaeological heritage of the region, and it should be preserved.

One Rock Locus. The One Rock Locus of the SDi-4455 site is the southeastern locus of this site located on the project property. It is a minor occupation area with several bedrock milling features and a surface

scatter of camp debris. This locus is situated around an outcropping of bedrock with one huge rock, along the eastern base of a ridge some distance east of the Three Rock Locus. There is a diffuse scatter of pottery sherds and basalt flakes over an area about 200 feet by 150 feet, but nowhere is there any apparent concentration. The soil is a coarse, decomposing quartz and granite and appears to be very shallow. An auger test in one area with a relatively promising soil demonstrated that the deposit is essentially sterile and natural. A total of two milling basins and two milling slicks was recorded on three different bedrock outcrops within this locus.

Beyond the surface materials associated with the recorded bedrock features, this site has little other apparent potential significance. It is proposed that the mapping, collection, and analysis of these surface items, in conjunction with the bedrock features already fully recorded, would constitute adequate consideration for this minor site if it were to be impacted by development.

Milling Isolate A. The Milling Isolate A locus of the SDi-4455 site is an isolated milling station on the western side of the ridge south of the springs. This large, flat top granite outcrop has three milling slicks and 22 milling basins worn in it. No midden soil deposit was associated with this feature, and only two lithic flakes and one potsherd were observed on the surface.

This isolated feature has been mapped and fully recorded, and it is proposed that no further planning consideration would be warranted if it were to be impacted by development.

Milling Isolate B. The Milling Isolate B locus of the SDi-4455 site is two milling stations 40 feet apart, high on the crest of the ridge south of the springs. A milling basin is worn into one outcrop and three slicks are present on the other. Two lithic flakes were observed on the surface near these features, but no other archaeological material or midden soil deposit were present.

These isolated features have been mapped, photographed, and fully documented, and it is proposed that no further planning considerations would be warranted if this locus were to be impacted by developement.

SDi-4457

The SDi-4457 site is a Hakatayan Tradition campsite with an apparently deep archaeological deposit. This site is situated on a remnant ancient alluvial bench which extends out into the valley. The bench is about six feet above the valley floor and would provide a dry campsite when the valley was moist or marshy. Tizon Brown Ware pottery sherds, a portable milling basin fragment, and numerous basalt flakes were evident on the surface. Two auger tests indicated sherds and lithic materials may extend to depths of 24 and 28 inches in the soils on the bench.

It is proposed that this site constitues a significant cultural resource which may be closely associated with aboriginal agriculture activities on the moist valley floor, and it should be preserved.

SDi-7030

The SDi-7030 site was first recorded by Deb Dominici in 1979 as a lithic scatter. It appears upon reinvestigation to be composed of three separate loci or concentrations on the ancient alluvial

surface which is the lower, southeastern flank of Jacumba Peak. The loci are concentrated on ridges separated by erosional swales or arroyos. Occasional basalt flakes and some basalt cores are present on the ancient surface of these uneroded ridges. The cores may be basalt rocks selected from this old alluvial surface to provide suitable sharp-edged flakes and flaked tools for various activities. No pottery, refined tools, or items diagnostic of a particular cultural tradition were observed in either survey. This site might be very ancient, but it could be part of the pattern of Hakatayan land use. (Interestingly, no agave roasting pits are present on these slopes, although there are a few plants growing there and roasting pits are common on Table Mountain on the eastern side of the valley.)

The cultural affiliation and pattern of these prehistoric materials has yet to be clearly established, so the full extent of their significance remains to be defined. The importance of similar materials on the hills on the eastern side of the Valley also remains to be clarified (May 1979, McCoy and Theskin 1979, and Whitney-Desautels 1980).

It is proposed that if this area is to be impacted by specific development plans, these cultural remains should be mapped, collected, and analyzed.

SDi-7031

The SDi-7031 site is another concentration of lithic flakes and cores originally recorded by Dominici in 1979. It is similar in all respects to the SDi-7030 site, except that this site is situated in

the base of an old, wide wash in the ancient alluvial surface just east of the SDi-7030 site. A well formed basalt scraper plane was found as an isolated occurrence farther up this wash.

It is proposed that like the SDi-7030 site, if this area is to be impacted by specific development palns, these cultural remains should be mapped, collected, and analyzed.

SDi-7032

The SDi-7032 site is another concentration of lithic flakes and cores originally recorded by K. Crotteau in 1979. It too is similar in all respects to the SDi-7030 site and is situated on the top of the ridge immediately east of the SDi-7030 site. Certainly, it would appear that the SDi-7030, SDi-7031, and SDi-7032 sites are related.

It is proposed that like the SDi-7030 site, if this area is to be impacted by specific development plans, these cultural remains should be mapped, collected, and analyzed.

SDi-7037

The SDi-7037 site was recorded by Jan Moore in 1979 as two isolated flakes on the sloping, hillside north of the modern railroad line. These specific flakes were not relocated during the current reconnaissance, but the lack of any concentration of materials was confirmed during this survey.

As isolated, these two flakes have little potential significance, and it is proposed that no further consideration is warranted for this site.

SDi-7038

The SDi-7038 site is composed of two very recent, historic stick shelters held in place by rocks. These features were recorded by Dominici in January 1979, and they were probably hideaways built by local youngsters. They were no longer apparent in June 1970 when the current reconnaissance of the area was undertaken. The original description indicated that they were composed of sticks stacked on or held in place by cobbles. Each one was about six feet in diameter, and they were built on the steep eastern side of the ridge 800 feet north of the railroad center.

It is proposed that this site warrants no further planning considerations.

SDi-8066

The SDi-8066 site is a small Hakatayan Tradition occupation site with bedrock milling features and a concentration of camp debris. This site is situated in and around a rocky knob on the edge of Boundary Creek. The rocks form a large but low natural shelter (which also has been utilized by youngsters quite recently). Sherds of both Tizon Brown Ware and Buff Ware ceramics and numerous basalt flakes are present, as well as a single piece of exotic obsidian which was collected for dating by obsidian hydration. Material is present over an area 240 feet by 200 feet. Auger tests on the lower sides of the knob yielded subsurface archaeological materials to a depth of 20 inches in the medium brown, loamy soil, but only sterile decomposing granite was encountered in the test of the higher, northwestern side of the knob. Three bedrock outcrops

with milling features are present and include 20 milling basins, 11 milling slicks, and one mortar; but most of the bedrock is exfoliating and other bedrock features probably have disappeared.

It is proposed that this site contains significant potential to contribute to the archaeological heritage of the region, and it should be preserved.

SDi-8067

The SDi-8067 site is a Hakatayan Tradition occupation area with several bedrock milling features and a widely dispersed scatter of camp debris. The site is situated in a sheltered cove at the base of the hills on the western side of Boundary Creek. Archaeological materials are spread over an area 400 feet by 320 feet and include both Tizon Brown Ware and Buff Ware potsherds, some stone tools, and many basalt flakes from tool production. Three soil auger tests in various promising areas all failed to clearly demonstrate the presence of subsurface archaeological midden soil, although one test yielded buried basalt flakes. Milling features are present on two bedrock outcrops and include 16 milling basins and 6 milling slicks. Most of the other exposed bedrock is weathering and would not have preserved any milling features once present.

It is proposed that this site contains significant potential to contribute to the archaeological heritage of the region, and it should be preserved.

SDi-8068

The SDi-8068 site is a workshop and lithic scatter with a nearby milling feature. It is situated along the crest of a ridge extending down the flank of Jacumba Peak with the same type of ancient, alluvial surface as the SDi-7030 site, which is directly north. The site includes an area 240 feet by 80 feet. There is a greater concentration of basalt cores and flakes along this ridge than over most of the similar SDi-7030 site loci. At the western end of the site, there is one large granite exposure with a flat top with five milling slicks and four milling basins worn in it. While the milling is usually associated with the Hakatayan Tradition locally, there was no pottery observed at this site. The actual cultural tradition or traditions represented at this site are uncertain.

It is proposed that the milling feature has been mapped, photographed, and fully recorded and warrants no further consideration. However, it is proposed that if this area is to be impacted by specific development plans, the archaeological materials on the ridge should be mapped, collected and analyzed.

SDi-8069

The SDi-8609 site is a small concentration of lithic flakes and cores near the base of the ridge below the larger Locus B of the SDi-7030 site. It is similar in all aspects to that site.

It is proposed that if this area is to be impacted by specific development plans, these cultural remains should be mapped, collected, and analyzed.

SDi-8070

The SDi-8070 site is a relatively small and sparse scatter of basalt flakes near the base of the ridge below the larger Locus C of the SDi-7030. It is similar in all aspects to the SDi-7030, SDi-7031, SDi-7032, and SDi-8069 sites, and the principal material of the SDi-8068 site. All of these sites are probably related and reflect similar activities.

It is proposed that if this area is to be impacted by specific development plans, these cultural remains should be mapped, collected, and analyzed.

SDi-8071

The SDi-8071 site is actually the remnant traces of a site which is now almost entirely graded and developed. All that remains is a sparse scatter of lithic flakes. This site is situated on a mesa bisected by Boundary Creek directly east of the railroad station. No archaeological midden soil deposit or other materials were observed.

This area has been eroded and graded by the channelization of the creek. Most of the mesa on the north side of the channel has been graded and developed for the railroad center, and residential developments are present over most of the mesa on the south side of the creek channel. The integrity of this site is essentially gone.

It is proposed that the remnant evidence of this site includes no significant heritage, and beyond the record of its presence provided by this survey, no further planning considerations are warranted for this site.

SDi-8072

The SDi-8072 site is a highly diffuse scatter of Hakatyan Tradition camp debris. This disrupted site is situated in the cultivated fields on the eastern side of the community. The fields on the north side of Old Highway 80 are covered by a verdant growth of foxtails, and the fields on the south side of the highway have been long fallow and are regrowing native scrubs. However, there is a long, narrow zone through these fields which has relatively little plant cover, as if the underlying soil were distinct and held less plant-supporting moisture. The surface soil to either side of the site is a very fine clayey silt which has washed in when these fields are flooded. The soil along the site area actually appears similar to very fine silt. However, this may be a very low ridge of older alluvium in the valley floodplain where flood channels used to run on either side. If so, it would have provided an occupation area adjacent low lying areas of marsh or possible agricultural fields. With the historic era development of this land as cultivated field, dykes have been raised around these fields and flood water has silted the fields nearly level, apparently to just about the height of this presumed alluvial ridge. Plowing and discing within the fields have further obscured the situation. Archaeological materials were observed over a zone 2200 feet by 350 feet in the fields. Included were sherds of both Tizon Brown Ware and Buff Ware pottery, fragments of two cobble manos, a milling basin fragment, a scraper plane, several hammerstones, cores, and basalt flakes. Three soil auger tests located near observed surface materials all found the subsurface to be fine silty loam without any trace of archaeological

materials.

Because of the dispersed and disrupted nature of this site, it is proposed that little, if anything with intact integrity remains. Beyond the recording accomplished in this survey of this flooded and cultivated area as a once possibly significant site area, it is proposed that no further planning considerations are warranted for this area.

CHAPTER VII
PROPOSED PROJECT AND IMPACTS

The proposed project for Jacumba under consideration is an amendment of the County's General Plan for the area. The amendment would change the Land Use Designation to allow increased residential densities, and it would rezone portions of the project area for mobile home parks. Subsequently, if the amendment is approved a major land use permit would be sought for a specific land use plan.

Conceptually, the specific land use plan would be the development of a planned residential and resort community which would completely encircle the existing community of Jacumba. The conceptual plan envisions a community with mobile home parks, a number of additional residential lots, some new commercial services, water treatment facilities, and a great deal of planned open space area. Some of the open space areas could be utilized for parks, a series of small lakes, a railroad museum, and a golf course. The existing resort facilities would be retained and enhanced. The currently existing, privately held residential developments in the core area of the community are not a part of the project area, but would be encircled by the conceptualized new developments.

Although approval of the amendment to the General Plan will not have a specific and immediate effect upon the cultural resources present, it will have an impact. It will induce and permit the development of a specific land use plan which would allow for a greater density of development and a greater residential population than is permitted in the County's current General Plan.

Approval of the proposed amendment to the General Plan will encourage the development of the conceptualized specific land use plan. Developments

under the conceptualized plan could result in direct impacts upon the archaeological resources through construction of mobile home parks, residences, and appended structures; the undergrounding of utilities; the building of access roads; the channelization of Boundary Creek wash and the grading for lakes and catchment basins, the inundation effects within such water reservoirs; the development of open space for parks and a golf course; and related developments in the areas of archaeological sites. Such construction and related development could destroy the integrity of the archaeological sites and could be an adverse impact.

Indirect impacts caused by accelerated use of the property by residents and visitors could result in further disruption of the archaeological resources, as by looting and vandalism. Such indirect impacts may constitute long-term and cumulative impacts and create adverse impacts upon the archaeological resources.

On the other hand, approval of the amendment to the General Plan would encourage the planned development of the entire area encircling the community in an integrated fashion, rather than continuing the current land use designations which provide for more limited levels of development. A well-planned development on the scale of the project area would have large open space areas in which sensative cultural resources might be preserved in place. A large scale development would also make economically feasible the protection or salvaging of cultural resources which might be impacted by specific aspects of a development. The presence of residential households carefully situated on the properties could serve as local overseers of the cultural resources in the immediate area. If significant archaeological sites were preserved as open space, the presence of owners residing nearby could provide security and prevent vandalism and other disruptions of the resources. Such an additional resident population could serve as a positive impact.

CHAPTER VIII
MITIGATION ALTERNATIVES AVAILABLE

Seven alternative approaches can be defined to mitigate the adverse impacts against the archaeological resources from projected developments. Each alternative has advantages and disadvantages requiring consideration.

(1) No Project. The alternative of no project would eliminate the proposed project impacts but would not necessarily prevent other adverse impacts to the cultural resources. This alternative provides no positive measures to address the archaeological resources present.

(2) Site Recordation. The recording of minor, surface archaeological sites can be sufficient mitigation to reduce any impacts against them to an acceptable level. Site recordation has been achieved by this initial survey and report.

(3) Project Redesign. Significant resources may be preserved by redesigning the proposed project to reduce adverse impacts. This is practical if such worthy resources are identified early in the planning and design process. After redesign, usually, the archaeological resources can be preserved in an open space, by soil capping, or a combination of mitigation measures.

(4) Open Space Easement. The preservation of an archaeological resource in an open space area would provide for a proposed project to proceed and eliminate direct adverse impacts. An easement dedicating the future preservation and administration of the archaeological resources must be conveyed to a suitable agency.

(5) Protection by Capping. A capping layer of sterile soil carefully placed over the archaeological deposit could protect it from disruption. A one to two foot capping layer of soil is usually suitable. A sufficient sample of the archaeological resources needs to be recovered and recorded in advance of capping to serve as an index sample of the resources being preserved. An easement dedicating the future preservation and administration of the archaeological resources below the stratum of capping soil must be conveyed to a suitable agency. This easement should allow for activities which would not effect the underlying archaeological deposit and its resources. It should stipulate, however, that any archaeological resources to be disrupted by any future actions be salvaged in advance by a qualified archaeologist.

(6) Preservation by Inundation. To protect archaeological deposits to be inundated in certain reservoirs, a capping layer of concrete, gunnite, asphalt, or some similar materials has been considered and proposed by the National Park Service and U.S. Army Corps of Engineers (Lenihan and others 1977, and Lynott 1980: 119). Water-impoundment over an archaeological site introduces mechanical and chemical impacts which remain only partially defined. Notwithstanding some degree of adverse impacts, this approach would provide for substantial aspects of the archaeological resources to be preserved in place. (A detailed discussion of the effects of inundation on archaeological sites is provided as Appendix II.) As with more traditional soil capping, this approach should include an index sample and easement.

(7) Preservation by Removal. Preserving an archaeological site's heritage by a salvage removal program only provides a partial mitigation of a project's impacts against the resources present. This alternative is very expensive and time consuming. It involves a salvage excavation, analysis, report, and curation of the removed materials. Most important, given current scientific techniques, it can only provide a limited partial mitigation of impacts. Further, such a removal program may not mitigate potentially significant Native American concerns for a landmark.

CHAPTER IX
CONCLUSIONS AND PLANNING RECOMMENDATIONS

The 485 acre project properties of Jojoba Limited and Jacumba Associates in and around the community of Jacumba include a variety of identified archaeological and historical resources. A proposed amendment to the County's General Plan for this area would provide for increased residential densities and mobile home park zoning. If approved, development of a specific land use plan could impact these resources. However, measures are available to mitigate specific adverse impacts. And, on the other hand, a well designed specific land use plan on the scale of the project area would have large open space areas in which sensitive cultural resources might be preserved or enhanced.

Therefore, it is proposed that the proposed amendment to the County's General Plan is acceptable with respect to the cultural resources present in the project area.

If any future specific plan developments would potentially disrupt any major sites, or the springs which is considered a sacred site by local Native Americans, consultation with pertinent people should be undertaken to identify and address significant Native American concerns with regard to these resources.

As specific land use plans are considered, the specific site recommendations listed on pages 39-41 of Chapter V for the historical sites, and the recommendations listed on pages 60-73 of Chapter VI for the archaeological sites, should be considered and acted upon.

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APPENDIX I
RECORD FILE SEARCH REPORTS

CULTURAL RESOURCE MANAGEMENT CENTER
DEPARTMENT OF ANTHROPOLOGY
COLLEGE OF ARTS AND LETTERS
SAN DIEGO STATE UNIVERSITY
SAN DIEGO, CA 92182

(714) 265-6300 265-6520

ARCHEOLOGICAL SITE FILES RECORD SEARCH REPORT

Source of Request: Paul G. Chace & Associates

Date of Request: June 4, 1980

Date Request Received: June 5, 1980

Project Identification: County General Plan Amendment

( ) The San Diego State University files show no recorded sites within the project area nor within one mile of the project boundaries.

(XX) The San Diego State University files show recorded site locations within the project area and/or within one mile of the project boundaries. Site forms and maps are included.

Record check by Janet Hightower Date June 5, 1980

Dr. Larry L. Leach
Director
Cultural Resource Management Center

SAN DIEGO MUSEUM OF MAN

1350 El Prado, Balboa Park, San Diego, California 92101, Telephone (714) 239-2001

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REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: Paul Chace & Associates - Janet Hightower

Date of Request: 5 June 1980 (X)Letter ( )Telephone ( )In Person

Date Request Received: 5 June 1980 (X)Map Received (X)Map Returned

Name of Project: County General Plan Amendment near Jacumba

( ) The Museum of Man files show no recorded sites for the project area.

(X) The Museum of Man files show the following sites (X)within (X)in the vicinity of the project area.

Site No. C-447 Culture(s): Diegueno

Description: Camp sites and rock shelters; cremations.

Recorded by: M.Rogers

Site No. C-385 Culture(s): Kumeyaay

Description: Camp site; blades; projectile points; pottery pipes; shell beads; sherds; manos; metates. This site has now been covered with mud from Hurricane Kathleen storm (1976). Recorded by: J.Detzer 1975

Site No. C-386 Culture(s): Kumeyaay

Description: Camp or habitation site; bedrock mortars, grinding slicks and basins; sherds; projectile points; manos; metates.

Recorded by: J.Detzer 1975

Site No. C-448 Culture(s): Kumeyaay

Description: Agave roasting pit.

Recorded by: K.Hedges 1977

Site No. C-449 Culture(s): Kumeyaay

Description: Occupation site; sherds; burnt rock; flakes. This site is located in a sandy wash and may have been completely covered or obliterated by the floods of 1976. Recorded by: K.Hedges 1977

Site No. C-459 Culture(s): Kumeyaay

Description: Village site with midden; bedrock milling; rock shelters; house sites (marked by rock rings); metates; manos; bedrock grinding slicks and basins; hammerstones; sherds; core tools; scrapers; flakes. Part of this site has been destroyed by freeway. Recorded by: K.Hedges 1977

Please note: The project area may contain archaeological resources in addition to those noted above. This report is made from San Diego Museum of Man files only and may not include data pertaining to localities other than those covered in previous Museum of Man surveys or gathered by other institutions or by individuals.

Record check by: Grace Johnson

Date: 6 June 1980

Signed: Lowell J. English

REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: Paul Chace & Associates - Janet Hightower

Name of Project: County General Plan Amendment near Jacumba

Site No. C-508A-C **Culture(s):** Historic; various aboriginal

Description: Area of cleared fields with earthen dam in association; A: double row of stone piles, some with hollowed centers or horseshoe-shaped, in cleared field; B: cleared field without cairns; C: earthen dam. **Recorded by:** R.May - 1979 K.Hedges 1979

Site No. C-509 **Culture(s):** Probably Kumeyaay

Description: Milling area with associated lithic and ceramic scatter; bedrock grinding slicks; flakes; sherds. **Recorded by:** K.Hedges 1979

Site No. C-523 **Culture(s):** Prehistoric

Description: Locus A consists of a lithic workshop with cores, flakes, chopping tools, blades, scrapers and pushplanes. Locus B consists of milling with grinding slicks and basins, sherds, flakes. **Recorded by:** J.Townsend 1976 J.Thesken 1979

Site No. C-524 **Culture(s):** Prehistoric

Description: Rock alignment with associated earthen depressions and flake. **Recorded by:** K.Easland 1976 J.Thesken 1979

Site No. C-552 **Culture(s):** Not noted

Description: Camp site and rock shelters; sherds; tools. **Recorded by:** M.Baldwin 1974

Site No. C-553 **Culture(s):** Not noted

Description: Rock shelter; rock wall; core; ceramics. **Recorded by:** B.Johnson 1976

Site No. C-554 **Culture(s):** Not noted

Description: Roasting pit, flake and tools scatter; flakes; cores; chopper; obsidian core. **Recorded by:** Waldron 1976 L.Cline 1979

Site No. C-557 **Culture(s):** Not noted

Description: Lithic scatter; flakes; core fragments; hammerstones; cores. **Recorded by:** Waldron 1976

Site No. C-558 **Culture(s):** San Dieguito

Description: Lithic scatter with possible trails; core tools; flakes; core hammerstones. This site has been disturbed by old Route 80. **Recorded by:** M.Johnson 1976

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1350 El Prado, Balboa Park, San Diego, California 92101, Telephone (714) 239-2001

REPORT ON ARCHAEOLOGICAL SITE FILES RECORD SEARCH

Source of Request: Paul Chace & Associates - Janet Hightower

Name of Project: County General Plan Amendment near Jacumba

Site No. C-560 **Culture(s):** Not noted

Description: Rock wall structure.

Recorded by: E.Ritter 1976

Site No. C-561 **Culture(s):** Not noted

Description: Camp site; bedrock grinding slicks and mortars; flaked stone tools; cores; milling tools; ceramics; fire-affected rock. Old Route 80 goes through this site.

Recorded by: K.Easland 1976

Site No. C-562 **Culture(s):** Not noted

Description: Lithic scatter and roasting pit; flaked stone tools; cores; fire affected rock. A road runs through this site.

Recorded by: K.Easland 1976

Site No. C-564 **Culture(s):** Not noted

Description: Sherds; flakes; one piece of burned bone.

Recorded by: J.Townsend 1976

Site No. C-568 **Culture(s):** Prehistoric

Description: Lithic and ceramic scatter; flakes; sherds; 1 burnt animal bone.

Recorded by: C.May 1980

Site No. C-569 **Culture(s):** Prehistoric

Description: Lithic scatter; flakes.

Recorded by: C.May 1980

Site No. _____ **Culture(s):** _____

Description:

Recorded by: _____

Site No. _____ **Culture(s):** _____

Description:

Recorded by: _____

Site No. _____ **Culture(s):** _____

Description:

Recorded by: _____

APPENDIX II
THE EFFECTS OF INUNDATION ON ARCHAEOLOGICAL SITES: A COMPARATIVE STUDY

by Loren Hass

(Reproduced from THE ARCHAEOLOGICAL RESOURCES OF CHESBRO RESERVOIR
by Joseph C. Winter, 1977. Society for California Archaeology,
Occasional Papers in Cultural Resource Manangement No. 1, (Fullerton).

Introduction

Although hundreds of archeological sites have been impacted by reservoirs, lakes and other water control devices, the effects of inundation on archaeological sites has not been thoroughly tested and researched to date. Consequently, the subject is somewhat controversial, and the literature is often confusing and contradictory. Much of the printed material shares the characteristic of being "Highly speculative and unsupportable scientifically" (Carrell et al 1976).

This paper is an attempt to sort out and summarize the work on inundation, and thus provide comparative material for the Chesbro Reservoir Study. The information from other inundation projects is extremely important, since it indicates, together with the Chesbro data, that a complex set of adverse and beneficial effects can result from submergence. They also demonstrate that a well controlled experimental preservation program is absolutely essential if we are going to be able to understand, and control, the effects of inundation.

The major results of inundation of archaeological sites include erosion, sedimentation, differential preservation of artifacts, adverse effects on analytical techniques and vandalism. Much of the information for this report comes from the Reservoir Inundation Study of the National Park Service, which is an effort to systematically study and test the effects of inundation. One of its major publications is A Literature Search: The Effects of Freshwater Inundation of Archeological Sites Through Reservoir Construction (1976) by Carrell, Rayl and Lenihan, which summarizes 250 references related to inundation of archeological sites. Also of value is a draft version of the Preliminary Report on Phase I of the Reservoir Inundation Study Project (1977), edited by Daniel Lenihan, which includes important data on direct mechanical and chemical effects of inundation on archeological sites, artifact preservation, and analysis techniques. All inferences and statements from this report are at an early state of development and are untested hypotheses based on literature searches, and consultation with research and reservoir specialists. Controlled

tests of these hypotheses are currently being organized by the Reservoir Inundation Study in various parts of the country.

Effects of Inundation

1. Erosion

The effect of inundation most frequently referred to in the literature is erosion of sites by water, which can occur in several forms.

a. Wave action on the shores of reservoirs can result in considerable damage. The mechanical action washes away the soil and light artifacts, leaving behind the heavy artifacts and destroying their context. This process has been referred to as deflation (Prewitt, 1974, Prewitt and Grombacher, 1974) and entire sites can be damaged or destroyed. When combined with fluctuations in the water level (Bureau of Reclamation, 1975; Kowta, 1976; Schnell, 1969) deflation can accelerate and increase the rate of site destruction.

b. In areas with steep shore lines or banks, bank erosion and slumping are also of major concern. The undermining effects of water and wave action sometimes cause large sections of shoreline sites to collapse into the water. Very extensive damage by this has been observed to occur over a short period of time (Ahlet et al, 1974; Dragoo and Lantz, 1973; Falk and Calabrese, 1973; Haberman and Schneider, 1975).

2. Permanent Inundation and Sedimentation

In contrast to sites in the "wash zone" of a reservoir, sites which are completely under water are sometimes actually preserved. An environmental impact statement by the U.S. Army Corps of Engineer, for example, states that: "Unless salvaged, some of these archeological sites which would have been exposed to wave wash by the conservation pool will now be protected by permanent inundation" (U.S. Army Corps of Engineers, 1975a:13). Evidence supporting their argument includes observations of freshwater preservation by Croes (1975) and Howell and Dearborn (1953).

Other authors argue that submergence and the resulting compression of a site can destroy it. Johnson (1971), for example, has suggested that midden areas lose their context, while Prewitt (1974) indicates that sedimentation will confuse the vertical separation of artifacts.

Most authors admit that they have inadequate evidence to demonstrate that inundation has resulted in preservation. "Insufficient research has been conducted to support the assertion that long term inundation has a positive effect on the preservation of archeological sites" (Carrell et al, 1976:21). The archaeological profession really does not know what happens to fully submerged sites and cannot predict it until more systematic study has been performed (C.F. Jewell, 1961; Prewitt, 1972; Anderson, 1974; Ruppe and Green, 1974; Carrell, 1974; Lenihan, 1974).

3. Soil Alteration

Inundation affects both the qualitative elements of soil, such as color and texture, and the quantitative elements, e.g., soil chemistry. All of these characteristics can provide critical data about human activity and thus can be very important in understanding the significance of an archeological site.

a. Color and texture of soil, for example, can be changed by inundation, as soil stains produced by human activity are blurred or lost by leaching (Lenihan, et al 1977). The texture of some midden has been drastically altered from characteristic loose soil to a gelatinous mass by inundation (Johnson, 1971).

b. The soil chemistry of submerged archeological sites can also be changed by leaching, percolation, and precipitation. Most affected by leaching are soil pH, potassium and phosphate content, while nitrates are primarily effected by percolation (Lenihan, et al, 1977). Chemical precipitates which are drawn down by leaching can also distort soil analysis (Bureau of Reclamation, 1975)

4. Artifact Destruction

Differential preservation of artifacts underwater is dependent on several factors, including soil pH, temperature, rate of leaching, and availability of oxygen (Petersen, 1974). The ideal conditions of preservation varies by artifact type and condition.

a. Bone is best preserved in an alkaline environment which prevents leaching (Lenihan et al, 1977). A steady temperature is important to prevent swelling and contraction and subsequent mechanical destruction. Shifting soils would also destroy the softened bone. Dense bones (femurs) are better preserved than light bones, such as crania and ribs, as the latter are more permiable.

b. Wood preservation requires a low temperature to limit bacteria growth. A thick layer of sediment also helps to create an anerobic state. Bacteria eaten wood can even be preserved better underwater, as the water is absorbed into the wood and helps to support the structure.

c. Leather preservation requires anerobic conditions to prevent bacterial destruction (Lenihan et al 1977). A pH value below 5.0 often leads to a chemical breakdown of the leather. Since water-logged leather is extremely susceptible to mechanical damage, a stable soil medium is necessary for preservation.

d. Animal and vegetable fiber are also affected by bacterial action. To prevent bacteria, an anerobic and acidic environment is needed.

e. Pollen is best preserved in dense soil, with an anerobic, acidic environment. A stable water table is also needed to prevent discoloration of pollen by capillary action (Lenihan et al 1977).

Artifacts preserved underwater are generally more susceptible to damage when exposed, since their saturation makes them vulnerable to disintegration upon exposure (Prewitt, 1972). Special treatment is needed when artifacts are uncovered to preserve water-logged artifacts for future study (Bureau of Reclamation, 1975; Petersen, 1974). Exposure to water-soaked artifacts to wave action would be disasterous.

5. Dating Techniques

a. Carbon-14 dating should generally be unaffected by inundation, although one problem might be the reduction of the usable amount within the sample due to the formation of carbon compounds, such as calcium carbonate (Lenihan et al, 1977).

b. Since Obsidian Hydration rates are dependent on the chemical composition of obsidian and on temperature (Friedman and Smith, 1960), dates obtained from inundated obsidian might vary from nearby non-inundated obsidian because of water temperature differences (Lenihan et al, 1977). The measurable rate of obsidian hydration would also be affected if the water was highly alkaline, causing erosion of the hydration surface (Friedman, 1976).

c. Fluorine dating of bones from an inundated site may also be affected by soil composition, temperature, pH, and water circulation. A major change in these factors would result in great differences between inundated and uninundated bones from the same site (Lenihan et al, 1977).

d. Thermolumenescence dating would be most affected by the saturation of the sample. If it was saturated for over 20% of its archeological age, the shielding effect of the water on the gamma dose rate might exceed the acceptable limits of error (Lenihan et al, 1977).

6. Vandalism and Recreational Use

Vandalism due to inundation is also of great concern. Exposure of artifacts by wave action and drawdown increases artifact availability (Schnell, 1969; Kenney, 1973). Improved access is provided to recreational users by the water, increasing the chances for vandalism (Prewitt and Dibble, 1974; McGuff and Ford, 1974). Recreational use could also increase erosion of sites, for example, by aggravating wave damage through boat traffic (McGuff and Ford, 1974; Tyler, 1976).

Conclusion

Inundation of archeological sites can have both destructive and preservative effects, although it appears that the destructive far outweigh the preservative. A relatively stable, bacteria-free environment can be created underwater to preserve some artifacts, but submergence can also magnify the problems of excavation and analysis. On the one hand, a bacteria-free environment may help to preserve the materials so that analysis is possible. An outstanding example of this is Warm Mineral Springs in Florida (Lenihan and Carrell, personal communication), where an early man site has been extremely well preserved by the anerobic effects of submergence. Conversely, siltation and the water environment can complicate mapping, photography and sample collection.

Numerous sites in America and North America appear to have been protected by siltation, but the partial or complete destruction of sites through erosion is the more generally observed result of inundation. In a reservoir with heavy wave action and fluctuating water levels, destruction of sites seems inevitable without some protective technique.

APPENDIX III
SITE DESCRIPTIONS

In this appendix are the technical descriptions of each archaeological site and the isolated finds discovered during the Jacumba area survey. The site descriptions include a detailed report, map, and illustration of each site. The principal items observed over the surface of the sites are described and all surface features are fully recorded. Based upon these observations, the cultural tradition represented or the specific activities represented by these remains are discussed, and some general comments are presented on the potential scientific significance of each site.

There were fourteen separate sites investigated during the project, as well as a group of isolated finds. Some of the sites had a large number of surface features which required a great deal of technical description. Therefore, it seems useful and appropriate to provide a page index to the individual site descriptions presented below:

SDi-4455

The SDi-4455 site is a major Hakatayan Tradition settlement and the presumed village of Jacum. It was first recorded archaeologically by Malcolm Rogers in the late 1920's and was again recorded in 1976 by Wendy Waldron, when it was considered as potentially eligible for inclusion on the National Register of Historic Places (Johnson 1976:18).

During this reconnaissance the site was recorded as actually composed of a series of seven distinct loci within the current project properties, but some of the other and more distant sites in the vicinity are probably part of this dispersed settlement. Both Rogers and Waldron suggest that portions of this settlement are to be found to the south, across the international border. Rogers' notes (Site C-147 at the San Diego Museum of Man) also indicate he believed "...the buildings of the town of Jacumba obliterated the main village...", but in summarizing the area of settlement he omits mention of any traces of archaeology around the buildings. When Rogers visited the area, it must have appeared just about as shown in the aerial photographs reproduced as Figures 29 and 30. While some minor elements of the settlement might have been located where the modern town was built, there now are no traces around the perifery of this developed area to suggest it ever had a major archaeological midden deposit indicative of a prehistoric village. In fact, this area is directly below the springs and probably was utilized principally for horticultural garden plots with water ditches leading down from the springs. From our intensive recommaissance of the area, it appears the principal habitation areas were along the ridge just northwest and southeast of the springs, rather than

on the alluvially covered valley floor where the modern town has been developed. There are a number of loci on the ridge and along the eastern slope of the ridge with distinct occupational midden deposits, and the granite outcrops on the ridge were the focus of considerable bedrock milling activities. Thus, except for the horticultural gardens below the springs, most of the archaeological evidence of the aboriginal settlement may have escaped historic disruptions.

Any generally recognized whole tools and artifacts, as well as the larger sherds of pottery, have been removed from the surface areas of the site long ago by the collectors in the town and the many visitors to the nearby resort.

The seven distinct loci of the SDi-4455 site documented within the project property are described in detail on the following pages.

Reservoir Locus. The Reservoir Locus of the SDi-4455 site is a major occupation site with numerous bedrock milling features and an extensive deposit containing archaeological materials. This locus is situated on the top and eastern slope of a wide knoll on the north side of the springs and south of Boundary Creek, as shown in Figure 1. The occupational zone is demarked by a medium brown, loamy, archaeological soil deposit extending over an area approximately 555 feet by 400 feet. A detailed map of the locus is presented as Figure 2.

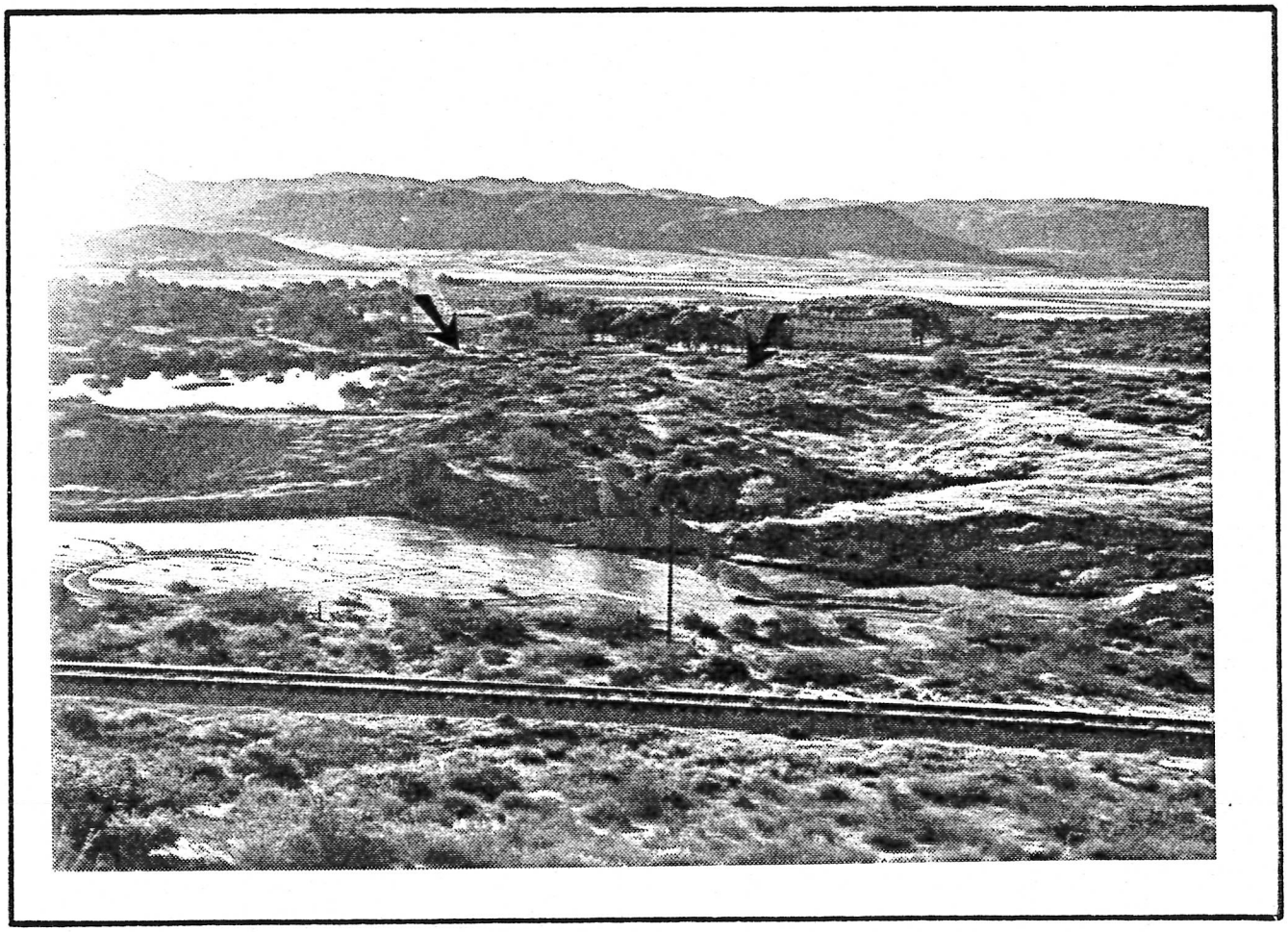


Figure 1. The Reservoir Locus of the SDi-4455 site, looking southeast.

Three of the four auger tests demonstrated the deposit is about 8 to 12 inches thick over much of the knoll and contains a variety of archaeological materials. The results of these tests are summarized in Table I, and the test locations are mapped on Figure 2. The other auger test (#1) was made on the side of the knoll nearest the springs and appeared to sample a modern pile of silt dredged up from around the spring.

TABLE I

SDi-4455, Reservoir Locus, Soil Auger Test Results

Test	Soil	Depth (cm)	Materials Present
A#1	gray, fine grained, friable, sandy-silt	0-70+	1 basalt flake, numerous pieces of rusted iron.
A#2	dark gray-black, friable, loam with some decomposed granite	0-17	7 Buff Ware sherds, 2 pieces of weathered glass.
	yellow-brown, compact, decomposing granite	17-25+	1 Buff Ware sherd.
A#3	medium brown, fine grained loam with little decomposing granite	0-28	1 22. cartridge, 1 Tizon Brown Ware sherd, 1 Buff Ware sherd, 9 basalt flakes, 1 chalcedony rind fragment, 2 bone fragments (small animals).
	gold, crumbly, sandy, decomposing granite	28-39+	1 basalt flake.
A#4	medium brown, fine grained, loam	0-26	1 Tizon Brown Ware sherd, 4 basalt flakes, 1 rhyolite flake, 1 bone fragment.
	decomposing granite	26+	(sterile)

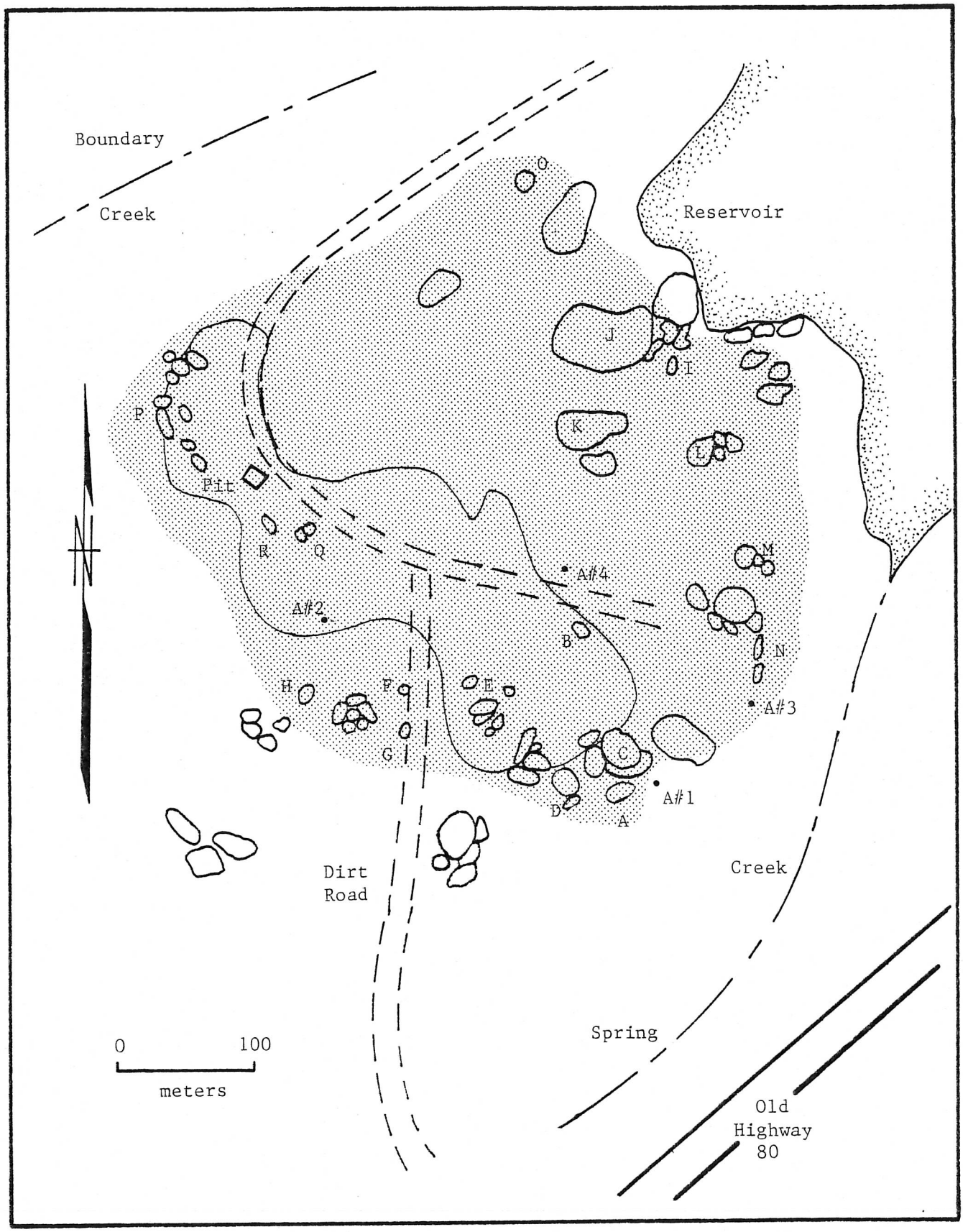


Figure 2. General sketch map of the Reservoir Locus at the SDi-4455 site, showing the milling outcrops (A-R), the extent of the surface artifact scatter (shaded), and the locations of the soil auger tests (A#1-4).

An intensive investigation of the surface revealed that very little exposed archaeological debris remained on this prominent site. A hammerstone, a cobble mano fragment, a scraper fragment, a few small sherds of pottery, and a number of lithic flakes were observed. The only noteworthy, diagnostic item found was the tip of a side-notched projectile point made of white chalcedony shown in Figure 3.

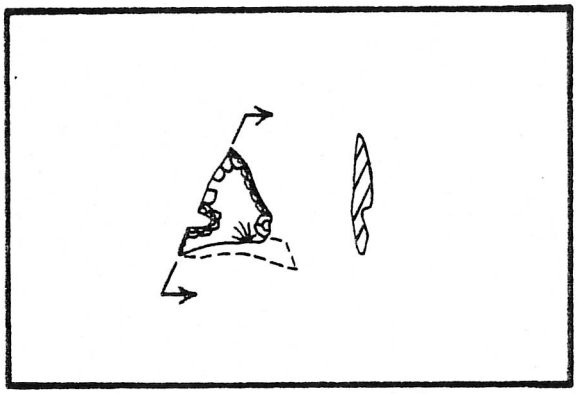


Figure 3. A projectile point fragment from the Reservoir Locus of the SDi-4455 site. Full scale.

In the northcentral portion of the locus are two groups of cupules on two adjacent granite outcrops. These unusual features are photographed in Figures 4 and 5, and are mapped and detailed as part of Feature K. These small pits are worn into the nearly flat, upper surface of the bedrock. They appear to have eroded considerably, so that exact measurements are not possible. It is no longer even apparent if these pits were worn into the rock by pounding or grinding. The southern group of cupules average two to four centimeters in diameter and are about one-half to one centimeter deep. The group on the northern rock range from about four to nine centimeters in diameter and are one-half to two centimeters deep. Such cupules have been used for several purposes. Sometimes they are developed as anvils for cracking nuts (ie. acorns or pine nuts); however, these examples are not immediately adjacent to mortars as is usually the situation for nut cracking anvils. Other cupules have been documented as ceremonial or ritual features, and these could have served such purposes.

There are a considerable number of milling features located on 18 different granitic outcrops at this locus. In all there are 79 milling

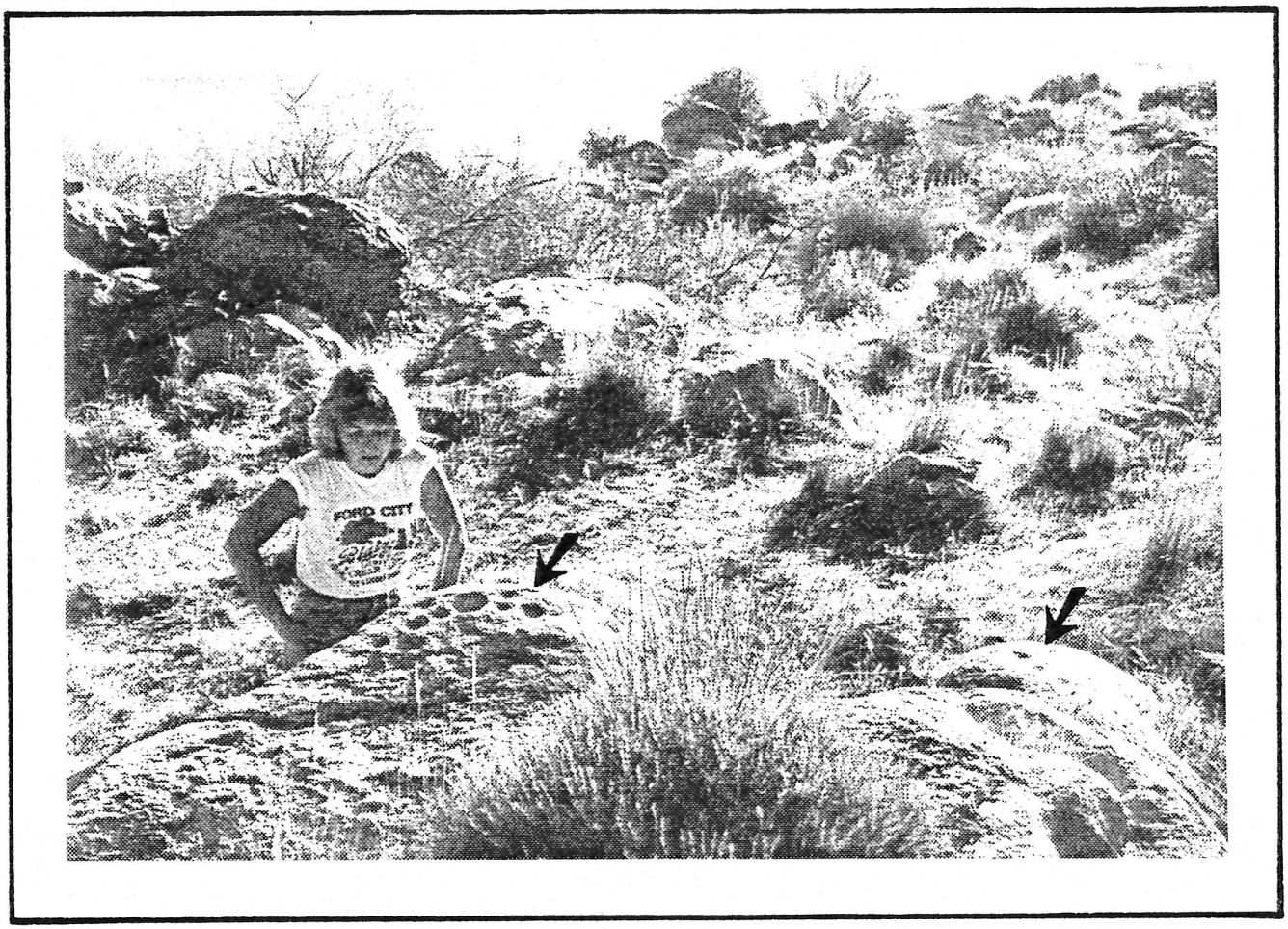


Figure 4. The cupules at Feature K of the Reservoir Locus, SDi-4455, looking east.

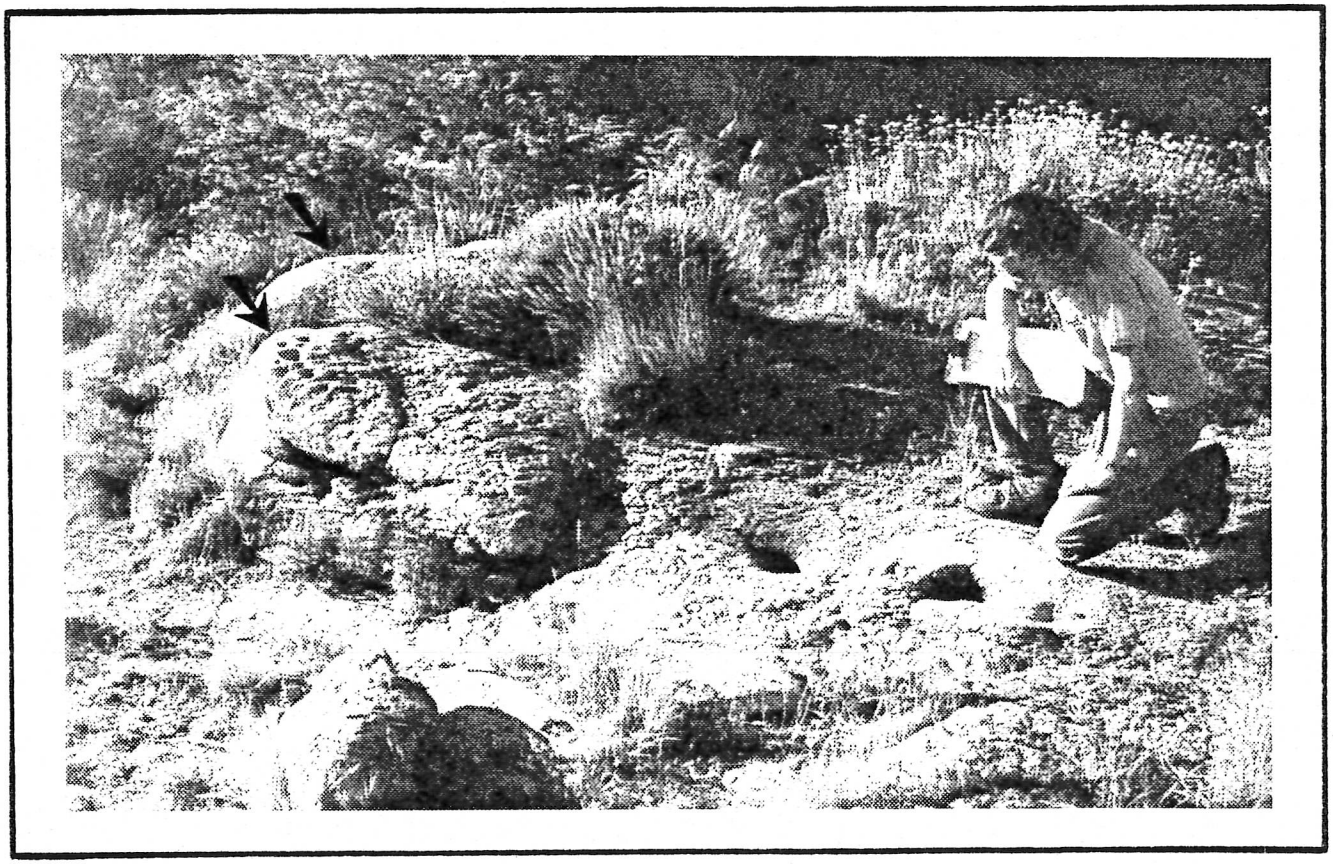


Figure 5. The cupules and milling features of Feature K at the Reservoir Locus, SDi-4455, looking south.

basins, 27 milling slicks, and five mortars present. Photographs and detailed maps of these milling features are presented as Figures 6 through 41.

Although most loose items exposed on the surface of the deposit have been previously collected, the midden deposit at this locus is substantially intact and contains diverse archaeological materials which would greatly enhance an understanding and appreciation of the heritage of the region.

Milling Features
(measurements in centimeters)

		L	W	D
1.	mortar	23	22	8
2.	basin	27	23	3
3.	slick	30	27	0
4.	basin	30	30	2.5
5.	basin	25	25	3
6.	basin	32	19	3.5
7.	slick	130	82	0

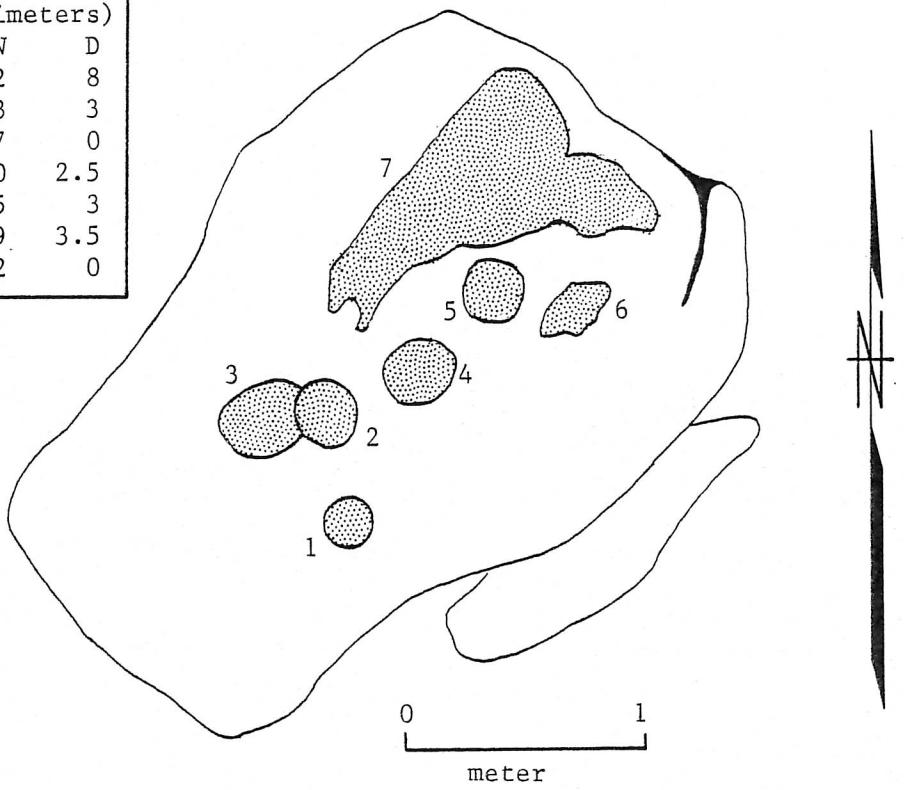


Figure 6. Micro-map of the milling features on outcrop A at the Reservoir Locus of the SDi-4455 site.

Figure 7. The SDi-4455 site, the Reservoir Locus, outcrop A, looking southeast.

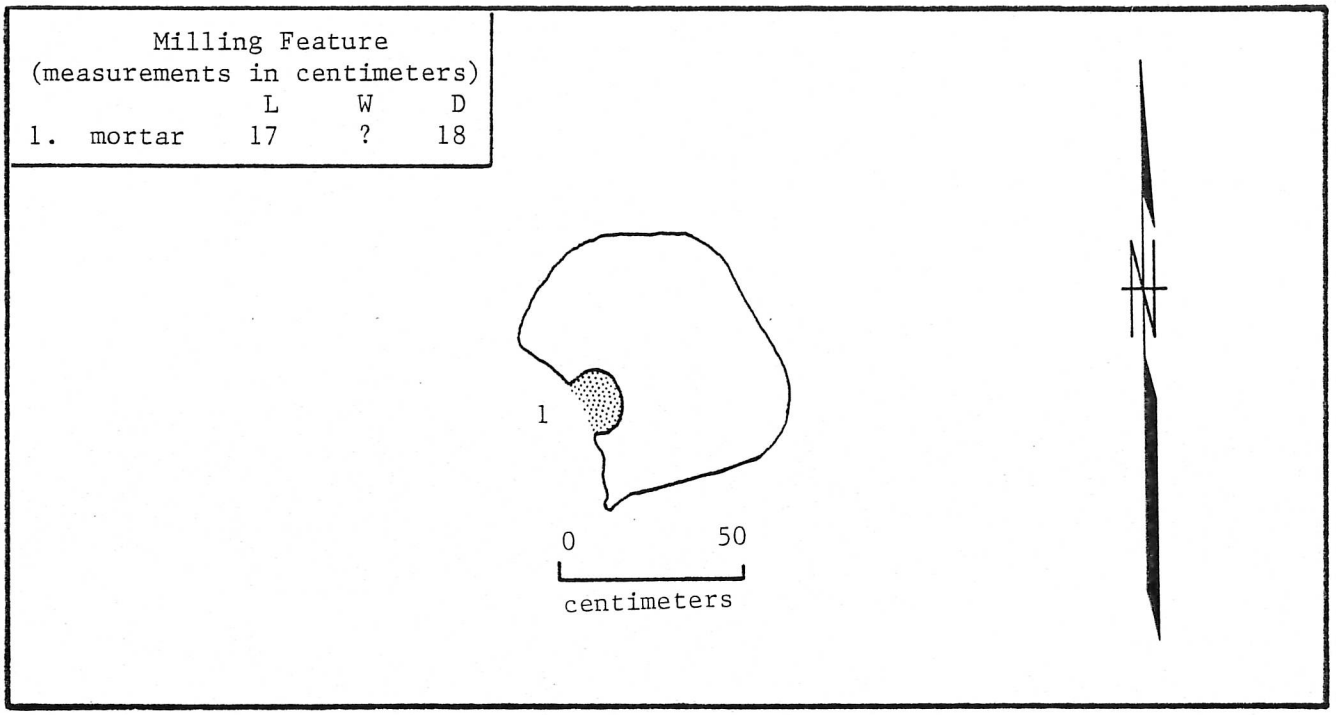
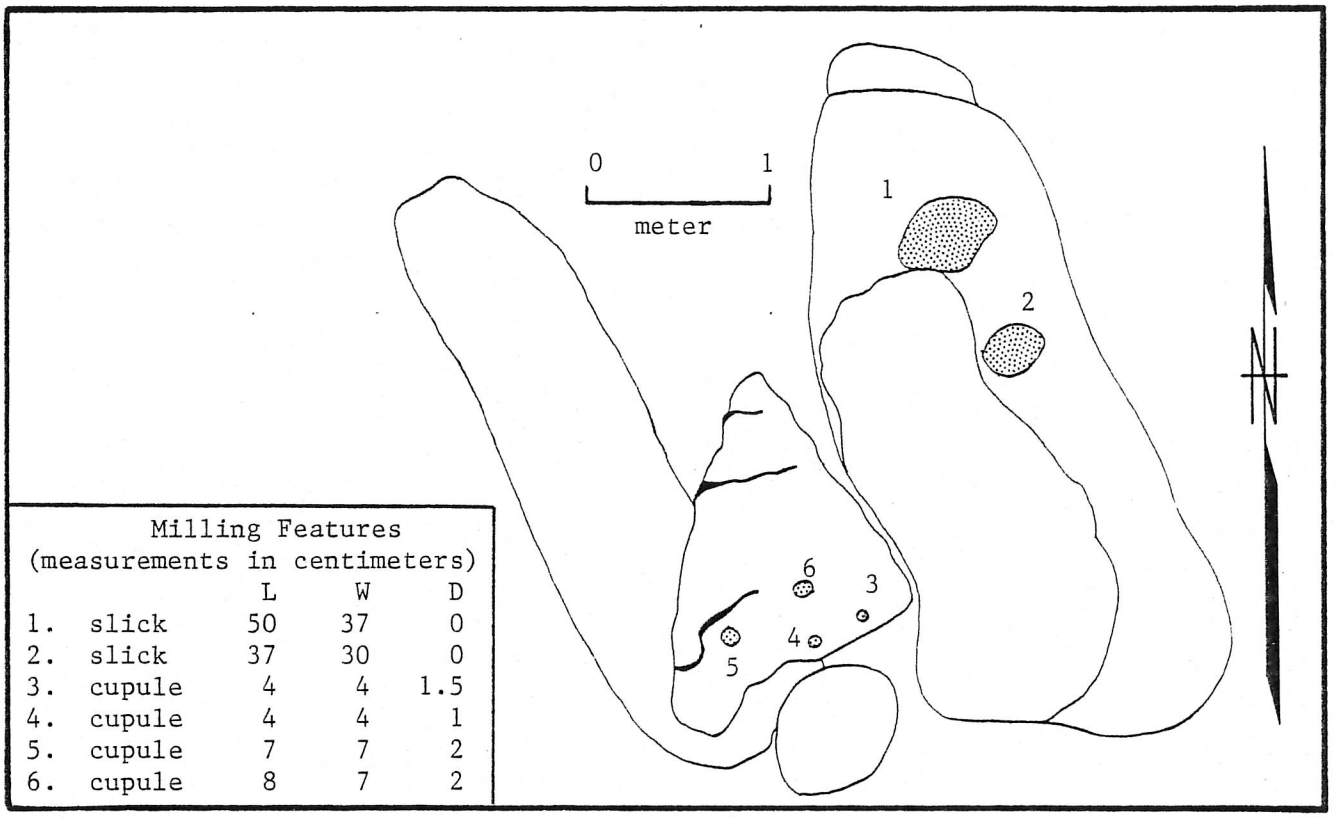


Figure 8. Micro-map of the milling features on outcrop B at the Reservoir Locus of the SDi-4455 site.

Figure 9. The SDi-4455 site, the Reservoir Locus, outcrop B, looking north.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	50	37	0
2.	slick	37	30	0
3.	cupule	4	4	1.5
4.	cupule	4	4	1
5.	cupule	7	7	2
6.	cupule	8	7	2

Figure 10. Micro-map of the milling features on outcrop C at the Reservoir Locus of the SDi-4455 site.

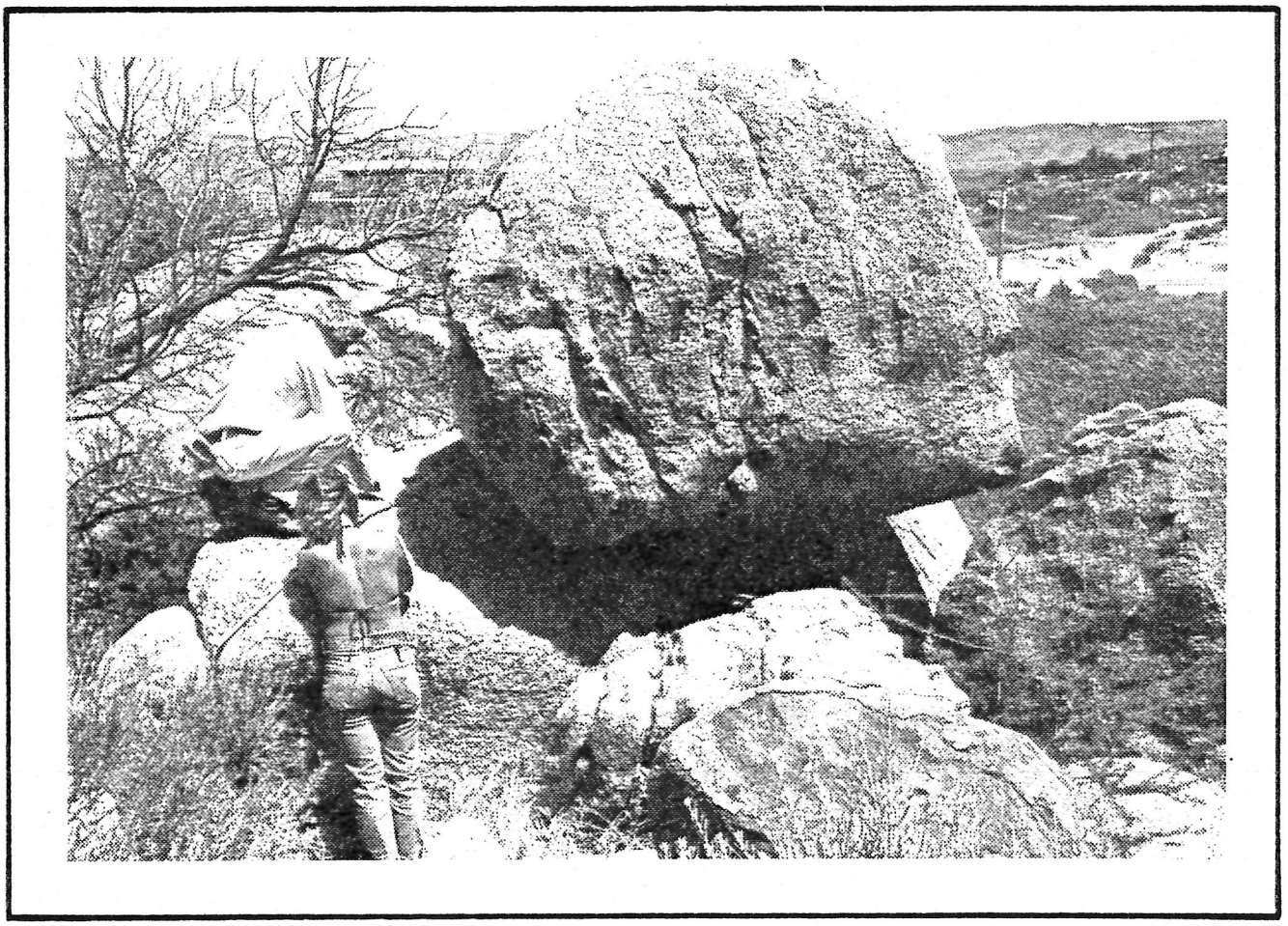
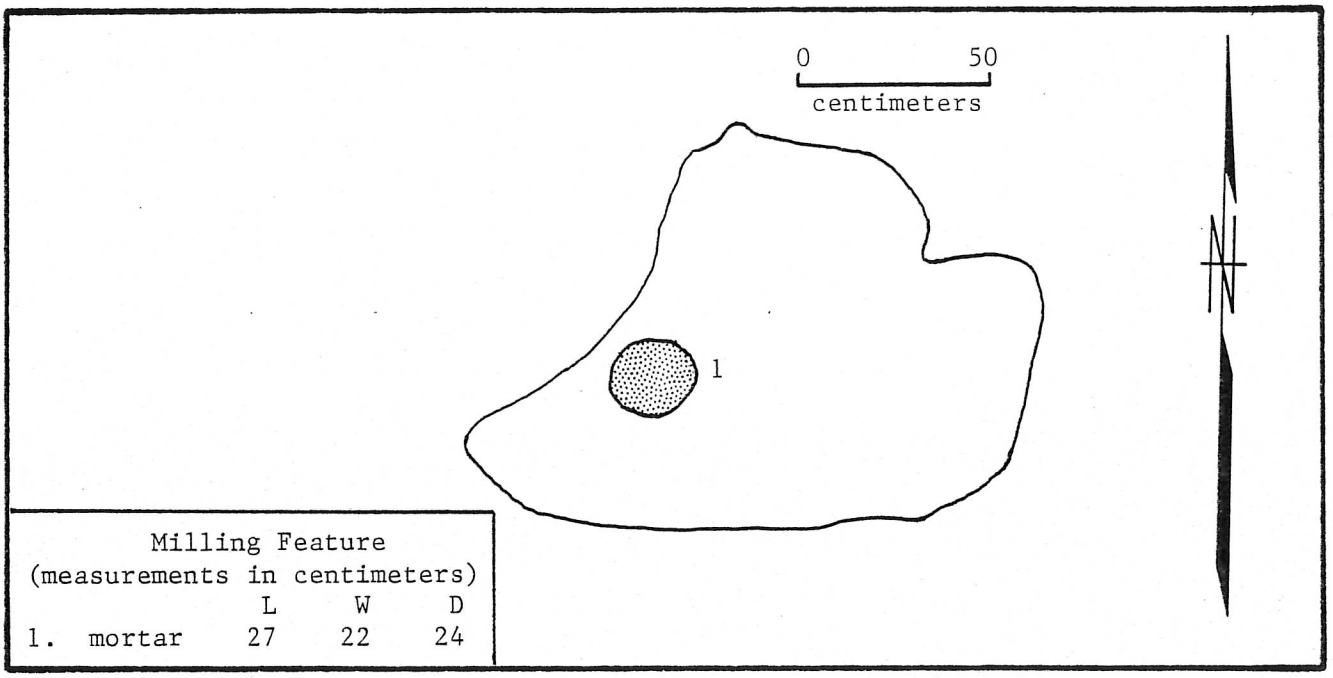


Figure 11. The SDi-4455 site, the Reservoir Locus, outcrop C, looking southeast.



Milling Feature (measurements in centimeters)			
	L	W	D
1. mortar	27	22	24

Figure 12. Micro-map of the milling feature on outcrop D at the Reservoir Locus of the SDi-4455 site.

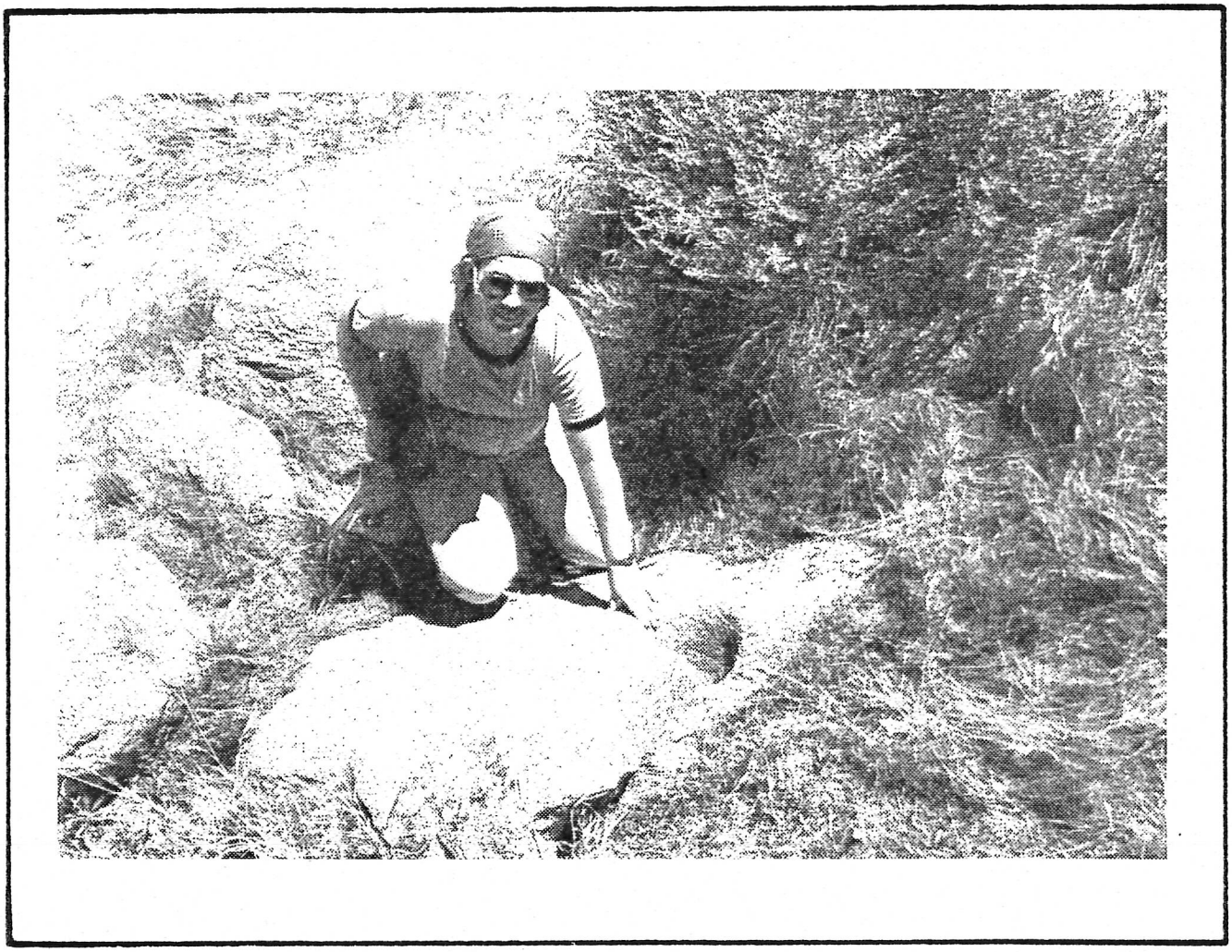


Figure 13. The SDi-4455 site, the Reservoir Locus, outcrop D, looking south.

Milling Features (measurements in centimeters)			
	L	W	D
1. basin	16	14	2
2. basin	20	14	4
3. basin	20	17	2
4. basin	14	12	1
5. basin	20	15	4.5
6. basin	16	12	1.5
7. slick	27	23	0

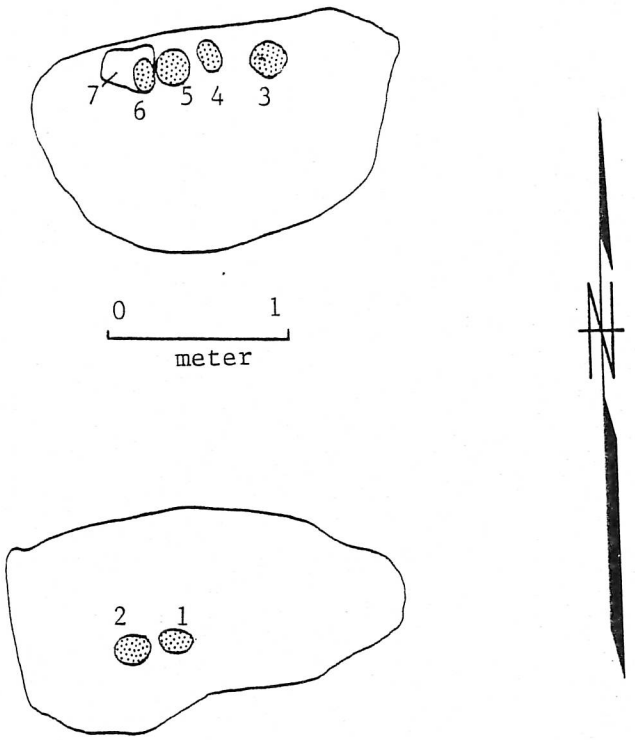
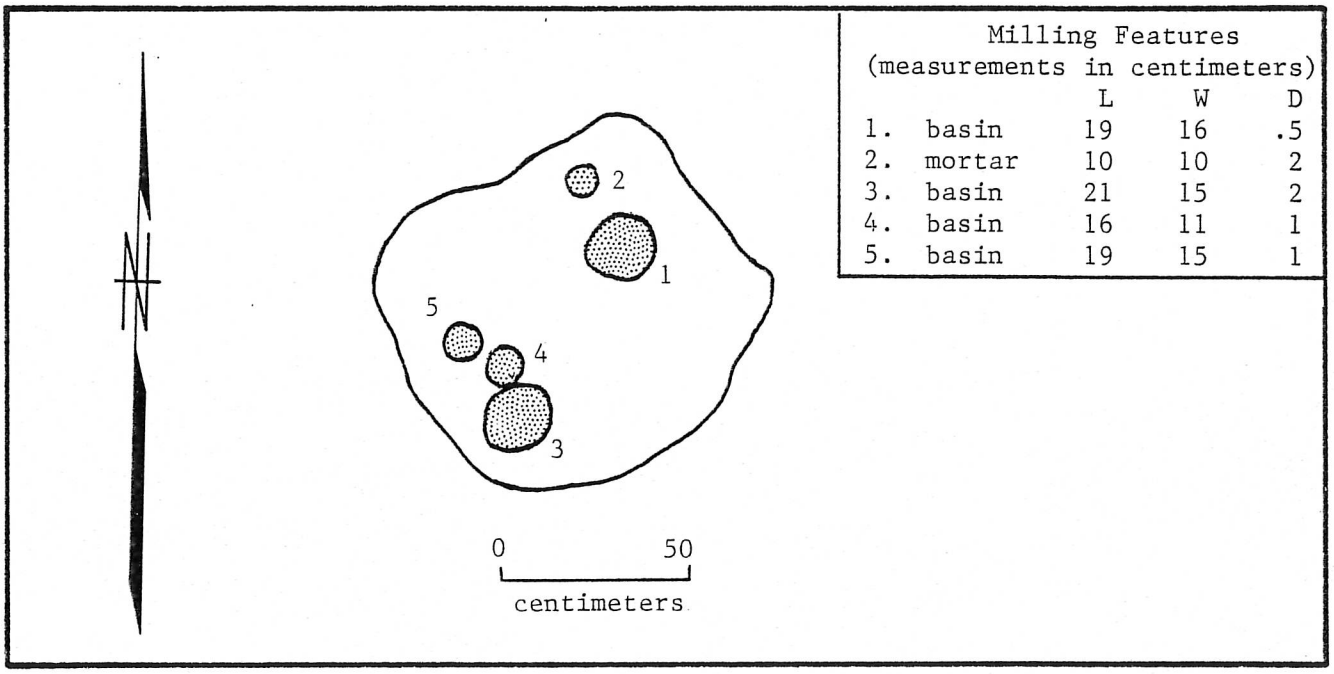


Figure 14. Micro-map of the milling features on outcrop E at the Reservoir Locus of the SDi-4455 site.

Figure 15. The SDi-4455 site, the Reservoir Locus, outcrop E, looking east.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	19	16	.5
2.	mortar	10	10	2
3.	basin	21	15	2
4.	basin	16	11	1
5.	basin	19	15	1

Figure 16. Micro-map of the milling features on outcrop F at the Reservoir Locus of the SDi-4455 site.

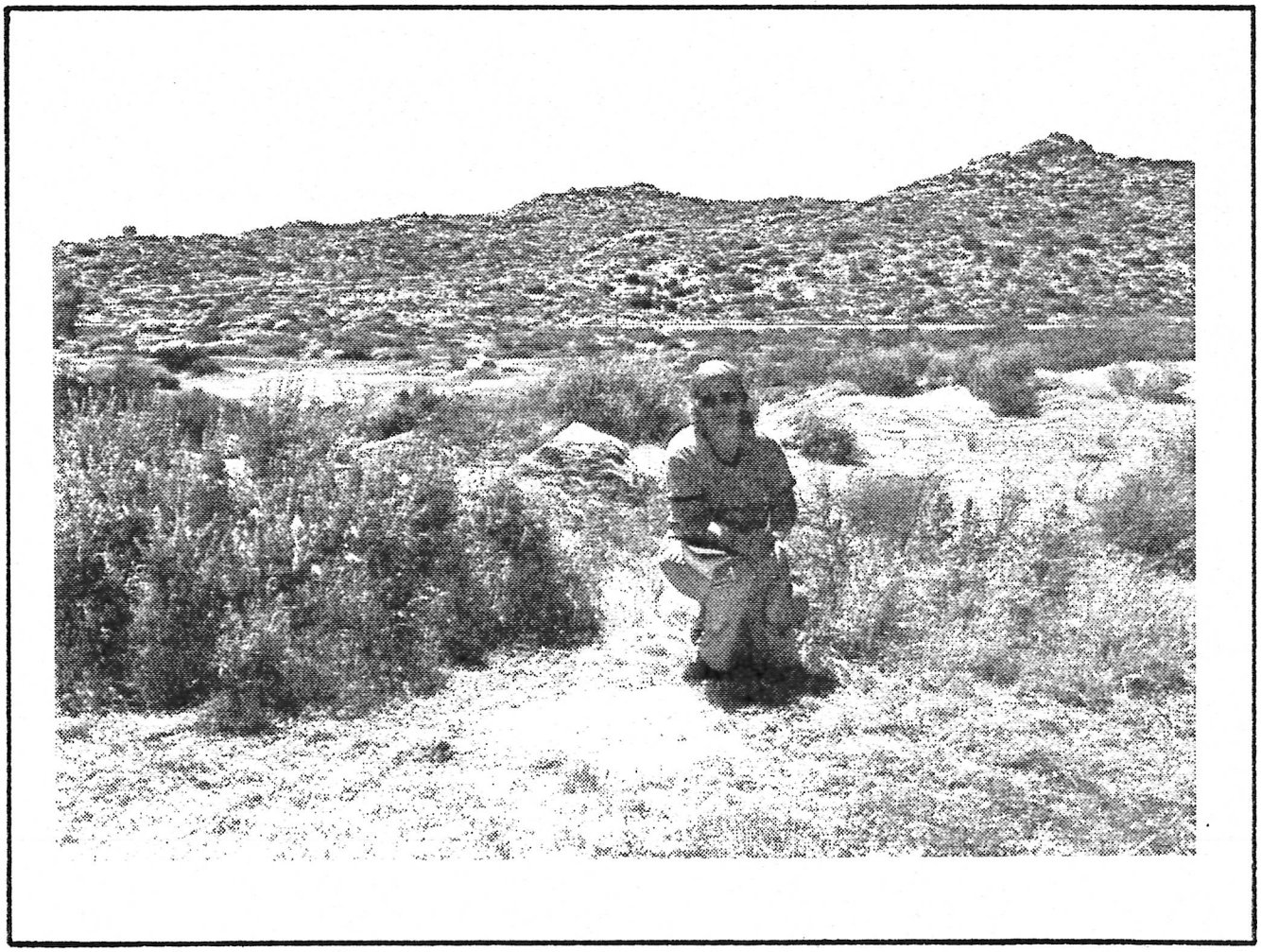
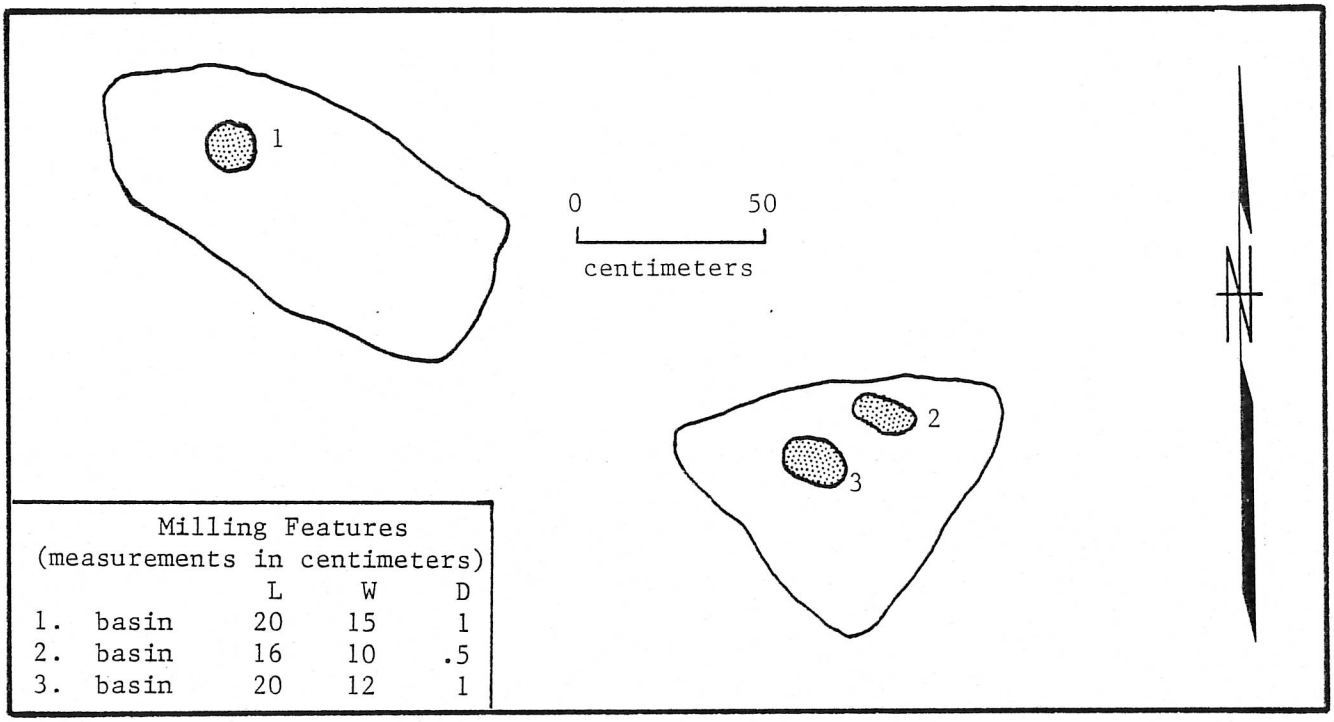


Figure 17. The SDi-4455 site, the Reservoir Locus, outcrop F, looking west.



Milling Features (measurements in centimeters)			
	L	W	D
1. basin	20	15	1
2. basin	16	10	.5
3. basin	20	12	1

Figure 18. Micro-map of the milling features on outcrop G at the Reservoir Locus of the SDi-4455 site.

Figure 19. The SDi-4455 site, the Reservoir Locus, outcrop G, looking southeast.

Milling Features (measurements in centimeters)			
	L	W	D
1. basin	21	18	2
2. basin	18	14	1
3. basin	20	16	2
4. basin	17	12	1

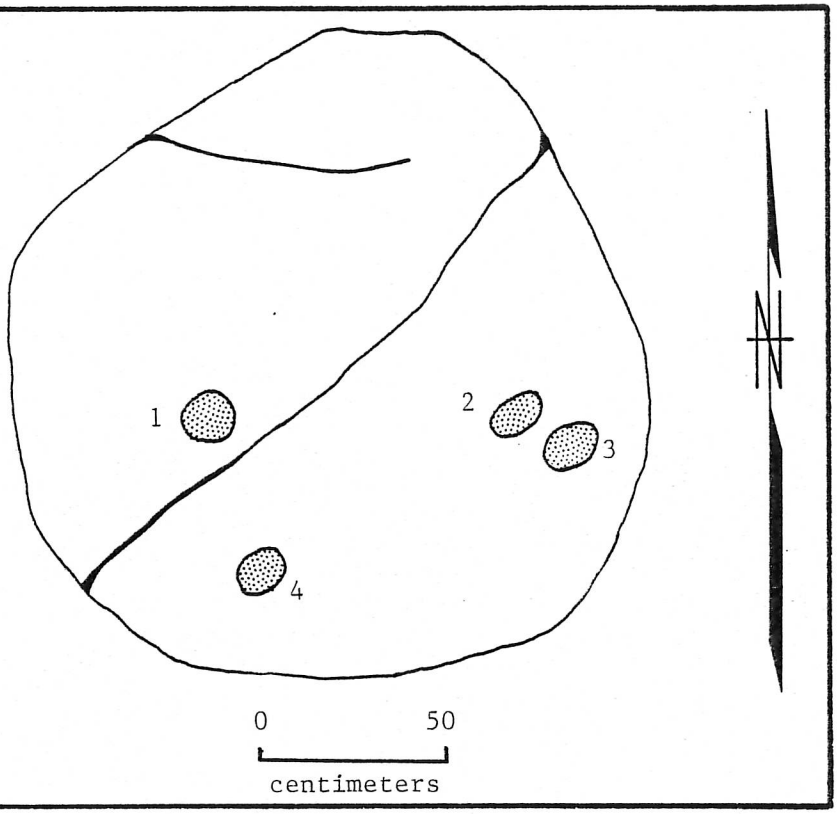


Figure 20. Micro-map of the milling features on outcrop H at the Reservoir Locus of the SDi-4455 site.

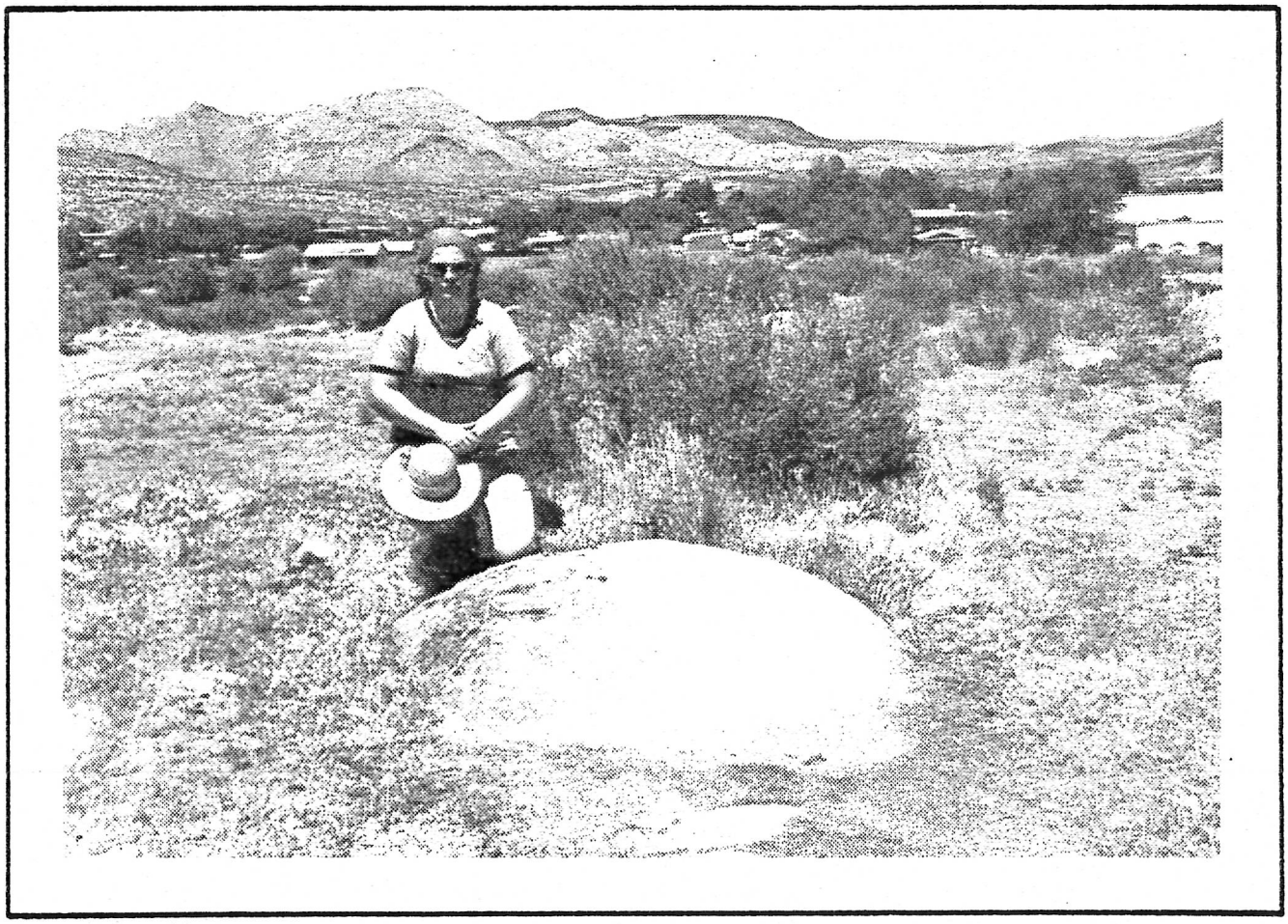


Figure 21. The SDi-4455 site, the Reservoir Locus, outcrop H, looking northeast.

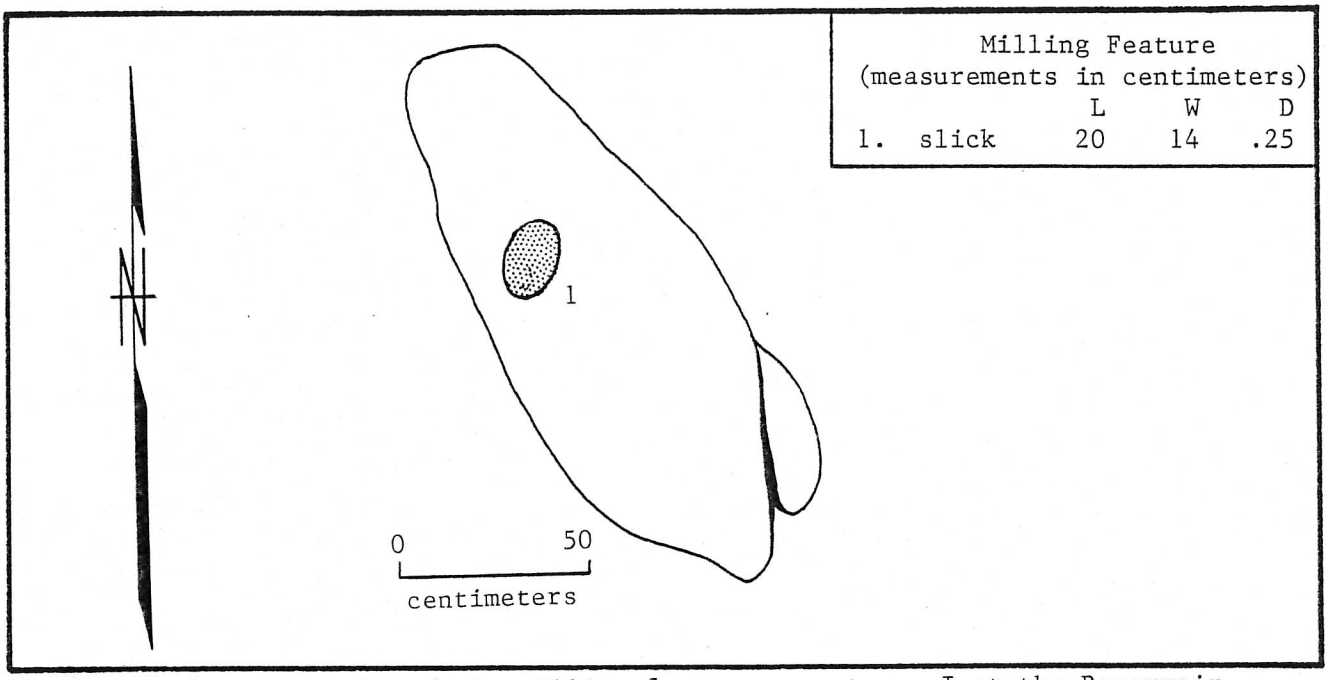


Figure 22. Micro-map of the milling feature on outcrop I at the Reservoir Locus of the SDi-4455 site.

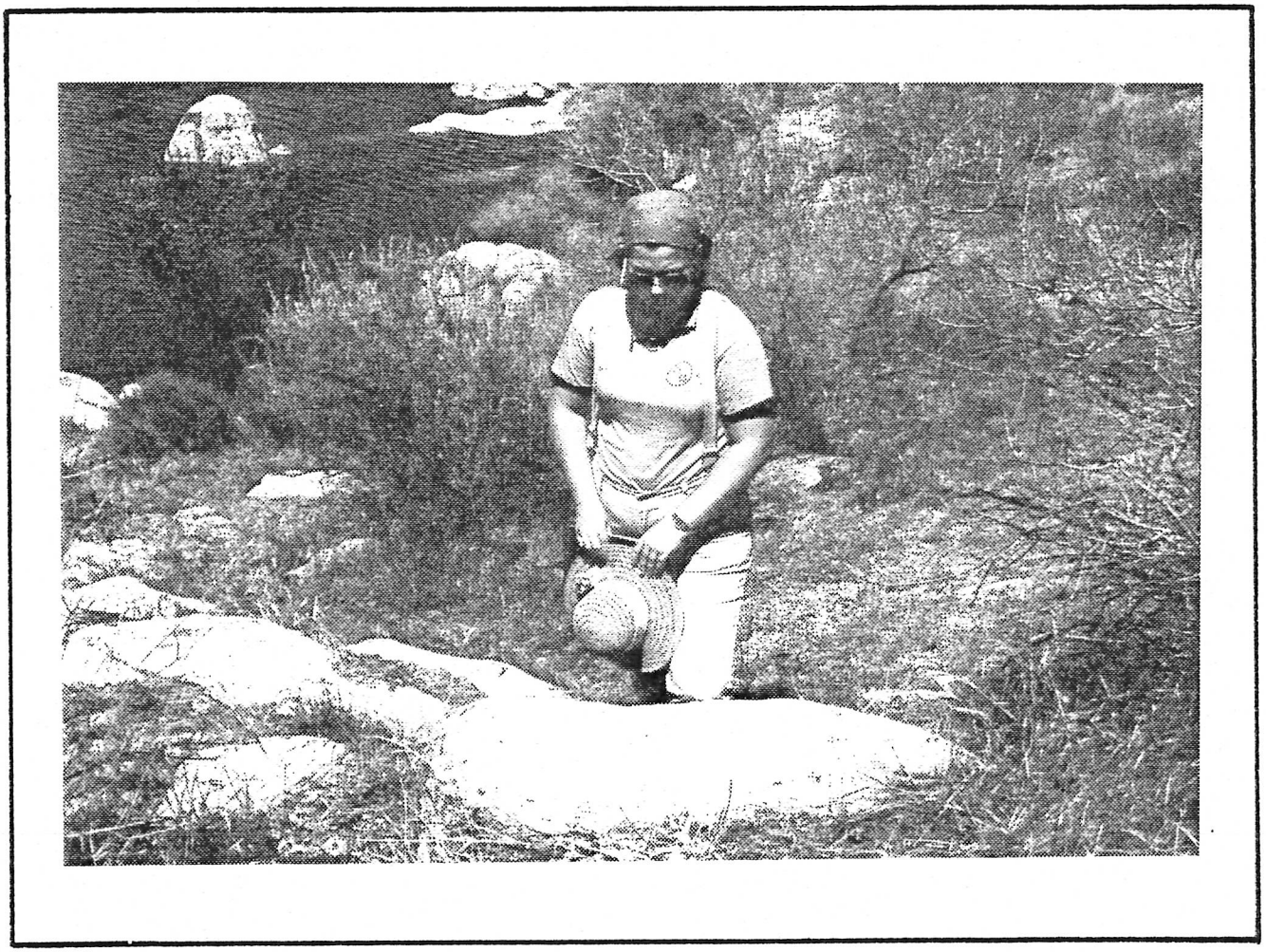


Figure 23. The SDi-4455 site, the Reservoir Locus, outcrop I, looking northeast.

Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	80	70	0
2.	slick	30	30	0
3.	slick	59	40	0
4.	basin	21	16	1.5
5.	basin	34	25	3
6.	slick	66	50	0
7.	basin	24	21	2
8.	slick	36	36	0
9.	slick	27	19	0
10.	slick	66	63	0
11.	slick	36	27	0
12.	slick	86	50	0
13.	basin	23	20	1.5
14.	slick	40	32	0
15.	basin	36	33	2
16.	slick	60	31	0
17.	slick	60	33	0
18.	basin	48	25	2
19.	basin	36	20	2
20.	slick	50	15	0
21.	basin	20	19	2.5
22.	basin	21	14	1.5
23.	slick	34	18	0
24.	basin	41	25	2
25.	basin	15	13	.5
26.	basin	13	12	.5
27.	basin	24	13	.5

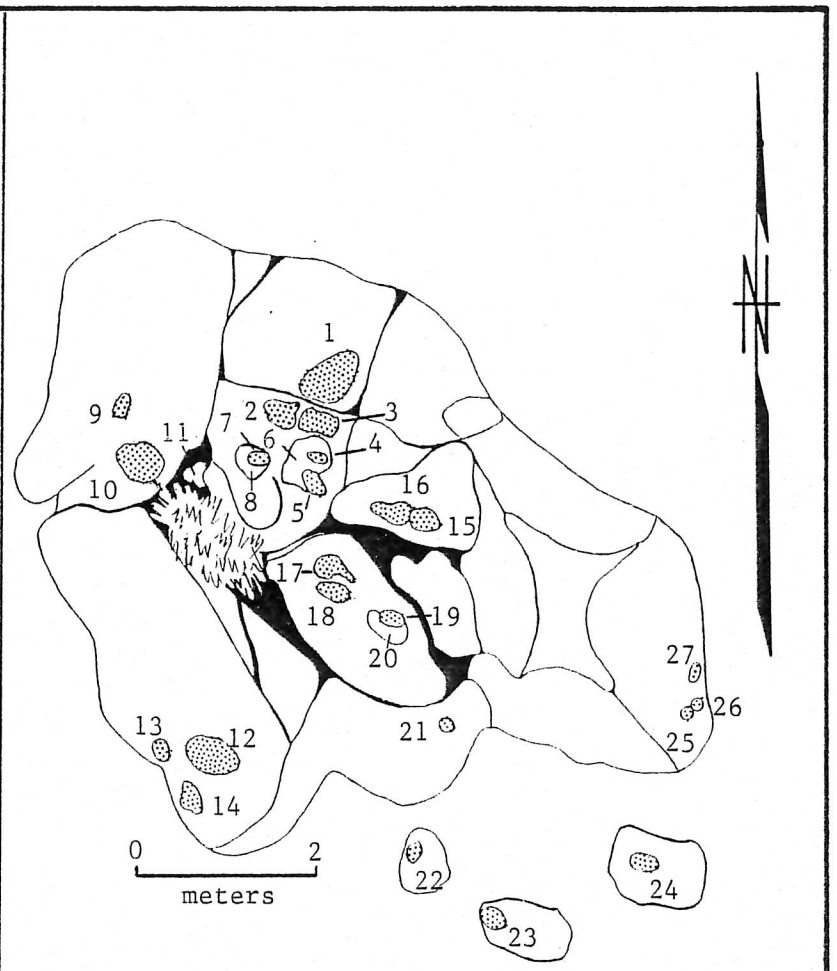


Figure 24. Micro-map of the milling features on outcrop J at the Reservoir Locus of the SDi-4455 site.

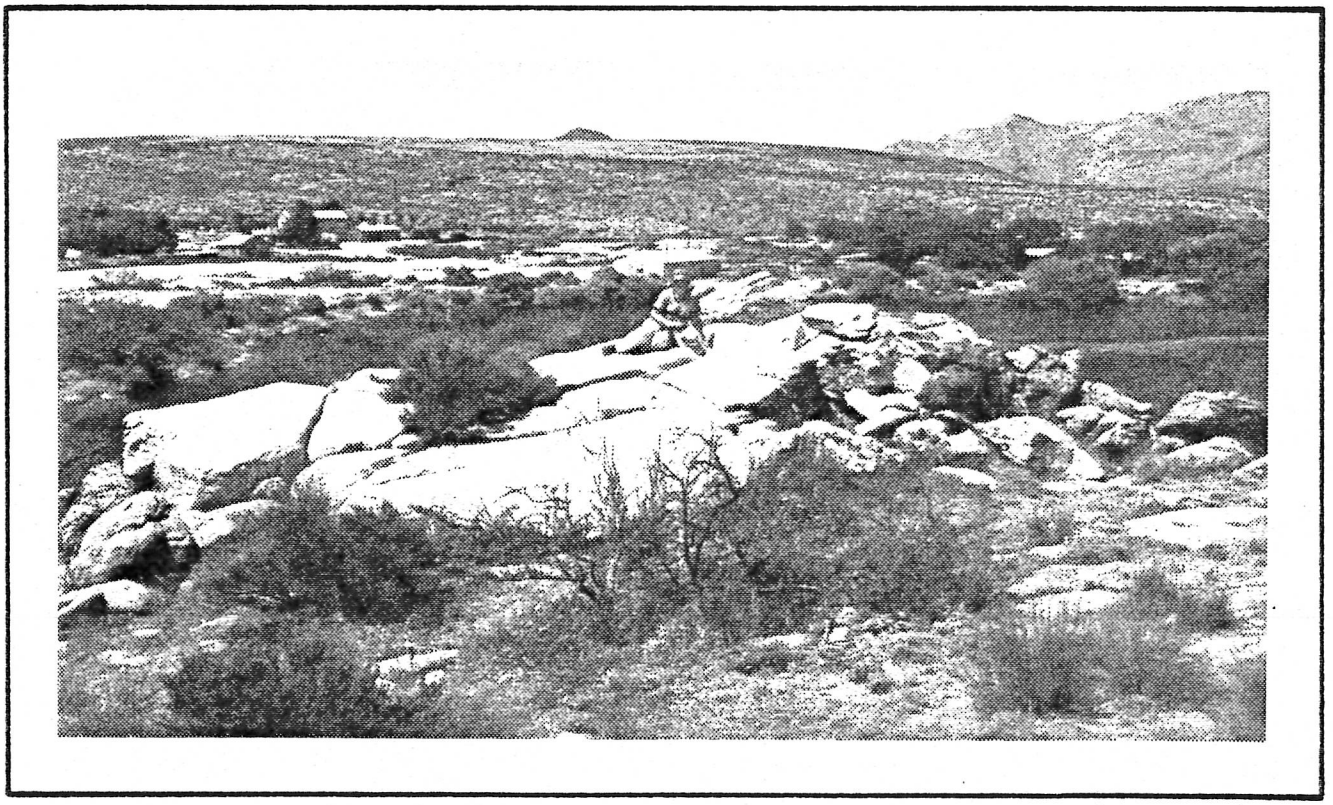
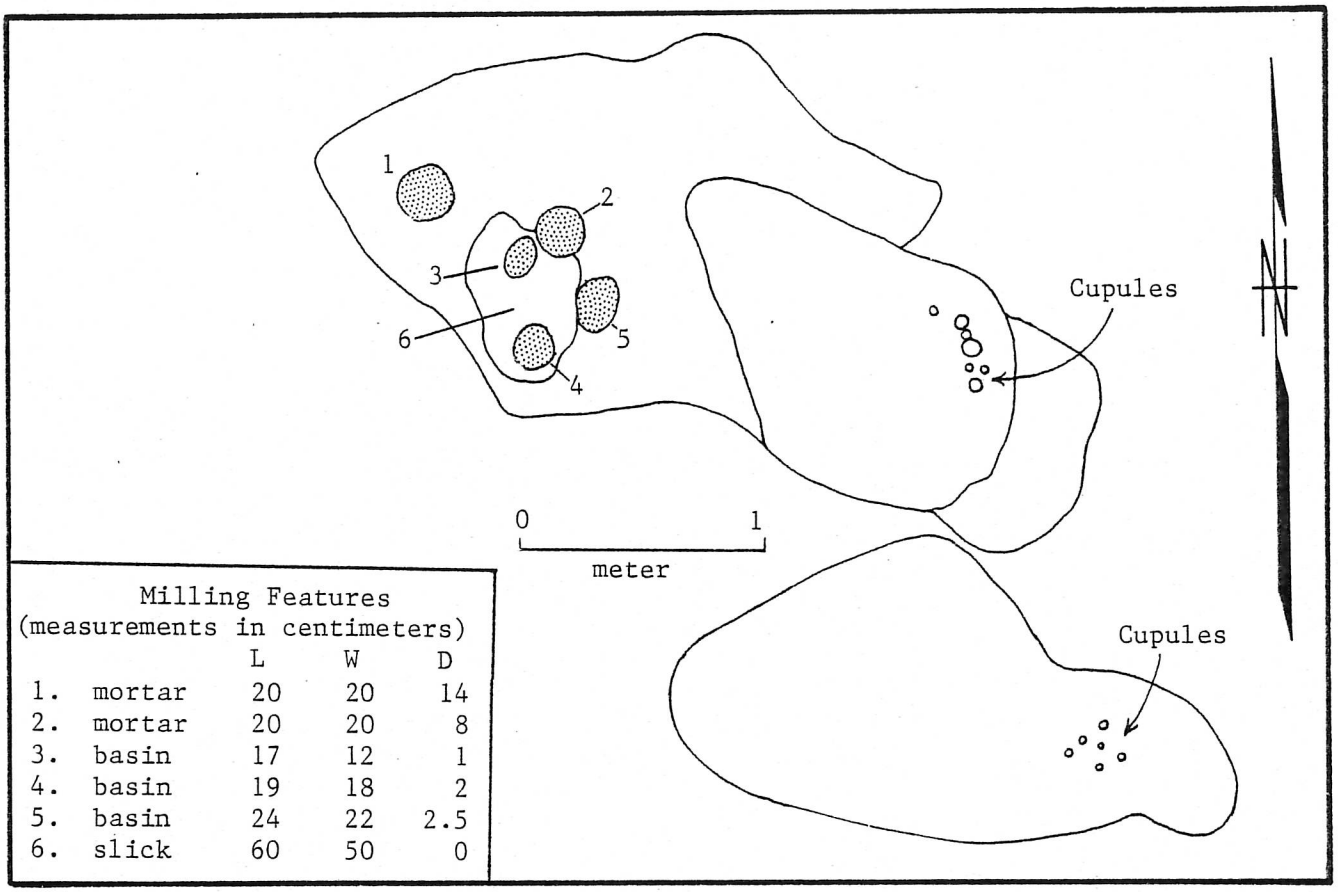


Figure 25. The SDi-4455 site, the Reservoir Locus, outcrop J, looking northeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	mortar	20	20	14
2.	mortar	20	20	8
3.	basin	17	12	1
4.	basin	19	18	2
5.	basin	24	22	2.5
6.	slick	60	50	0

Figure 26. Micro-map of the milling features on outcrop K at the Reservoir Locus of the SDi-4455 site.

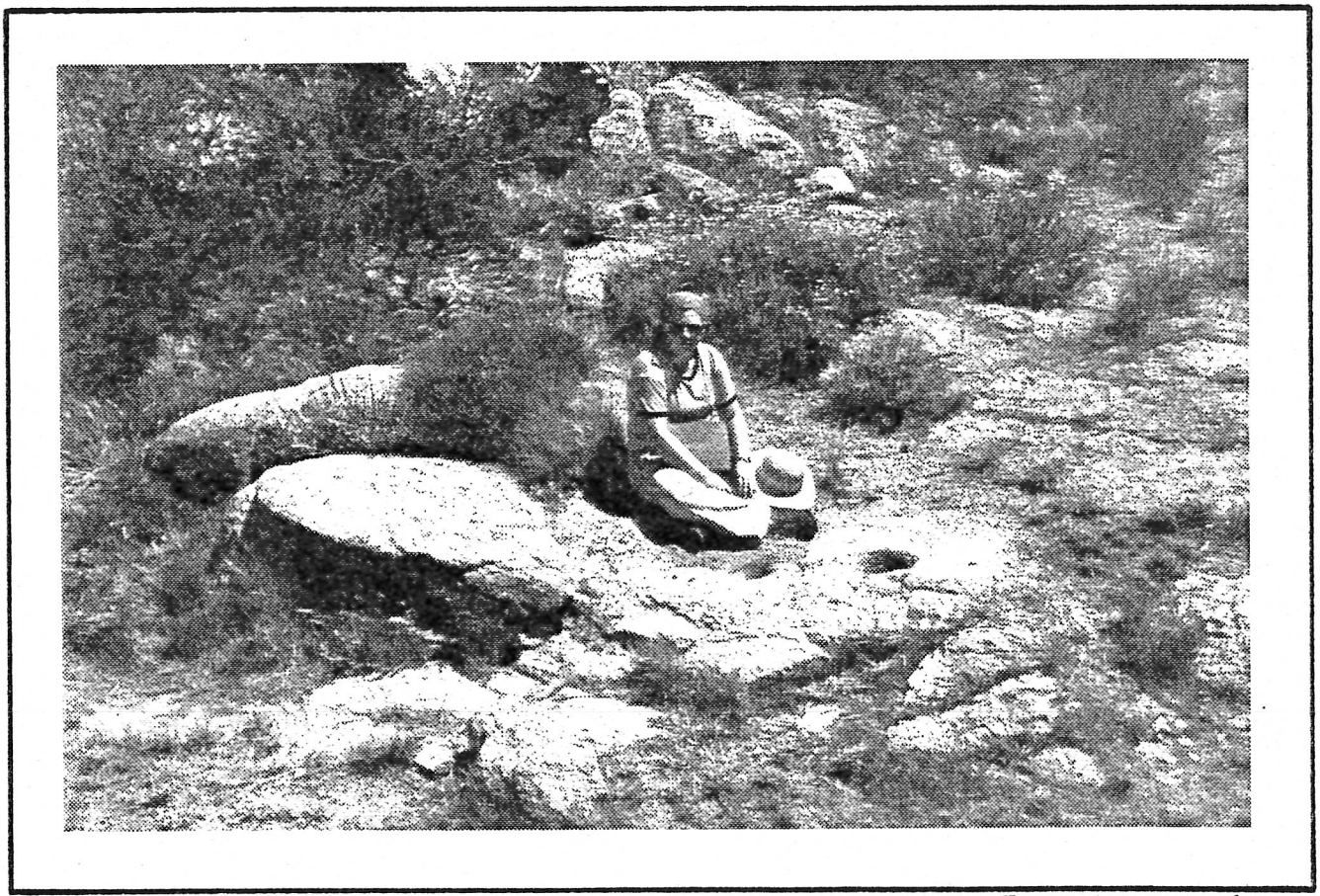
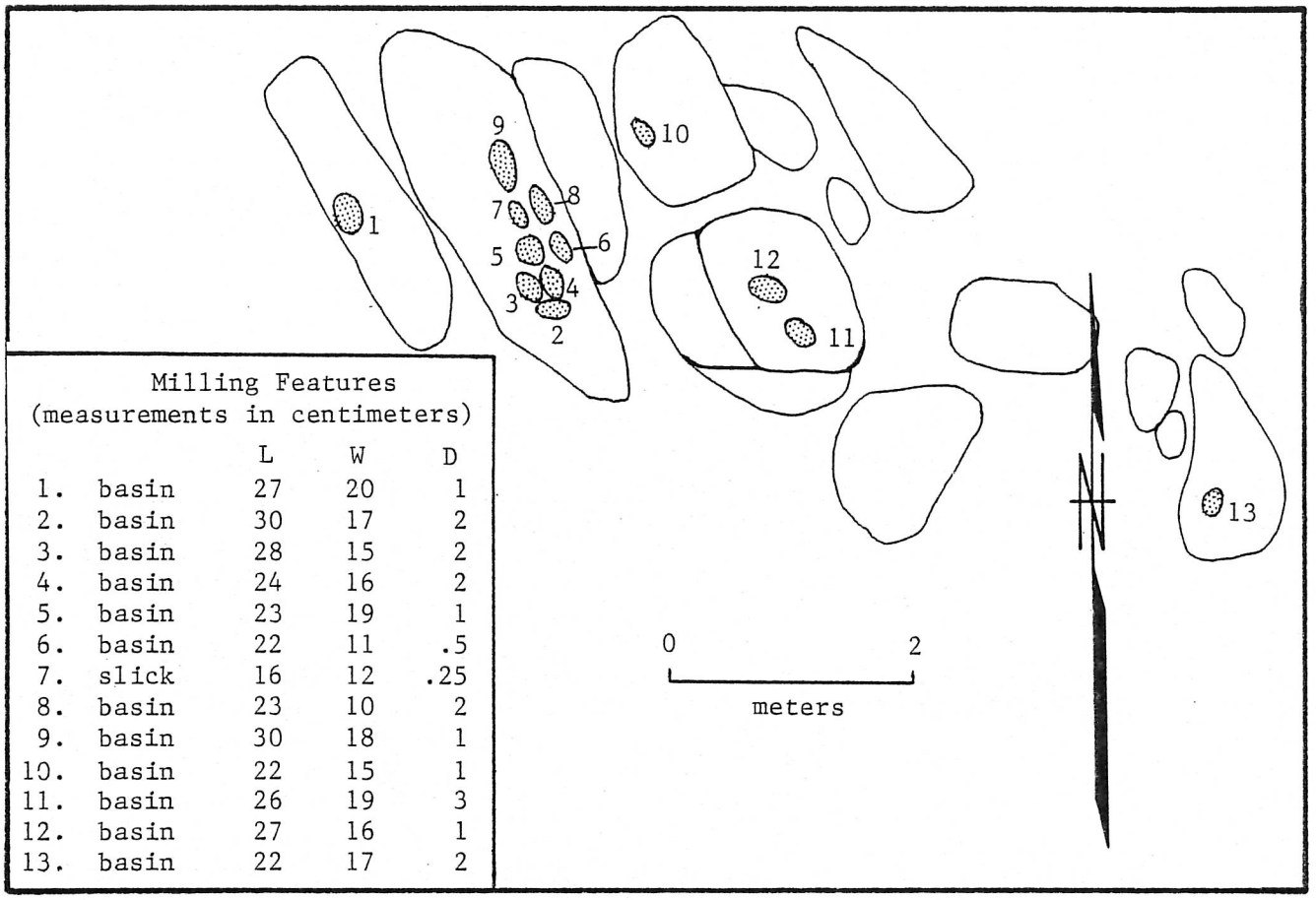


Figure 27. The SDi-4455 site, the Reservoir Locus, outcrop K, looking southwest.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	27	20	1
2.	basin	30	17	2
3.	basin	28	15	2
4.	basin	24	16	2
5.	basin	23	19	1
6.	basin	22	11	.5
7.	slick	16	12	.25
8.	basin	23	10	2
9.	basin	30	18	1
10.	basin	22	15	1
11.	basin	26	19	3
12.	basin	27	16	1
13.	basin	22	17	2

Figure 28. Micro-map of the milling features on outcrop L at the Reservoir Locus of the SDi-4455 site.

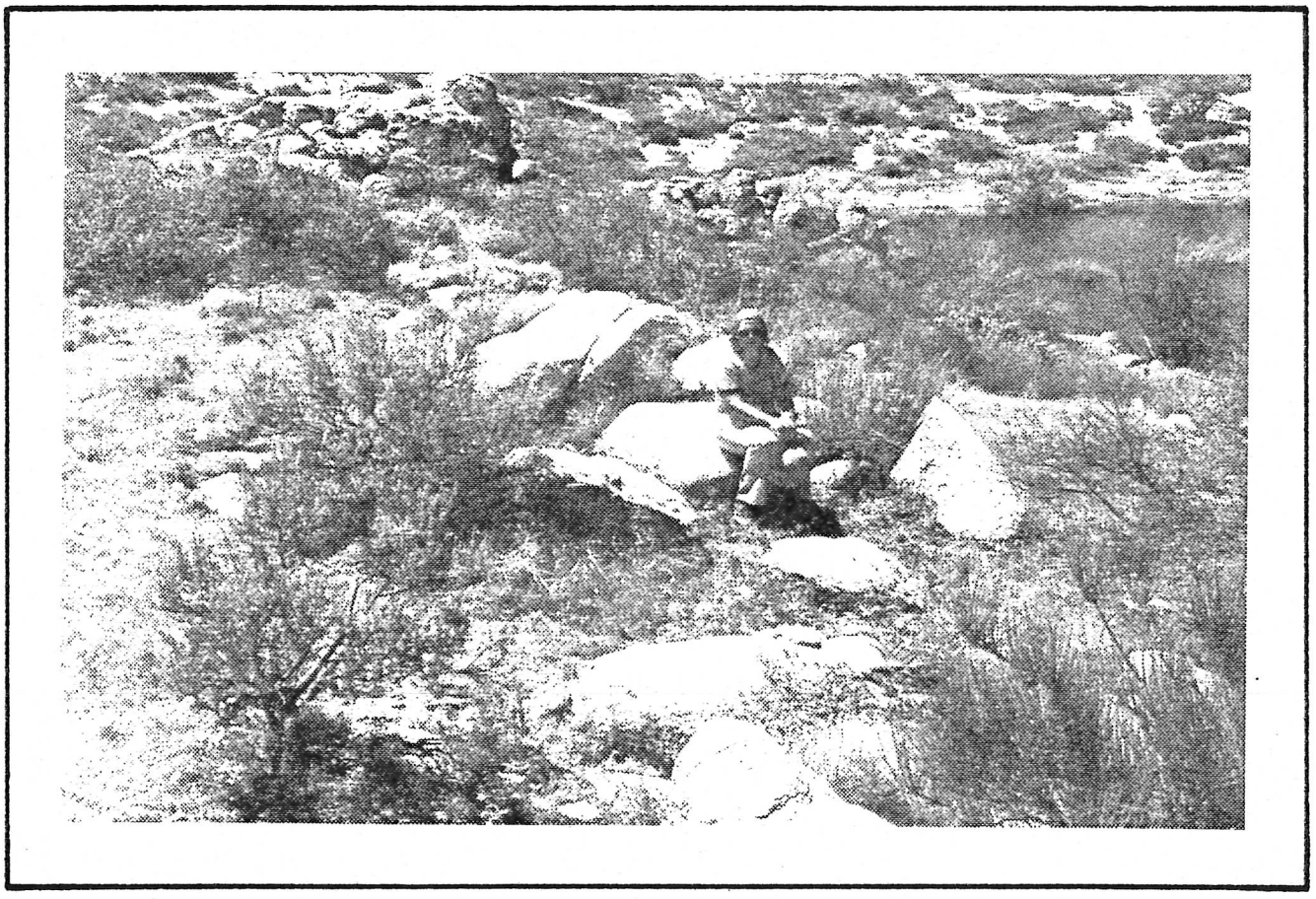
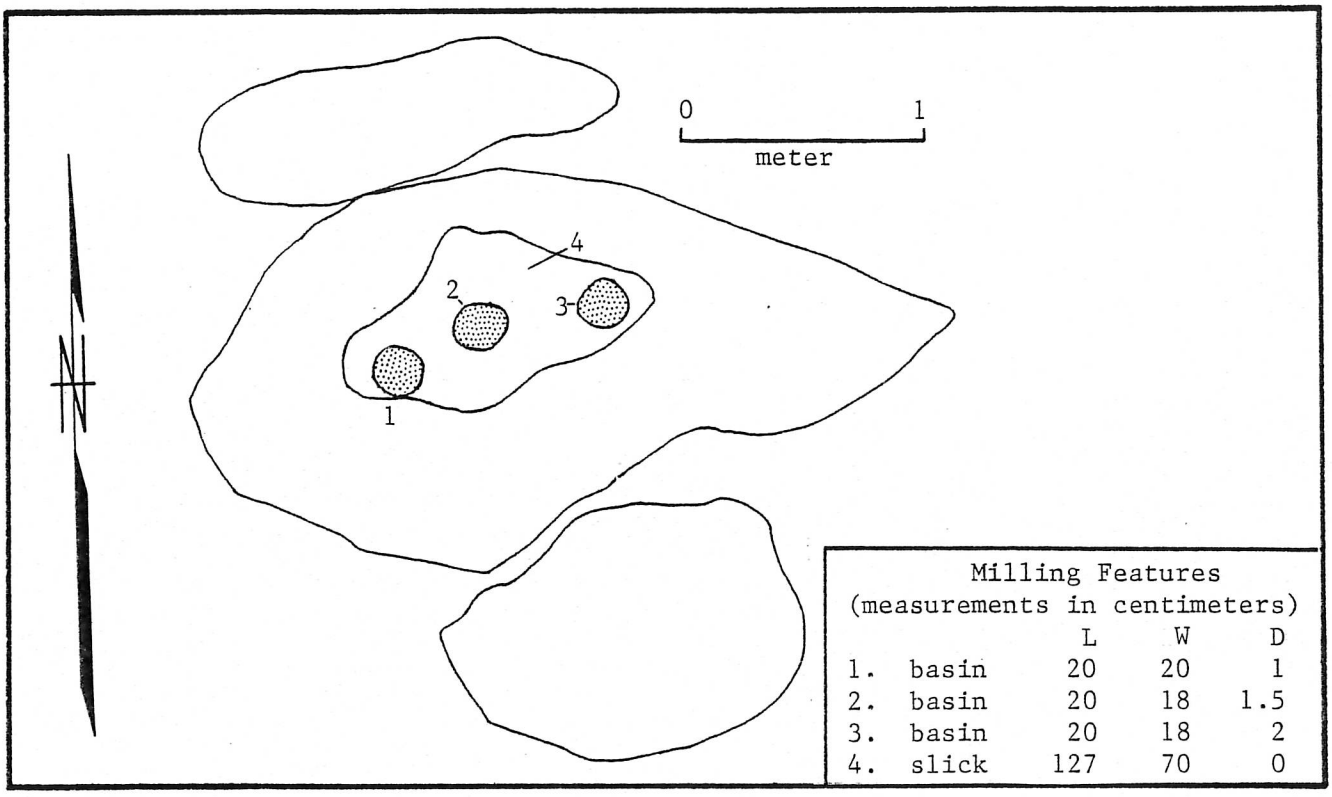


Figure 29. The SDi-4455 site, the Reservoir Locus, outcrop L, looking north.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	20	20	1
2.	basin	20	18	1.5
3.	basin	20	18	2
4.	slick	127	70	0

Figure 30. Micro-map of the milling features on outcrop M at the Reservoir Locus of the SDi-4455 site.

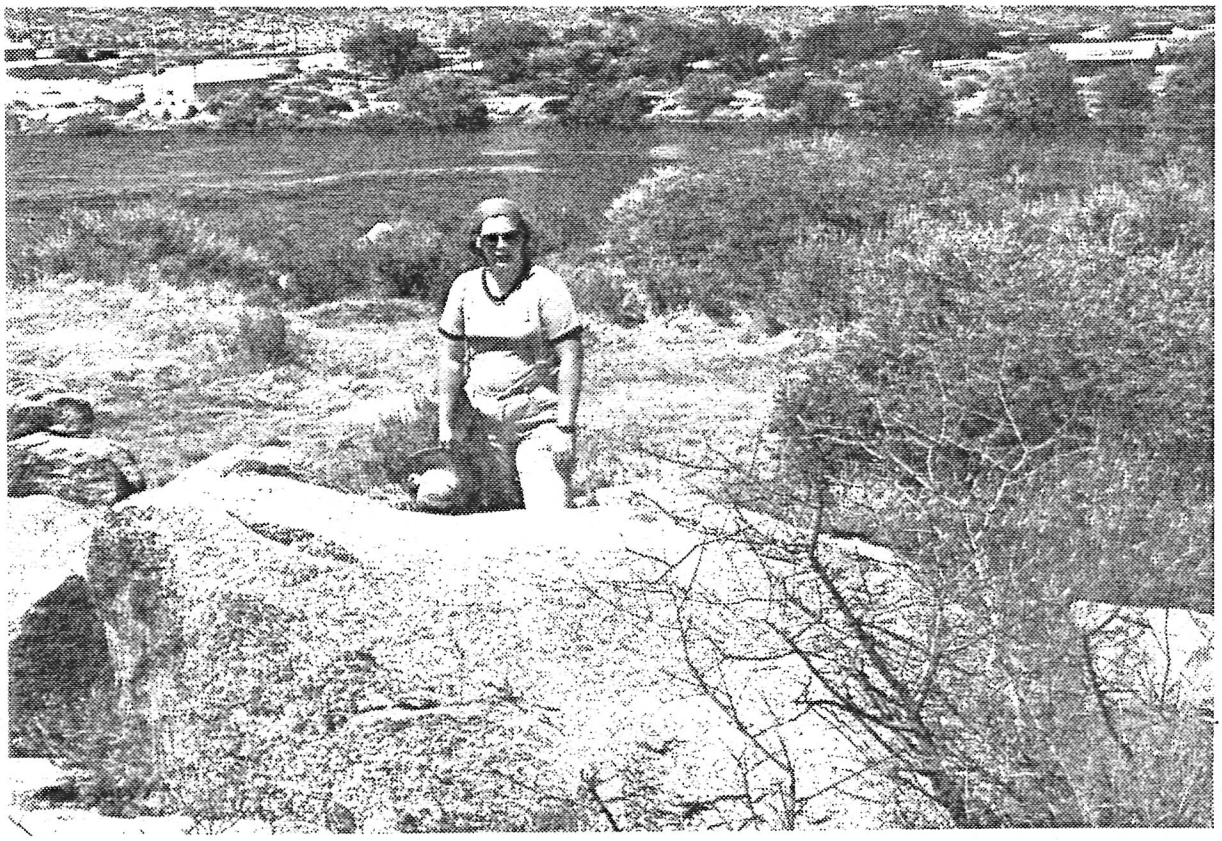
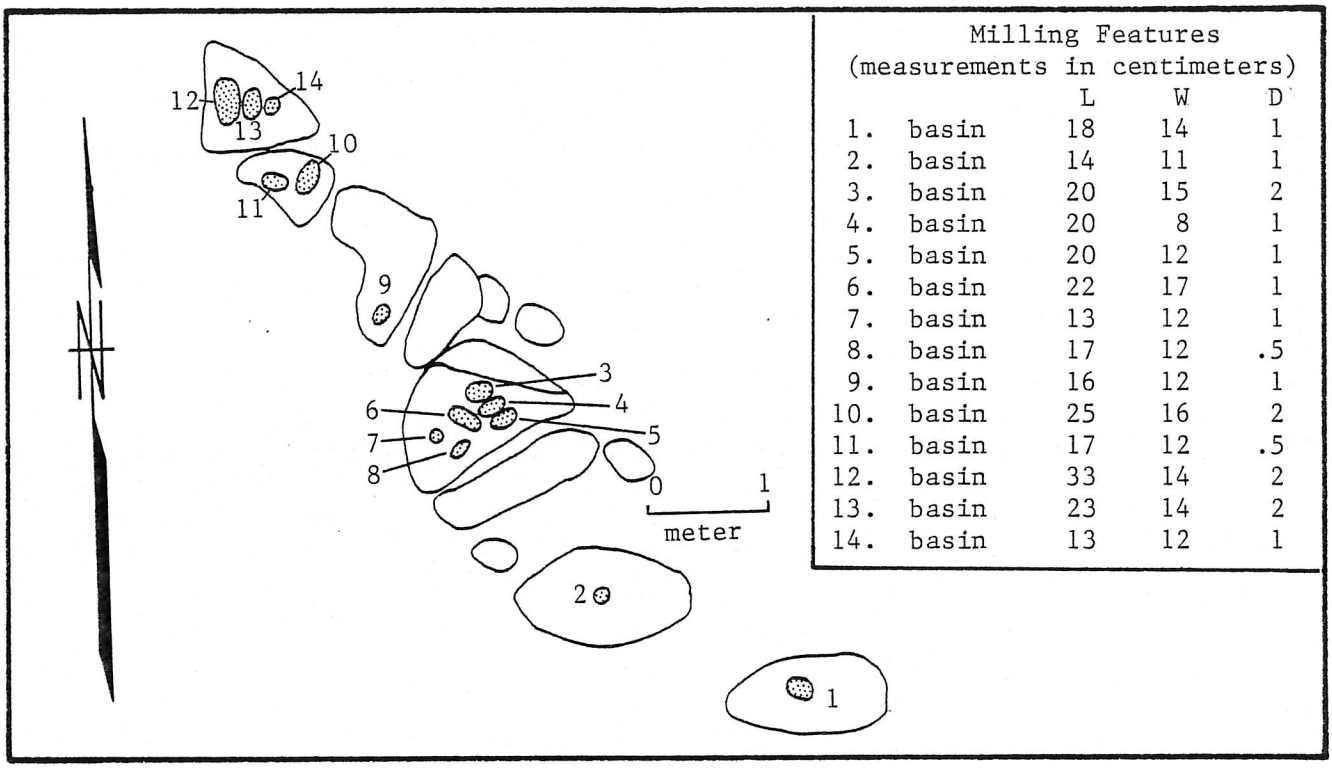


Figure 31. The SDi-4455 site, the Reservoir Locus, outcrop M, looking northeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	18	14	1
2.	basin	14	11	1
3.	basin	20	15	2
4.	basin	20	8	1
5.	basin	20	12	1
6.	basin	22	17	1
7.	basin	13	12	1
8.	basin	17	12	.5
9.	basin	16	12	1
10.	basin	25	16	2
11.	basin	17	12	.5
12.	basin	33	14	2
13.	basin	23	14	2
14.	basin	13	12	1

Figure 32. Micro-map of the milling features on outcrop N at the Reservoir Locus of the SDi-4455 site.

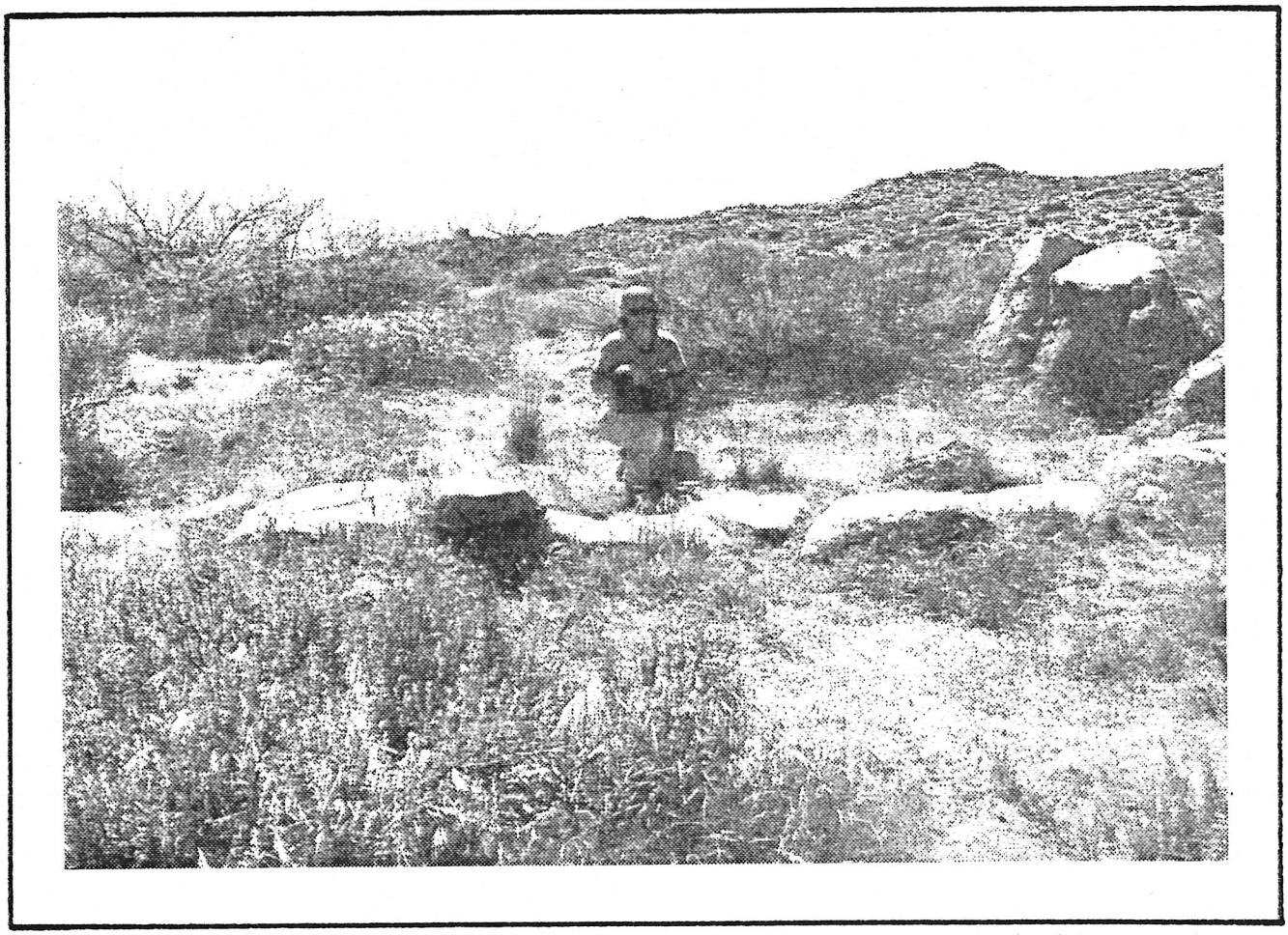
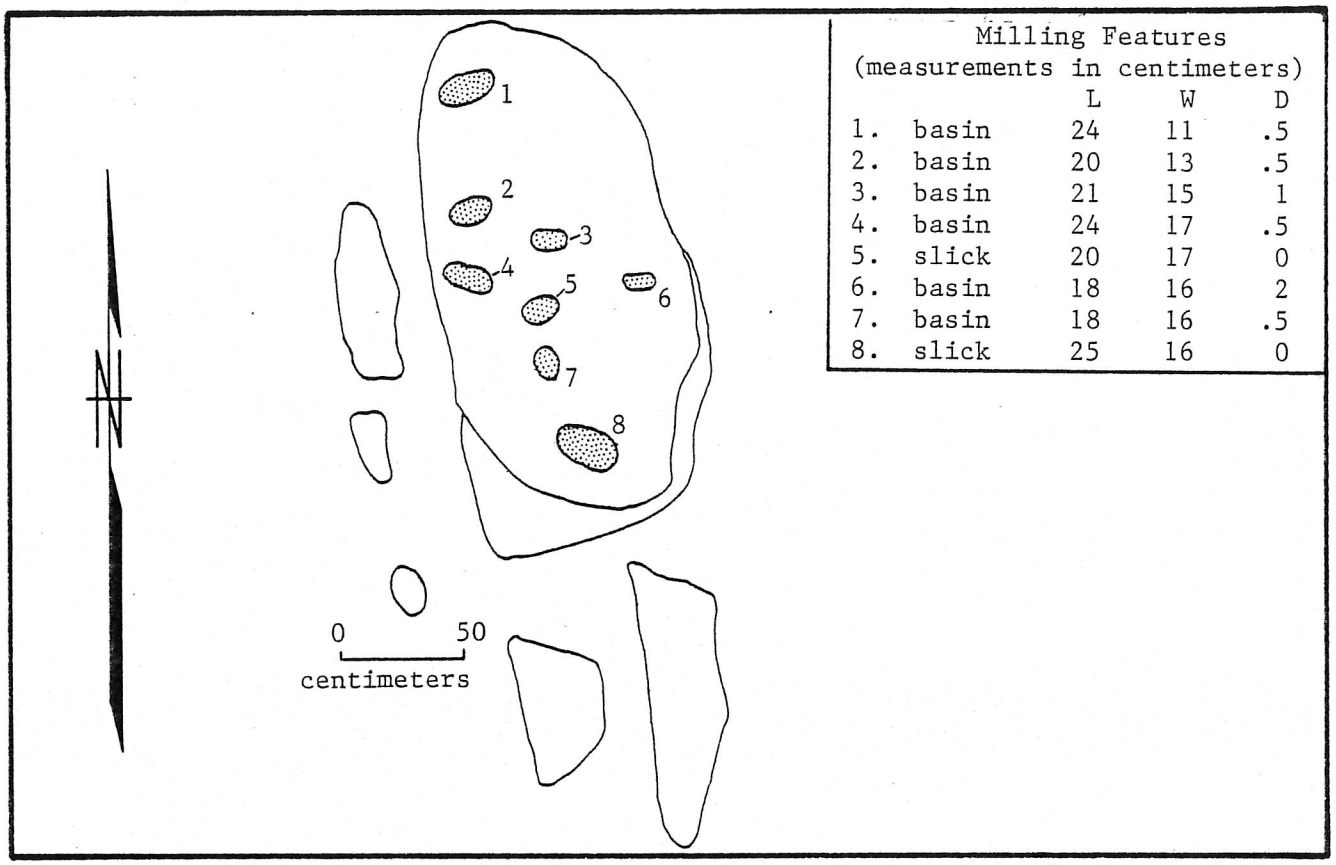


Figure 33. The SDi-4455 site, the Reservoir Locus, outcrop N, looking southwest.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	24	11	.5
2.	basin	20	13	.5
3.	basin	21	15	1
4.	basin	24	17	.5
5.	slick	20	17	0
6.	basin	18	16	2
7.	basin	18	16	.5
8.	slick	25	16	0

Figure 34. Micro-map of the milling features on outcrop O at the Reservoir Locus of the SDi-4455 site.

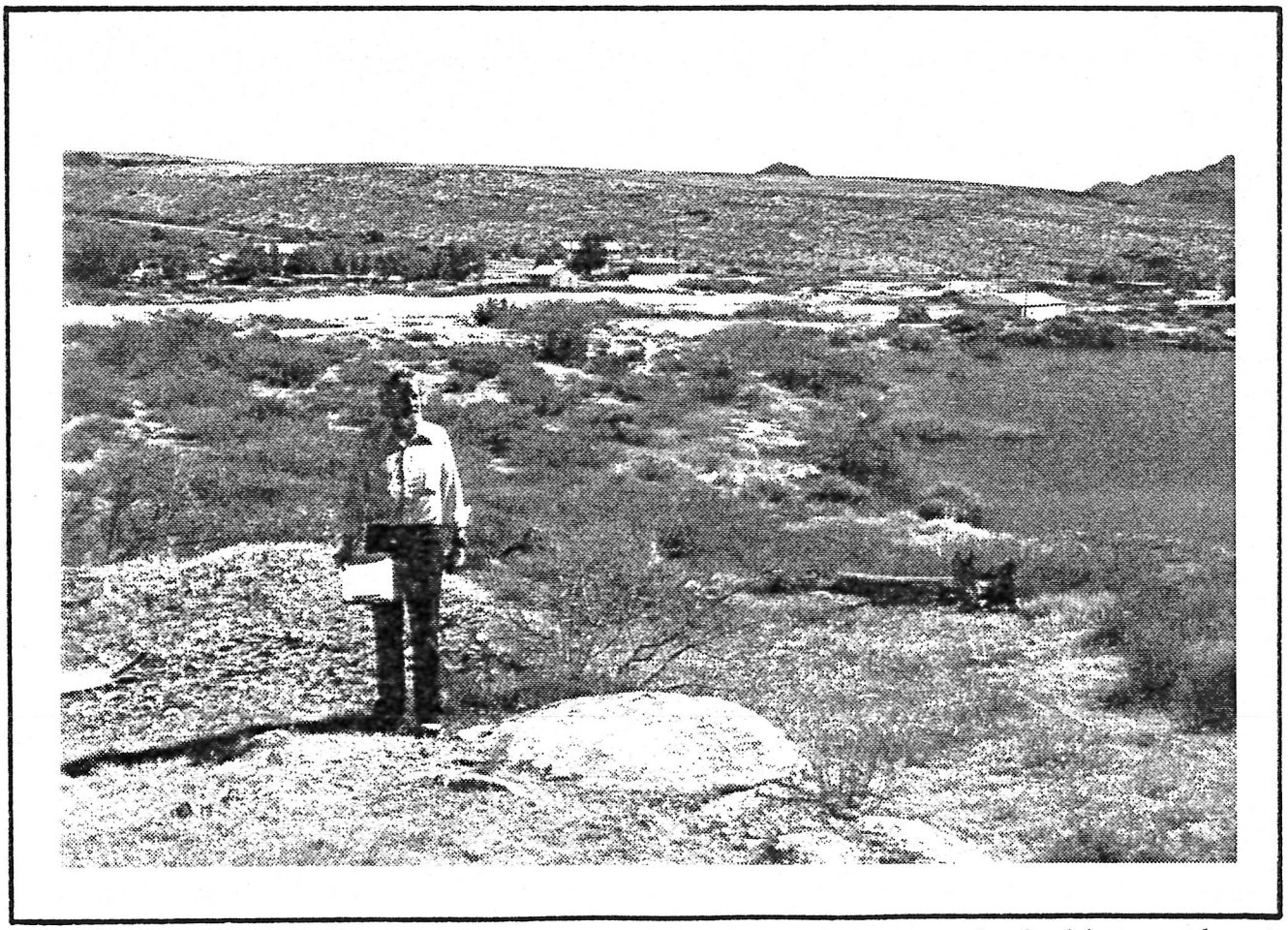
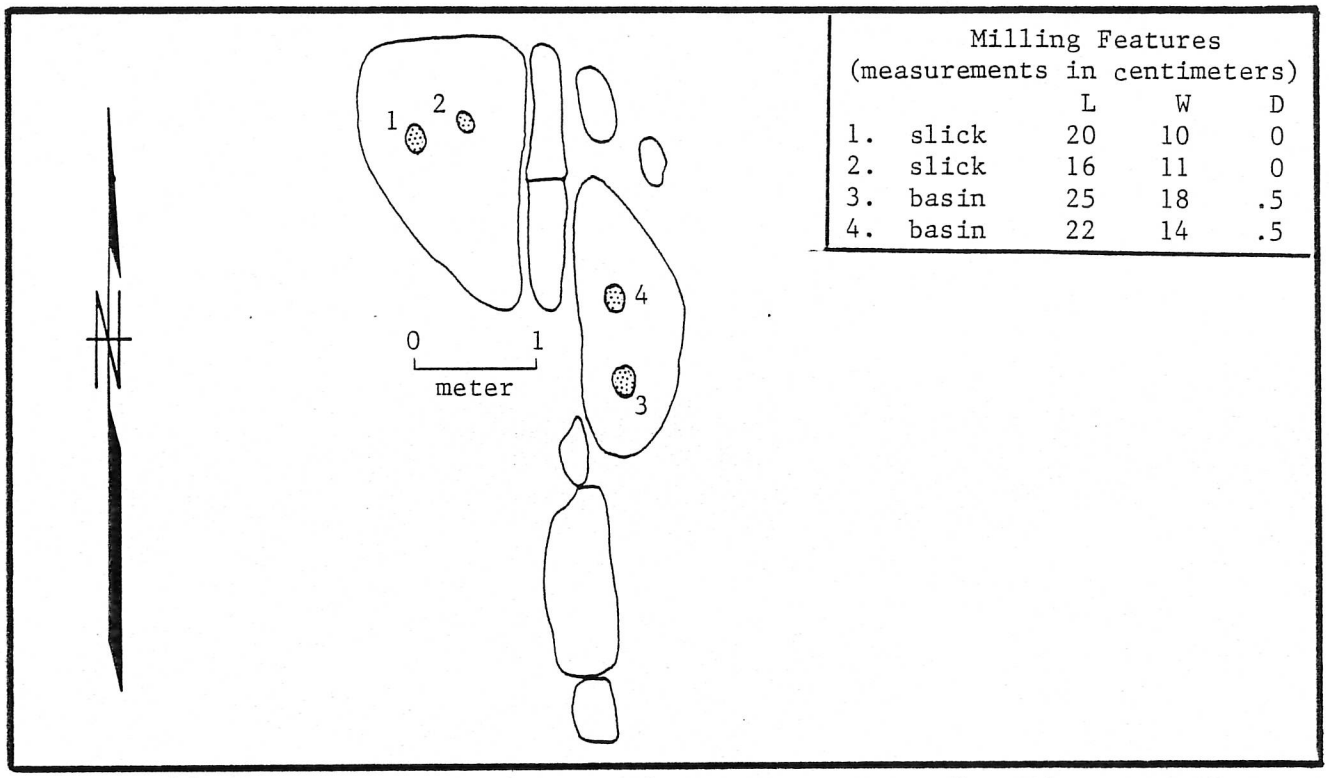


Figure 35. The SDi-4455 site, the Reservoir Locus, outcrop O, looking northeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	20	10	0
2.	slick	16	11	0
3.	basin	25	18	.5
4.	basin	22	14	.5

Figure 36. Micro-map of the milling features on outcrop P at the Reservoir Locus of the SDi-4455 site.

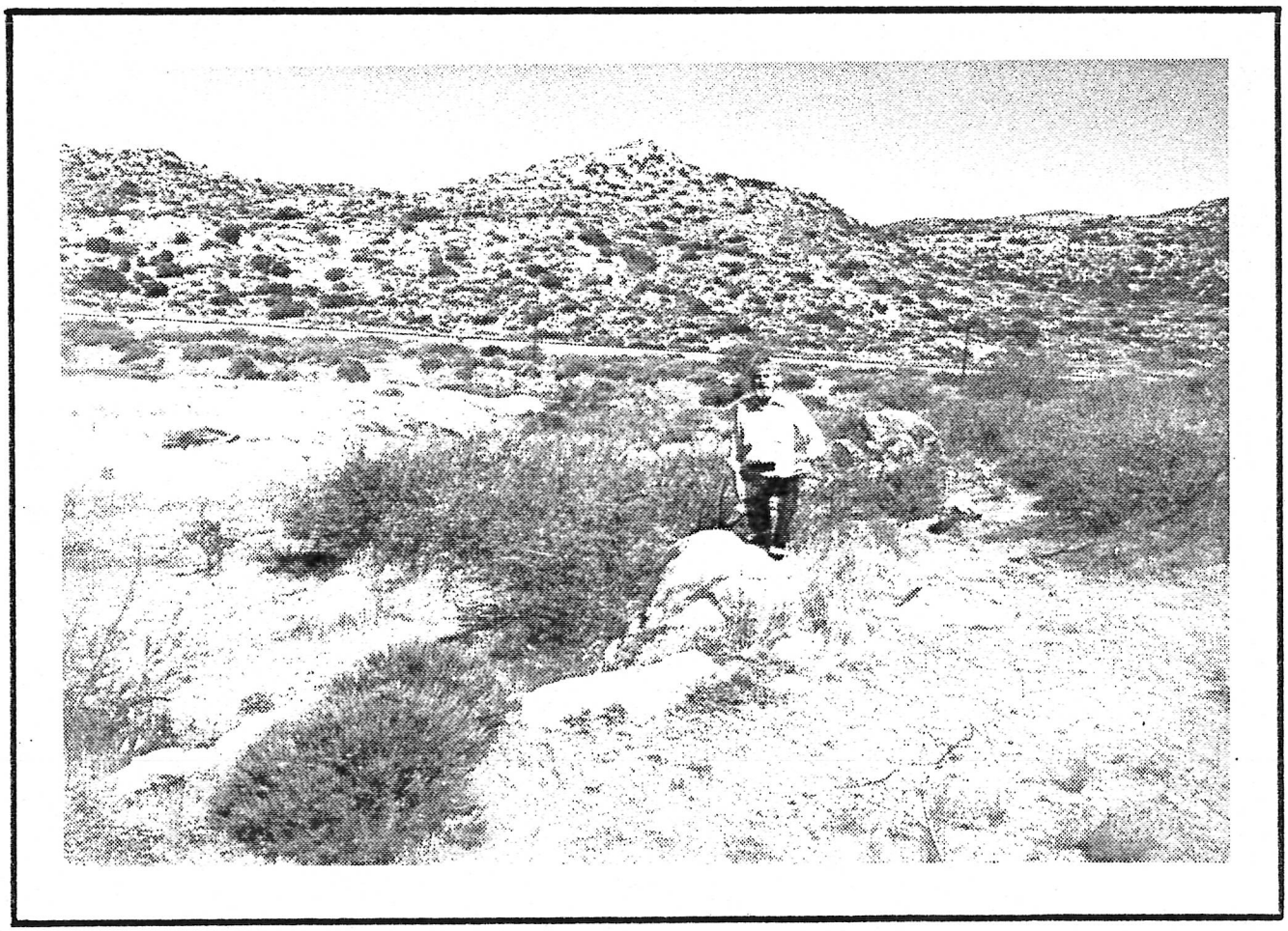


Figure 37. The SDi-4455 site, the Reservoir Locus, outcrop P, looking northwest.

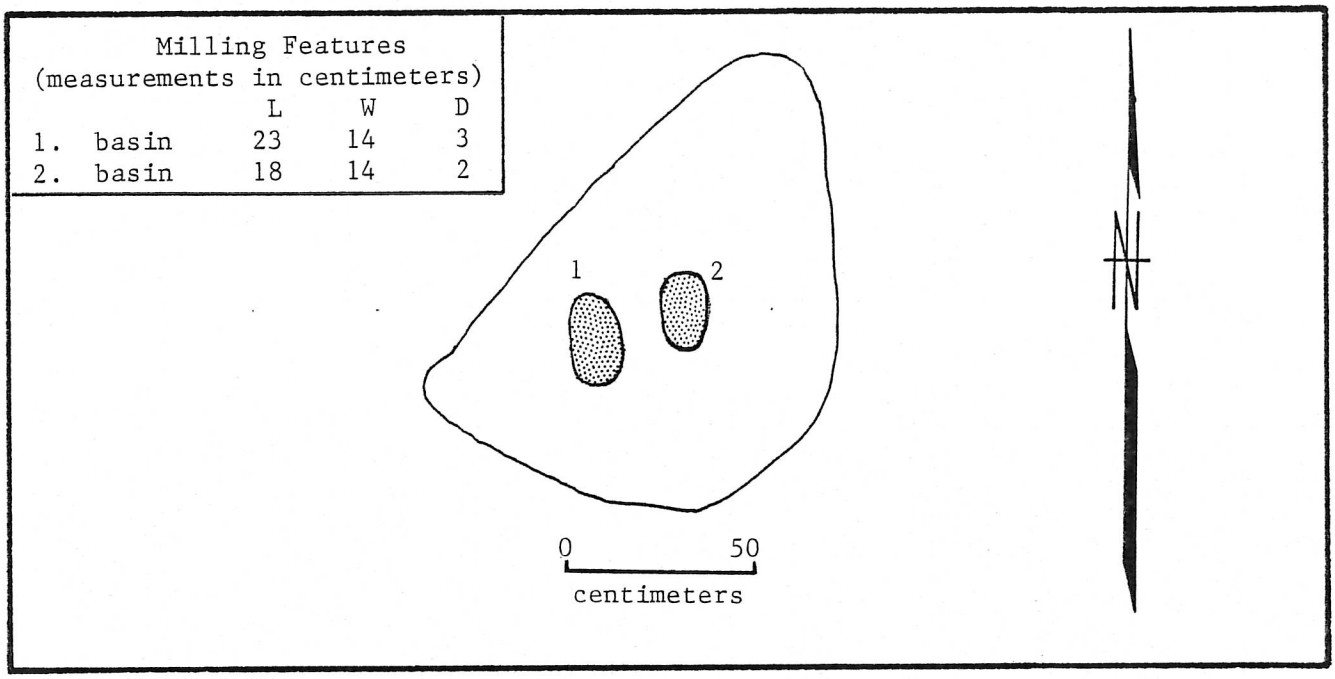


Figure 38 . Micro-map of the milling features on outcrop Q at the Reservoir Locus of the SDi-4455 site.

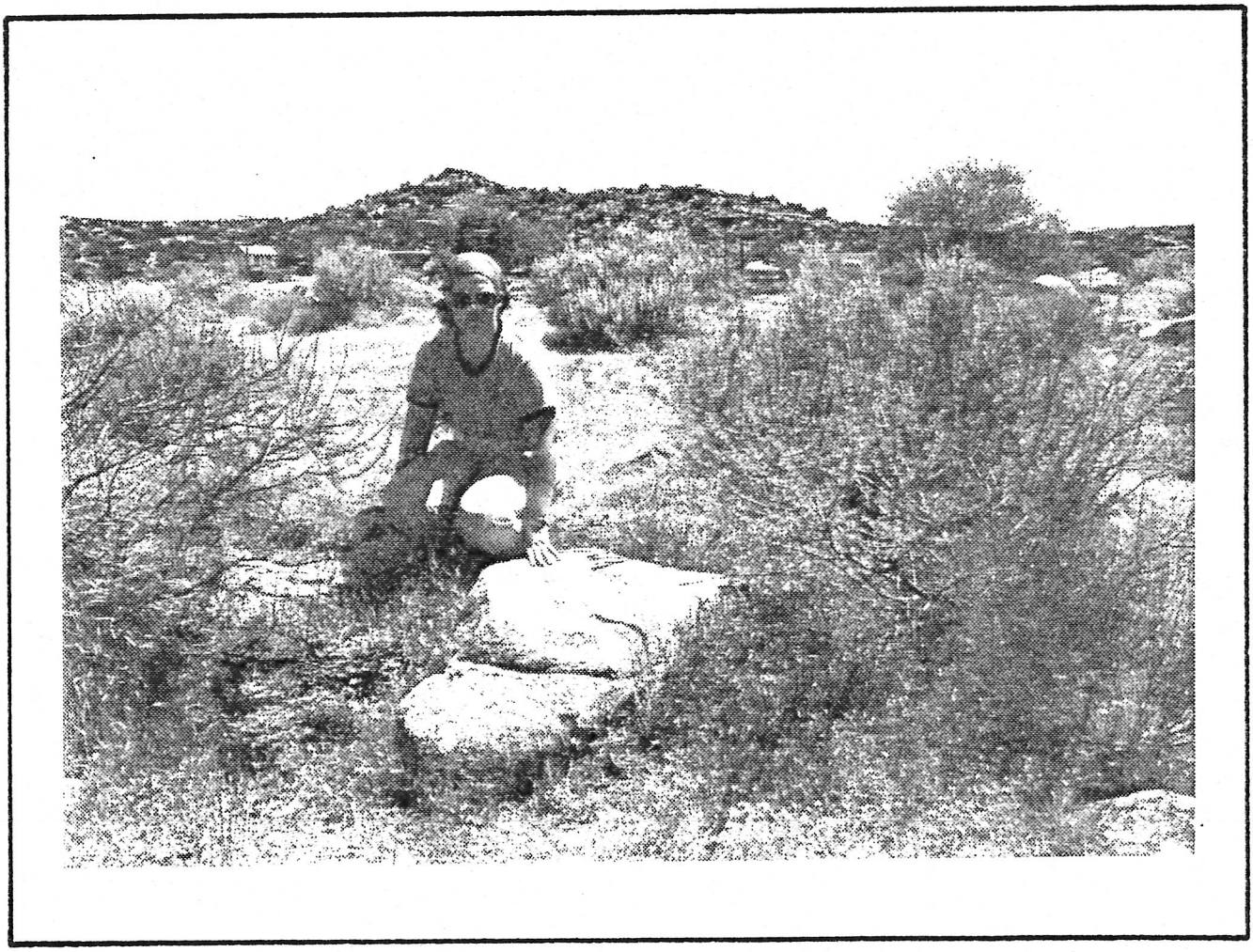
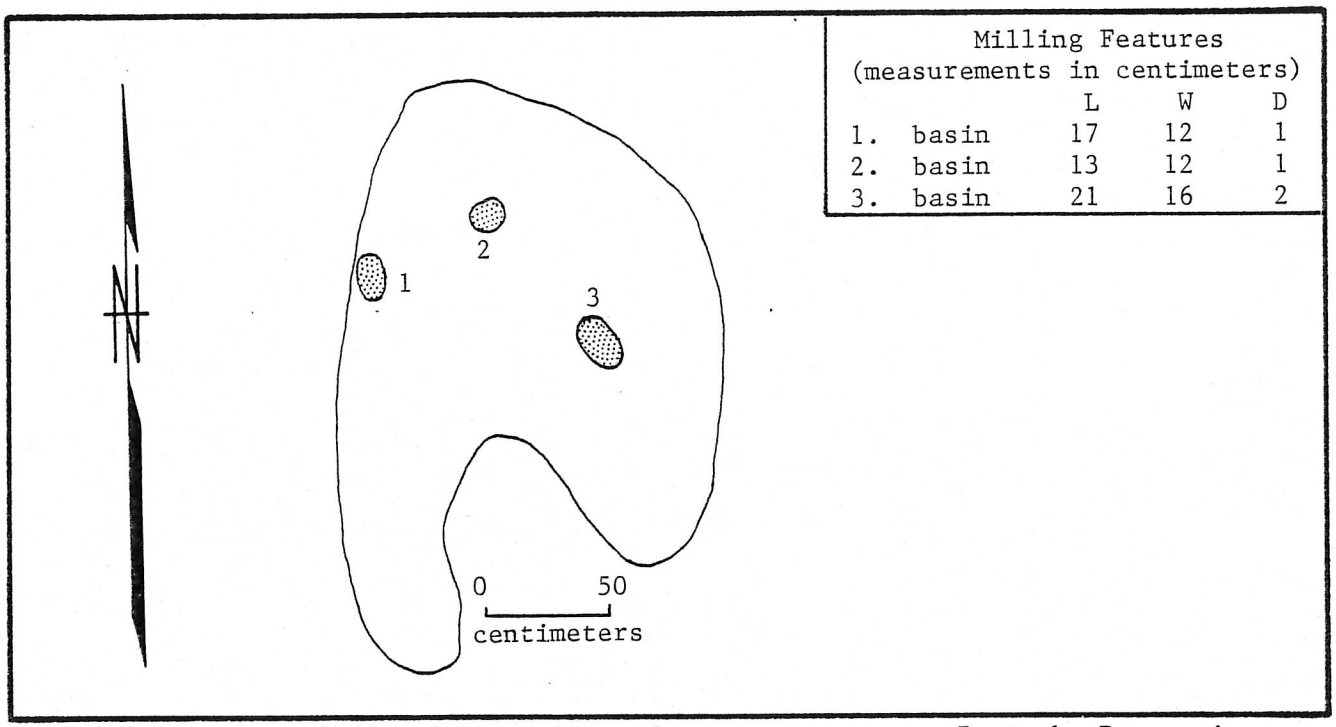


Figure 39 . The SDi-4455 site, the Reservoir Locus, outcrop Q, looking south.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	17	12	1
2.	basin	13	12	1
3.	basin	21	16	2

Figure 40. Micro-map of the milling features on outcrop R at the Reservoir Site of the SDi-4455 site.

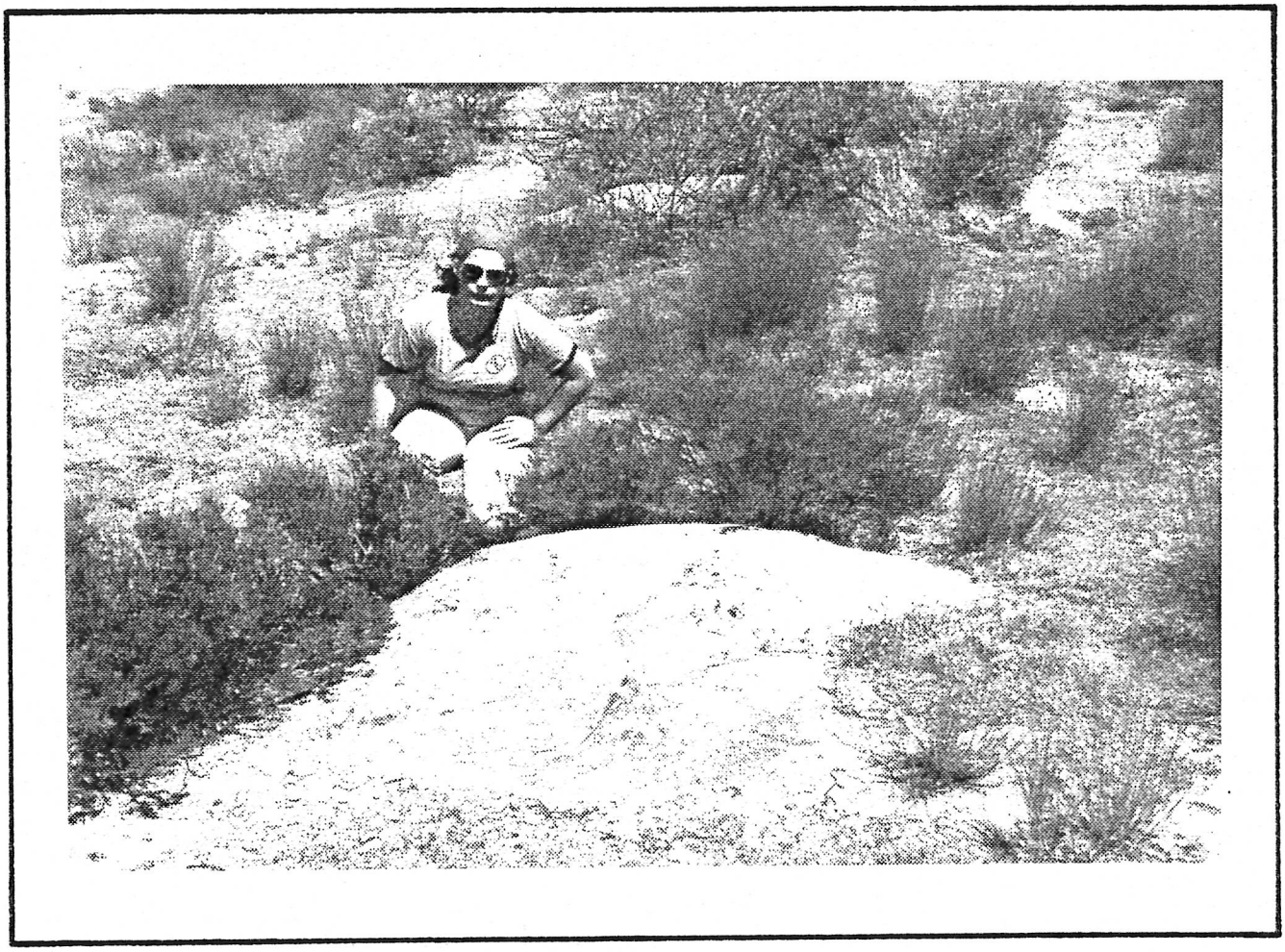


Figure 41. The SDi-4455 site, the Reservoir Locus, outcrop R, looking east.

Roadway Locus. The roadway Locus of the SDi-4455 site is another major occupation site with a dark midden soil deposit containing a very rich concentration of archaeological materials and numerous bedrock outcrops with milling features. This locus is located on the crest and eastern flank of the ridge immediately south of the springs as shown in Figure 42.

This locus now covers an area of about 400 feet by 250 feet, and a detailed map is presented as Figure 43. The site has been truncated along the northwestern side by Old Highway 80, and a private, unpaved roadway has been graded through the eastern portion of the deposit.

A series of five auger tests in various portions of the deposit yielded rich concentrations of archaeological materials, as well as some historic trash in some areas. The test locations are shown on Figure 43, and the results are summarized in Table II. The tests revealed that

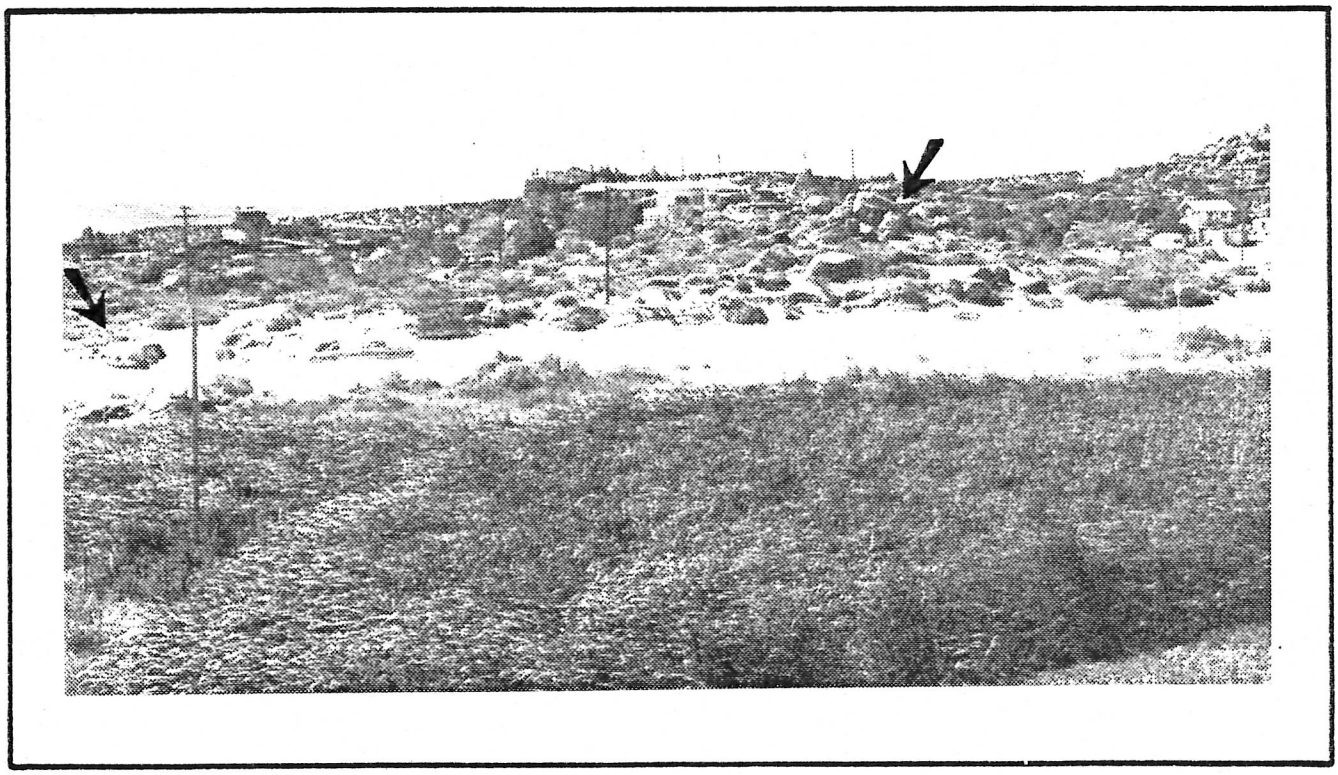


Figure 42. The Roadway Locus of the SDi-4455 site, looking southeast from the spring.

the distinctly dark brown, loamy deposit extends to a depth of 9 to 15 inches over the eastern portion of the locus on the flank of the ridge, the area east of auger test #4. Across the actual crest of the ridge the bedrock outcrops (some with milling features) were surrounded by coarse decomposing granite soil, but some archaeological materials were evident on the surface.

Milling features are present on 14 of the many bedrock outcrops on this portion of the ridge. Micro-maps and photographs detailing these features are presented as Figures 44 through 70. There are a total of 68 milling basins, 19 milling slicks, and seven mortars.

Most noteworthy items from the surface of the locus have been previously collected, and series of collectors' excavations are evident in the southern portion of the deposit. However, several flakes of exotic obsidian were collected from the surface and several more tiny flakes were recovered in the auger testing which are being submitted for dating by hydration analysis. From the great number of lithic flakes on the surface and the very darkly stained midden soil deposit, this locus appears to have the densest archaeological remains and probably was the most intensively occupied area of the SDi-4455 site settlement.

TABLE II

SDi-4455, Roadway Locus, Soil Auger Test Results

Test	Soil	Depth (cm)	Materials Present
A#1	dark brown, fine grained, loam	0-22	11 round wire nails, 1 piece of lead, 3 pieces of glass, 12 basalt flakes, 1 quartz flake.
	stopped by rocks	22+	
A#2	dark brown, fine grained, friable loam with some charcoal	0-27	3 tiny obsidian flakes, 13 basalt flakes, 1 quartz flake, 1 Tizon Brown Ware sherd.
	stopped by rocks	27+	
A#3	brown, fine grained, semi-friable, loam	0-27	10 basalt flakes, 3 quartz flakes, 1 white chalcedony flake.
	red-brown, compact, clayey loam with little decomposing granite	27-33+	(sterile)
A#4	gray-brown, extremely fine grained, loam with decomposing granite	0-24	2 basalt flakes, 1 quartz flake.
	stopped by granite rock	24+	
A#5	gray-brown, extremely fine grained, loam with some decomposed granite	0-20	7 fragments of brown bottle glass, 11 fragments of clear glass, 6 basalt flakes, 1 quartz flake, 1 bone fragment (of rodent or small mammal).
		20-37	1 nail fragment, 2 fragments of brown bottle glass, 3 Tizon Brown Ware sherds, 26 basalt flakes, 3 quartz flakes, 3 bone fragments (of small animals).

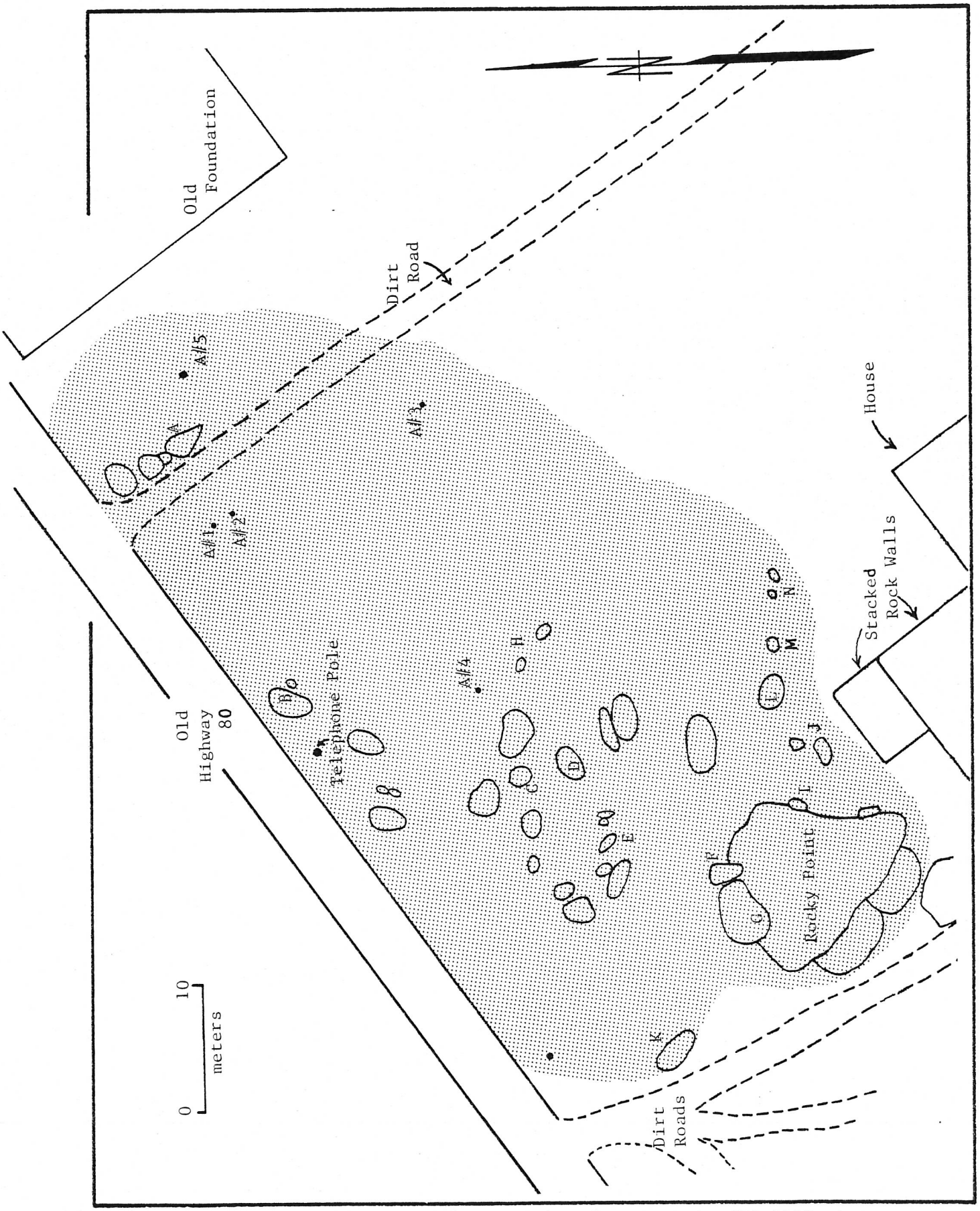
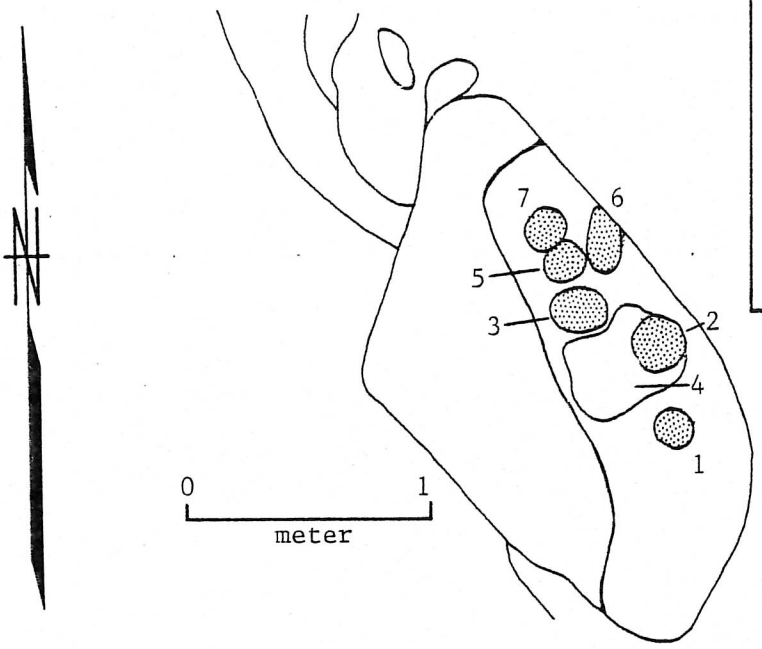


Figure 43. General sketch map of the Roadway Locus at the SDi-4455 site, showing the milling outcrops (A-N), the extent of the surface artifact scatter (shaded), and the locations of the soil auger tests (A#1-5).



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	19	14	2.5
2.	mortar	24	21	21
3.	basin	24	20	3.5
4.	slick	50	42	0
5.	basin	16	15	1
6.	basin	29	17	4.5
7.	basin	16	16	2.5

Figure 44. Micro-map of the milling features on outcrop A at the Roadway Locus of the SDi-4455 site.

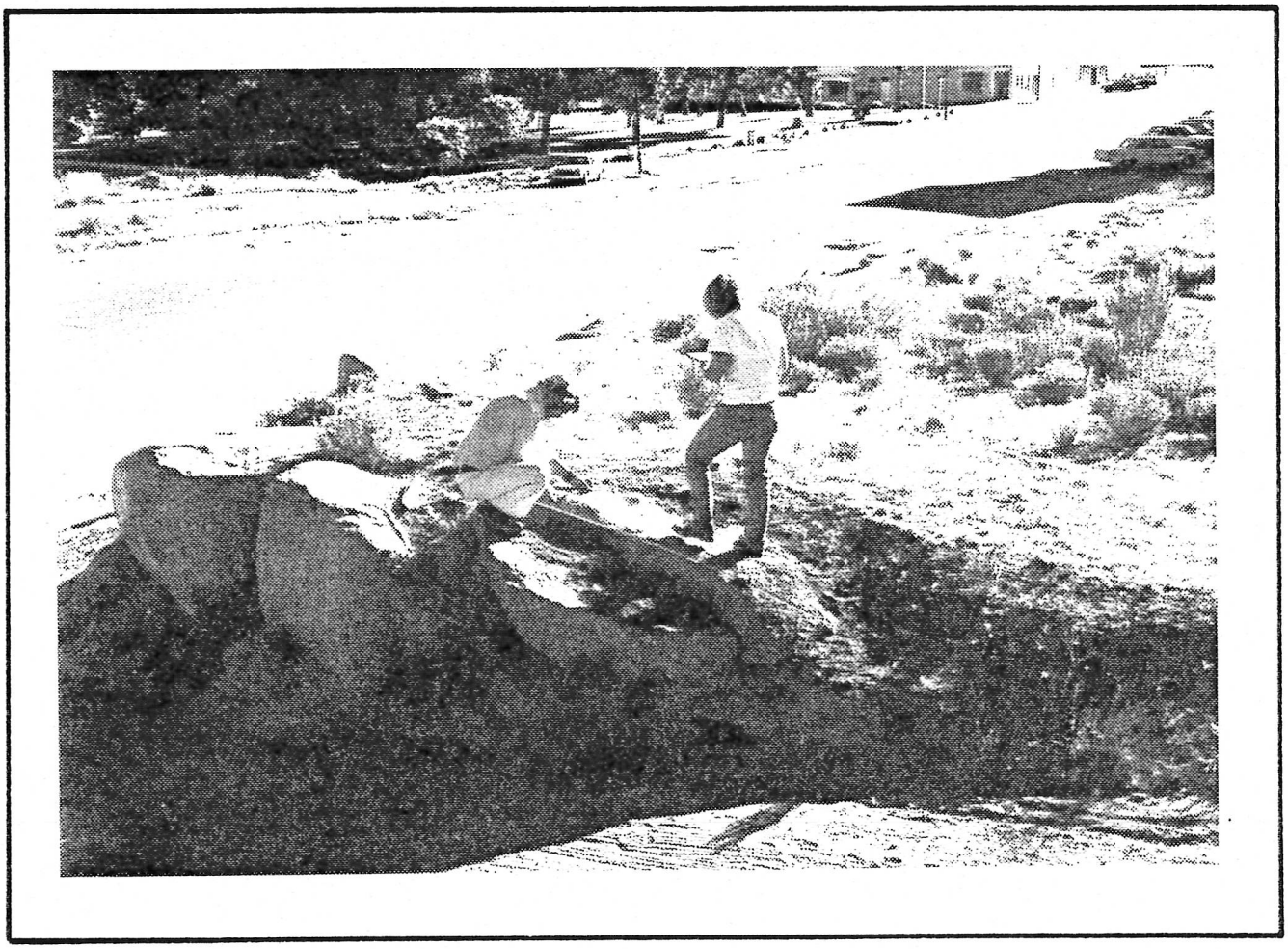


Figure 45. The SDi-4455 site, the Roadway Locus, outcrop A, looking northeast.

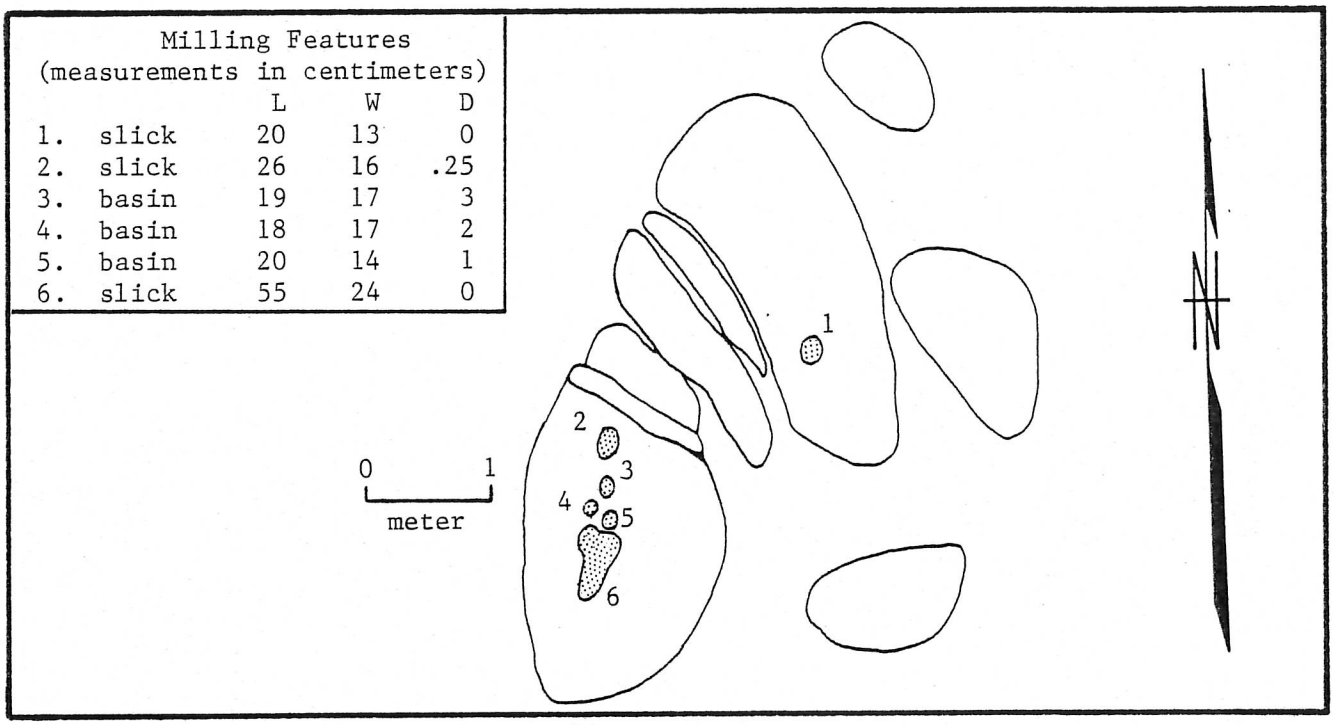


Figure 46. Micro-map of the milling features on outcrop B at the Roadway Locus of the SDi-4455 site.

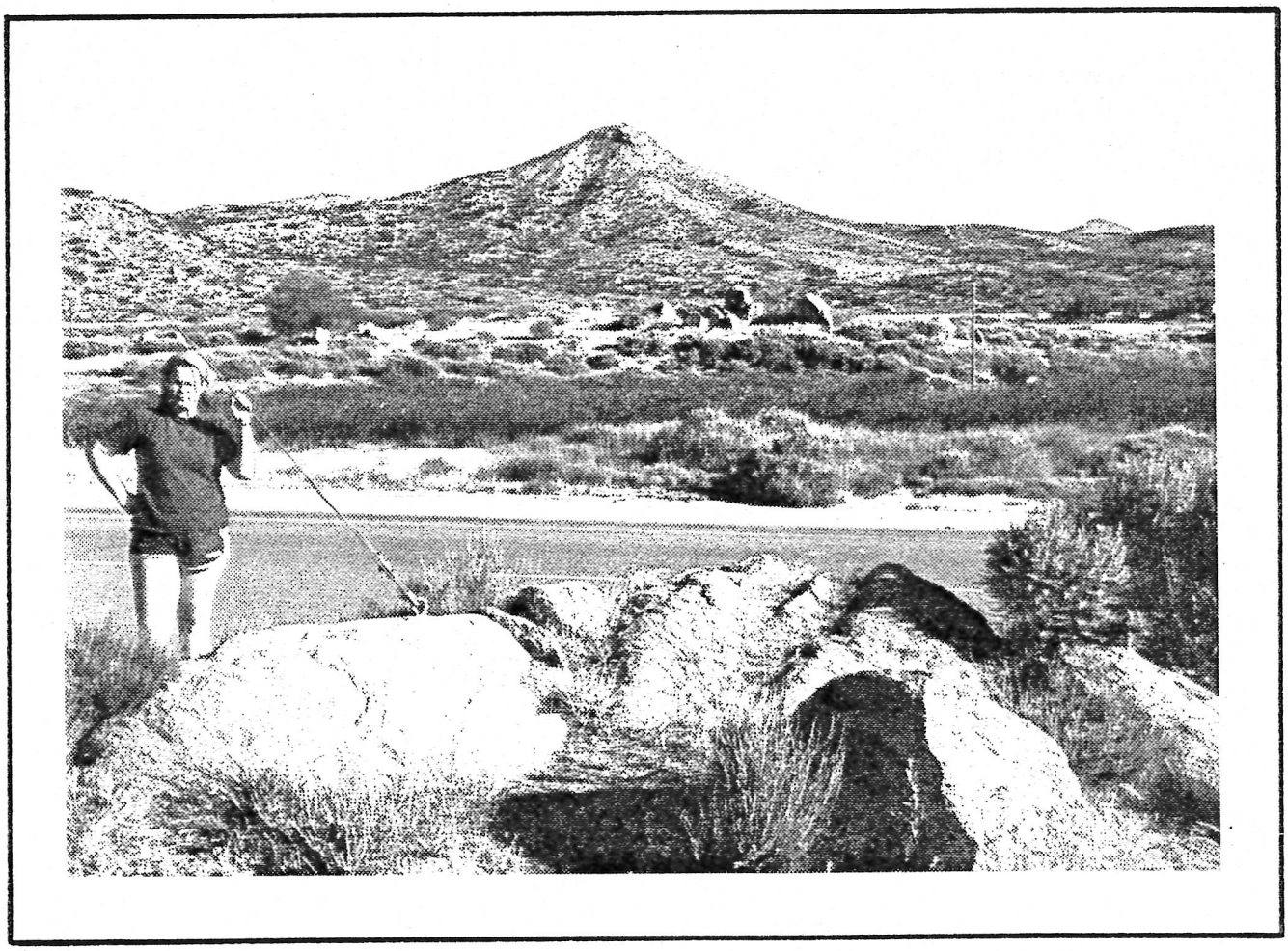


Figure 47. The SDi-4455 site, the Roadway Locus, outcrop B, looking northwest.

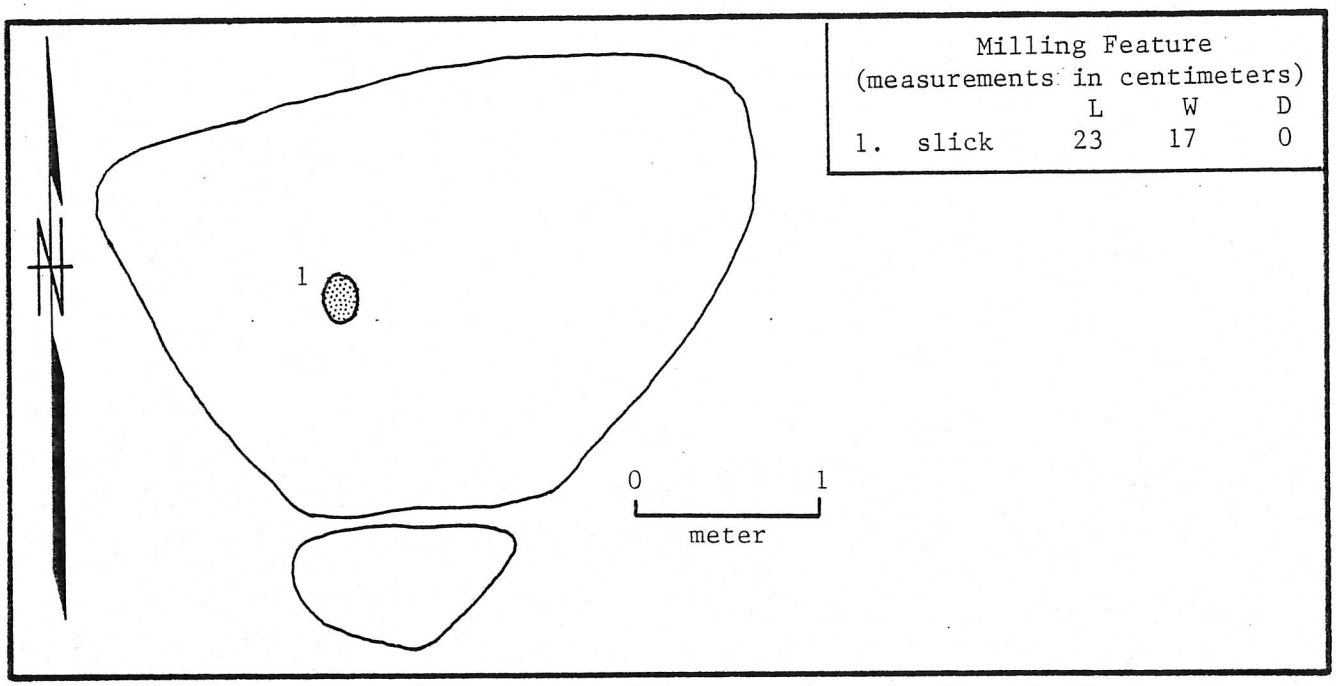


Figure 48. Micro-map of the milling features on outcrop C at the Roadway Locus of the SDi-4455 site.

Figure 49. The SDi-4455 site, the Roadway Locus, outcrop C, looking southwest.

Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	24	21	0
2.	basin	27	19	2
3.	basin	24	21	3
4.	slick	62	59	0
5.	slick	28	18	0

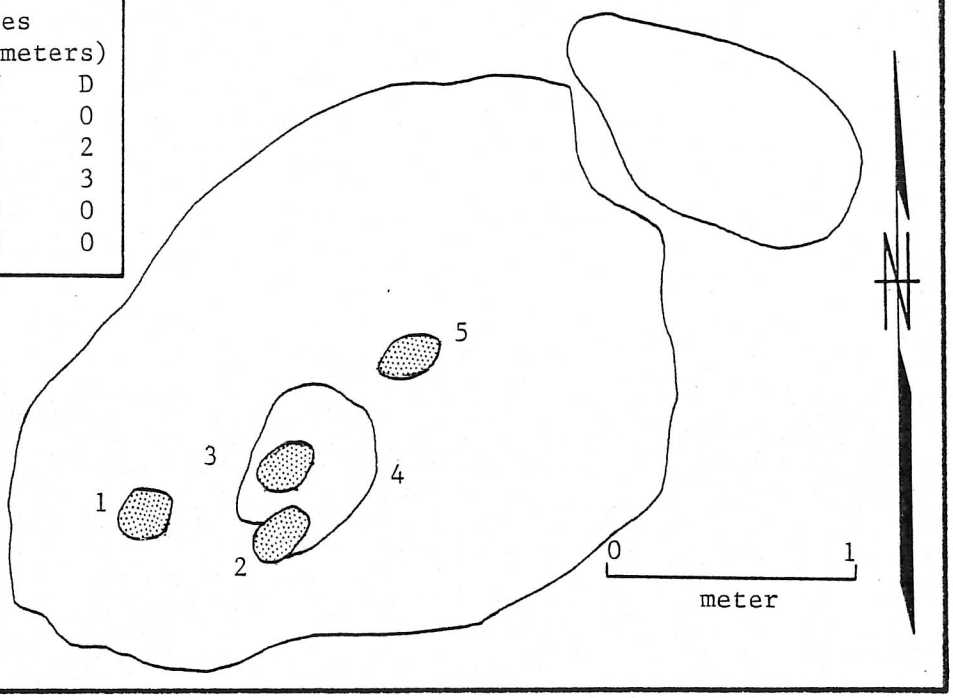


Figure 50. Micro-map of the milling features on outcrop D at the Roadway Locus of the SDi-4455 site.

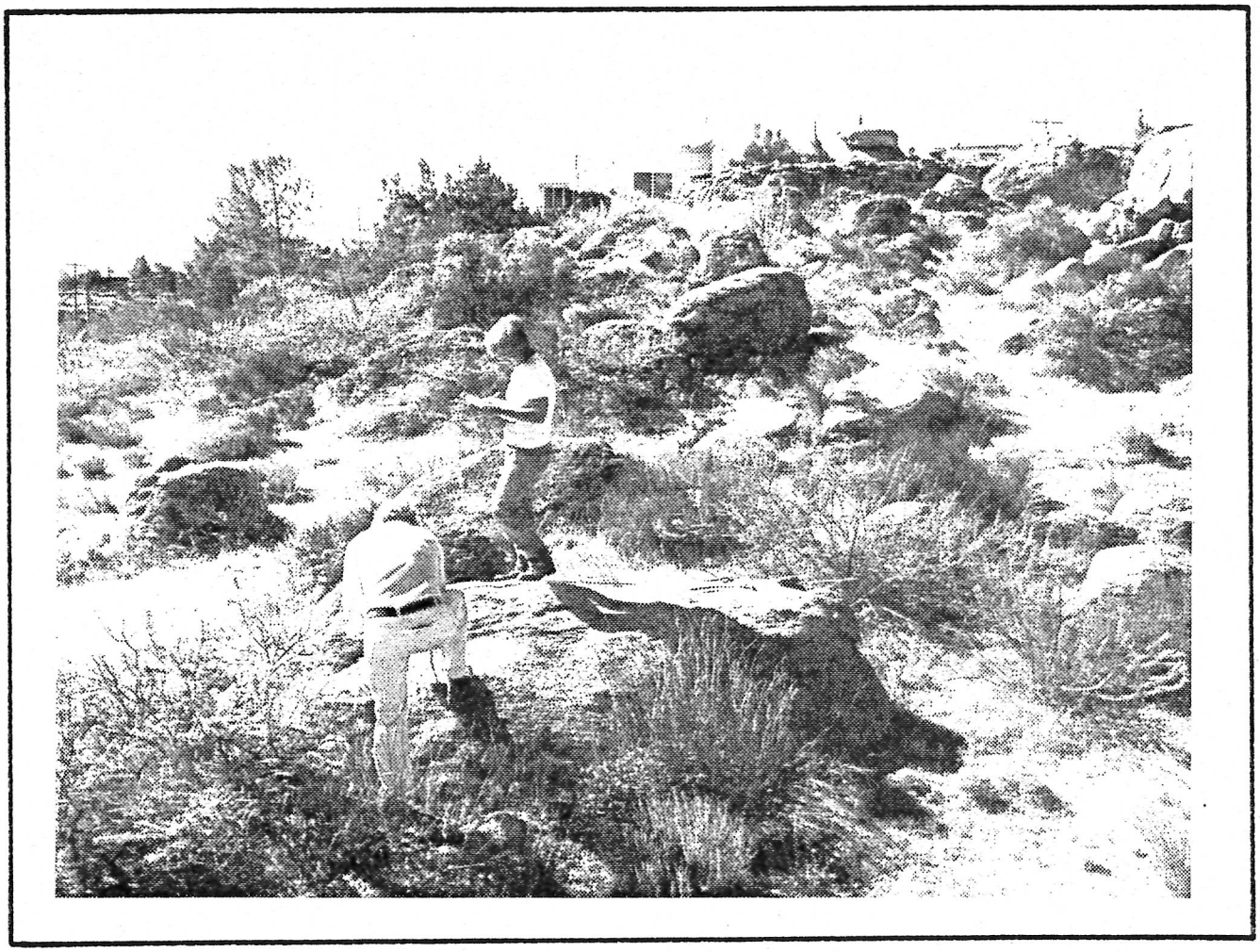
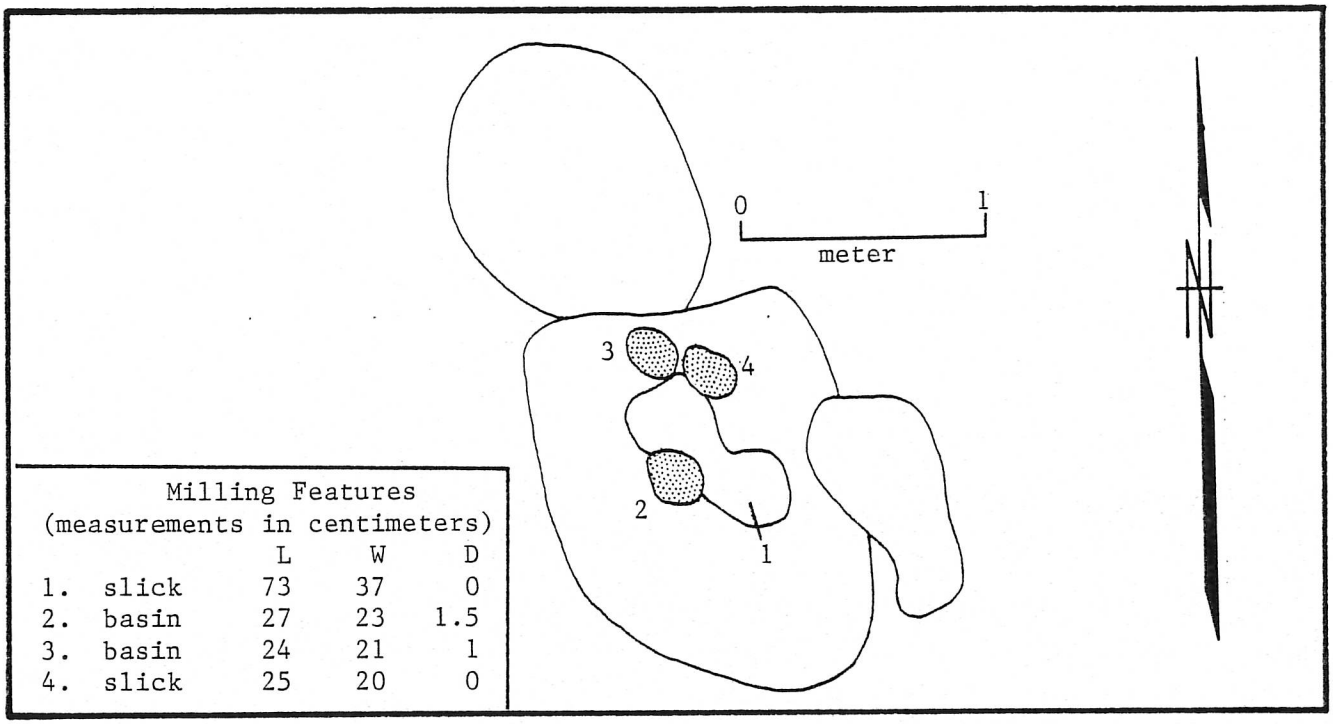


Figure 51. The SDi-4455 site, the Roadway Locus, outcrop D, looking southeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	73	37	0
2.	basin	27	23	1.5
3.	basin	24	21	1
4.	slick	25	20	0

Figure 52. Micro-map of the milling features on outcrop E at the Roadway Locus of the SDi-4455 site.

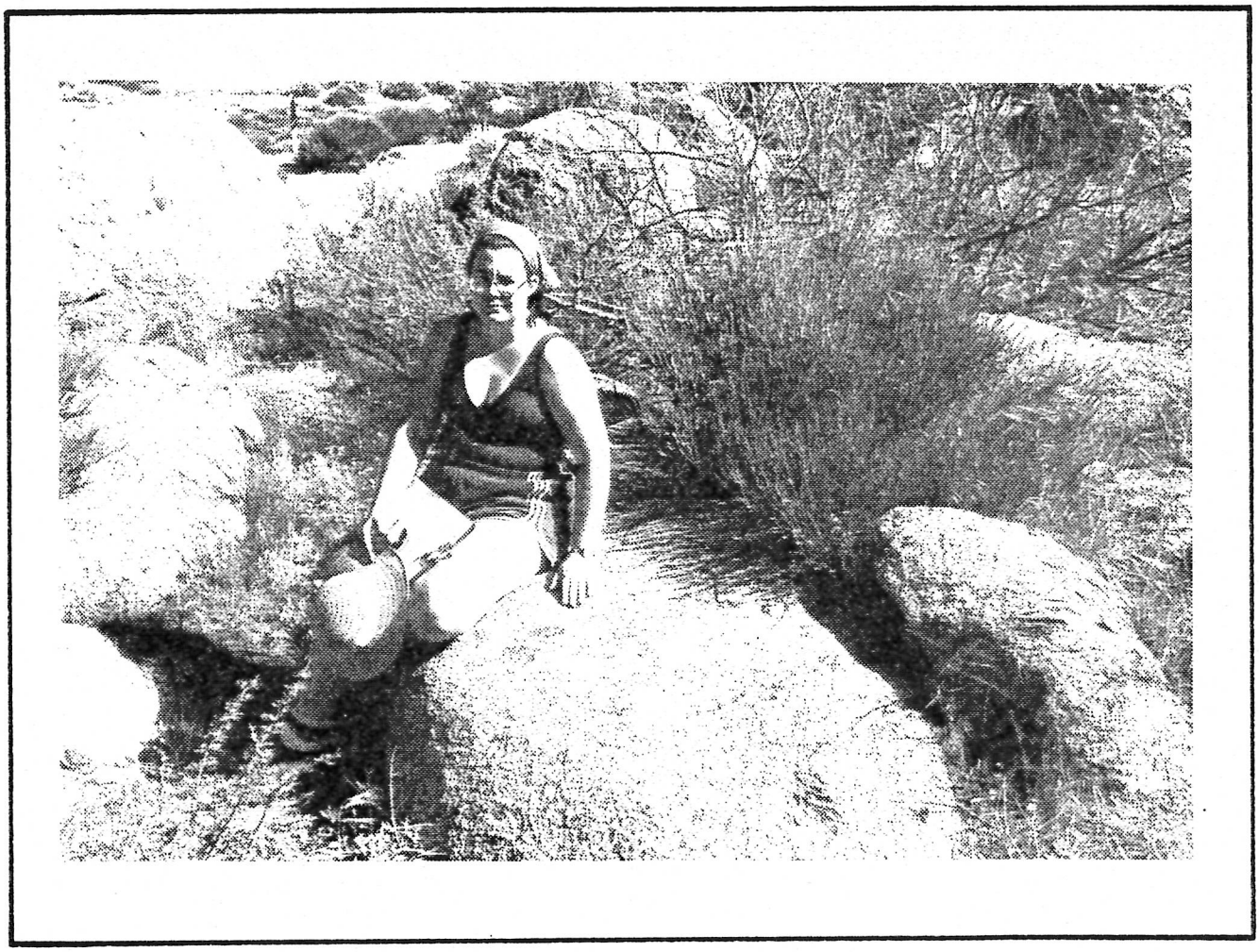


Figure 53. The SDi-4455 site, the Roadway Locus, outcrop E, looking northwest.

Milling Features
(measurements in centimeters)

	L	W	D
1. basin	20	12	2
2. basin	23	14	3
3. basin	20	12	2

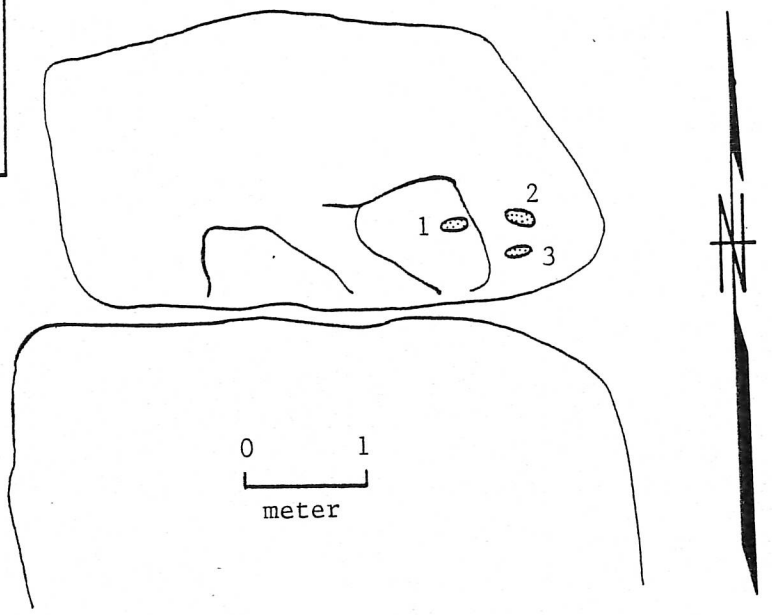


Figure 54. Micro-map of the milling features on outcrop F at the Roadway Locus of the SDi-4455 site.

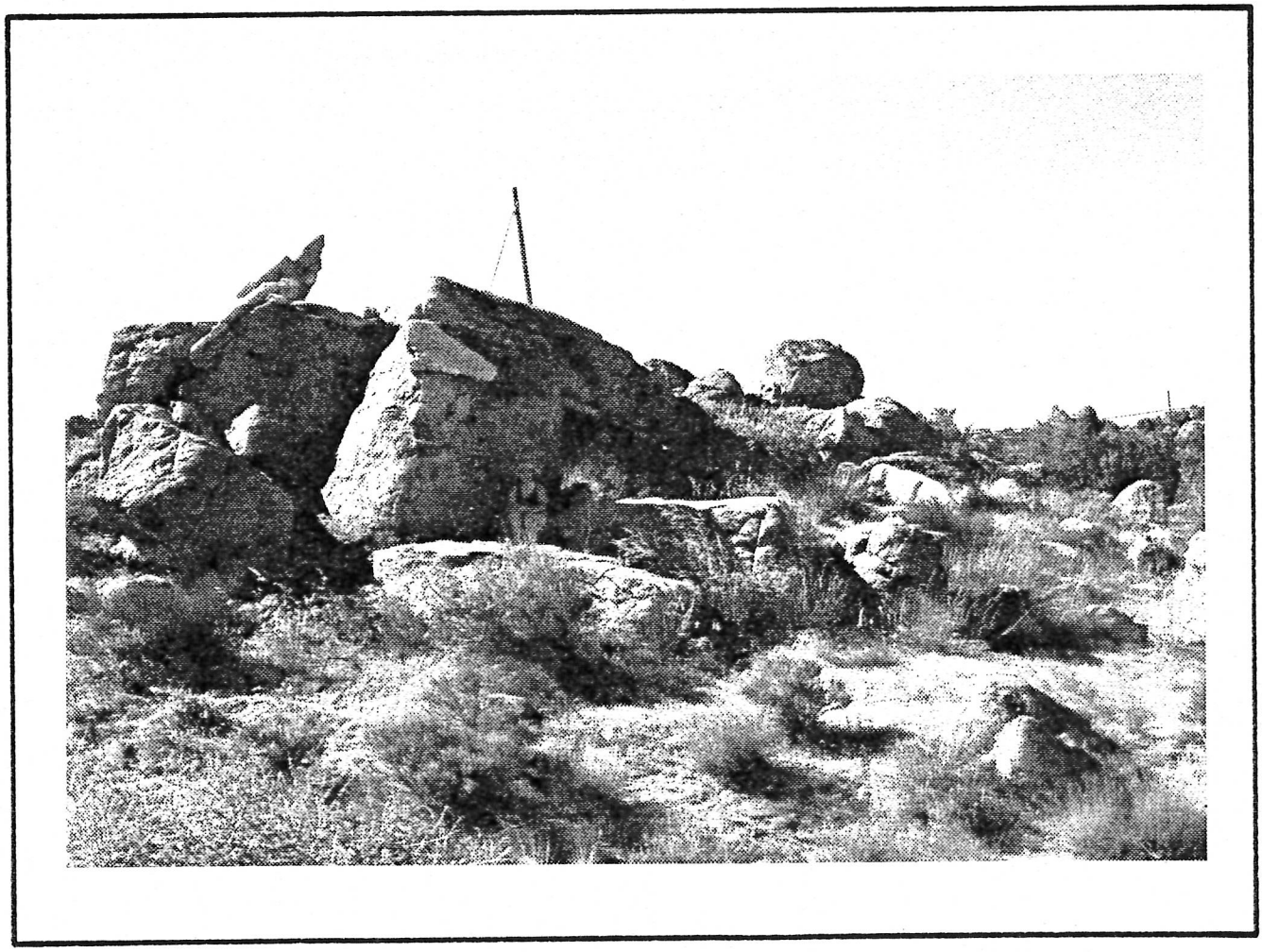
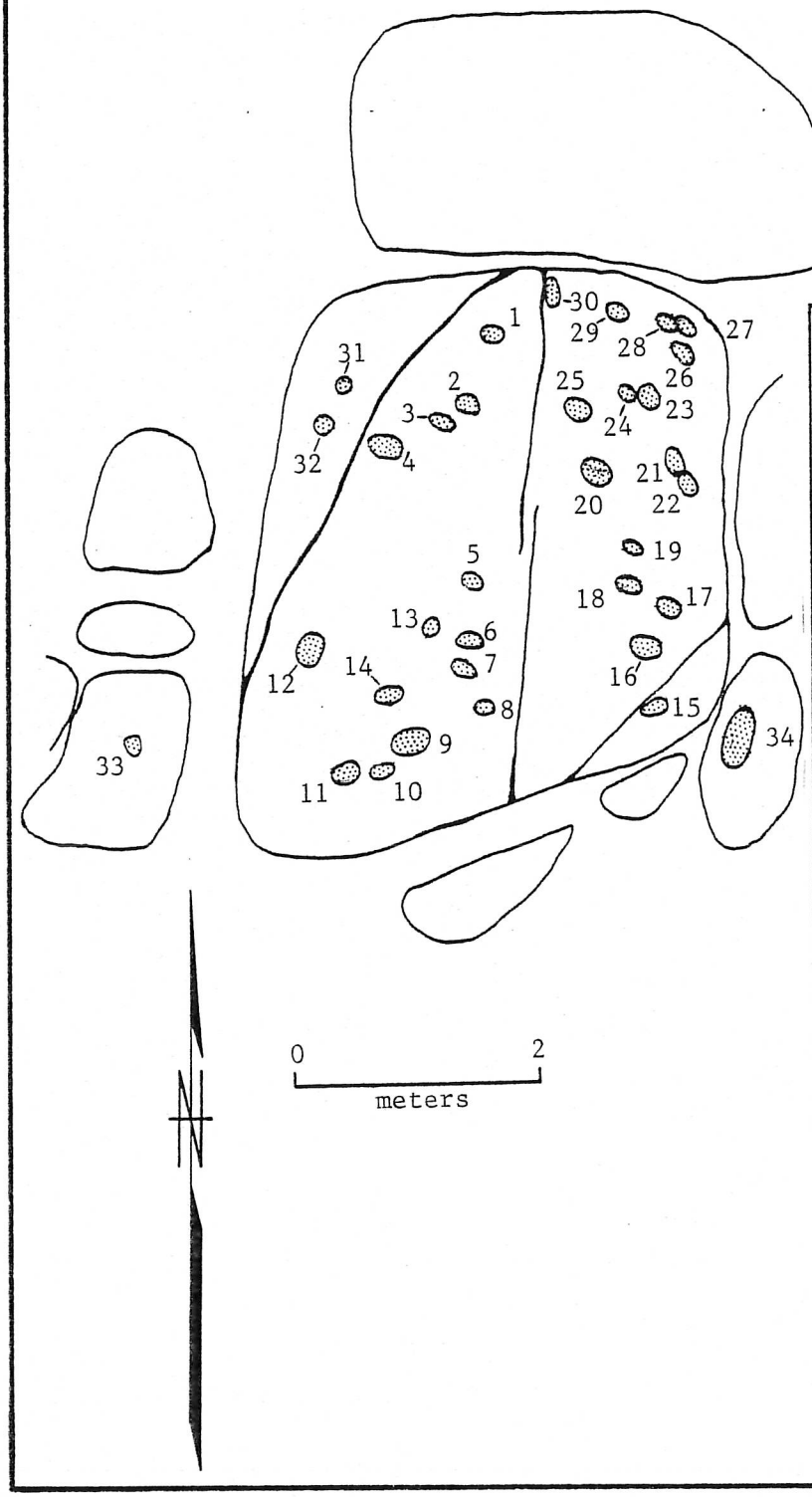


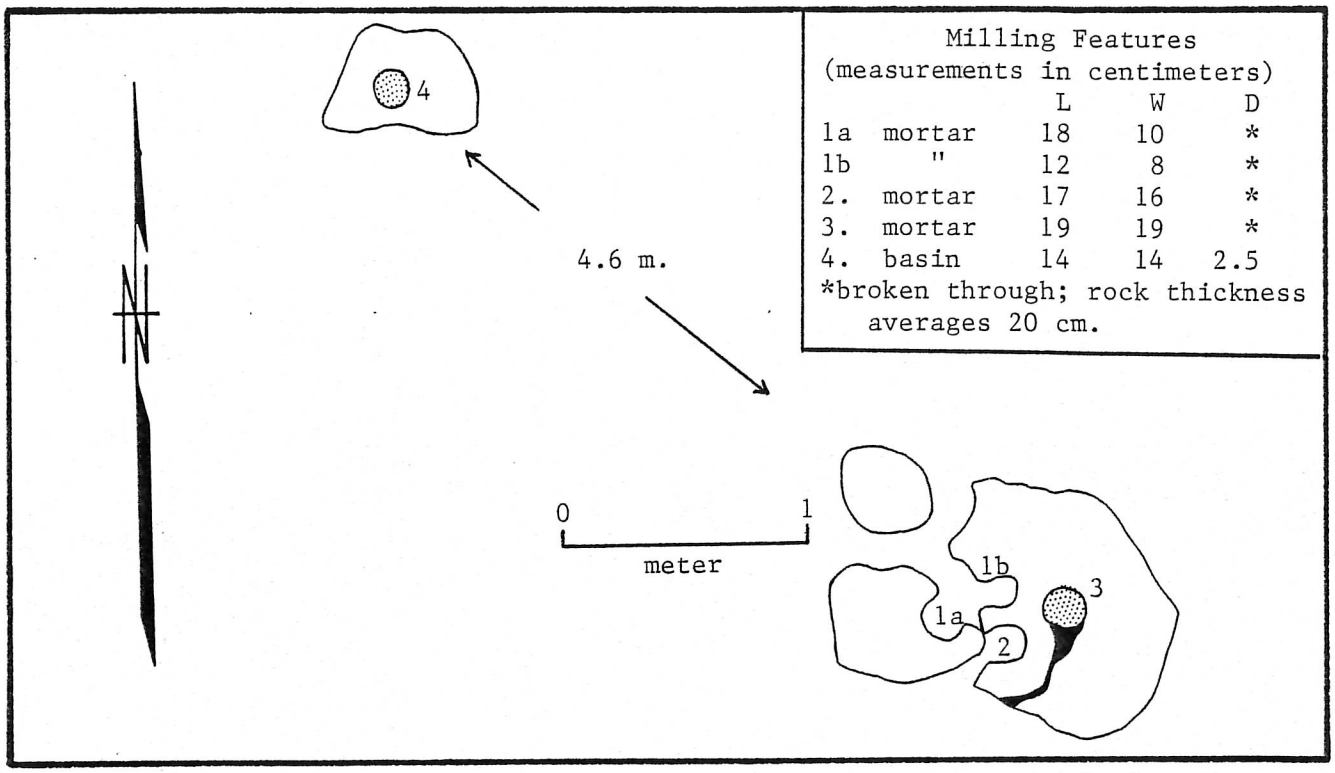
Figure 55. The SDi-4455 site, the Roadway Locus, outcrops F and G, looking southwest.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	17	13	1
2.	basin	18	14	1
3.	basin	22	20	1
4.	basin	27	21	4
5.	slick	18	17	.25
6.	basin	23	17	2
7.	basin	22	17	1
8.	basin	20	16	1
9.	basin	30	22	2
10.	basin	18	14	.5
11.	basin	20	18	2
12.	basin	25	20	1
13.	basin	20	15	.5
14.	basin	22	13	.5
15.	basin	23	16	1
16.	basin	22	13	1
17.	basin	25	17	2
18.	basin	23	15	2
19.	slick	26	16	.25
20.	basin	25	16	1
21.	basin	14	12	.5
22.	basin	16	13	.5
23.	basin	18	15	1
24.	basin	20	14	1
25.	basin	22	20	1
26.	basin	17	15	1
27.	basin	15	13	.5
28.	basin	20	13	.5
29.	basin	23	16	1
30.	basin	23	17	2
31.	basin	23	14	.5
32.	basin	18	18	1
33.	basin	17	13	1
34.	slick	41	25	.0

Figure 56. Micro-map of the milling features on outcrop G at the Roadway Locus of the SDi-4455 site.



Milling Features
(measurements in centimeters)

		L	W	D
1a	mortar	18	10	*
1b	"	12	8	*
2.	mortar	17	16	*
3.	mortar	19	19	*
4.	basin	14	14	2.5

*broken through; rock thickness averages 20 cm.

Figure 57. Micro-map of the milling features on outcrop H at the Roadway Locus of the SDi-4455 site.

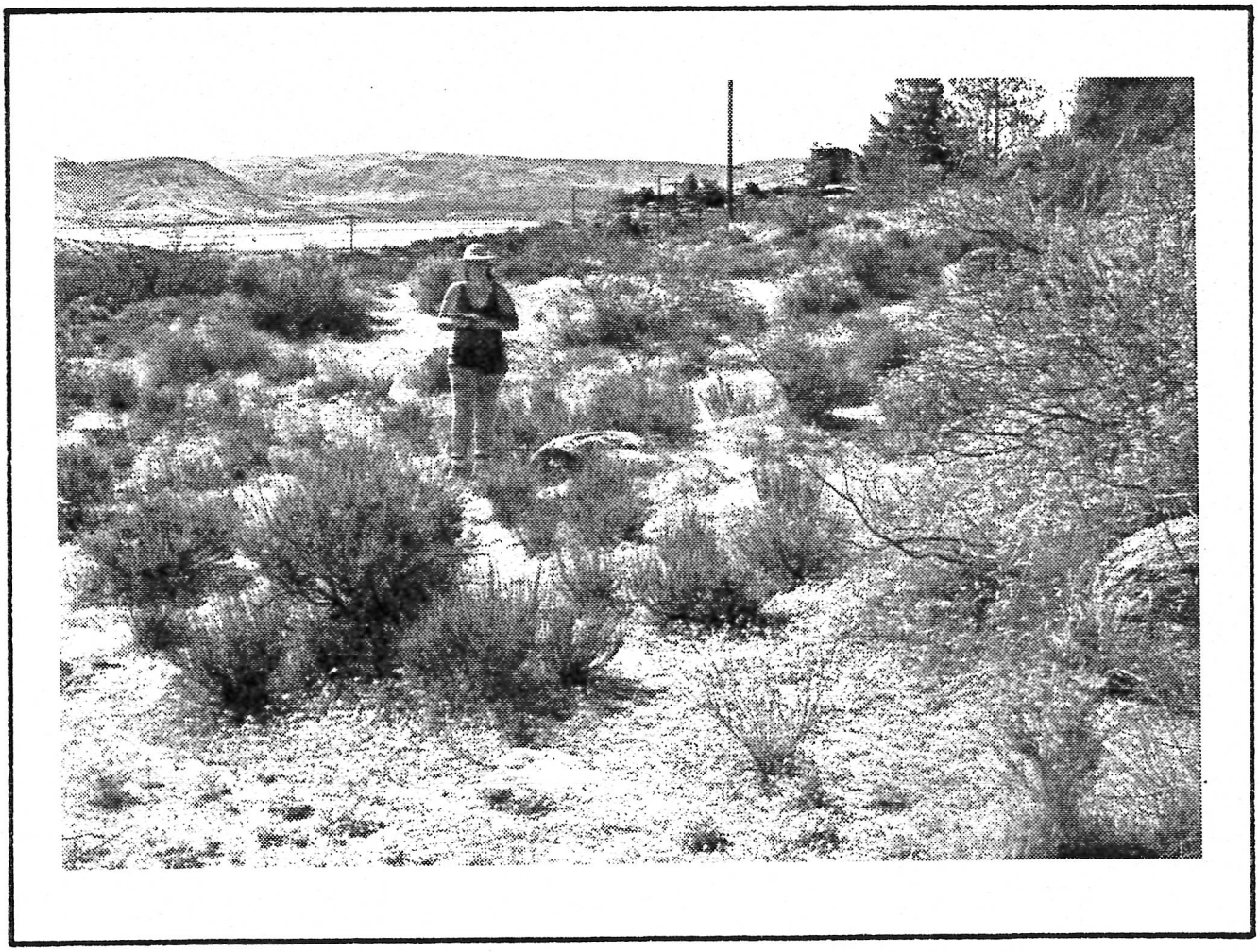
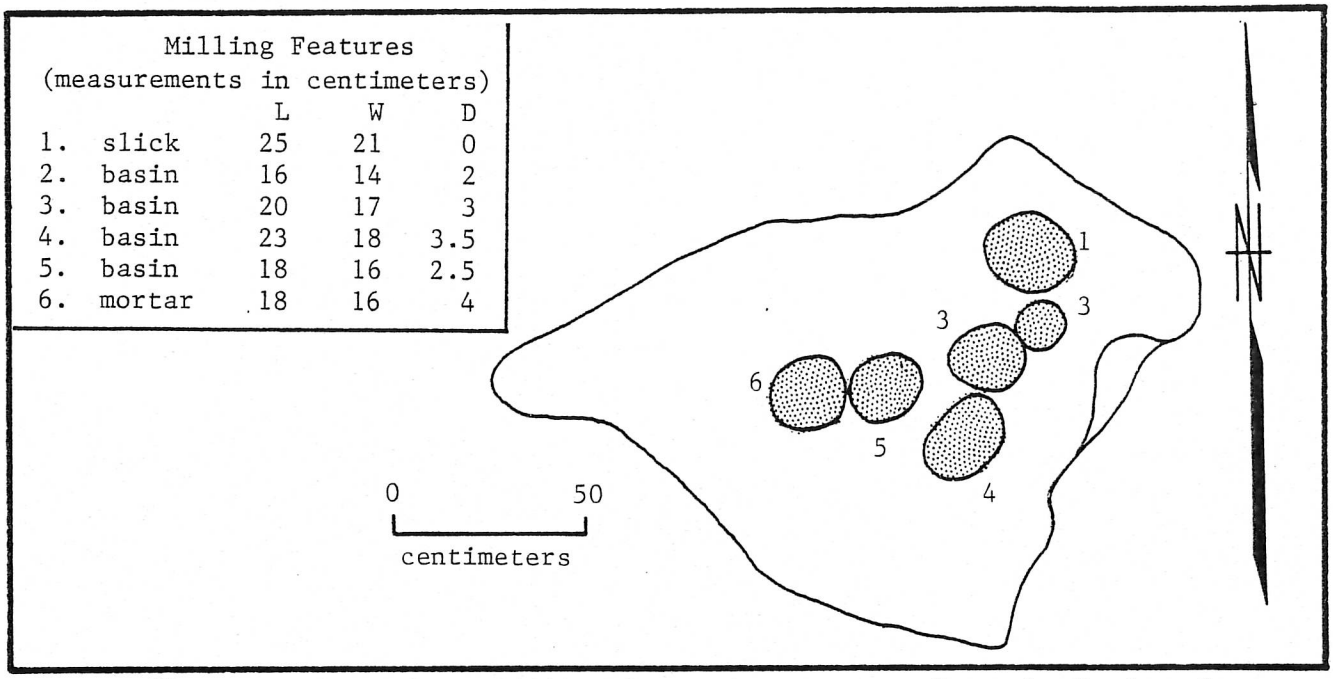


Figure 58. The SDi-4455 site, the Roadway Locus, outcrop H, looking southeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	25	21	0
2.	basin	16	14	2
3.	basin	20	17	3
4.	basin	23	18	3.5
5.	basin	18	16	2.5
6.	mortar	18	16	4

Figure 59. Micro-map of the milling features on outcrop I at the Roadway Locus of the SDi-4455 site.

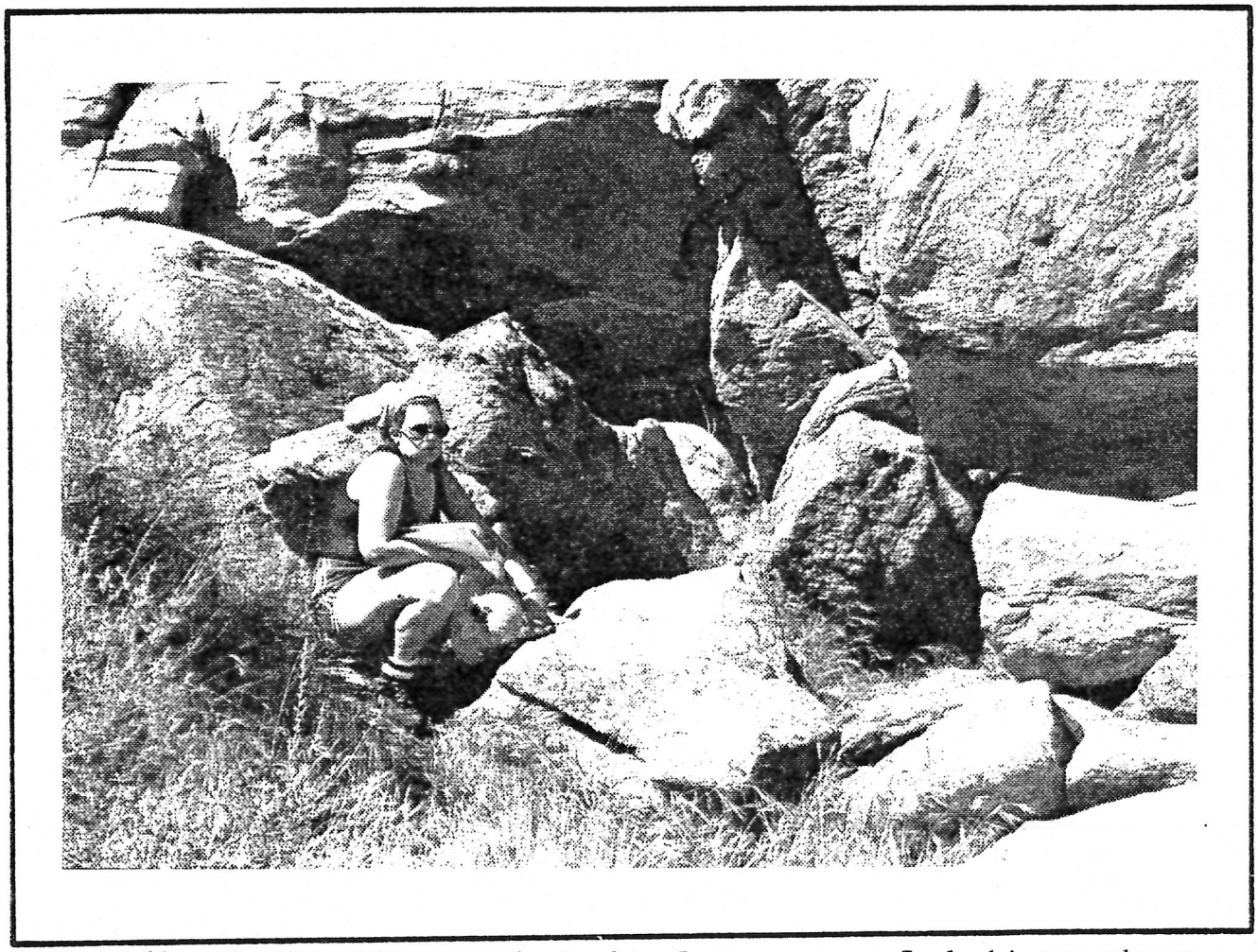
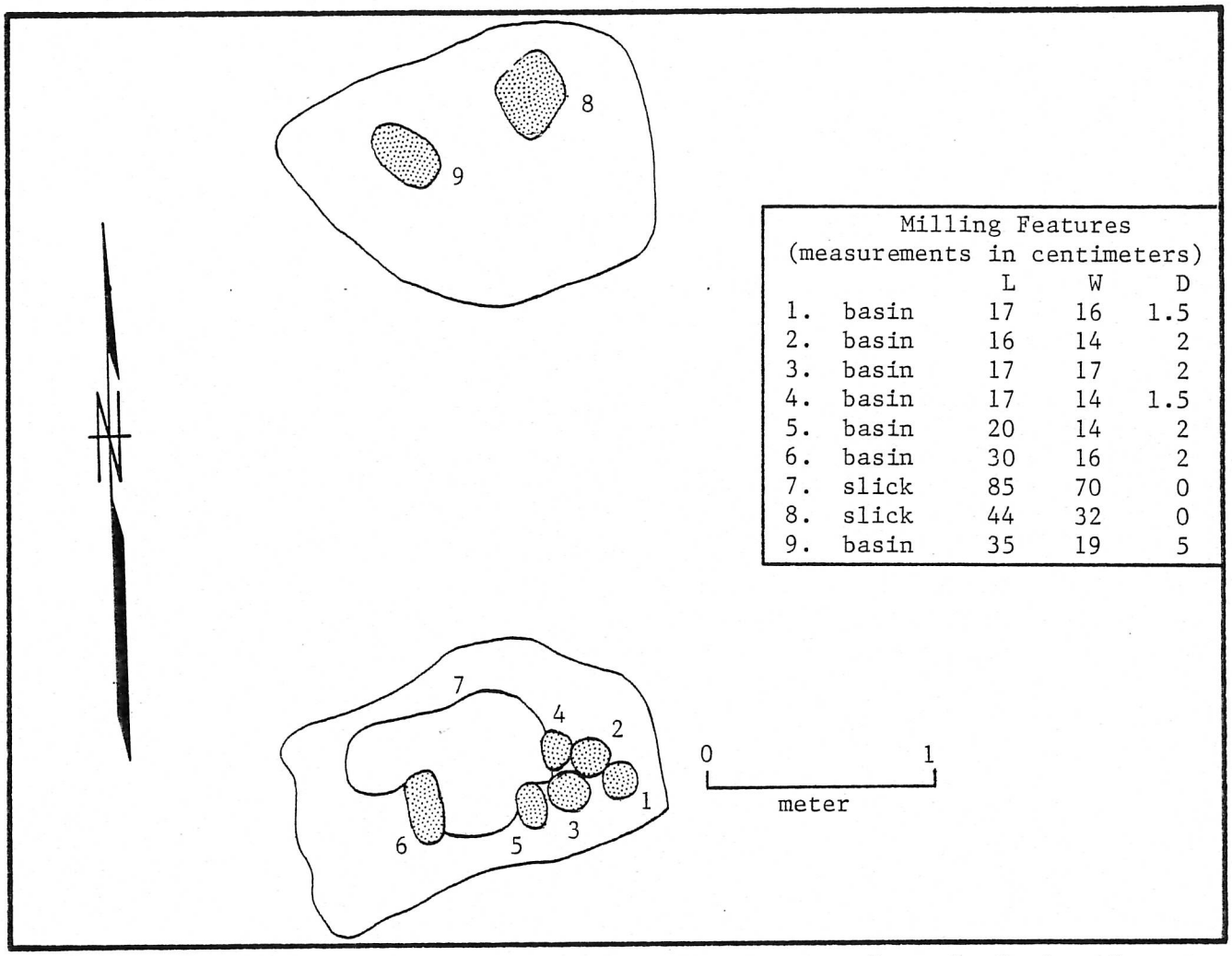


Figure 60. The SDi-4455 site, the Roadway Locus, outcrop I, looking southwest.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	17	16	1.5
2.	basin	16	14	2
3.	basin	17	17	2
4.	basin	17	14	1.5
5.	basin	20	14	2
6.	basin	30	16	2
7.	slick	85	70	0
8.	slick	44	32	0
9.	basin	35	19	5

Figure 61. Micro-map of the milling features on outcrop J at the Roadway Locus of the SDi-4455 site.

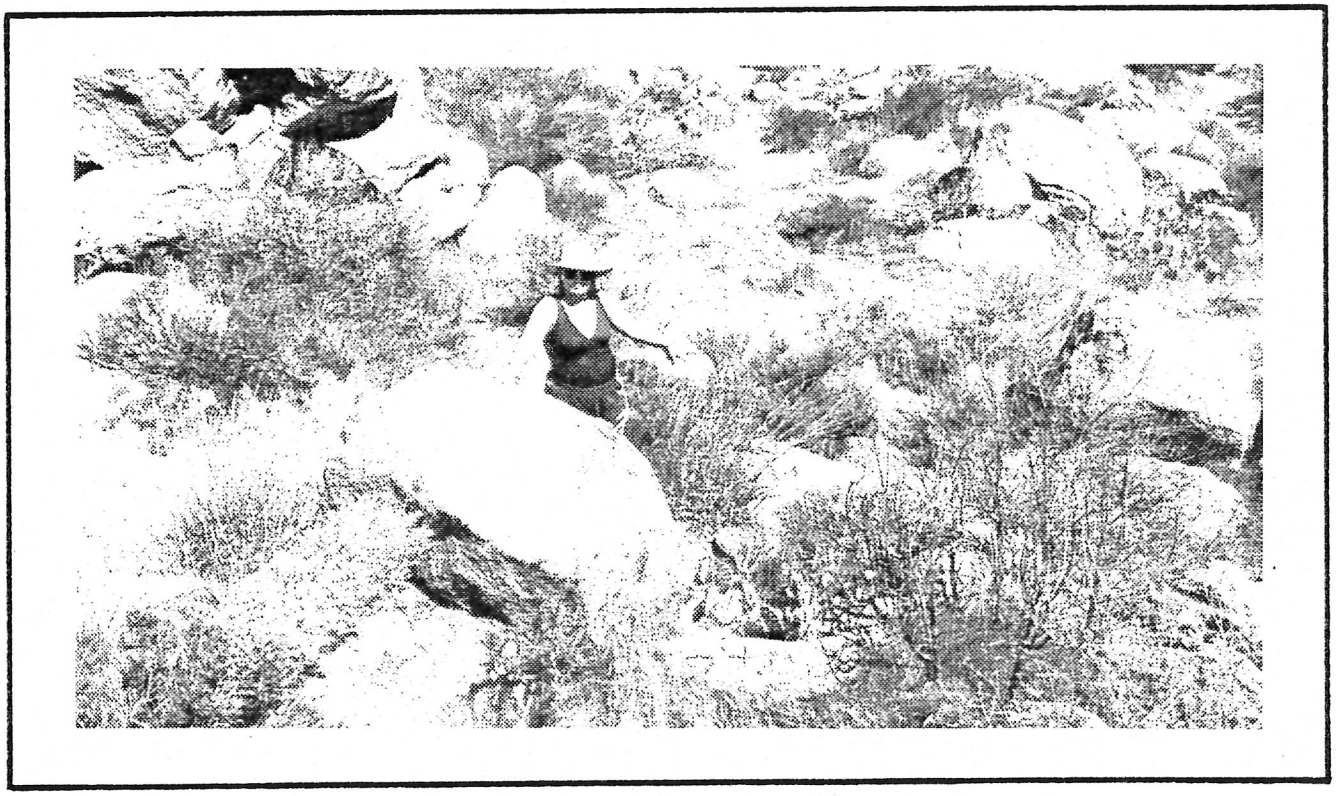
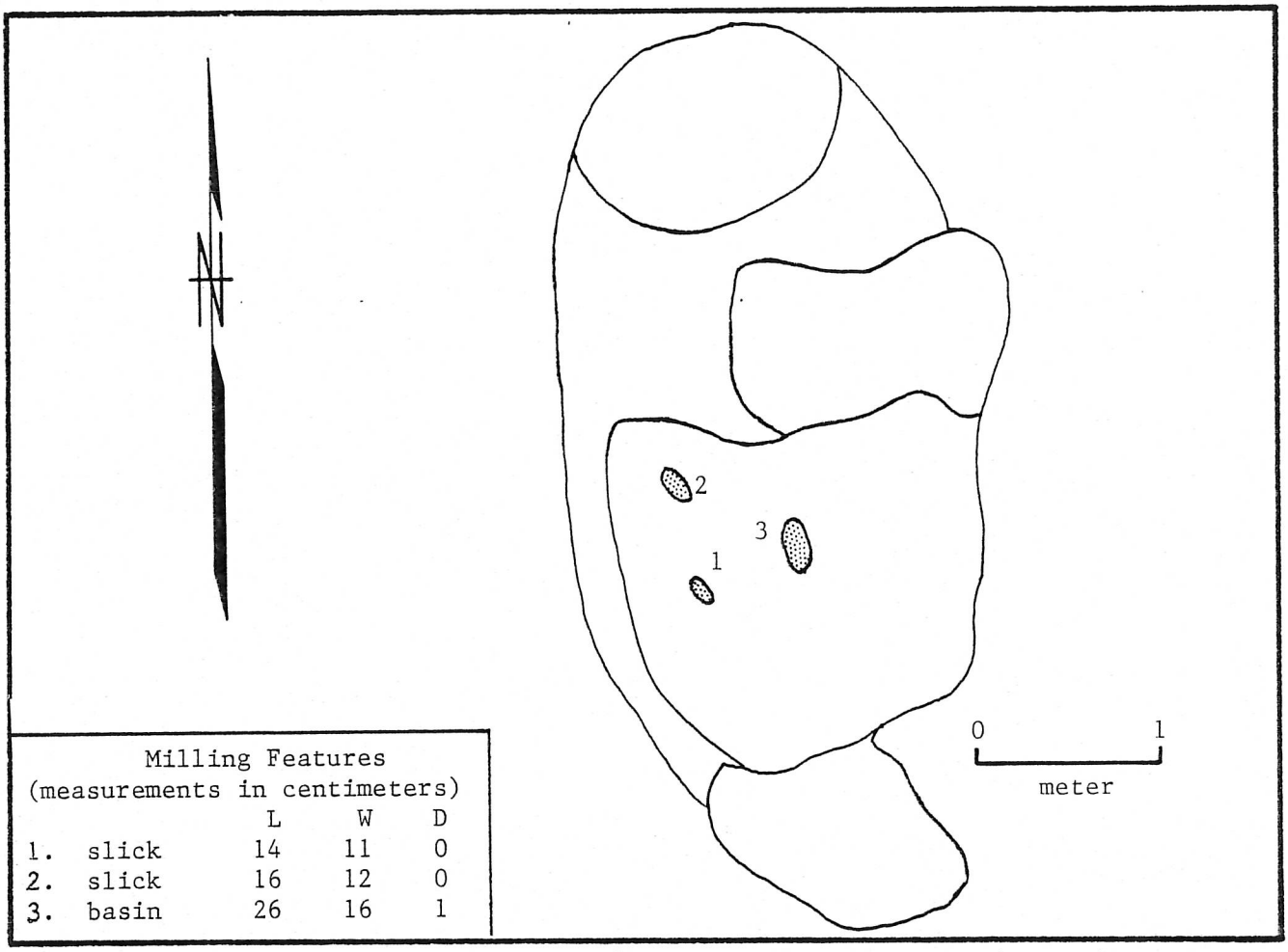


Figure 62. The SDi-4455 site, the Roadway Locus, outcrop J, looking northwest.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	14	11	0
2.	slick	16	12	0
3.	basin	26	16	1

Figure 63. Micro-map of the milling features on outcrop K at the Roadway Locus of the SDi-4455 site.

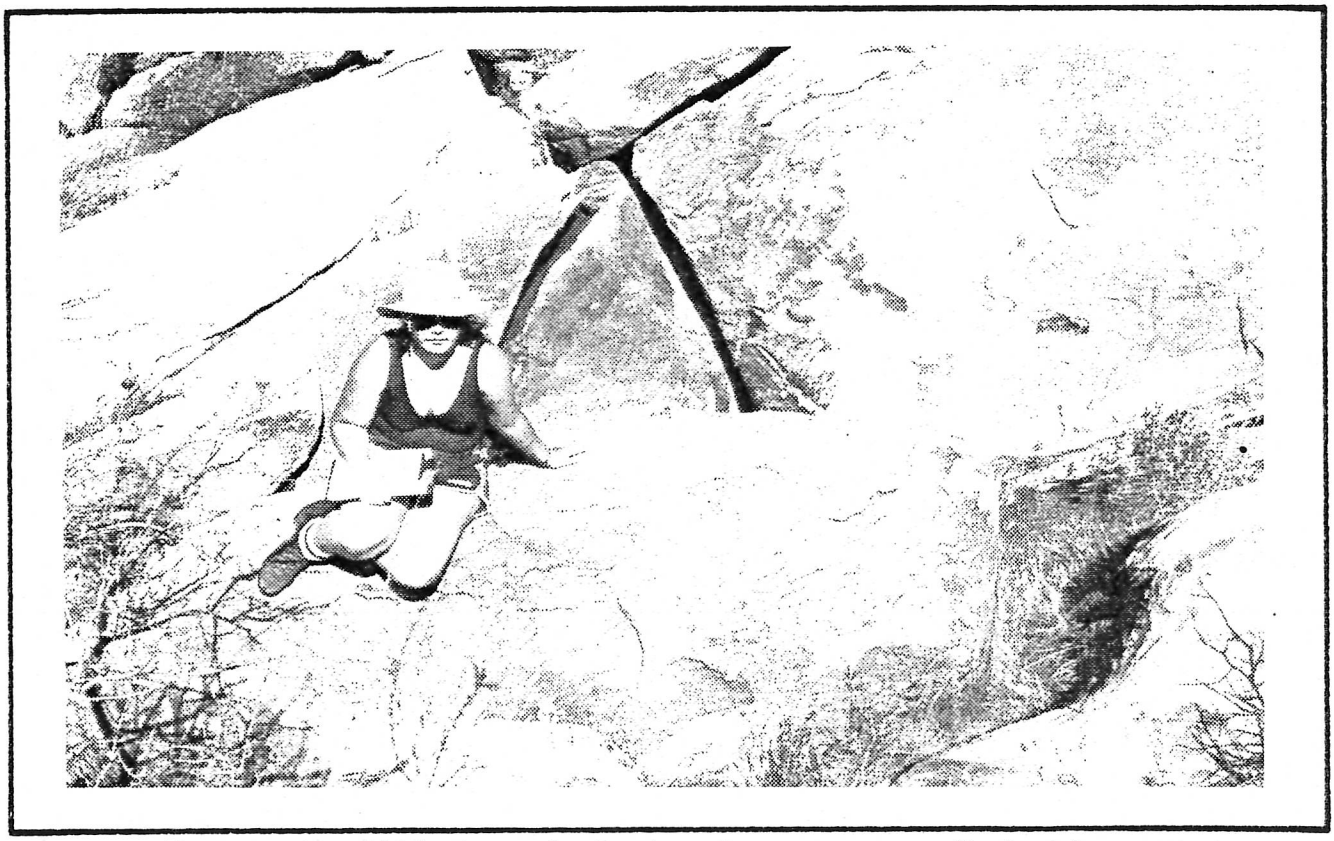


Figure 64. The SDi-4455 site, the Roadway Locus, outcrop K, looking west.

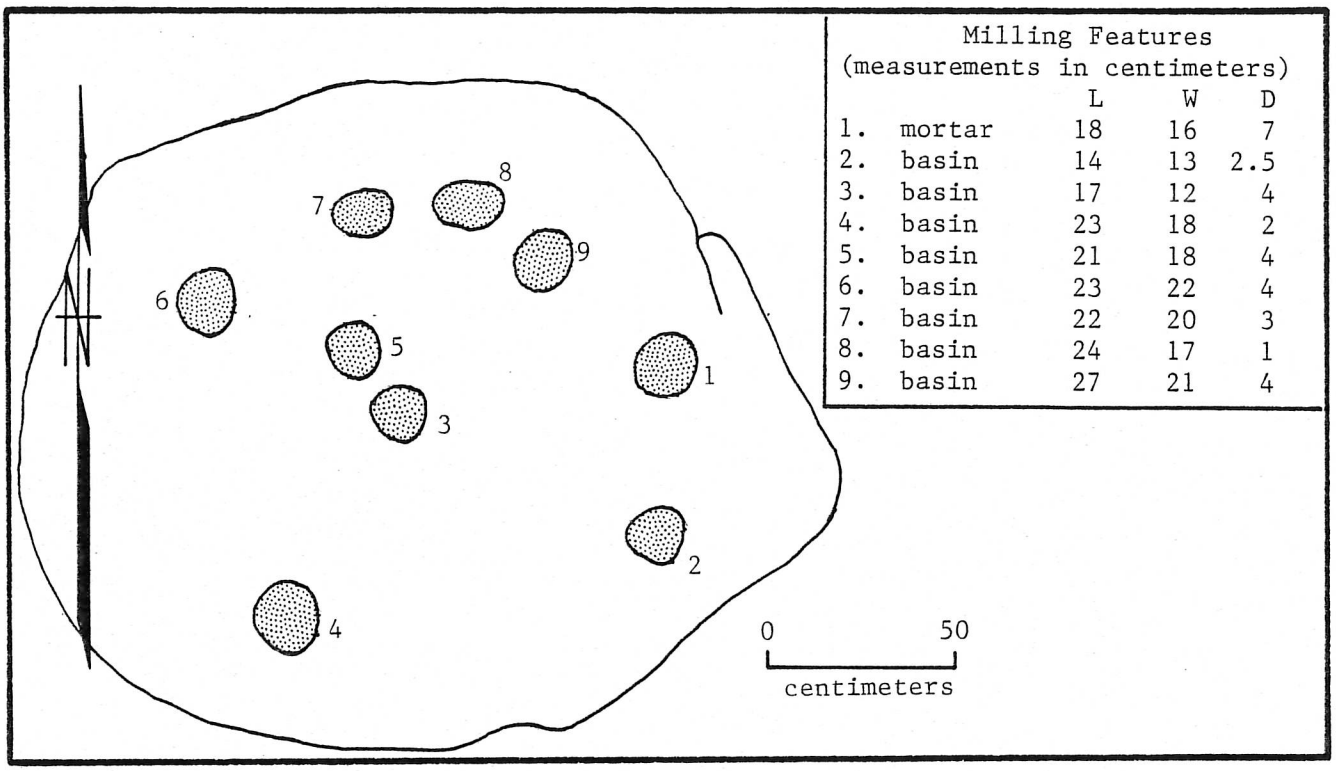


Figure 65. Micro-map of the milling features on outcrop L at the Roadway Locus of the SDi-4455 site.

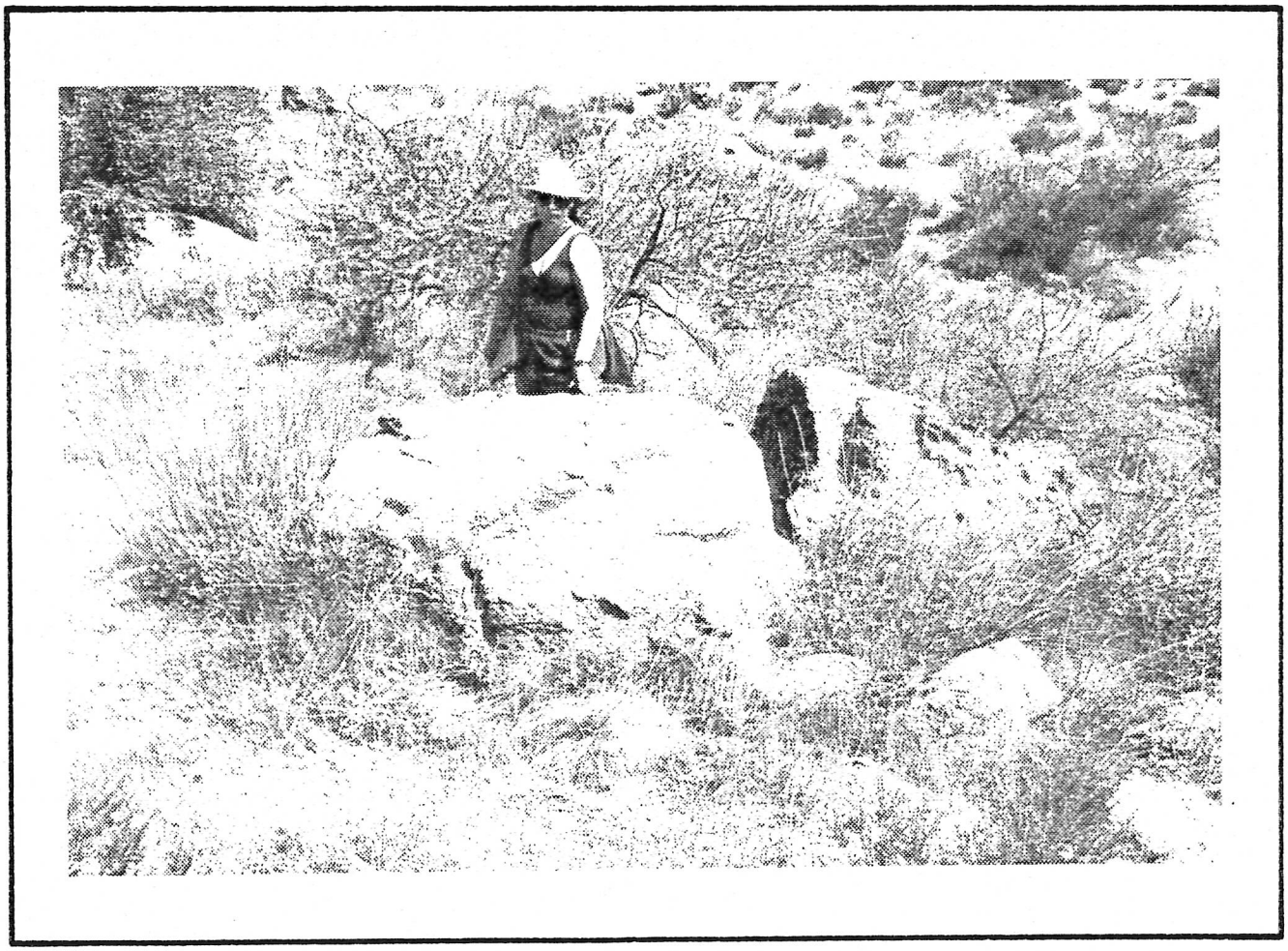
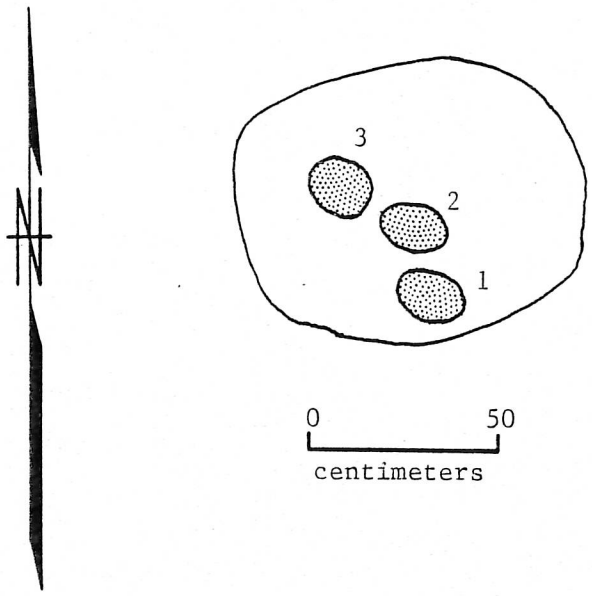


Figure 66. The SDi-4455 site, the Roadway Locus, outcrop L, looking north.



Milling Features (measurements in centimeters)			
	L	W	D
1. basin	16	14	2
2. basin	14	11	1
3. basin	20	17	5

Figure 67. Micro-map of the milling features on outcrop M at the Roadway Locus of the SDi-4455 site.

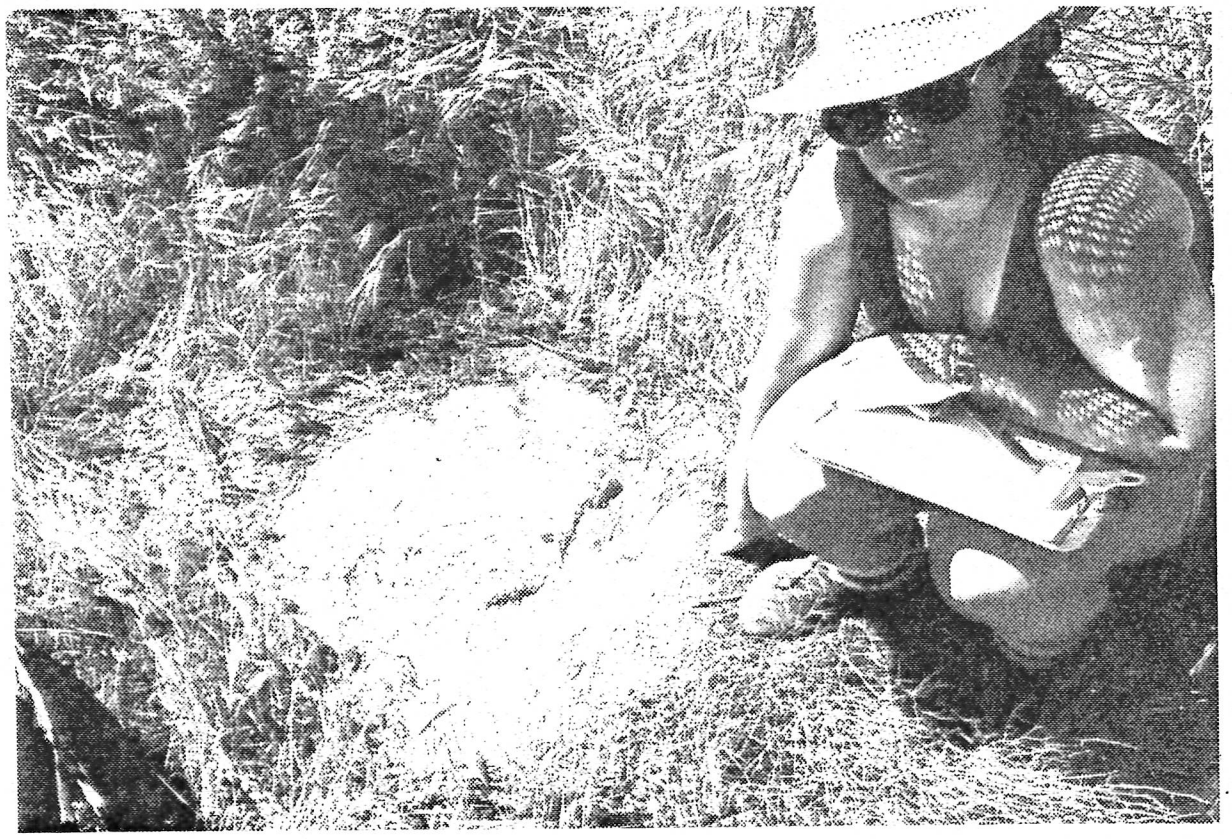


Figure 68. The SDi-4455 site, the Roadway Locus, outcrop M, looking southeast.

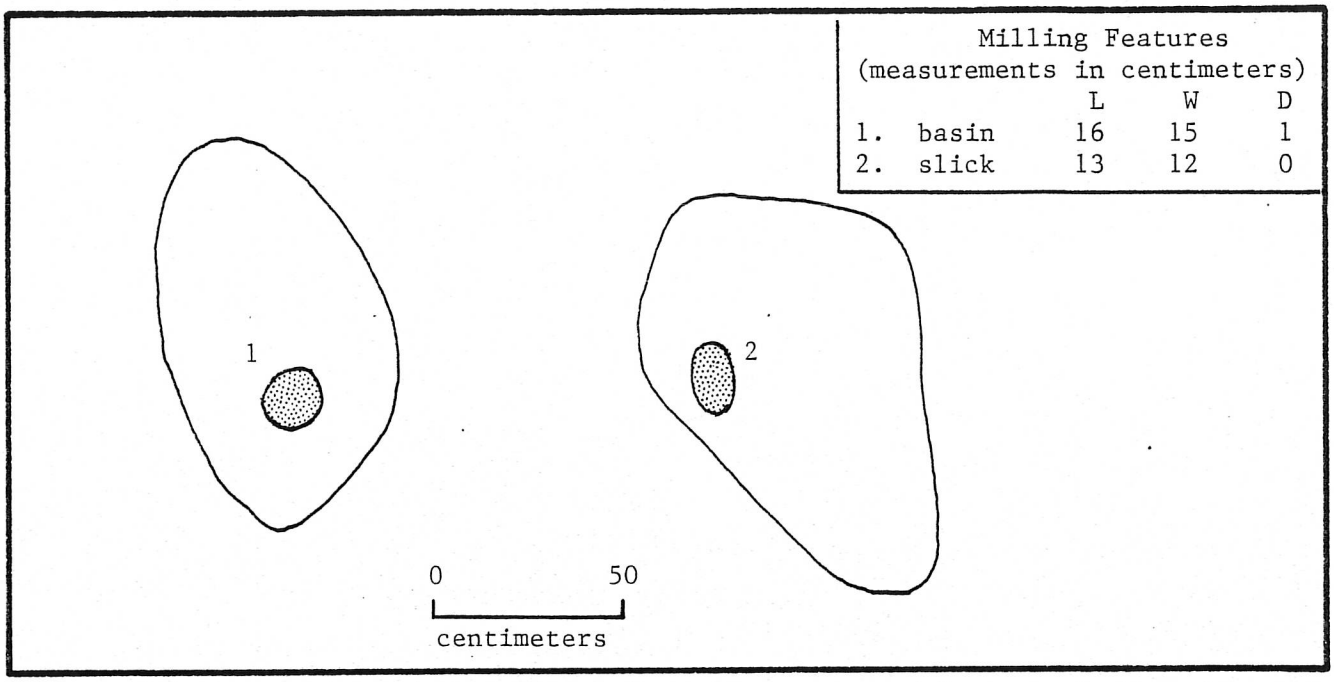


Figure 69. Micro-map of the milling features on outcrop N at the Roadway Locus of the SDi-4455 site.

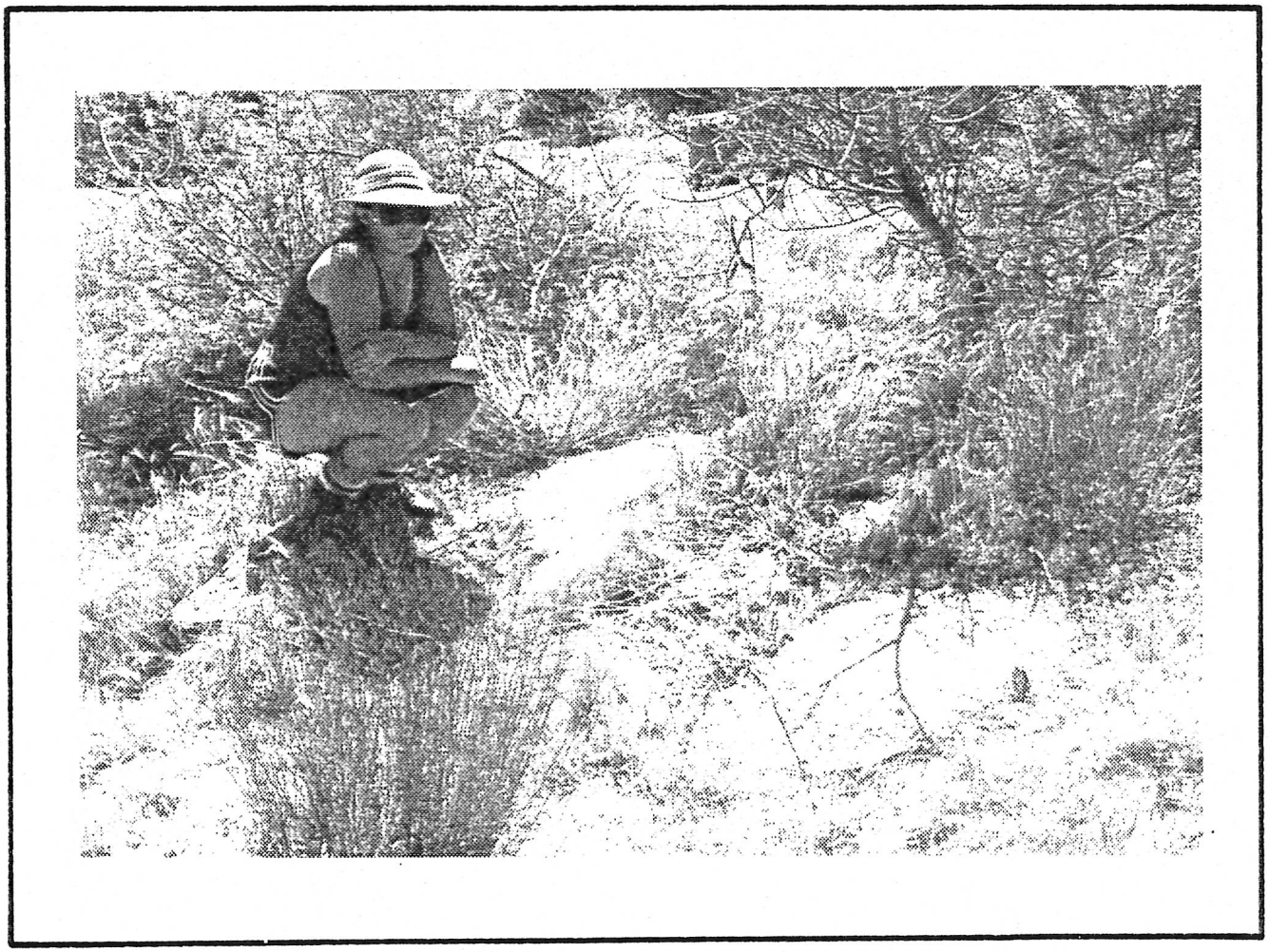


Figure 70. The SDi-4455 site, the Roadway Locus, outcrop N, looking southeast.

Intermediate Locus. The Intermediate Locus of the SDi-4455 site is a series of milling stations. These bedrock features are located along the eastern side of the ridge south of the Roadway Locus and the resort hotel. These features have been mapped in Figure 71. They occur within an area extending 500 feet by 400 feet. In all, 22 of the many outcrops along the slope have milling features, which include 73 milling basins and 25 milling slicks. A detailed micro-map and photograph of each outcrop with milling is provided as Figures 72 through 114.

There are no apparent archaeological midden soil deposits associated with these bedrock features. An occasional flake of basalt and a few isolated sherds of pottery occur along the eastern flank of the ridge, but no significant concentrations of archaeological materials occur. Most of the locus appears to have only a shallow and very coarse decomposed granitic soil. Three of the more promising areas within the locus were tested for subsurface deposits by augering. The results are presented in Table III. Two of the tests proved to be culturally sterile, and the third yielded only two basalt flakes and a piece of metal wire in a 20 inch deep accumulation of presumably natural soil deposits.

Beyond the use of suitable bedrock surfaces for the grinding and preparation of seeds into flour for meal, this locus does not appear to have been otherwise utilized. Evidence of habitations or other specific activities were not observed, in spite of a detailed inspection of the area.

TABLE III

SDi-4455, Intermediate Locus, Soil Auger Test Results

Test	Soil	Depth (cm)	Materials Present
A#1	medium brown, fine grained, loam with hugh pieces of charred wood*	0-32	(sterile)*lumber recently burned.
		32-46	(sterile)
	stopped by rocks	46+	
A#2	medium brown, coarse decomposing granite and loam	0-30	1 piece of wire, 1 basalt flake.
		30-50	1 basalt flake.
	stopped by rocks	50+	
A#3	yellow-red, compact, decomposing granite	0-17	(sterile)
	yellow-red, extremely dense decomposing granite	17+	

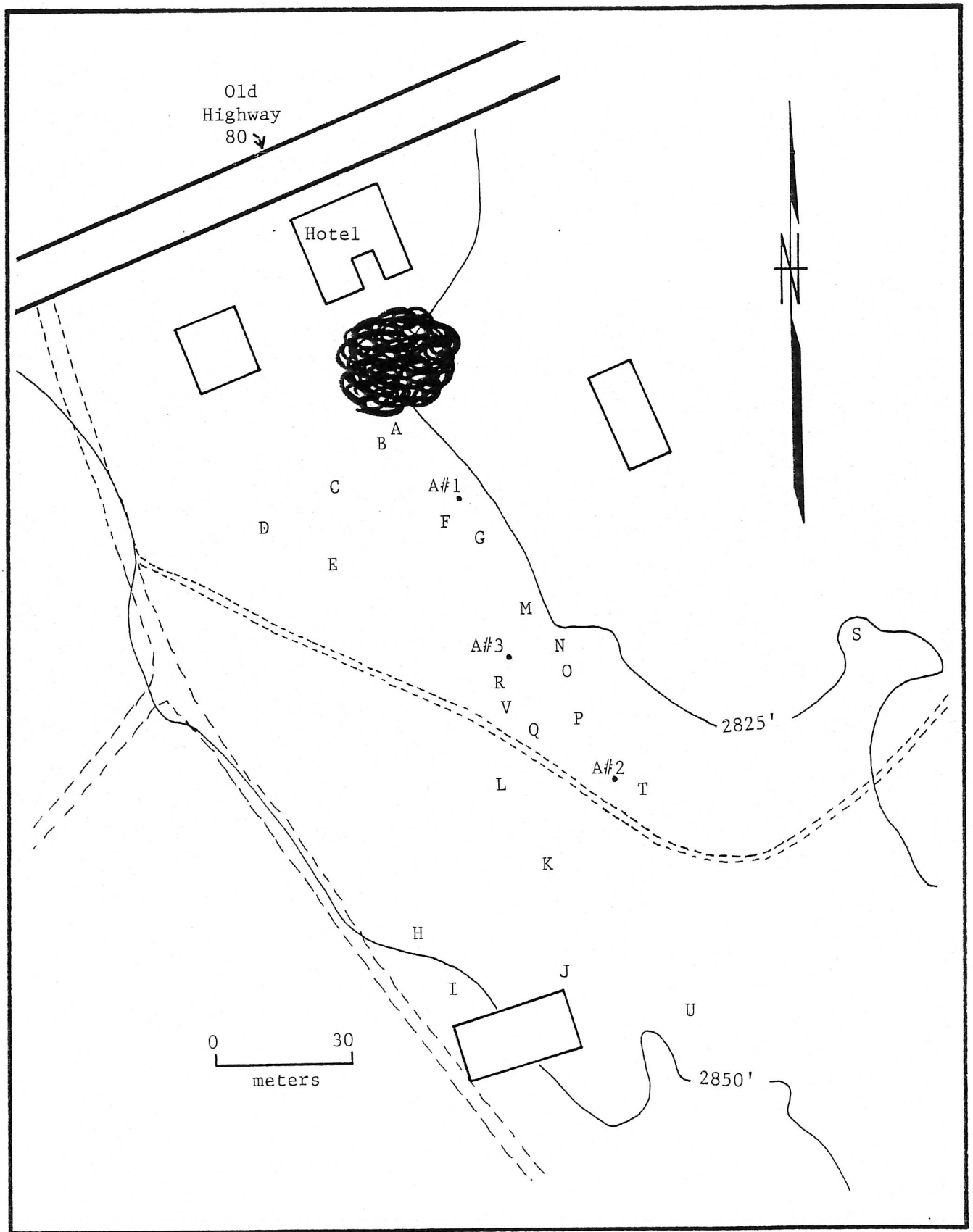


Figure 71. General sketch map of the Intermediate Locus of the SDi-4455 site, showing the milling outcrops (A-V) and the locations of the soil auger tests (A#1-3).

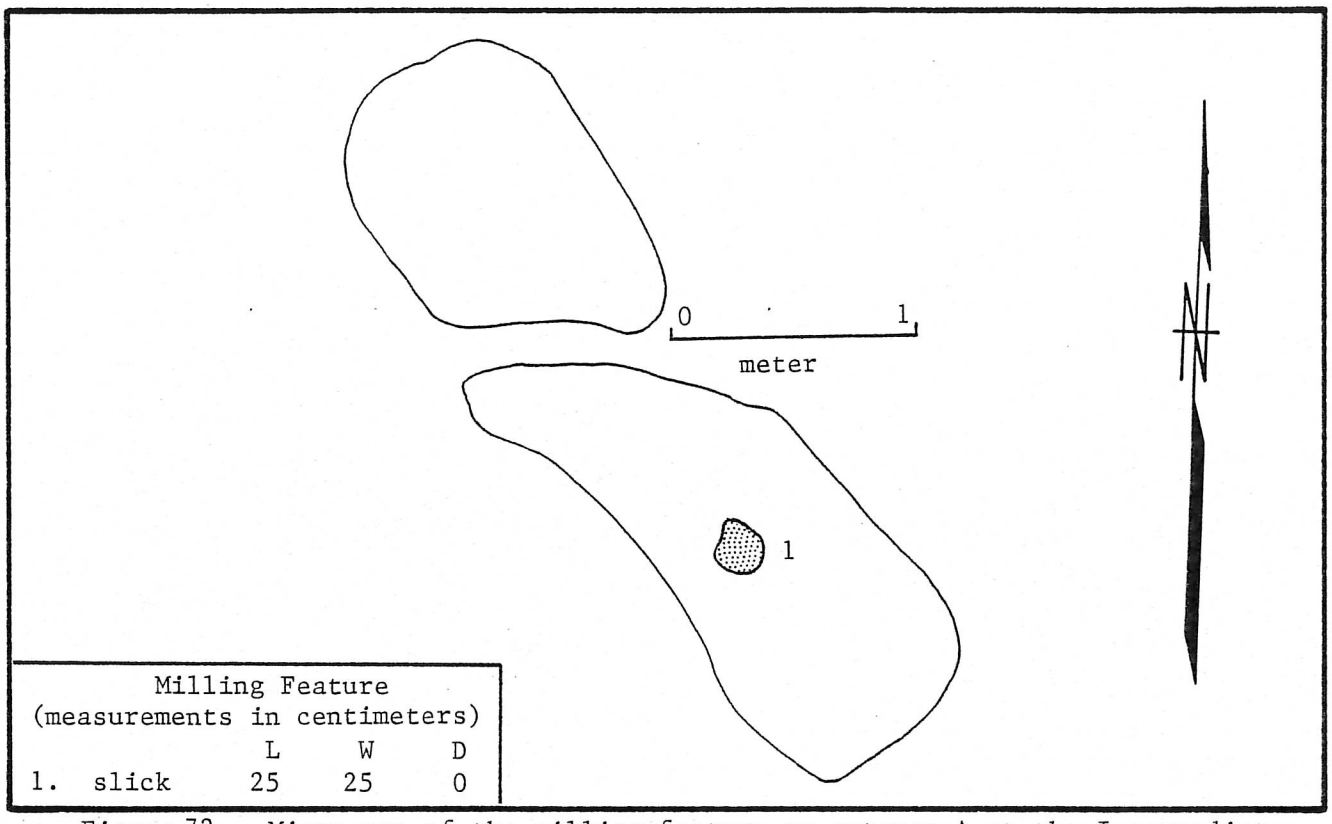


Figure 72. Micro-map of the milling feature on outcrop A at the Intermediate Locus of the SDi-4455 site.

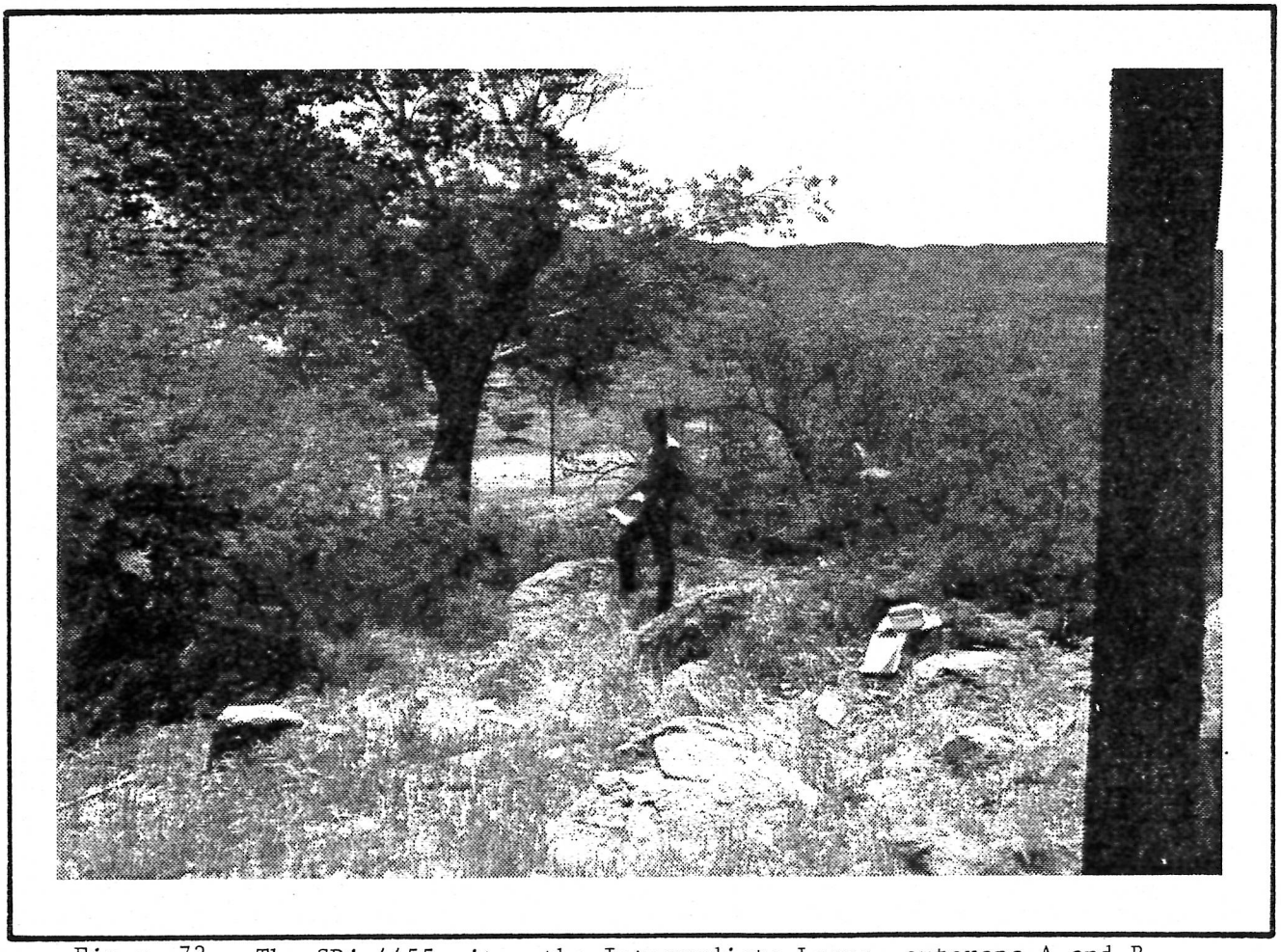


Figure 73. The SDi-4455 site, the Intermediate Locus, outcrops A and B, looking east.

Milling Features (measurements in centimeters)			
	L	W	D
1. slick	24	19	0
2. basin	16	11	1.5
3. basin	27	23	3
4. basin	22	18	2.5
5. slick	45	40	0

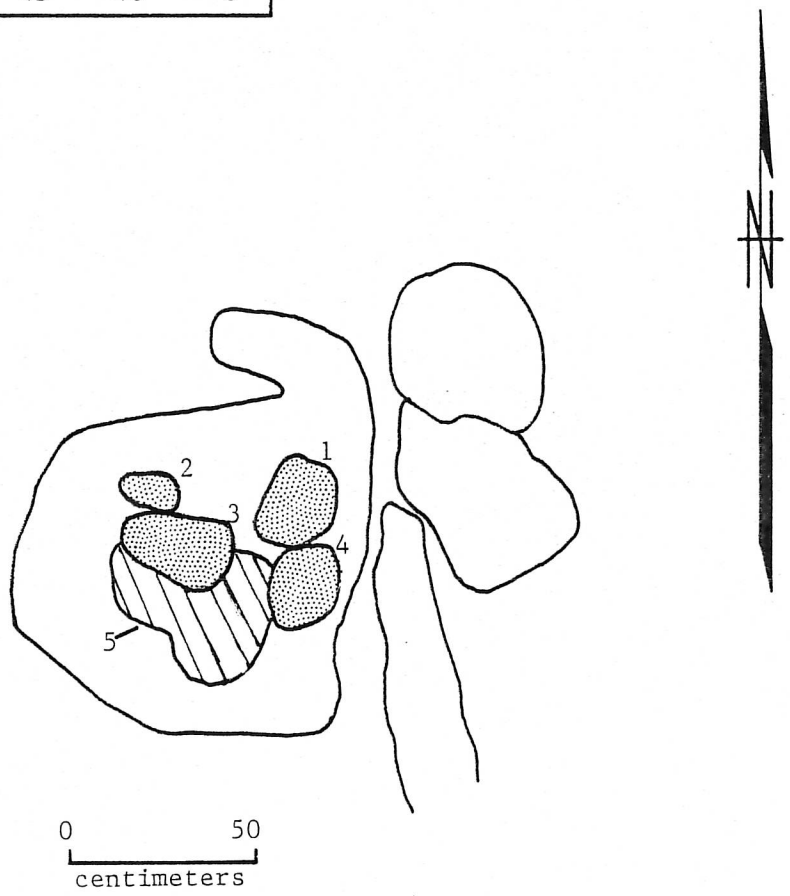


Figure 74. Micro-map of the milling features on outcrop B at the Intermediate Locus of the SDi-4455 site.

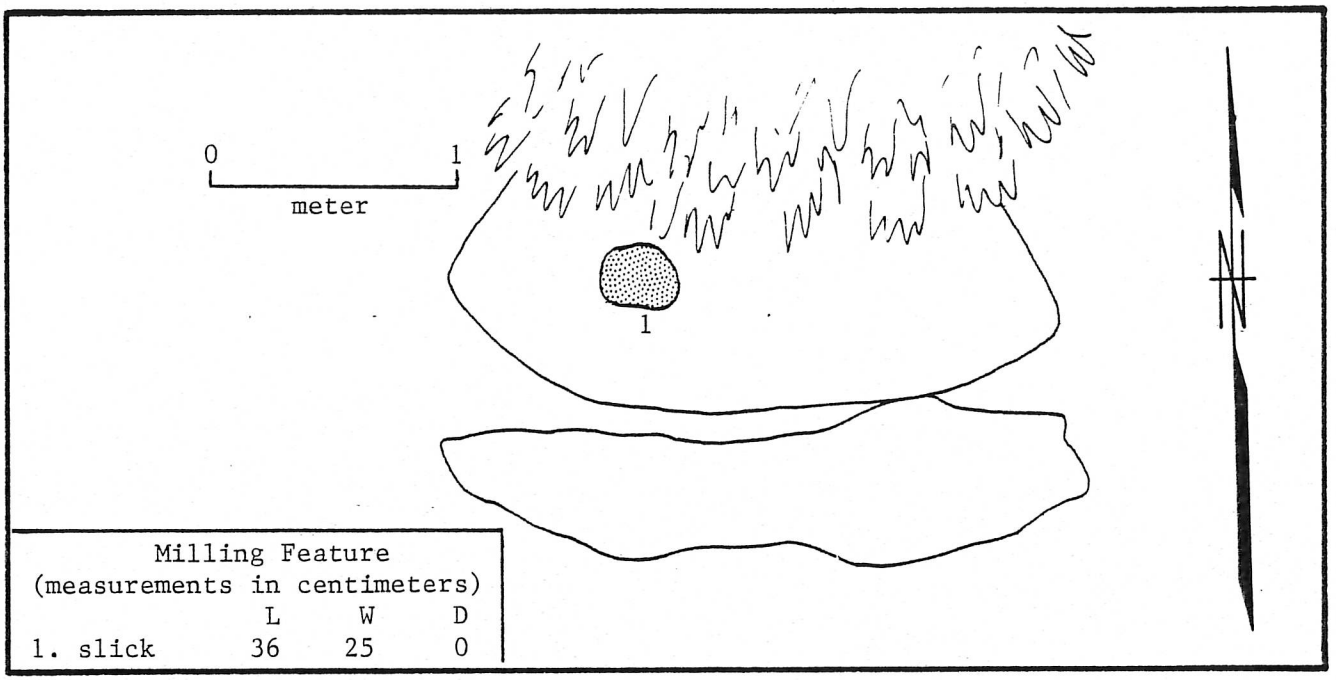


Figure 75. Micro-map of the milling feature on outcrop C at the Intermediate Locus of the SDi-4455 site.

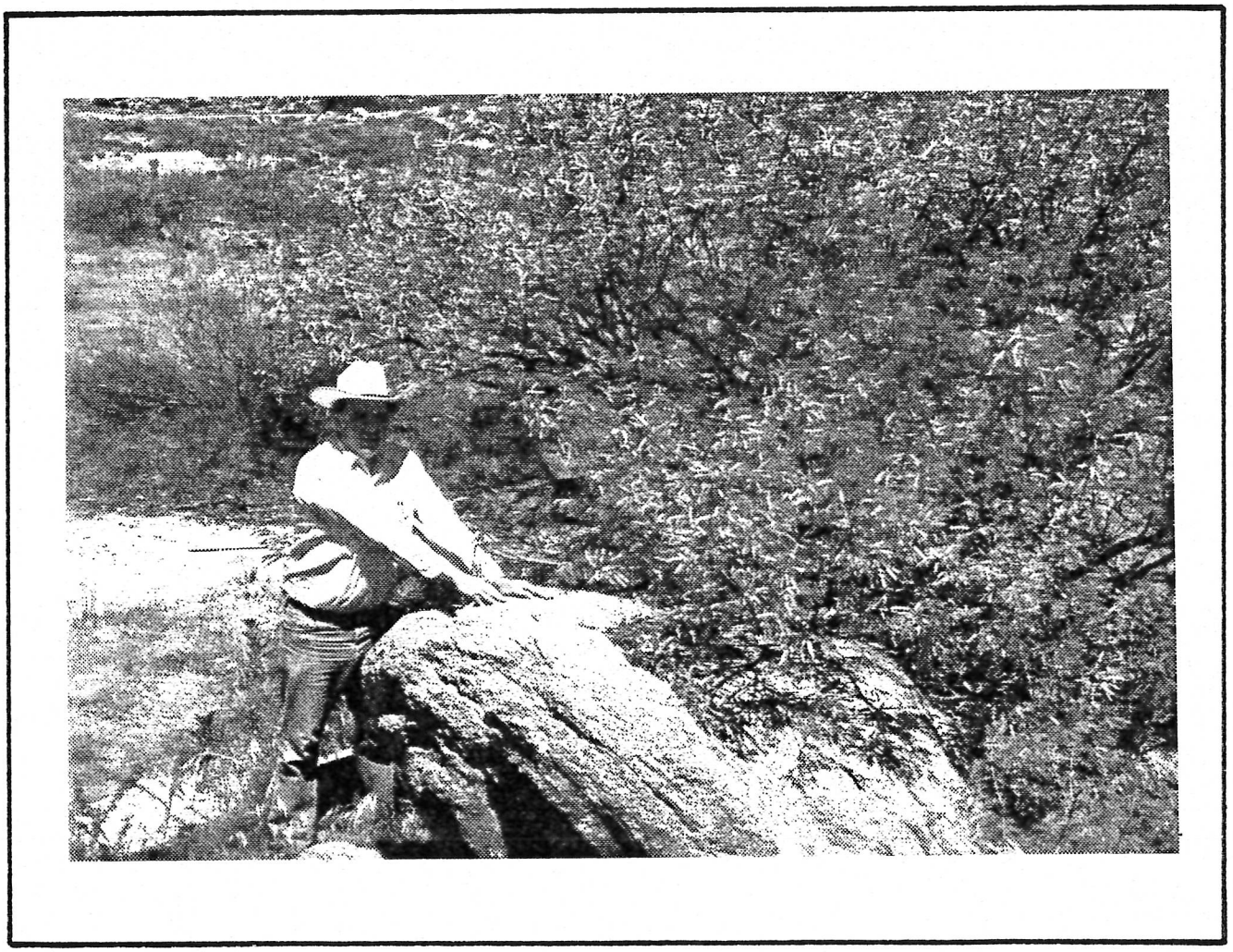


Figure 76. The SDi-4455 site, the Intermediate Locus, outcrop C, looking northwest.

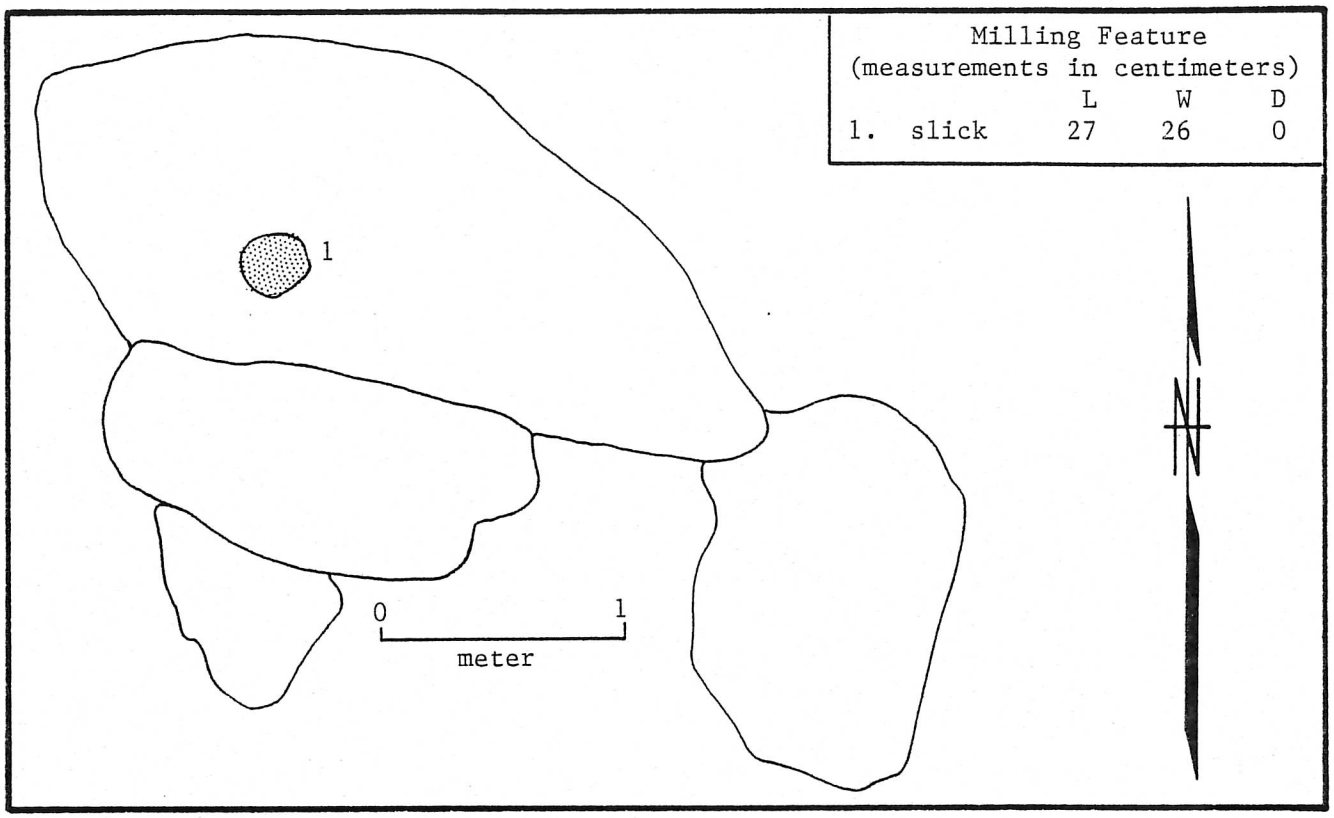


Figure 77. Micro-map of the milling feature on outcrop D at the Intermediate Locus of the SDi-4455 site.

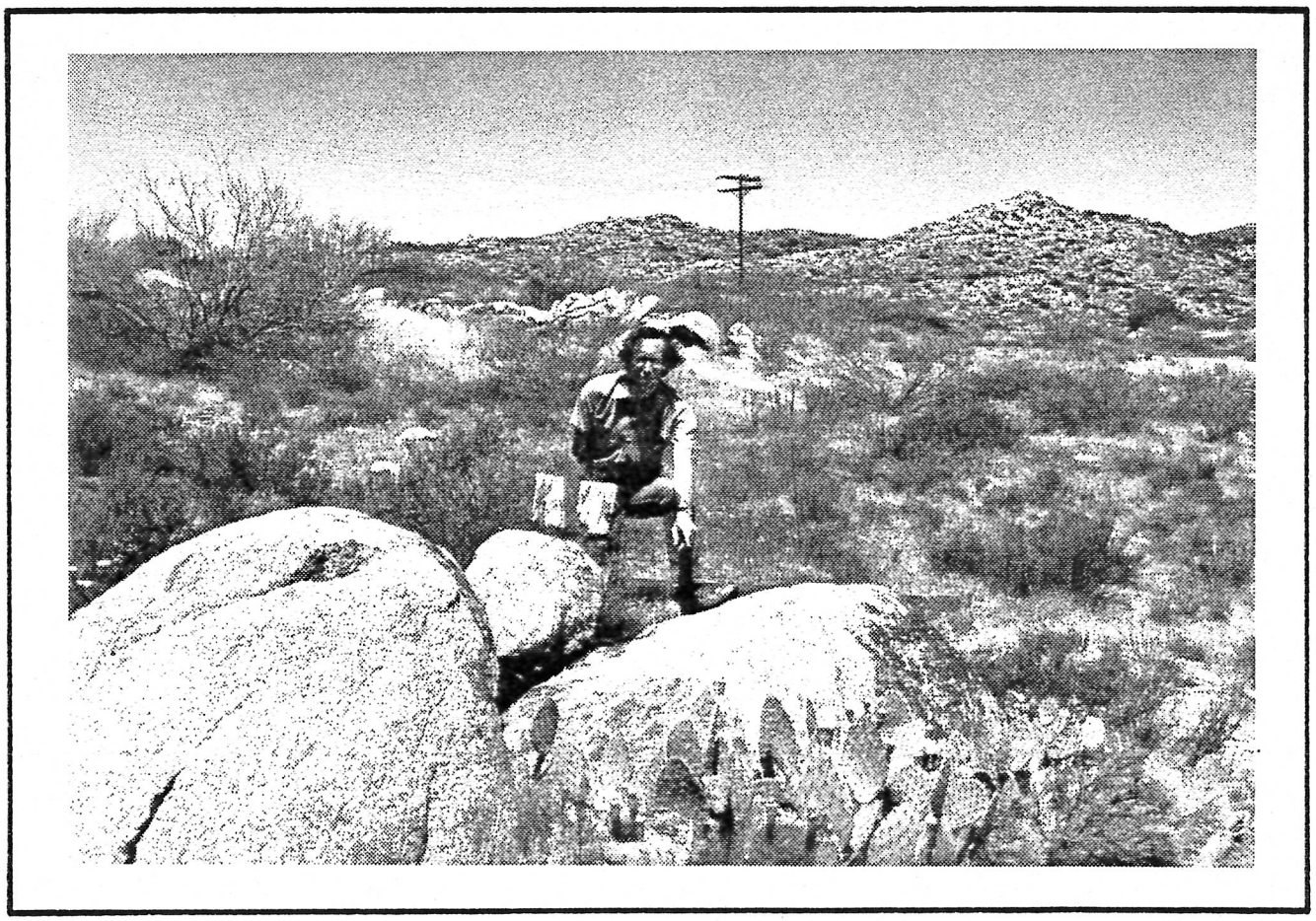


Figure 78. The SDi-4455 site, the Intermediate Locus, outcrop D, looking southwest.

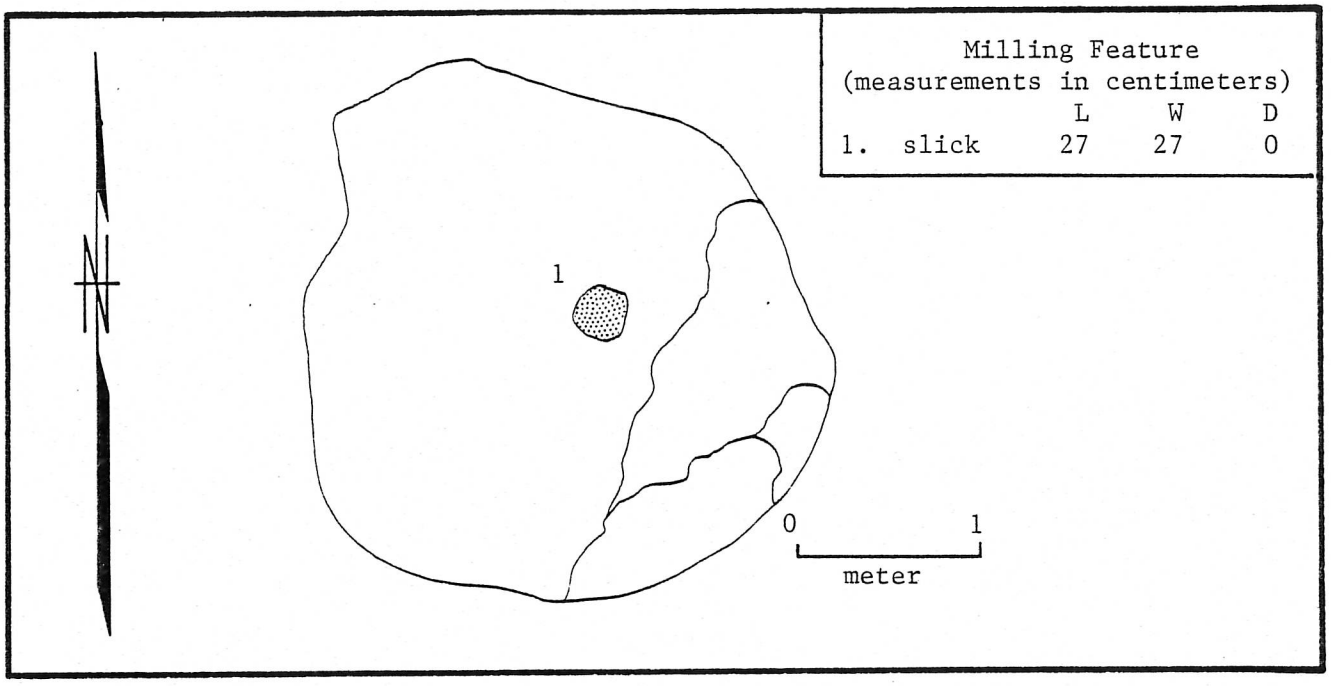


Figure 79. Micro-map of the milling feature on outcrop E at the Intermediate Locus of the SDi-4455 site.

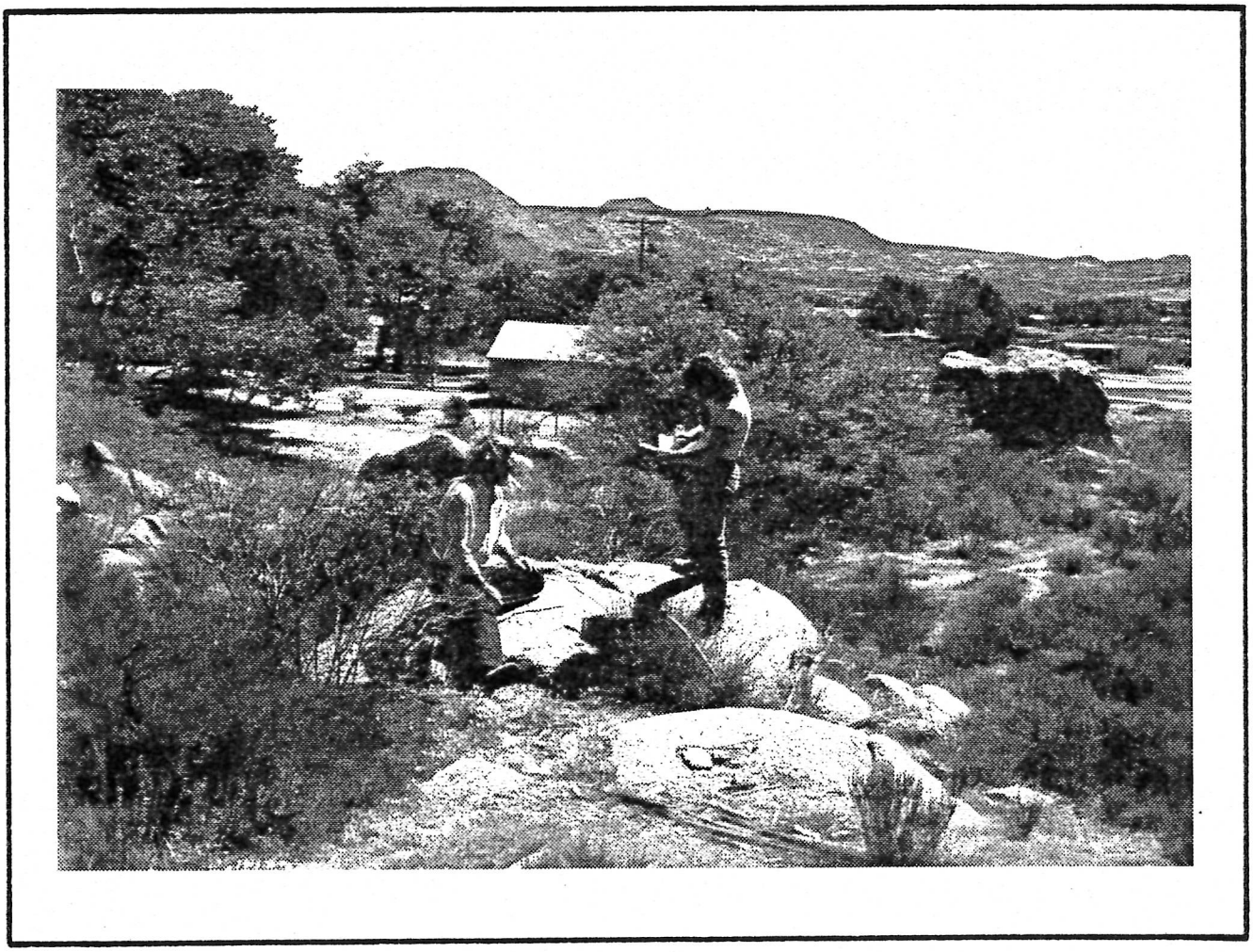


Figure 80. The SDi-4455 site, the Intermediate Locus, outcrop E, looking east.

Milling Features
(measurements in centimeters)

	L	W	D
1. basin	30	22	1.5
2. basin	23	18	3
3. basin	28	17	2
4. basin	23	17	2
5. basin	22	16	1.5

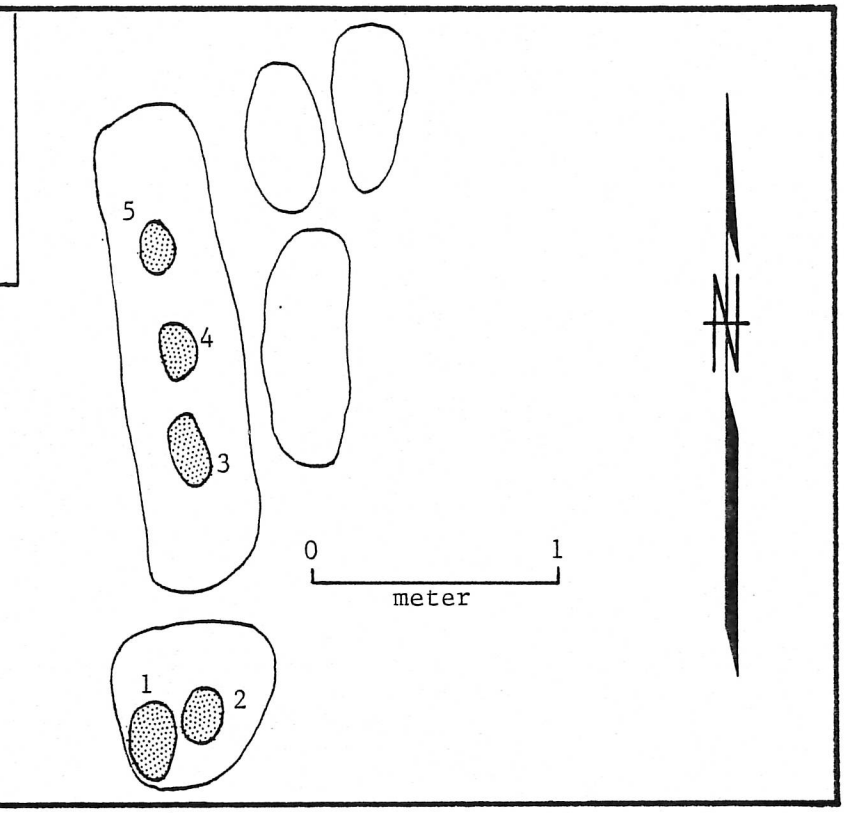


Figure 81. Micro-map of the milling features on outcrop F at the Intermediate Locus of the SDi-4455 site.

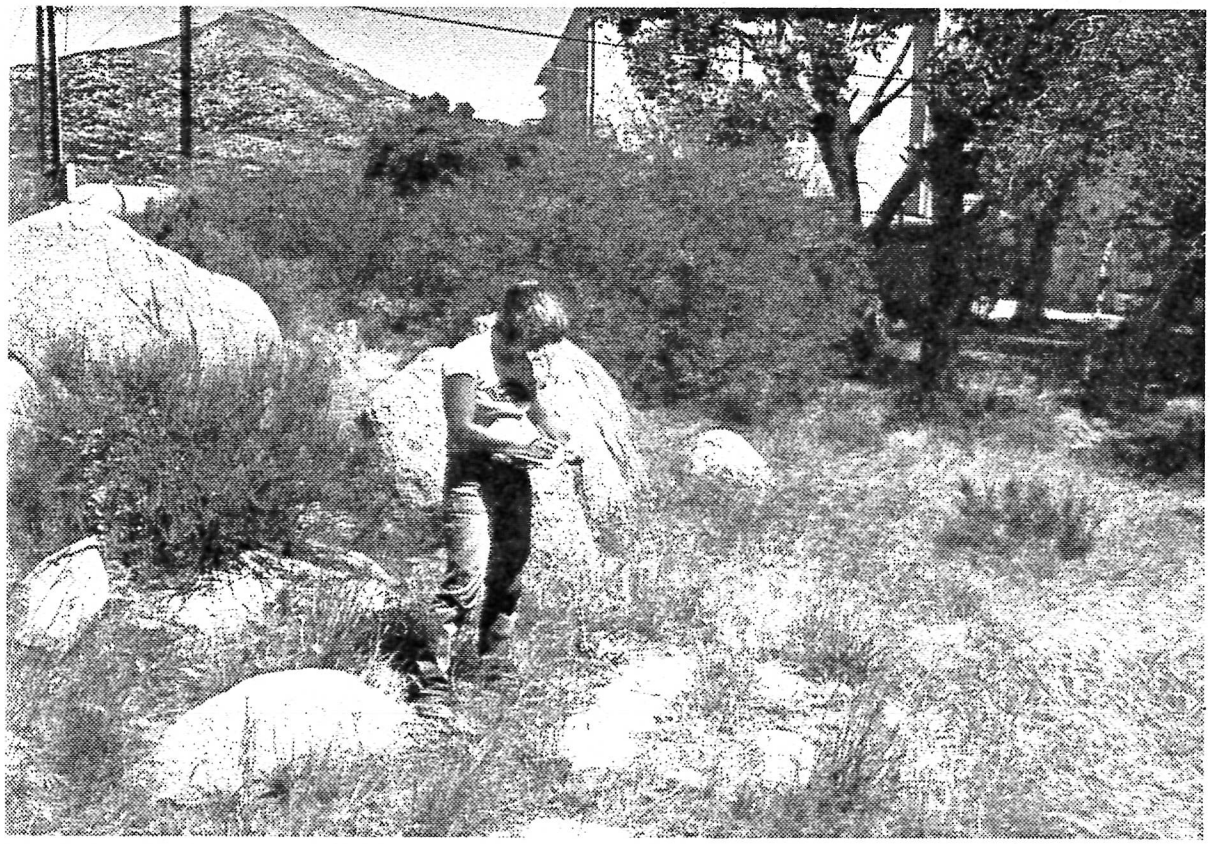


Figure 82. The SDi-4455 site, the Intermediate Locus, outcrop F, looking northwest.

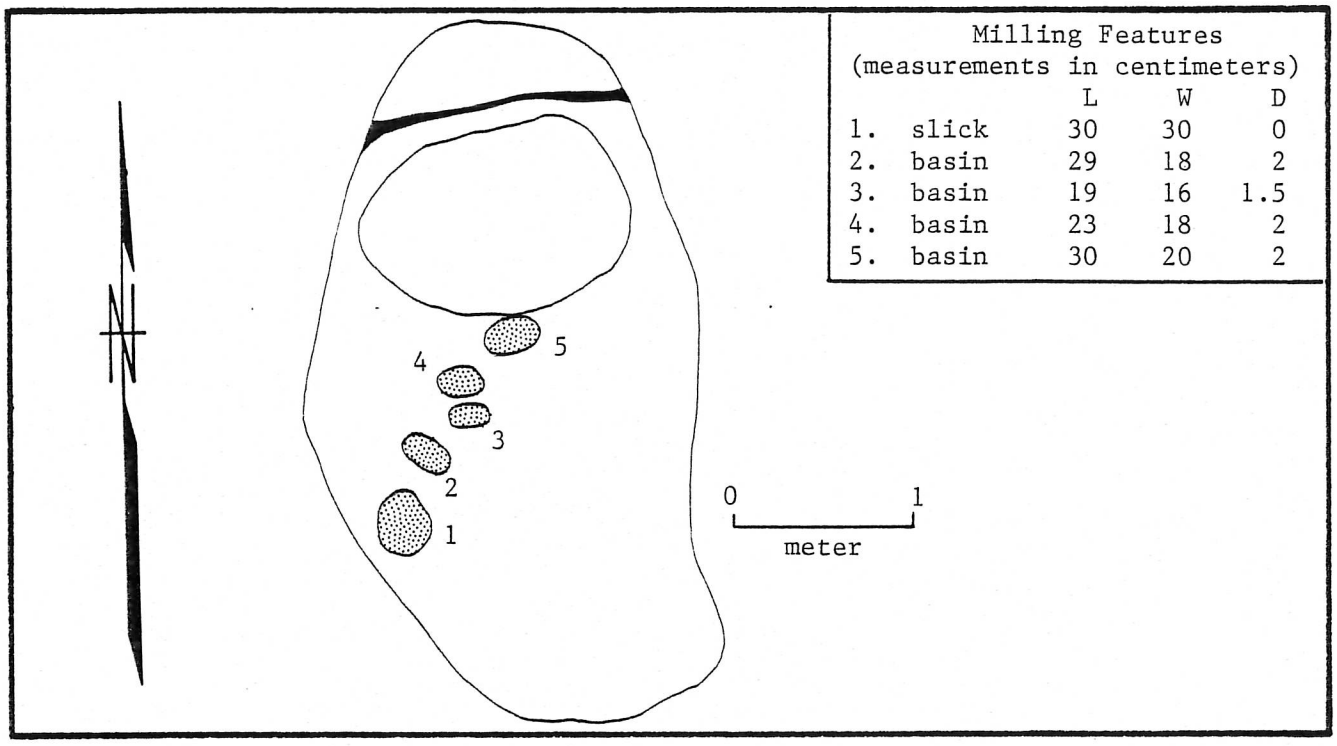


Figure 83. Micro-map of the milling features on outcrop G at the Intermediate Locus of the SDi-4455 site.

Figure 84. The SDi-4455 site, the Intermediate Locus, outcrop G, looking north.

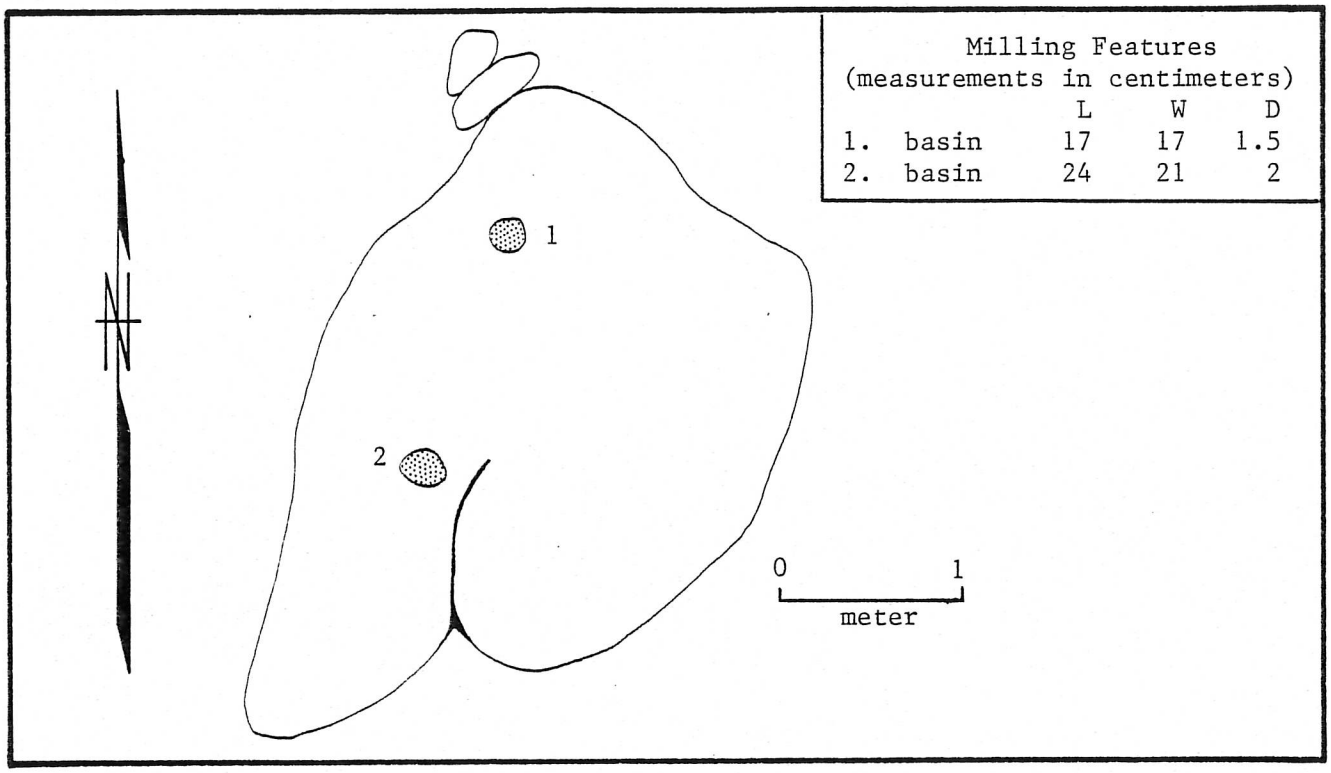
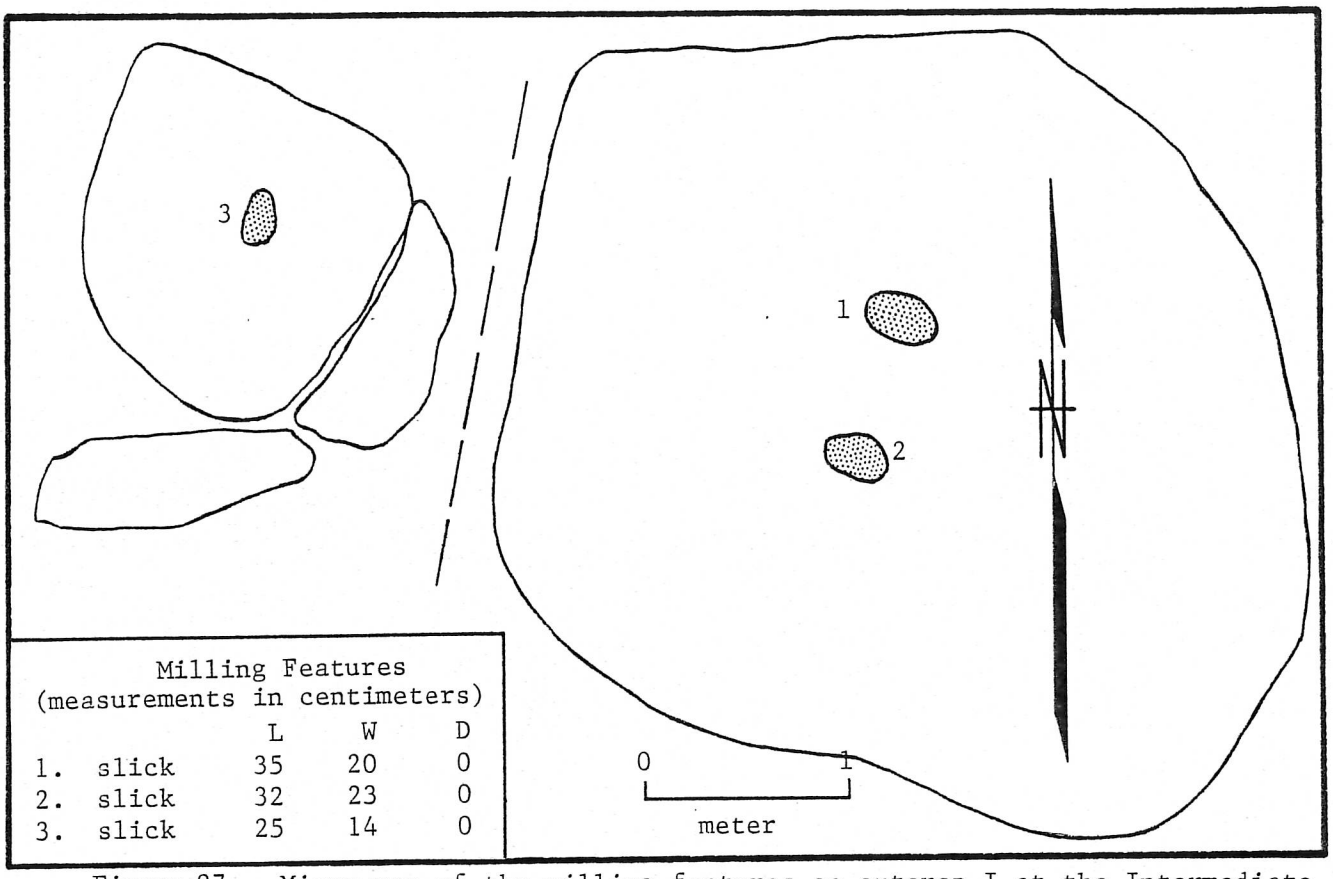


Figure 85. Micro-map of the milling features on outcrop H at the Intermediate Locus of the SDi-4455 site.

Figure 86. The SDi-4455 site, the Intermediate Locus, outcrop H, looking northeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	35	20	0
2.	slick	32	23	0
3.	slick	25	14	0

Figure 87. Micro-map of the milling features on outcrop I at the Intermediate Locus of the SDi-4455 site.

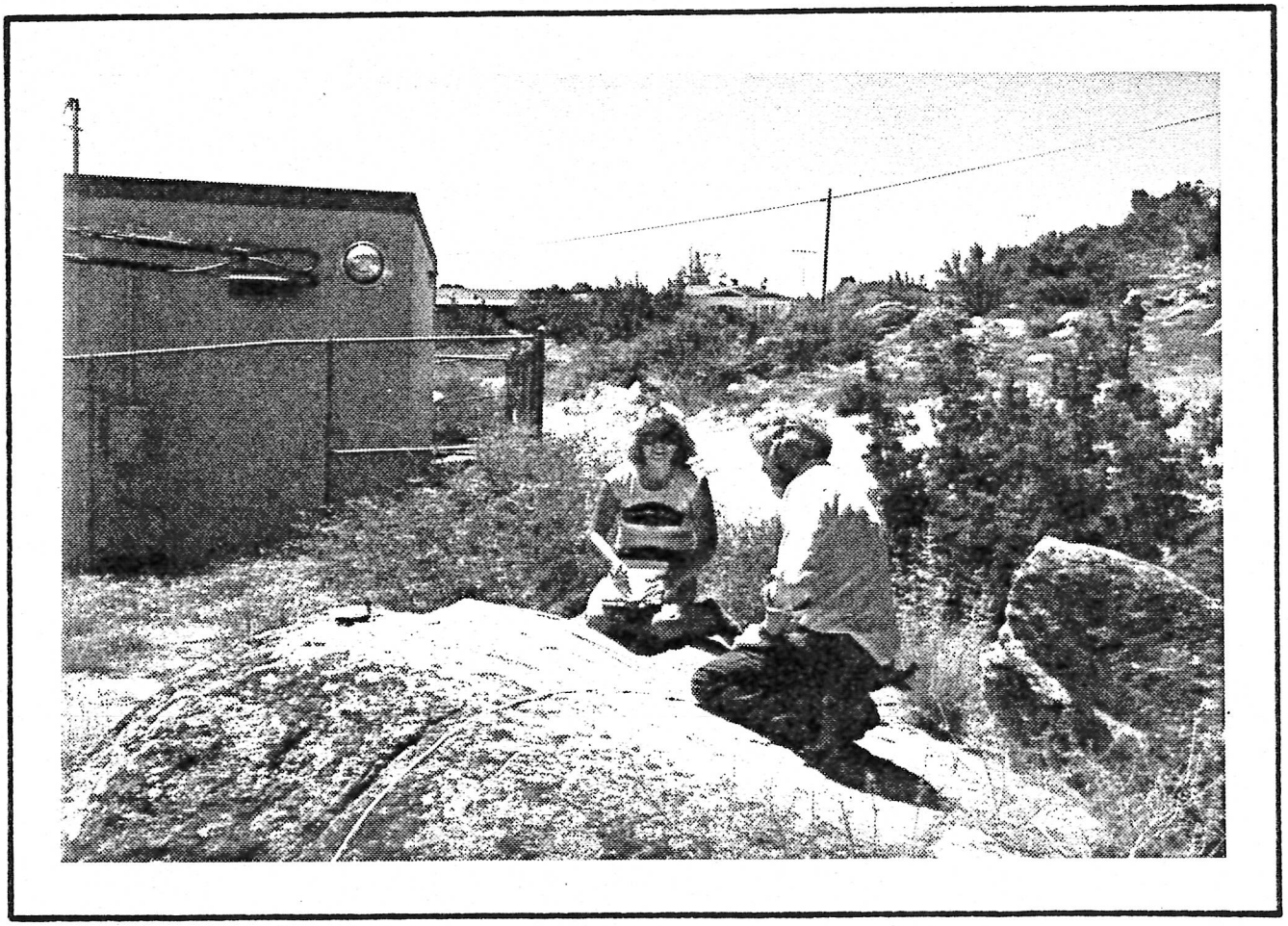
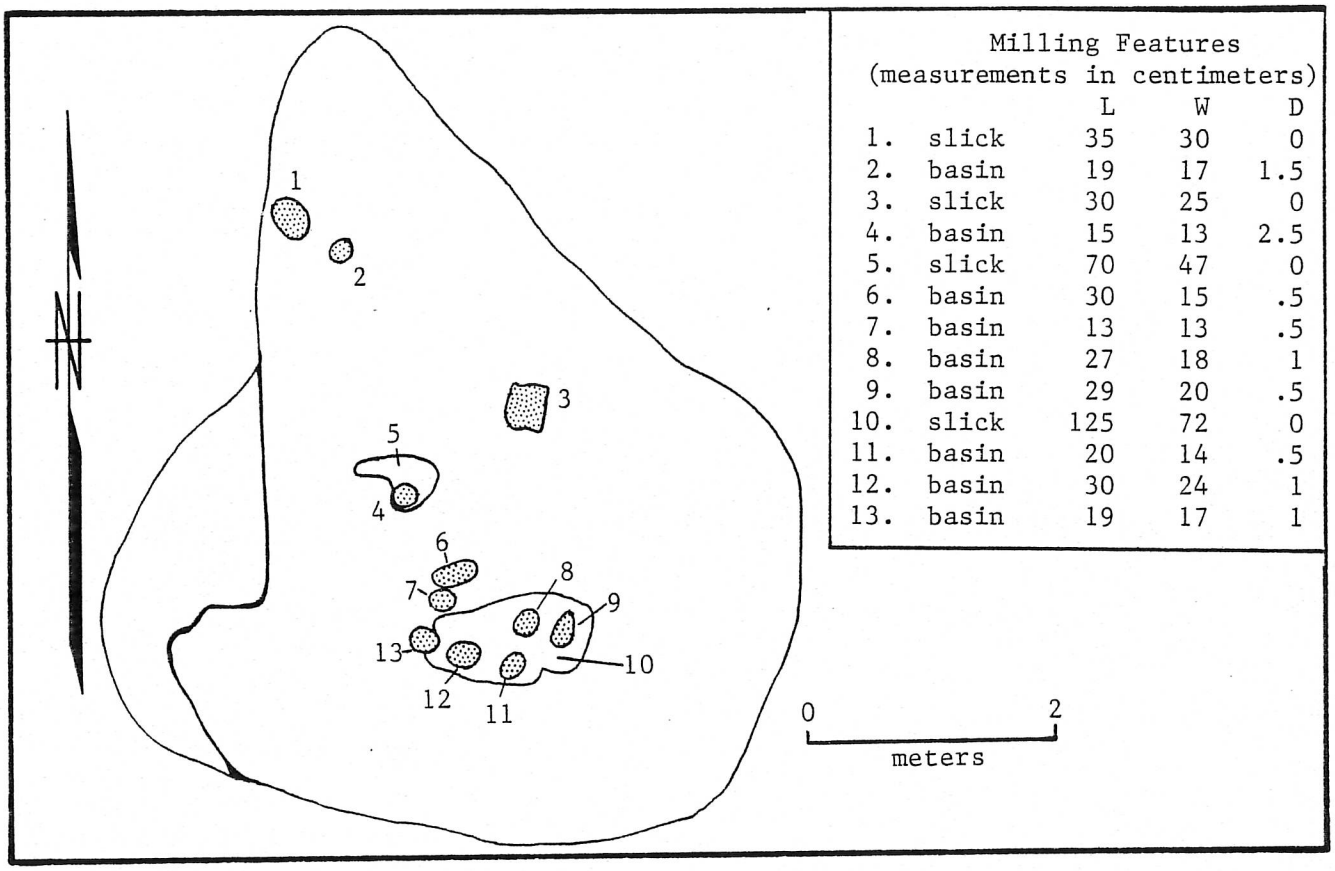


Figure 88. The SDi-4455 site, the Intermediate Locus, outcrop I, looking west.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	35	30	0
2.	basin	19	17	1.5
3.	slick	30	25	0
4.	basin	15	13	2.5
5.	slick	70	47	0
6.	basin	30	15	.5
7.	basin	13	13	.5
8.	basin	27	18	1
9.	basin	29	20	.5
10.	slick	125	72	0
11.	basin	20	14	.5
12.	basin	30	24	1
13.	basin	19	17	1

Figure 89. Micro-map of the milling features on outcrop J at the Intermediate Locus of the SDi-4455 site.

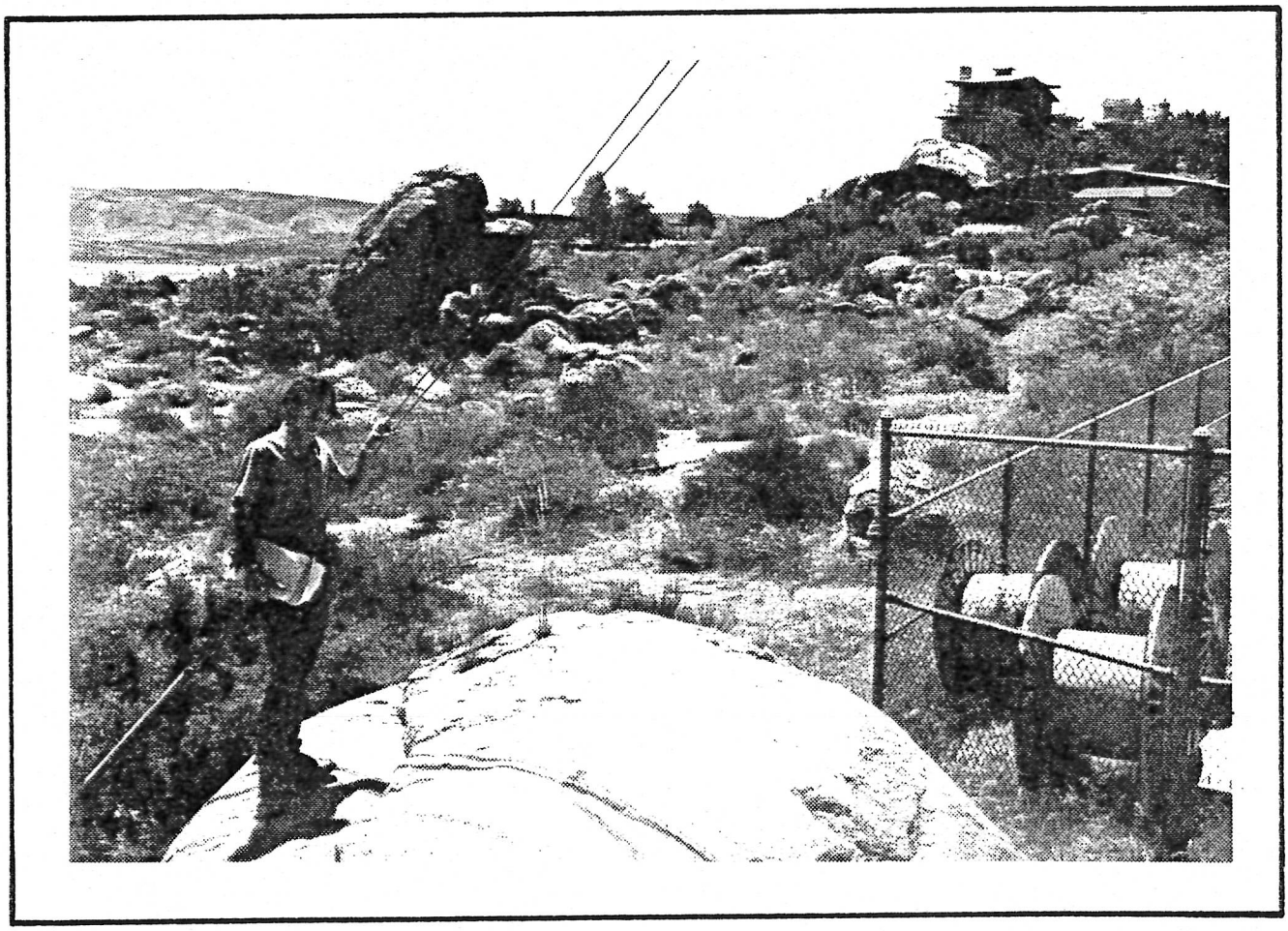
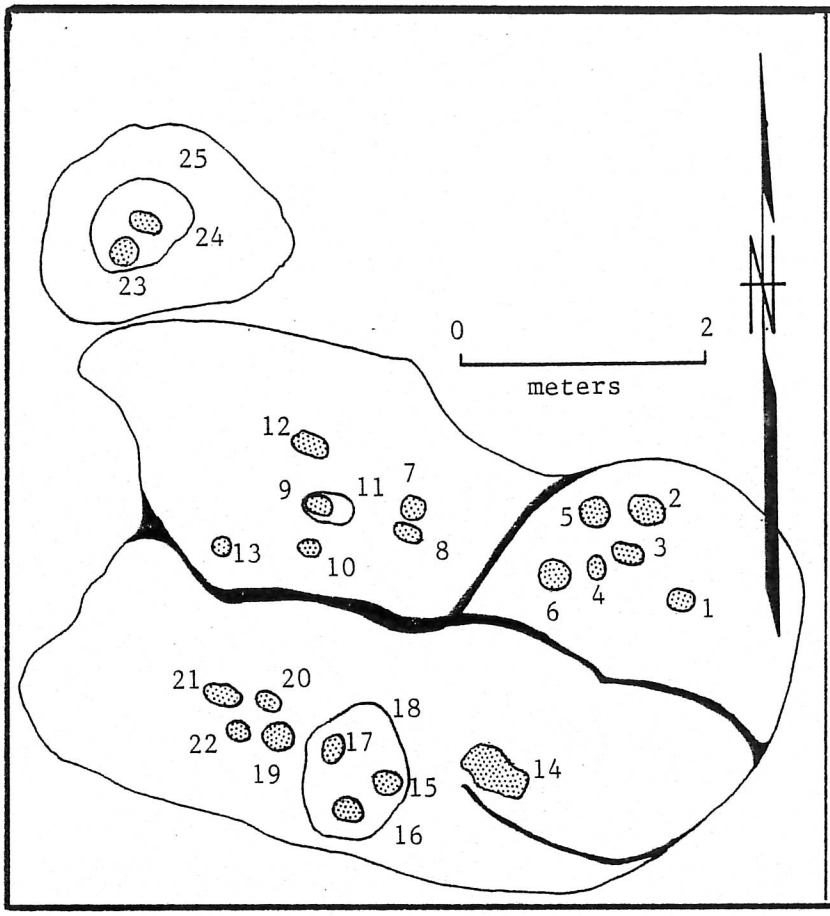


Figure 90. The SDi-4455 site, the Intermediate Locus, outcrop J, looking southeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	17	14	.5
2.	basin	23	20	.5
3.	basin	22	14	1
4.	basin	17	14	.5
5.	basin	21	21	1
6.	basin	25	23	1
7.	basin	16	16	1
8.	basin	16	12	1
9.	basin	17	14	1
10.	basin	14	12	.5
11.	slick	25	21	0
12.	basin	25	17	2
13.	basin	14	14	.5
14.	slick	60	30	0
15.	basin	18	17	1.5
16.	basin	19	16	1
17.	basin	19	16	1.5
18.	slick	110	72	0
19.	basin	20	17	.5
20.	basin	21	15	.5
21.	basin	30	20	2
22.	basin	20	15	?
23.	basin	21	20	2
24.	basin	20	15	.5
25.	slick	65	60	0

Figure 91. Micro-map of the milling features on outcrop K at the Intermediate Locus of the SDi-4455 site.

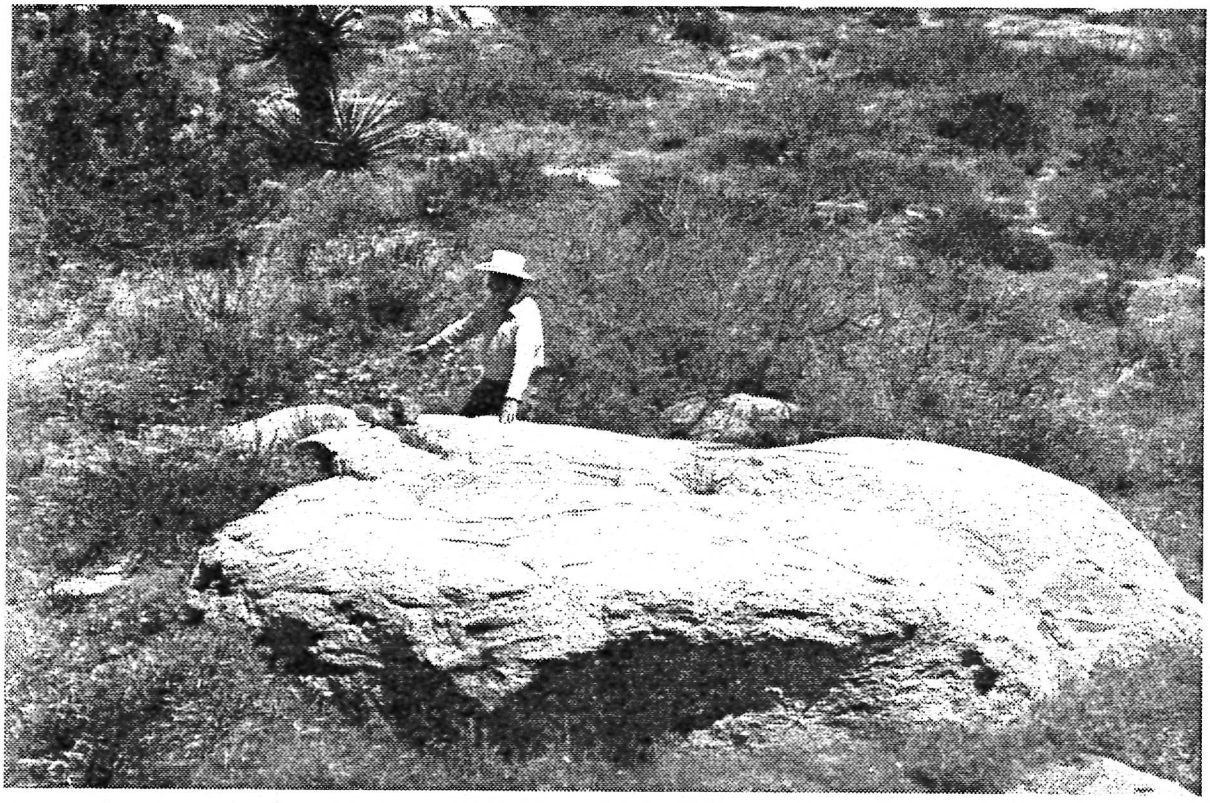
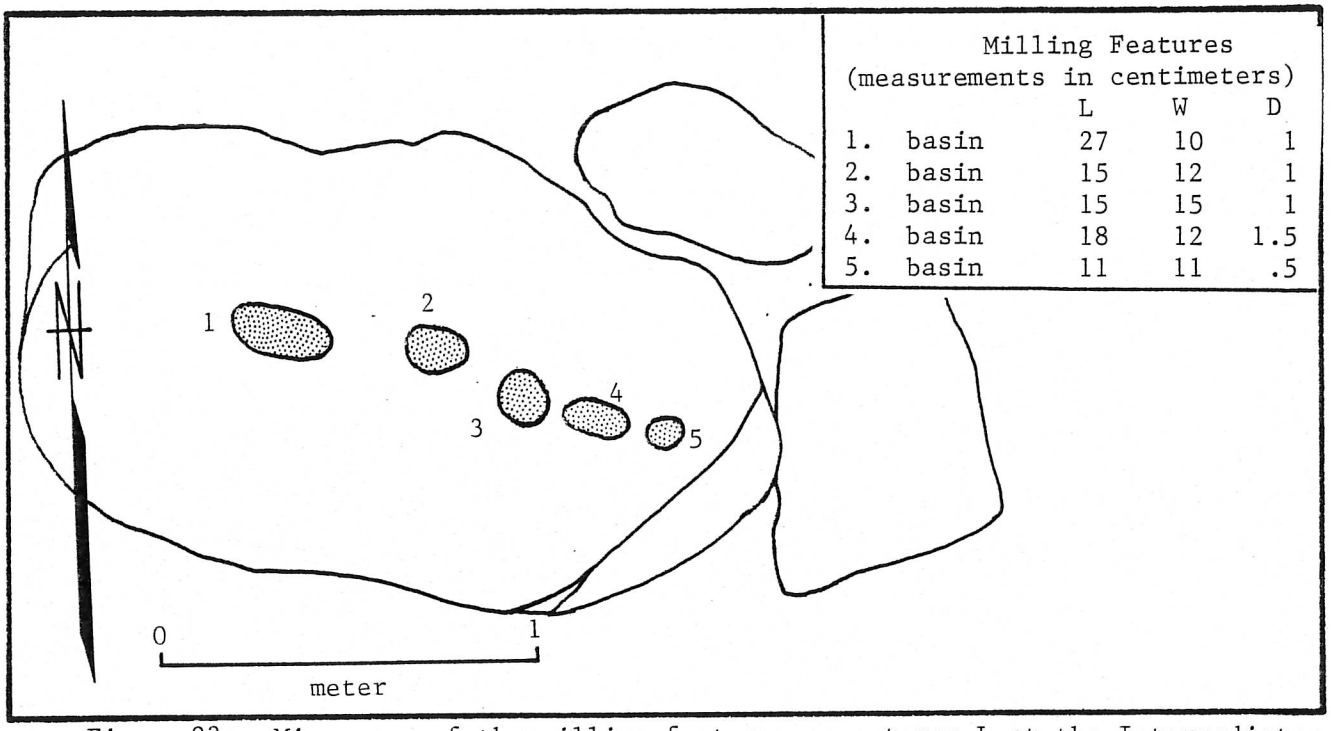


Figure 92. The SDi-4455 site, the Intermediate Locus, outcrop K, looking north.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	27	10	1
2.	basin	15	12	1
3.	basin	15	15	1
4.	basin	18	12	1.5
5.	basin	11	11	.5

Figure 93. Micro-map of the milling features on outcrop L at the Intermediate Locus of the SDi-4455 site.

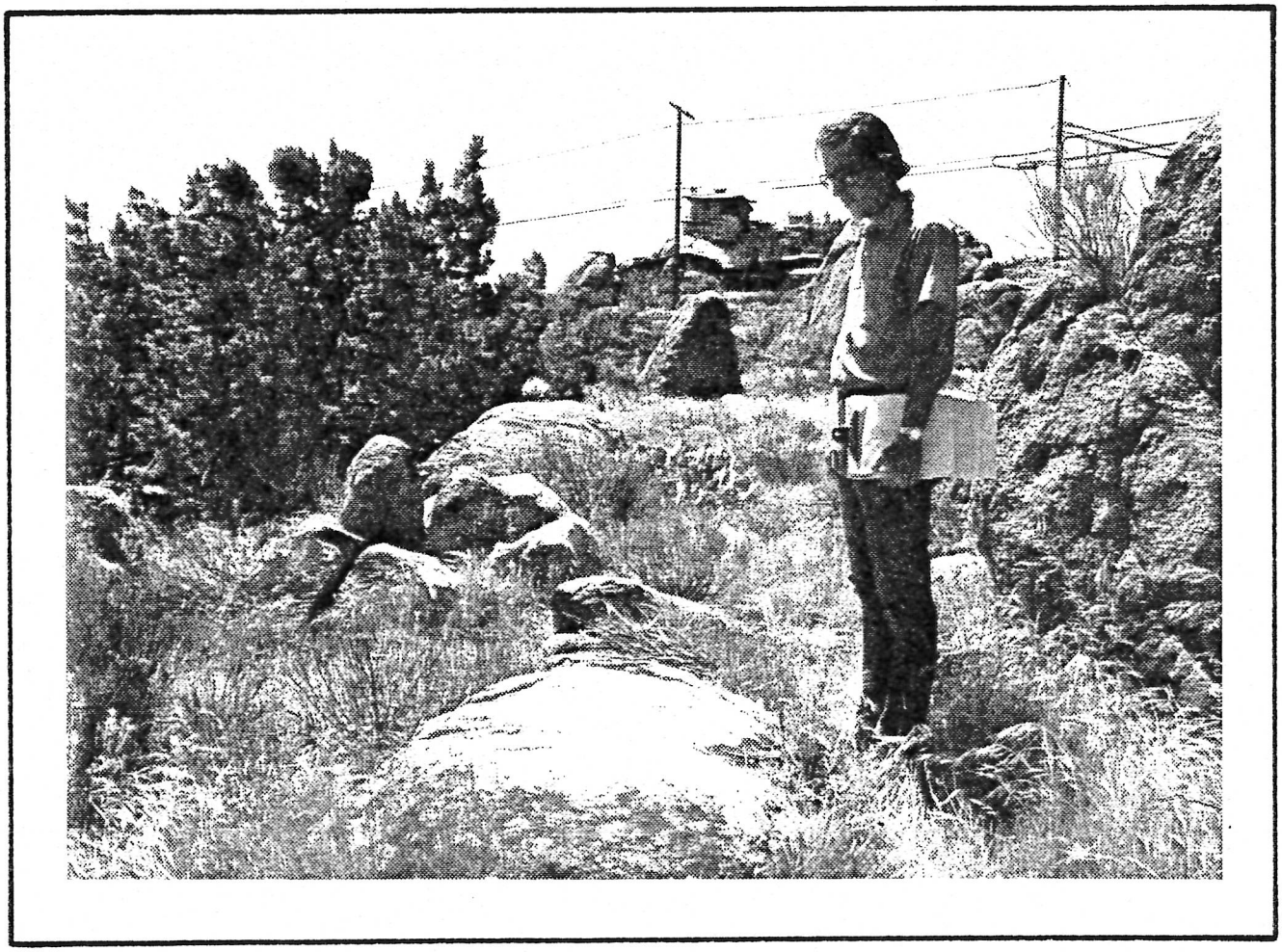


Figure 94. The SDi-4455 site, the Intermediate Locus, outcrop L, looking southwest.

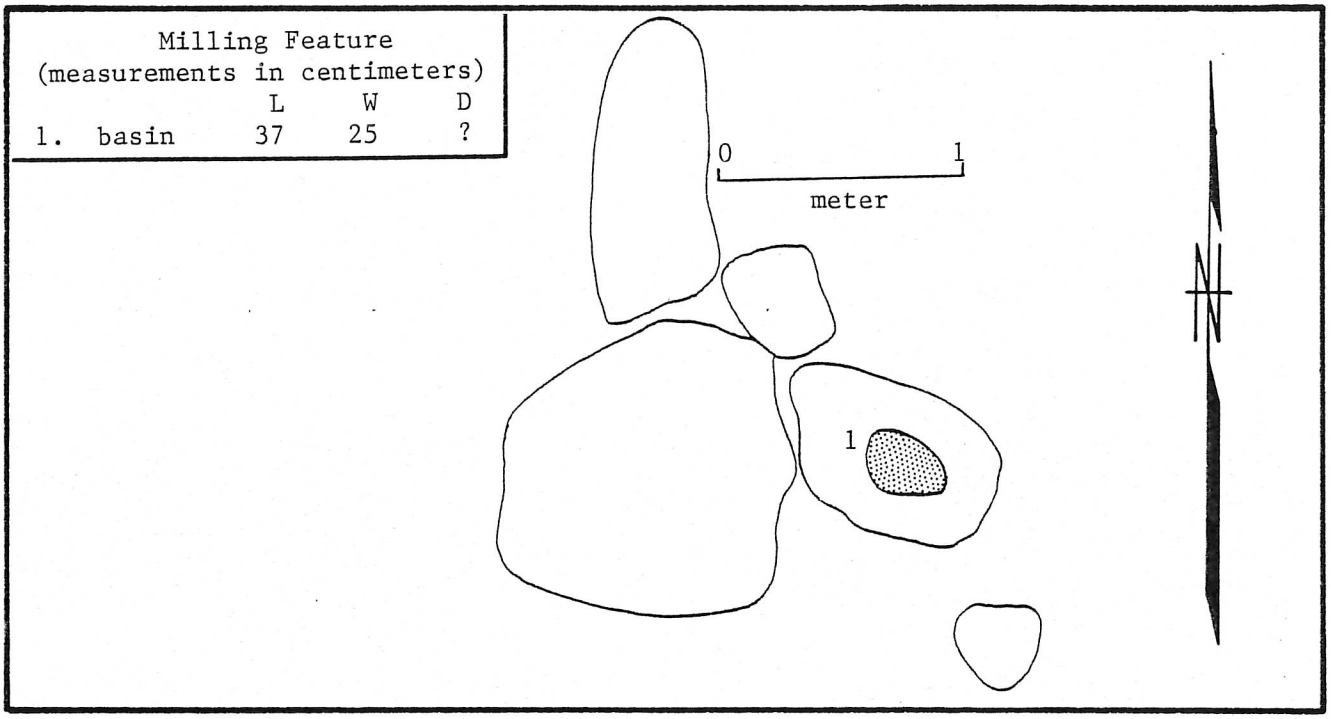


Figure 95. Micro-map of the milling feature on outcrop M at the Intermediate Locus of the SDi-4455 site.

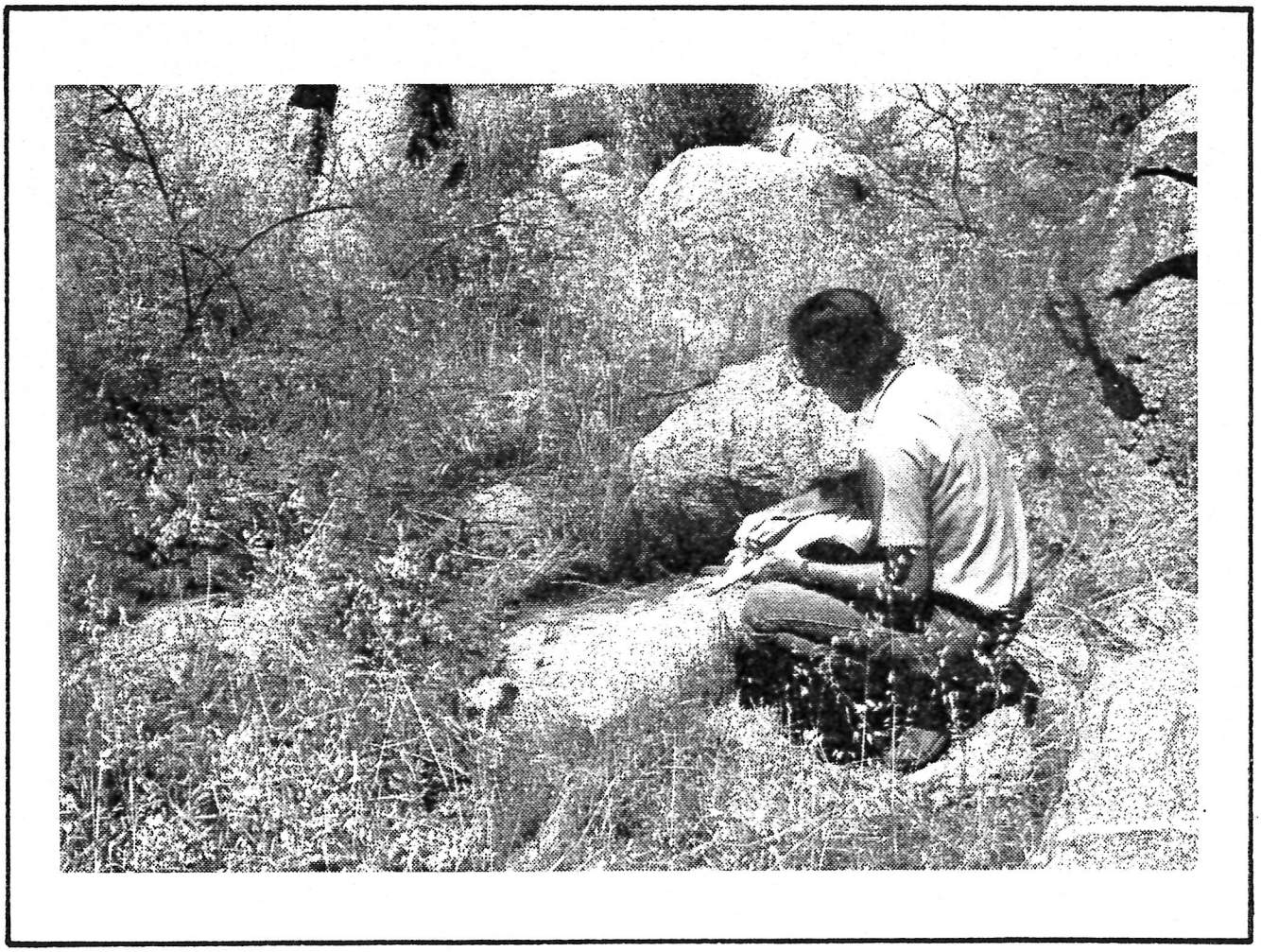


Figure 96. The SDi-4455 site, the Intermediate Locus, outcrop M, looking northwest.

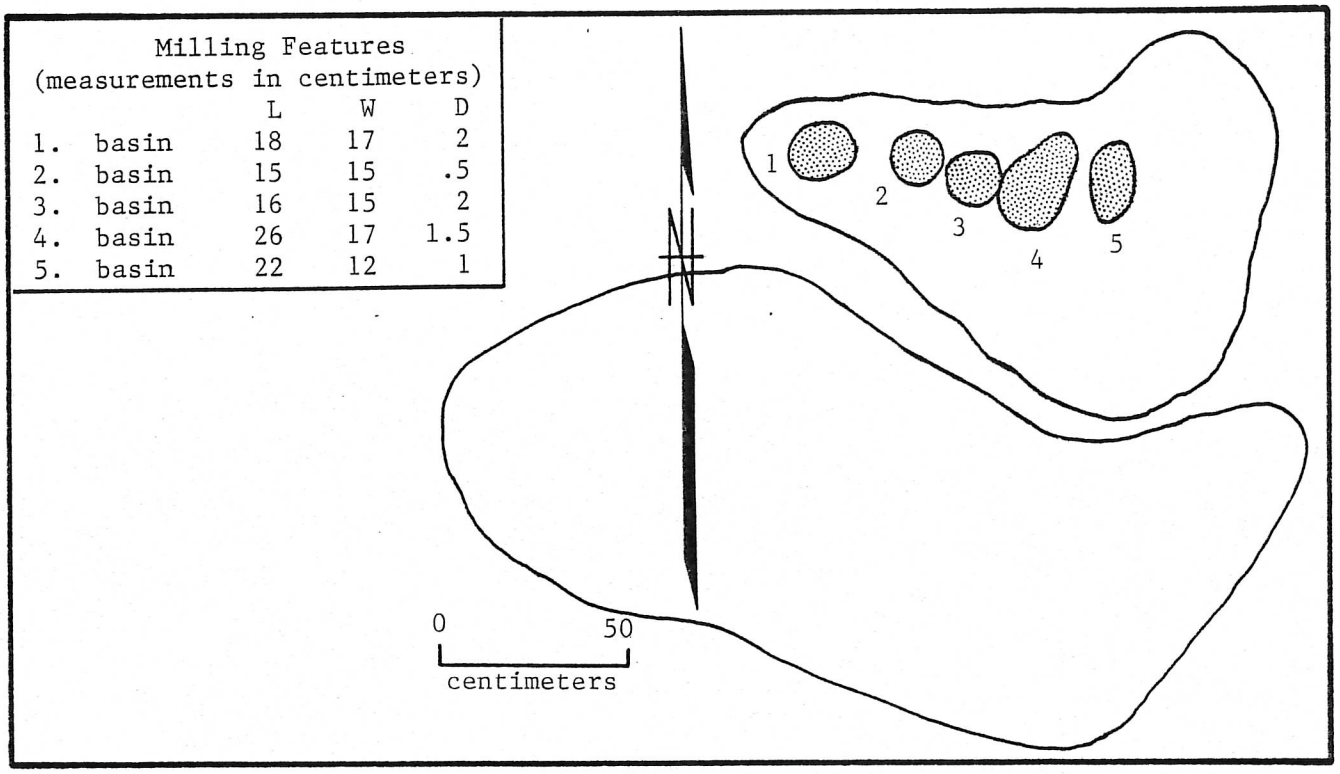


Figure 97. Micro-map of the milling features on outcrop N at the Intermediate Locus of the SDi-4455 site.

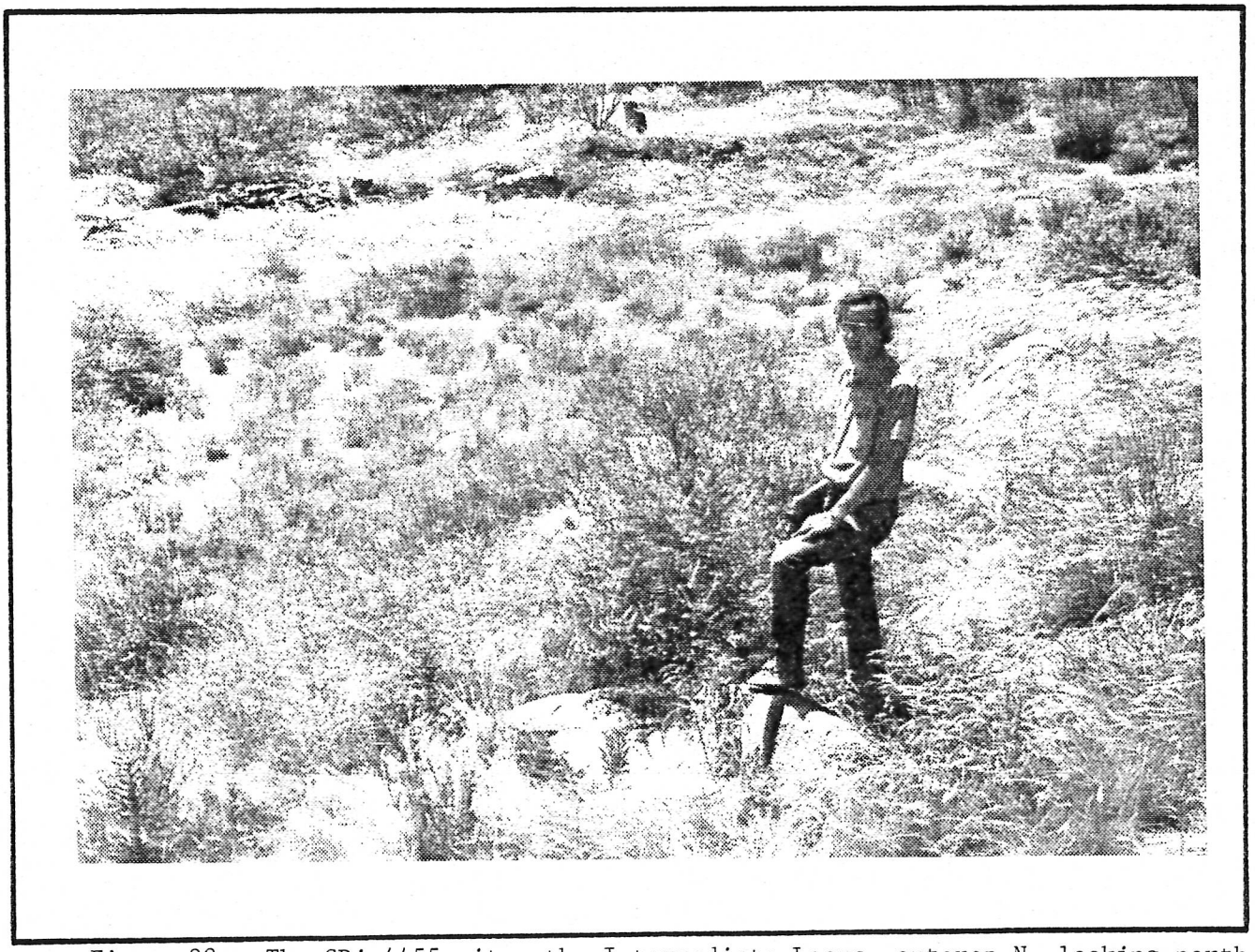


Figure 98. The SDi-4455 site, the Intermediate Locus, outcrop N, looking north.

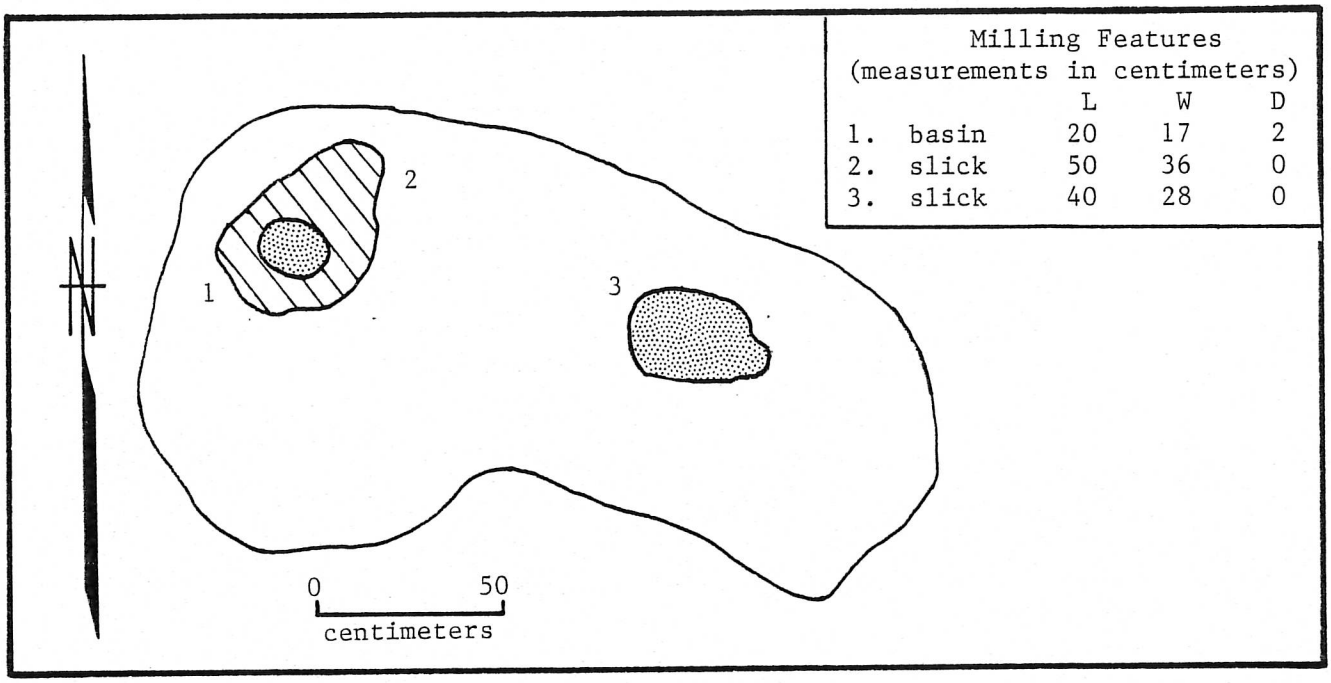


Figure 99. Micro-map of the milling features on outcrop O at the Intermediate Locus of the SDi-4455 site.

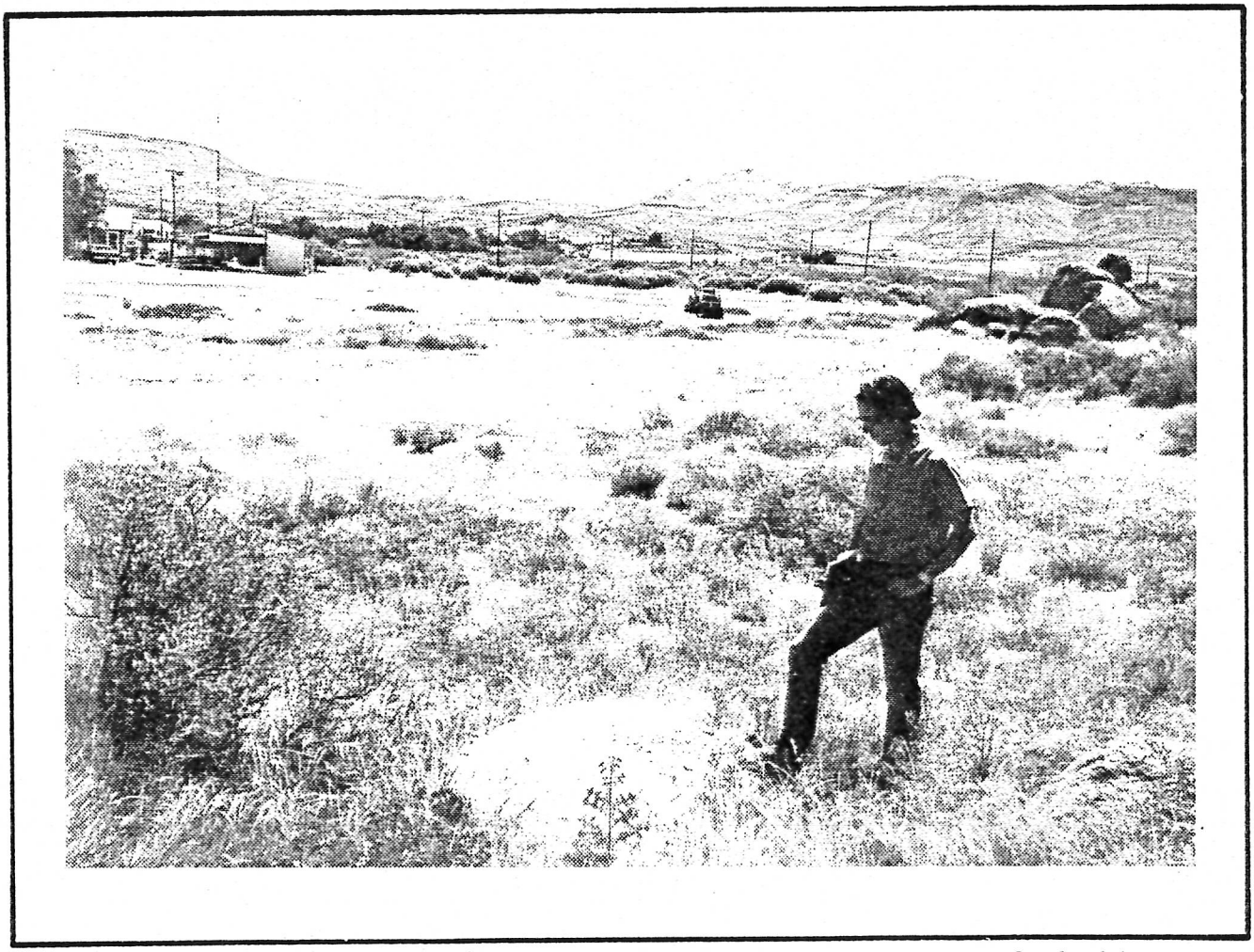


Figure 100. The SDi-4455 site, the Intermediate Locus, outcrop O, looking east.

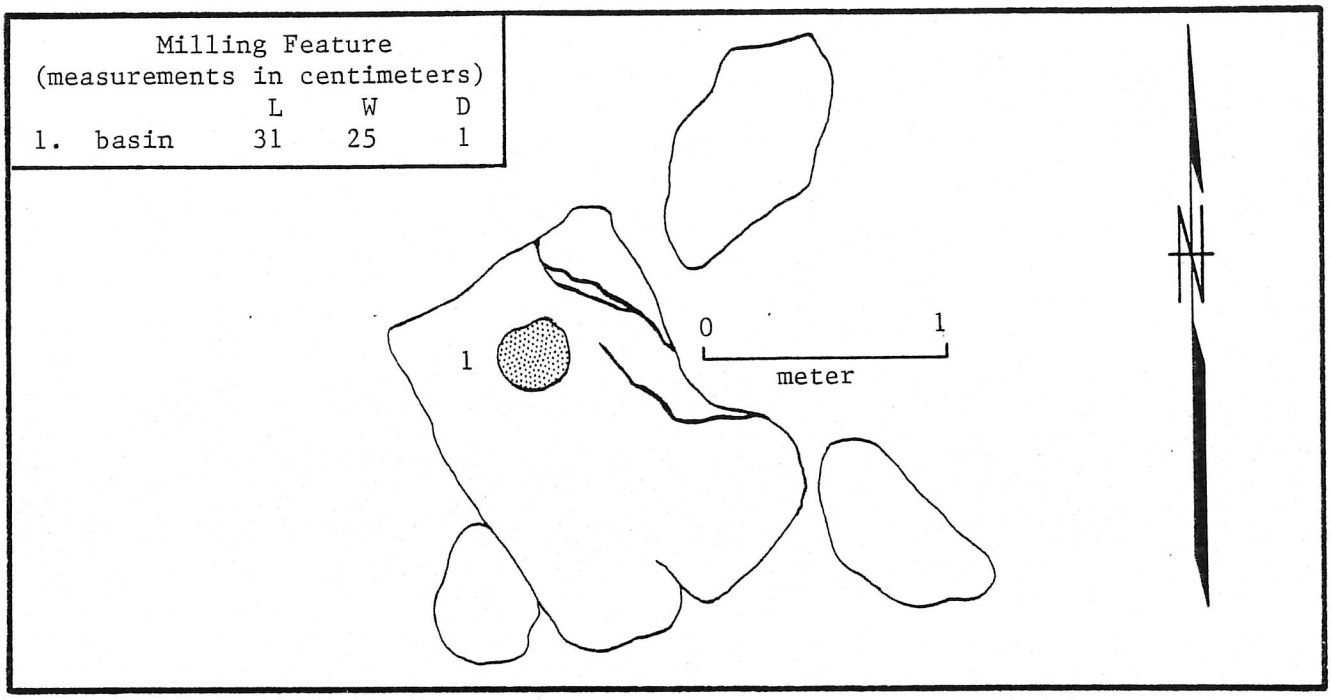


Figure 101. Micro-map of the milling feature on outcrop P at the Intermediate Locus of the SDi-4455 site.

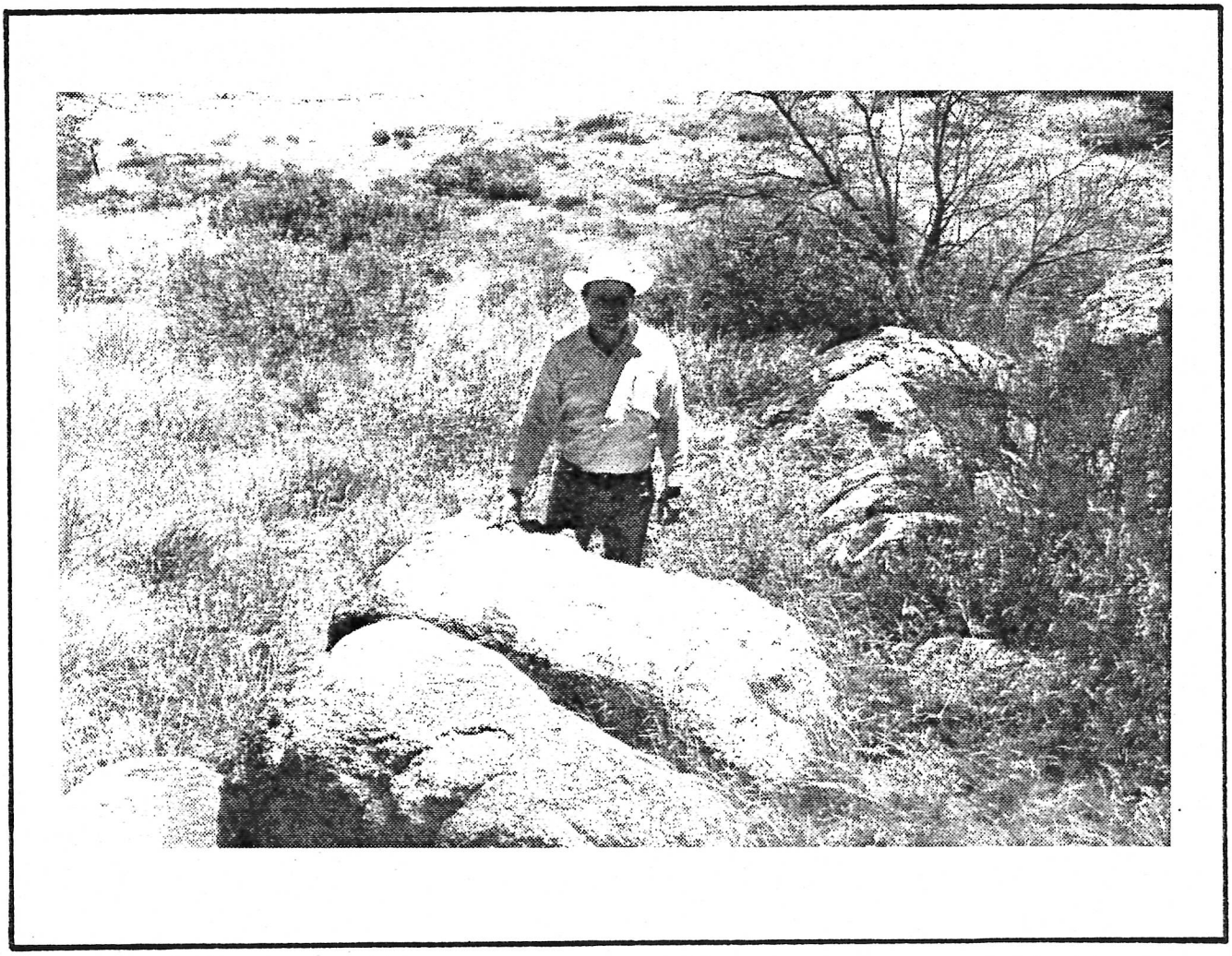
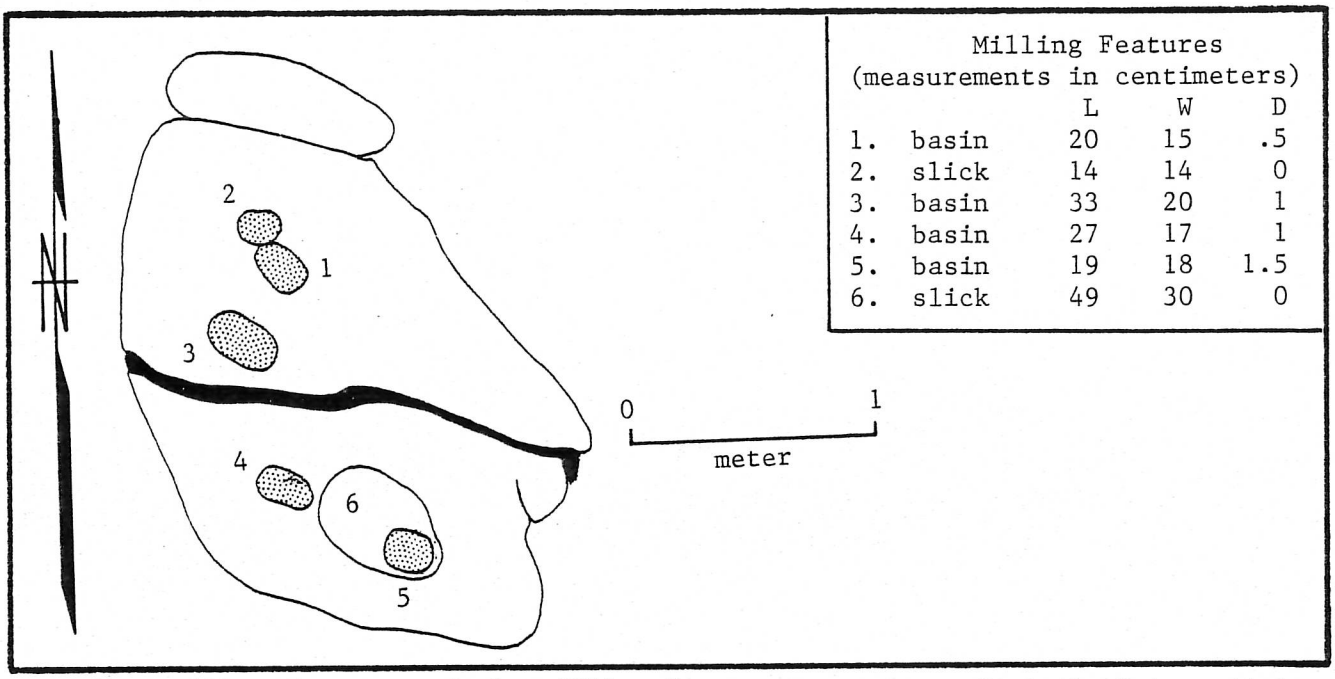


Figure 102. The SDi-4455 site, the Intermediate Locus, outcrop P, looking northeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	20	15	.5
2.	slick	14	14	0
3.	basin	33	20	1
4.	basin	27	17	1
5.	basin	19	18	1.5
6.	slick	49	30	0

Figure 103. Micro-map of the milling features on outcrop Q at the Intermediate Locus of the SDi-4455 site.

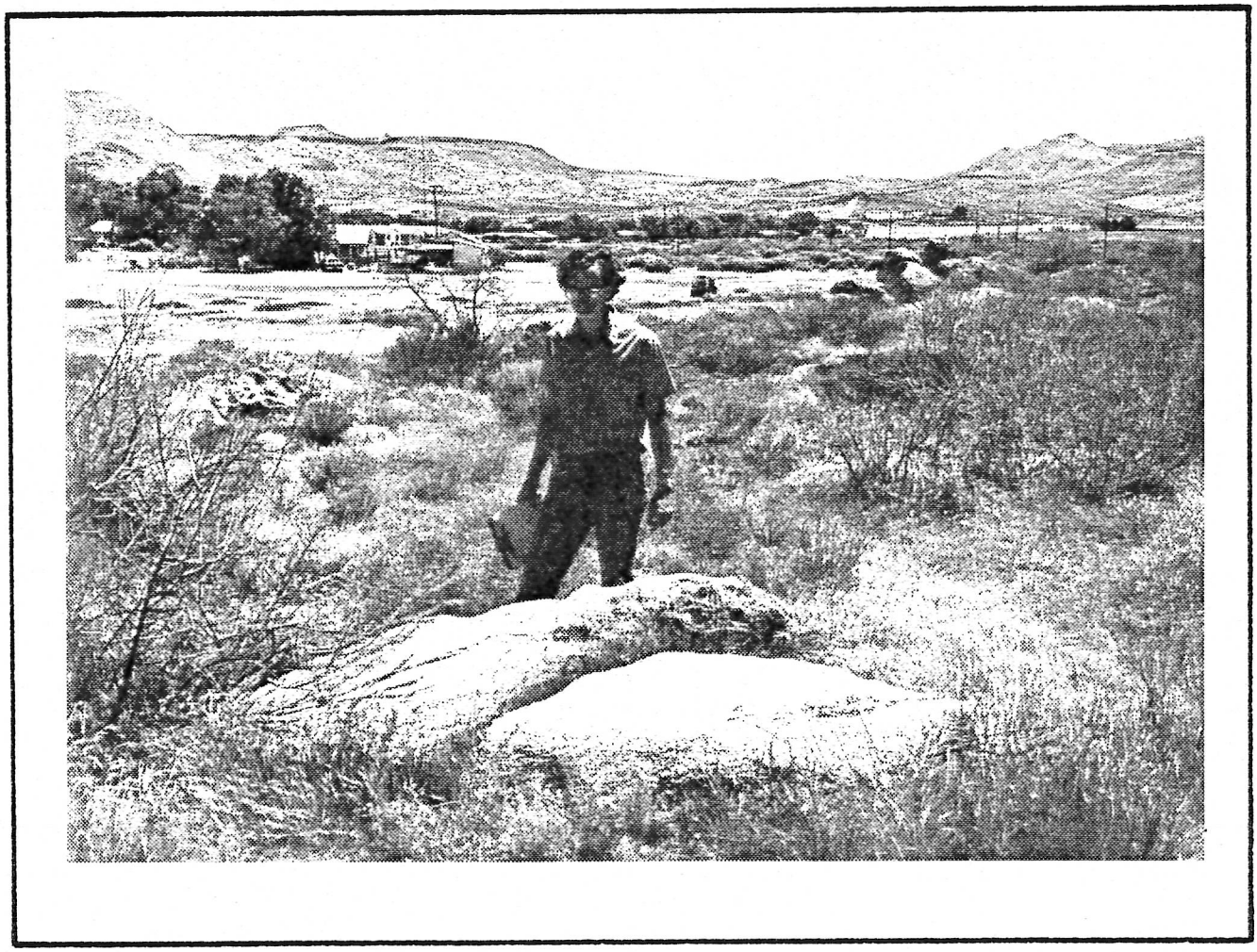


Figure 104. The SDi-4455 site, the Intermediate Locus, outcrop Q, looking northeast.

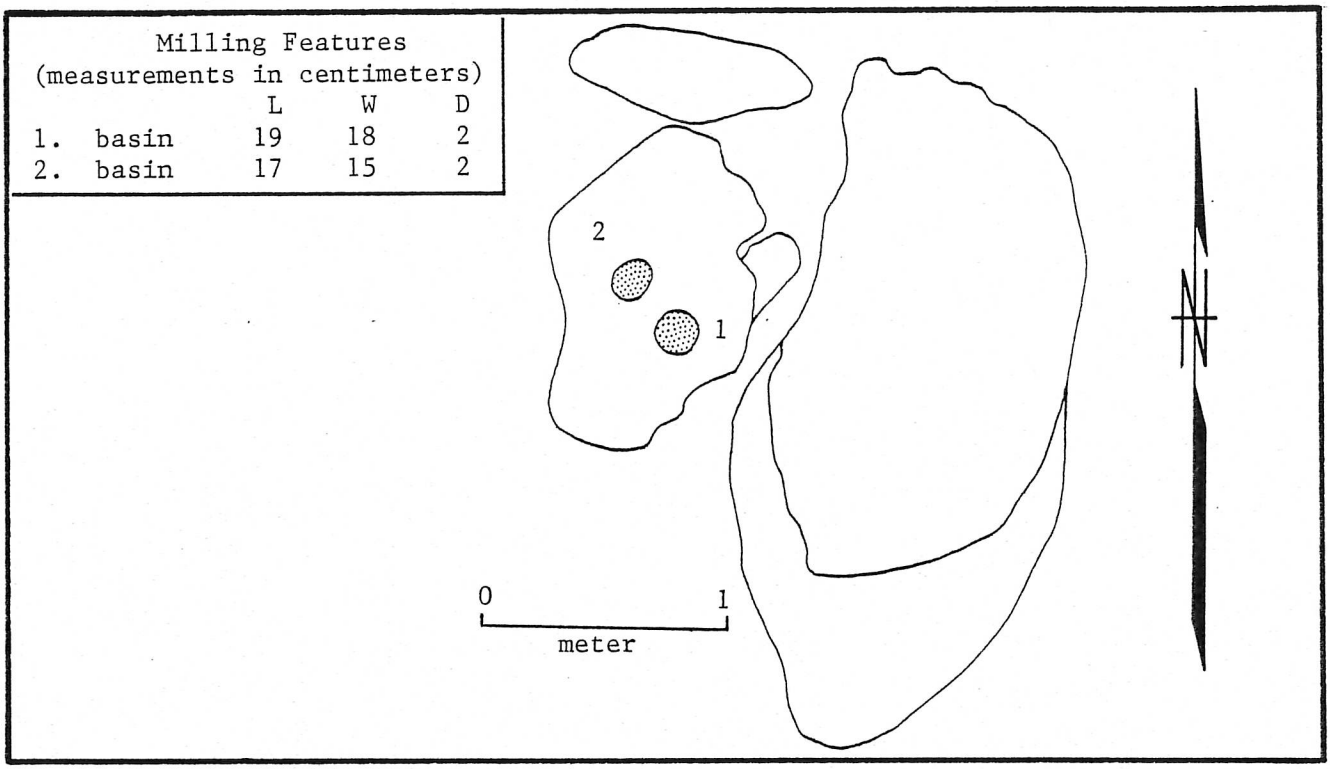


Figure 105. Micro-map of the milling features on outcrop R at the Intermediate Locus of the SDi-4455 site.

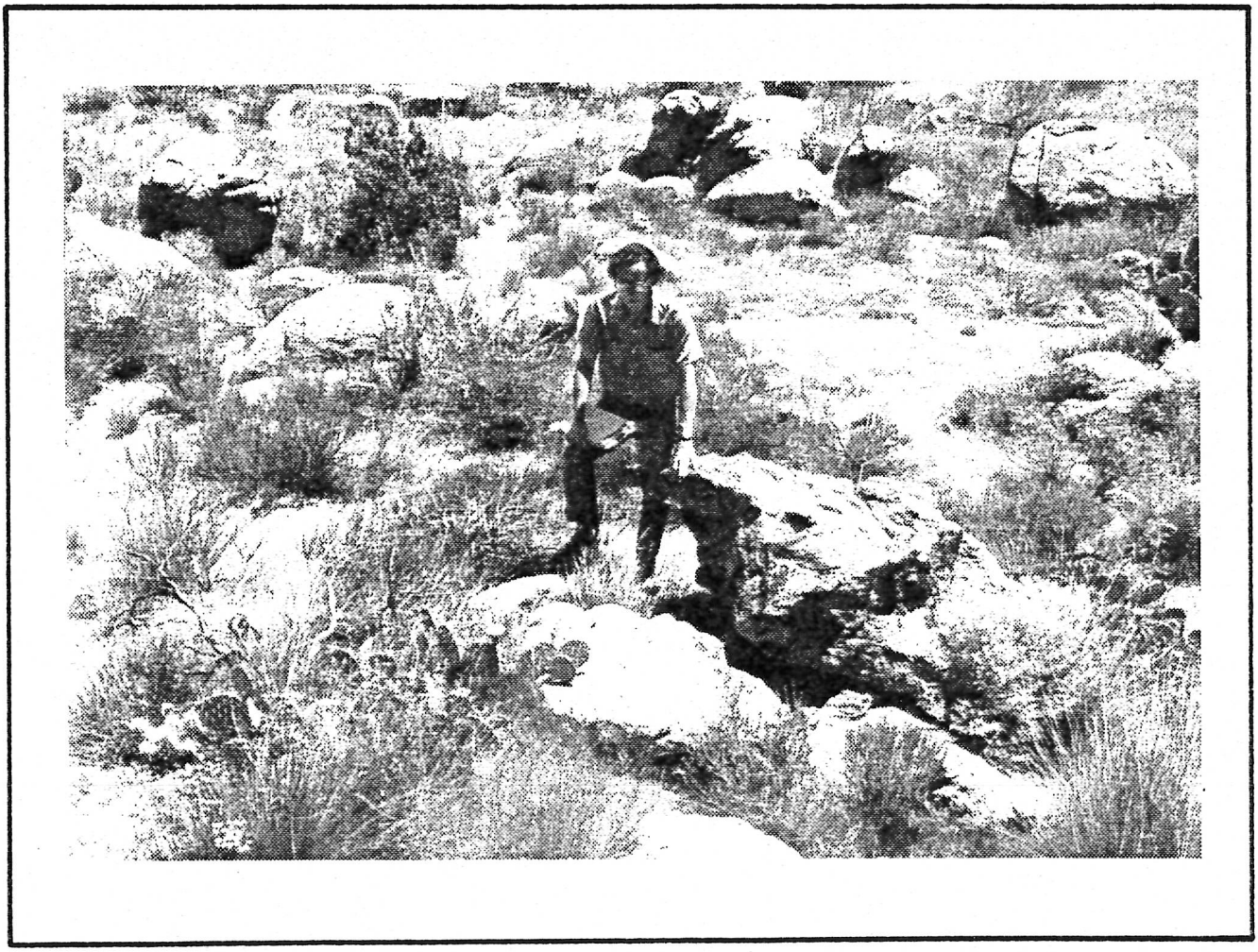


Figure 106. The SDi-4455 site, the Intermediate Locus, outcrop R, looking northeast.

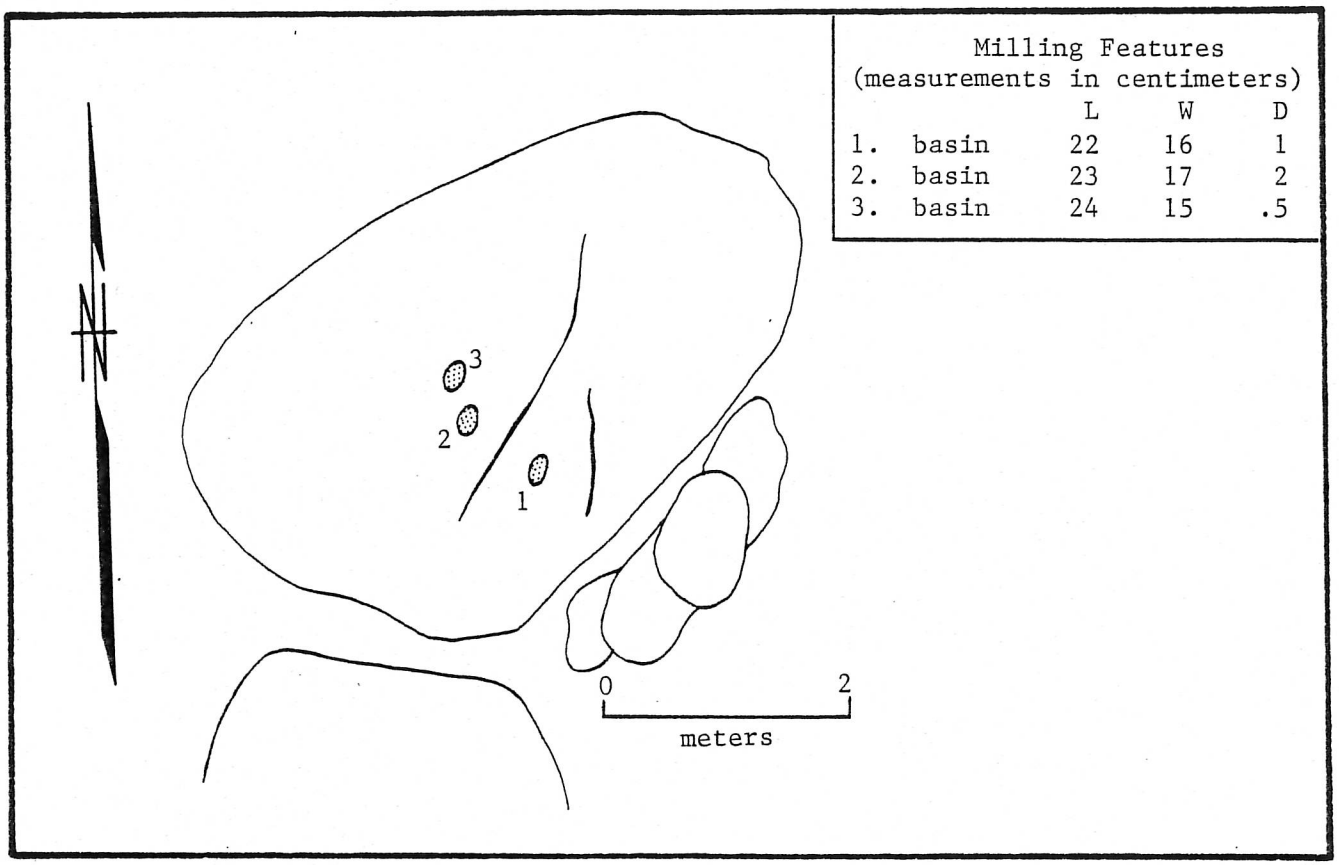


Figure 107. Micro-map of the milling features on outcrop S at the Intermediate Locus of the SDi-4455 site.

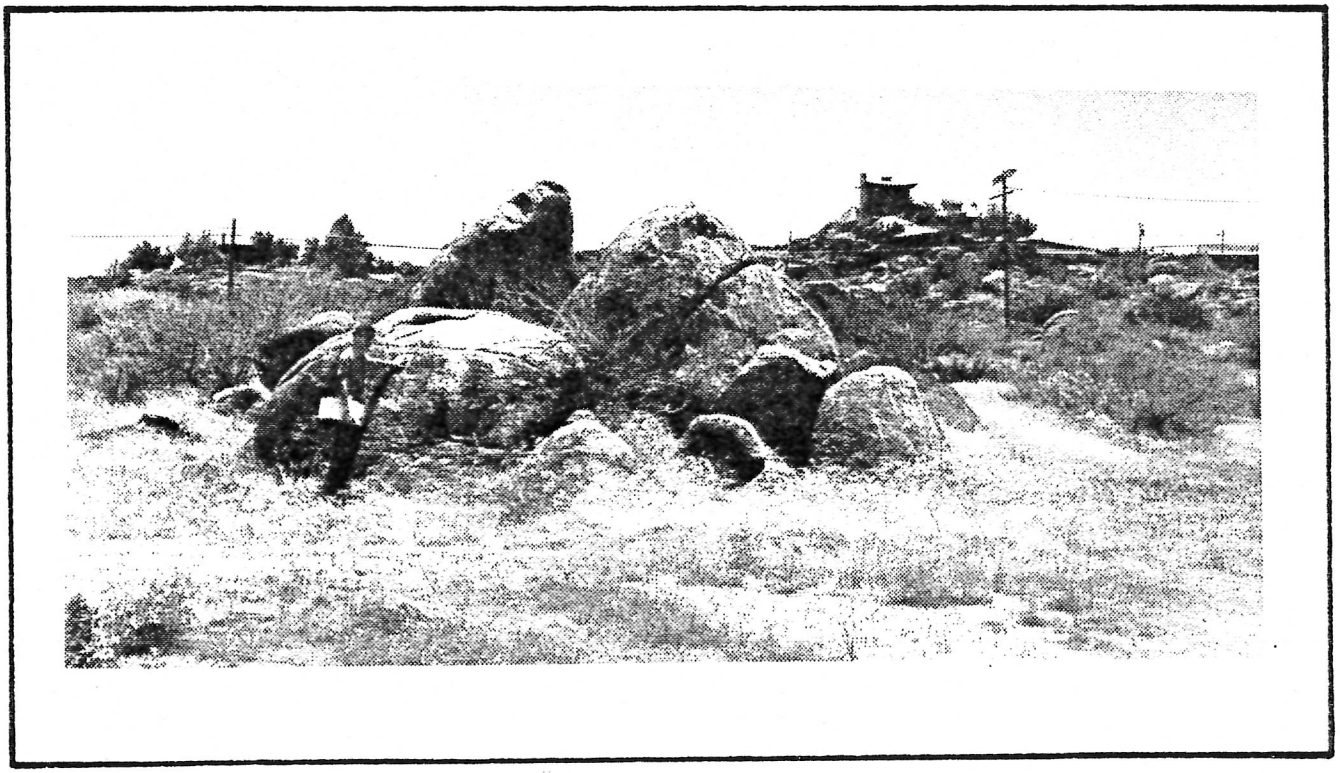


Figure 108. The SDi-4455 site, the Intermediate Locus, outcrop S, looking south.

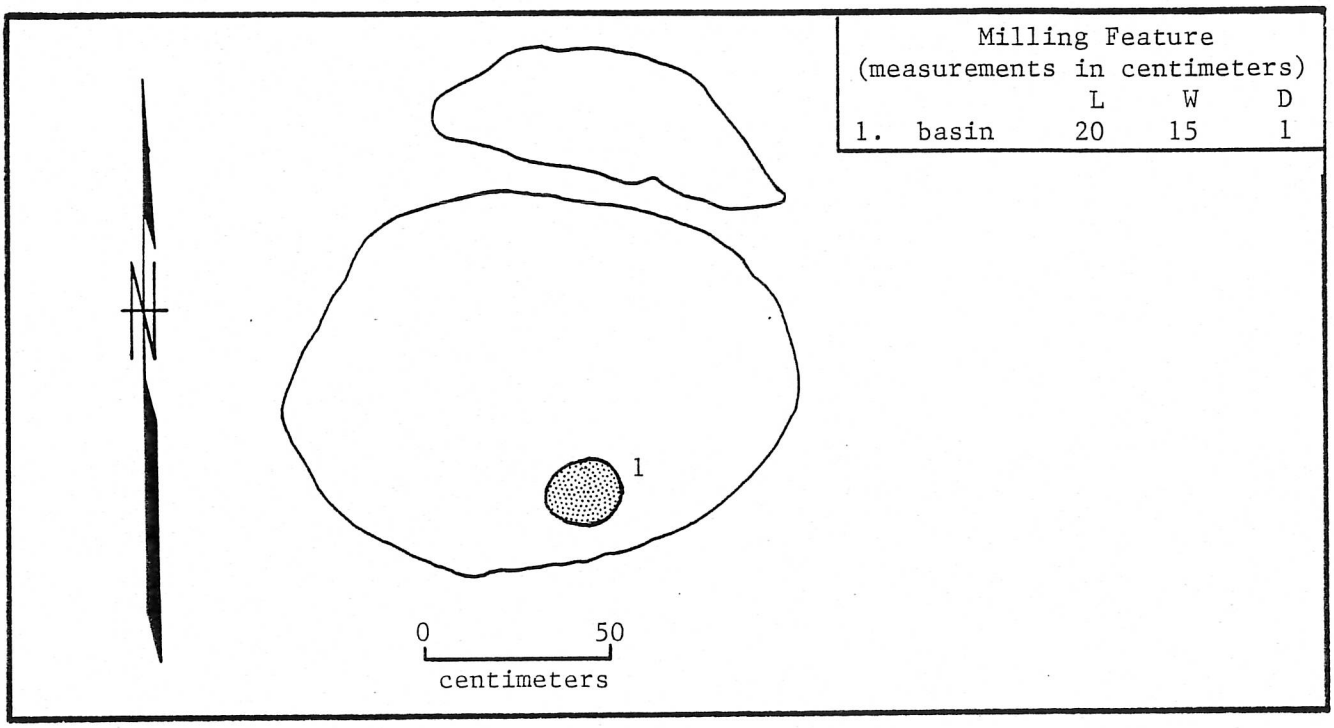


Figure 109. Micro-map of the milling feature on outcrop T at the Intermediate Locus of the SDi-4455 site.

Figure 110 . The SDi-4455 site, the Intermediate Locus, outcrop T, looking northeast.

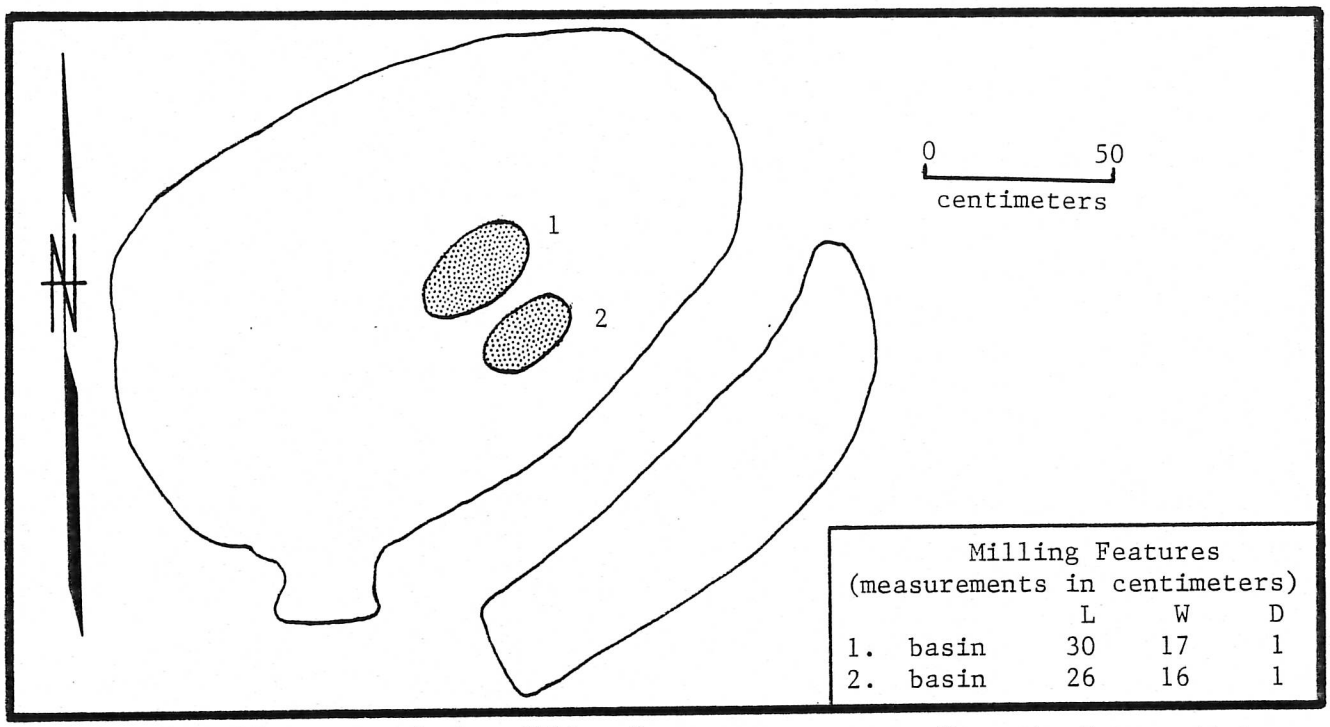


Figure 111. Micro-map of the milling features on outcrop U at the Intermediate Locus of the SDi-4455 site.

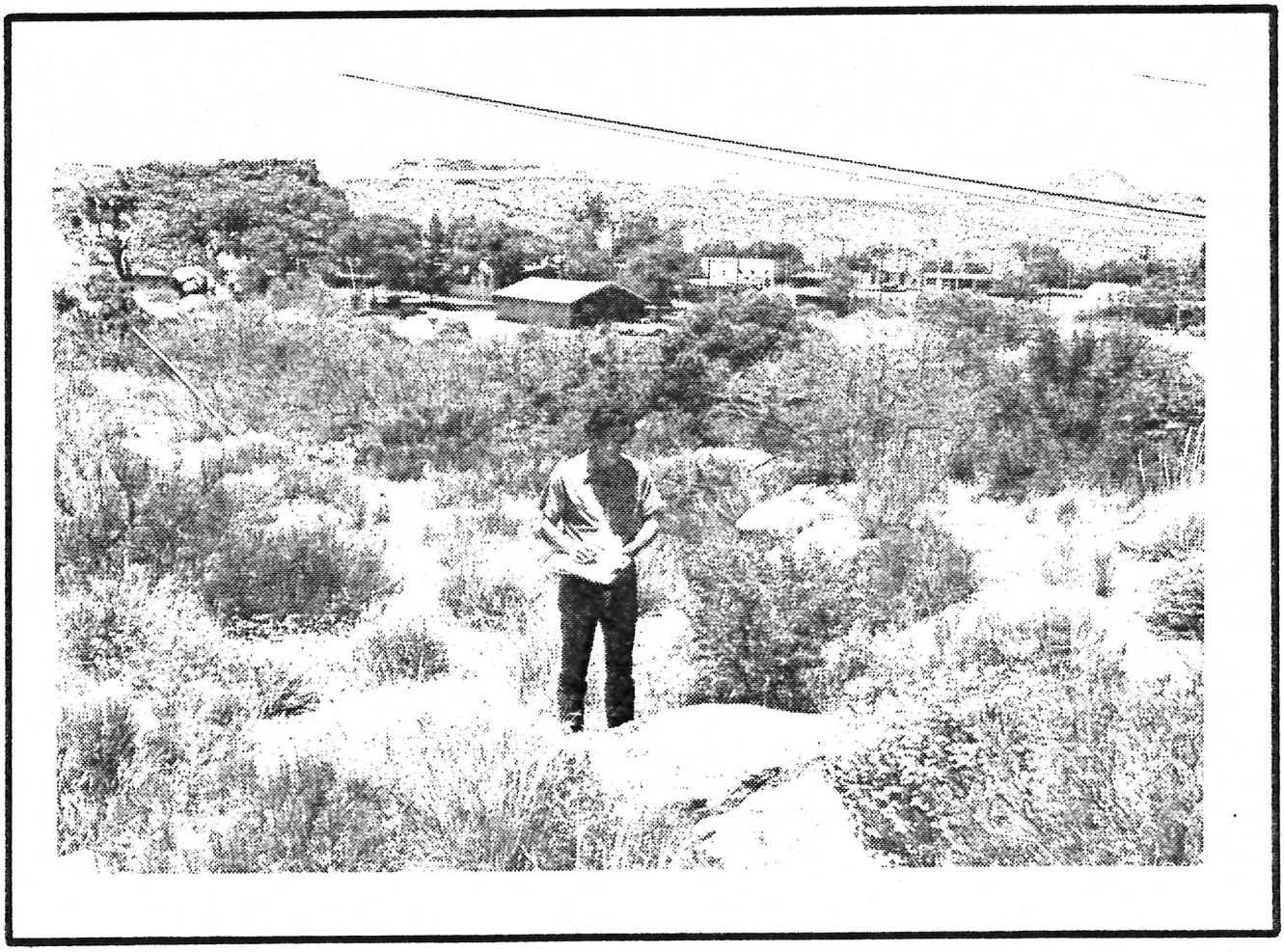
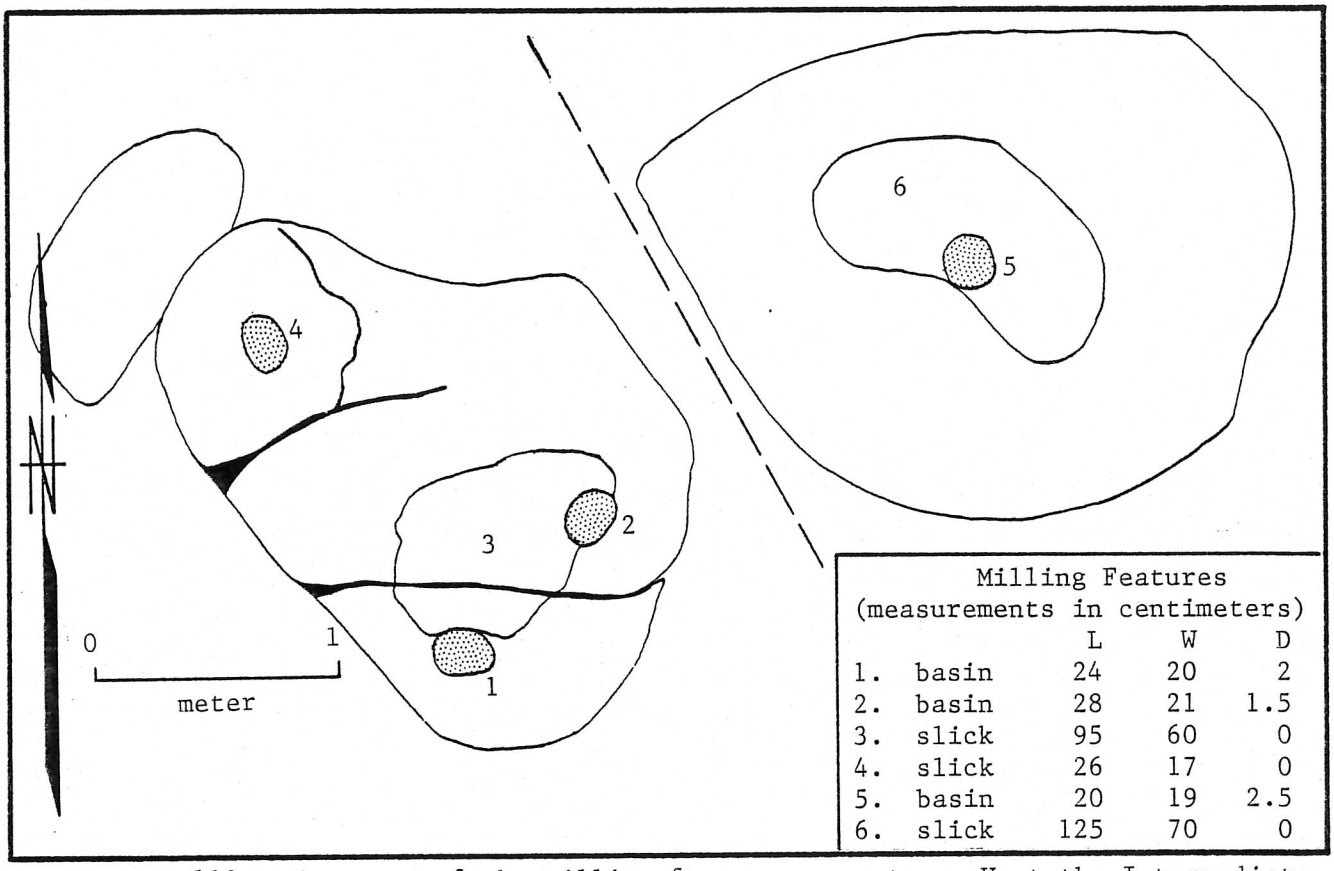


Figure 112. The SDi-4455 site, the Intermediate Locus, outcrop U, looking north.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	24	20	2
2.	basin	28	21	1.5
3.	slick	95	60	0
4.	slick	26	17	0
5.	basin	20	19	2.5
6.	slick	125	70	0

Figure 113. Micro-map of the milling features on outcrop V at the Intermediate Locus of the SDi-4455 site.

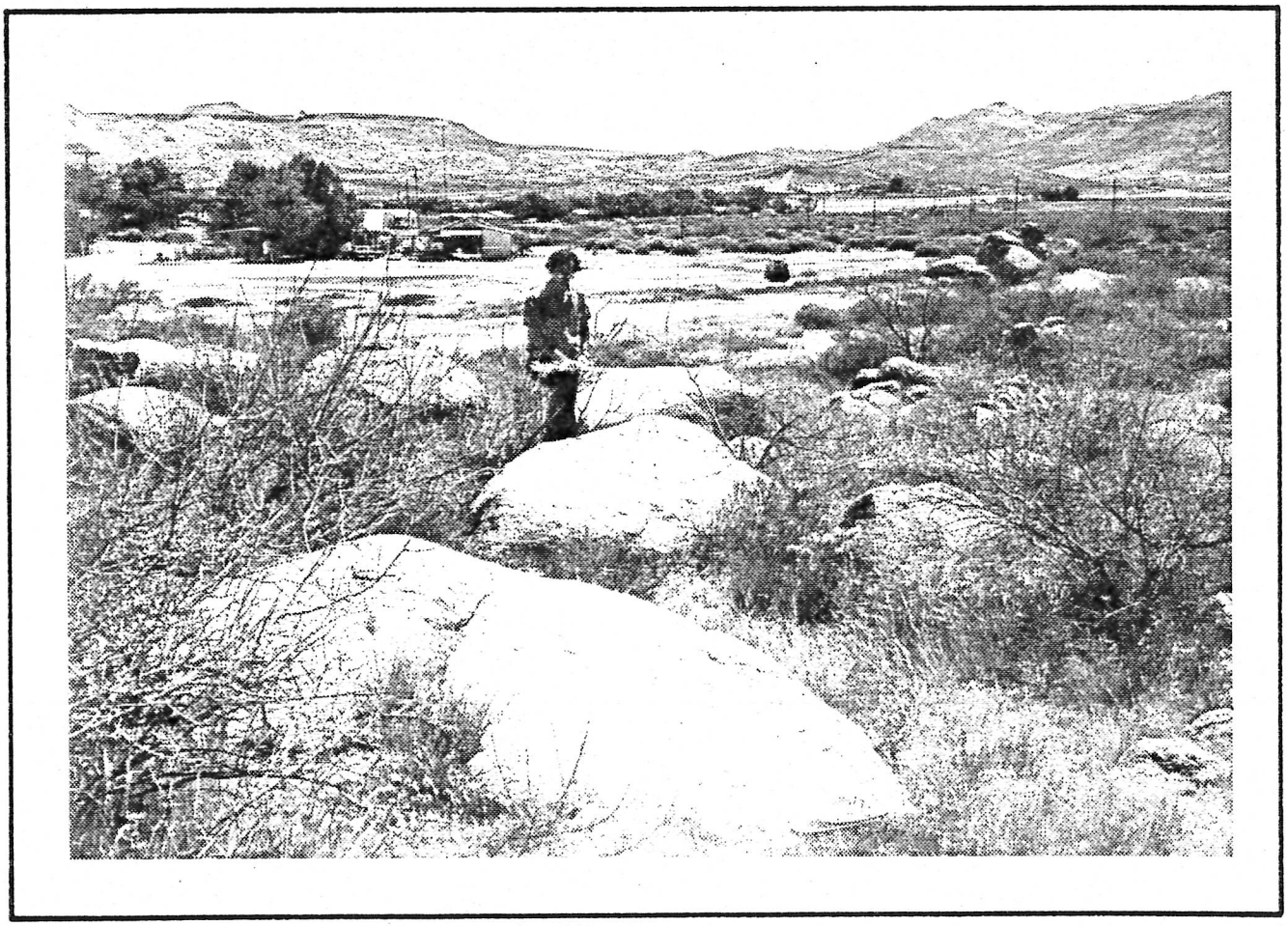


Figure 114. The SDi-4455 site, Intermediate Locus, outcrop V, looking northeast.

Three Rock Locus. The Three Rock Locus of the SDi-4455 site is another occupation area with a cluster of bedrock milling features and a deep subsurface deposit with archaeological materials. This locus is situated around an outcropping of bedrock with three huge rocks, as shown in Figure 115. It is located at the eastern foot of the ridge southeast of the Intermediate Locus and the Roadway Loucs. Archaeological materials are evident over an area 170 feet by 130 feet. A detailed map of the locus is presented as Figure 116.

Three soil auger tests were conducted and the tested locations are shown on Figure 116. The results are summarized in Table IV. They demonstrated the dark brown, loamy, archaeological soil deposit extends to a depth of at least 21 inches in the southeastern portion of the locus and contains a variety of materials. Although dark brown loamy soil also is apparent in the northeastern end of the site, and there are lithic flakes and small sherds of pottery in the area, the sub-

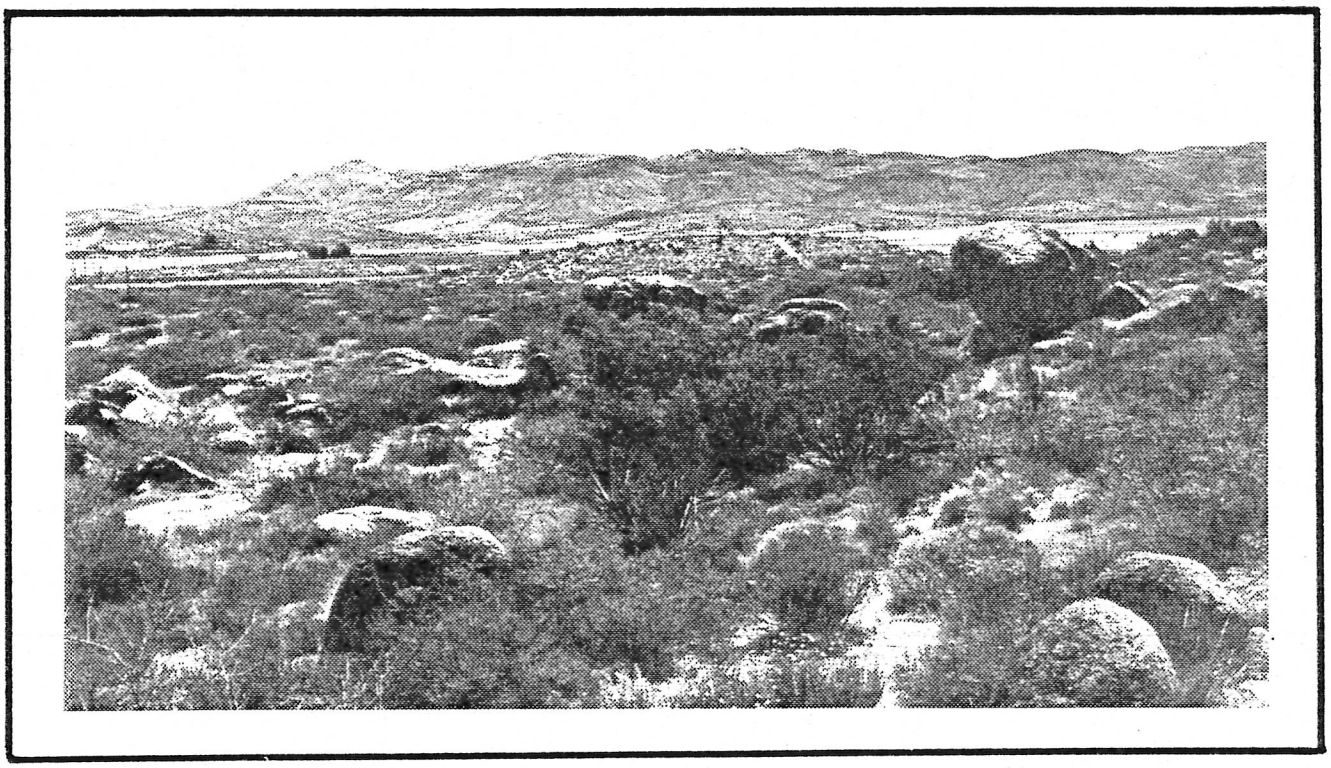


Figure 115. The Three Rock Locus of the SDi-4455 site, looking southeast.

surface auger tests in this area of the locus did not yield a profusion of materials.

Milling features are present on nine different bedrock outcrops. These features are described in detail and illustrated in Figures 117 through 134. There are 37 milling basins, 16 milling slicks, and six mortars evident at this locus.

This locus is considerably south of the resort hotel and appears to be relatively undisturbed. Any spectacular tools have been removed from the surface, but no evidence of any major collector's excavation holes or other disruptions were observed. The deposit contains a variety of archaeological materials which could significantly suppliment the heritage of the Reservoir and Roadway Loci and substantially enhance an understanding and appreciation of the heritage of the entire region.

TABLE IV

SDi-4455, Three Rock Locus, Soil Auger Test Results

Test	Soil	Depth (cm)	Materials Present
A#1	black-brown, fine grained loam with decomposed granite	0-27	4 Tizon Brown Ware sherds, 6 basalt flakes, 1 chalcedony flake, 1 small bone fragment.
		27-50	5 basalt flakes, 1 piece of quartz crystal, 1 quartz black core, 5 small bone fragments, lots of charcoal.
		50-55	1 basalt flake.
	yellow-brown, coarse, compact decomposing granite	55-78+	(sterile)
A#2	brown, compact loam with much coarse decomposed granite	0-30	1 sliver of clear glass, 1 30 or 38 caliber bullet.
	dark brown, moist, loam with much coarse, compact, decomposed granite	30-42	3 basalt flakes.
	yellow, very compact decomposing granite	42+	(sterile)
A#3	dark brown, compact, loam with decomposing granite	0-28	1 large fragment of green glass from an electric pole insulator.
	granite rock	28+	(sterile)

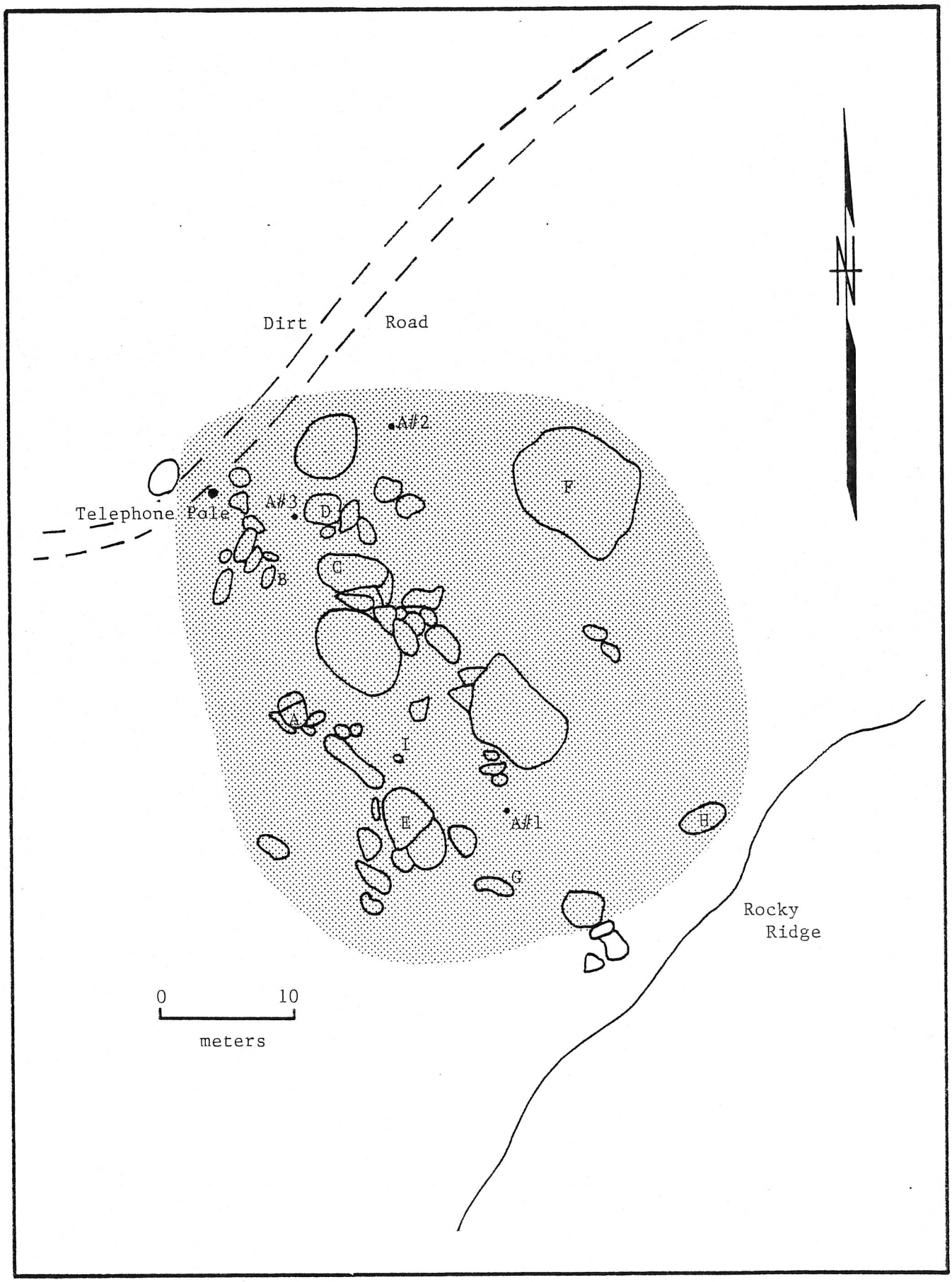


Figure 116. General sketch map of the Three Rock Locus of the SDi-4455 site, showing the locations of its milling outcrops (A-I), the extent of the surface artifact scatters (shaded), and the positions of the excavated soil auger tests (A#1-3).

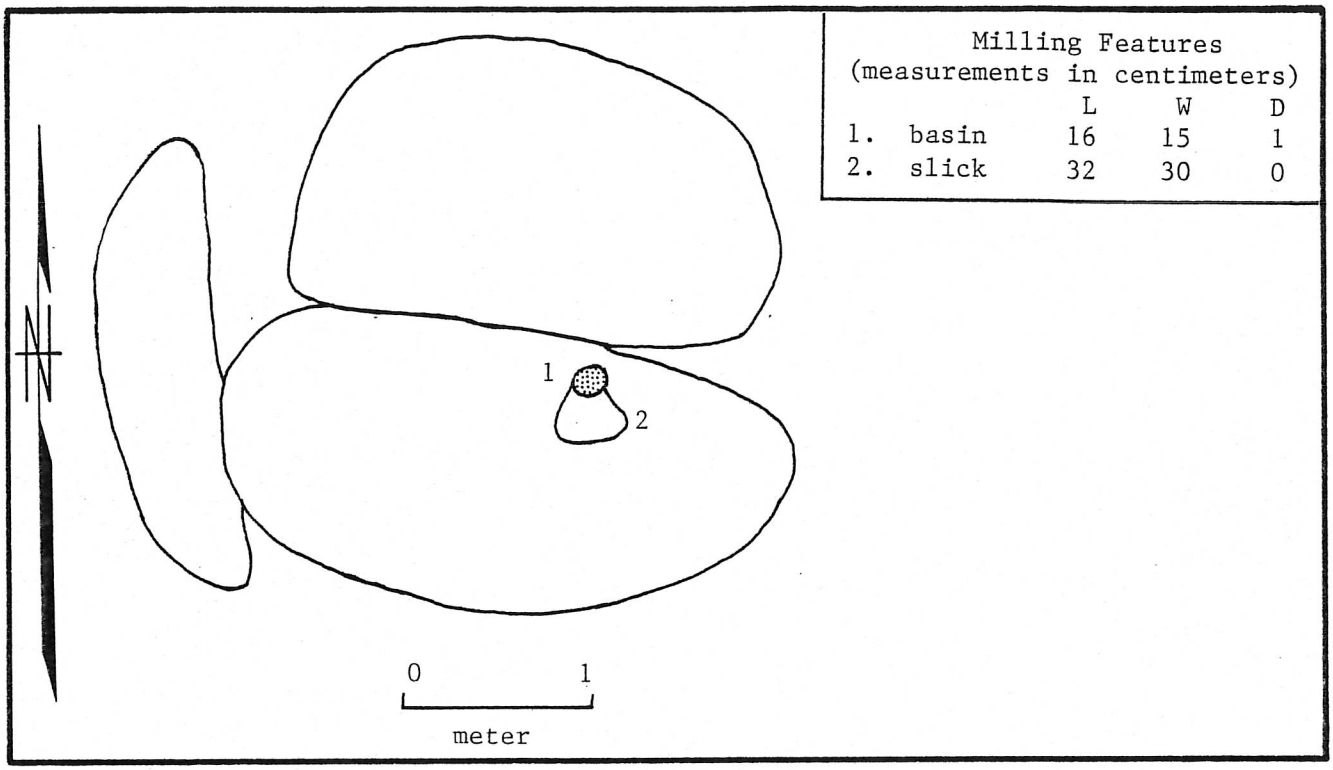


Figure 117. Micro-map of the milling features on outcrop A at the Three Rock Locus of the SDi-4455 site.

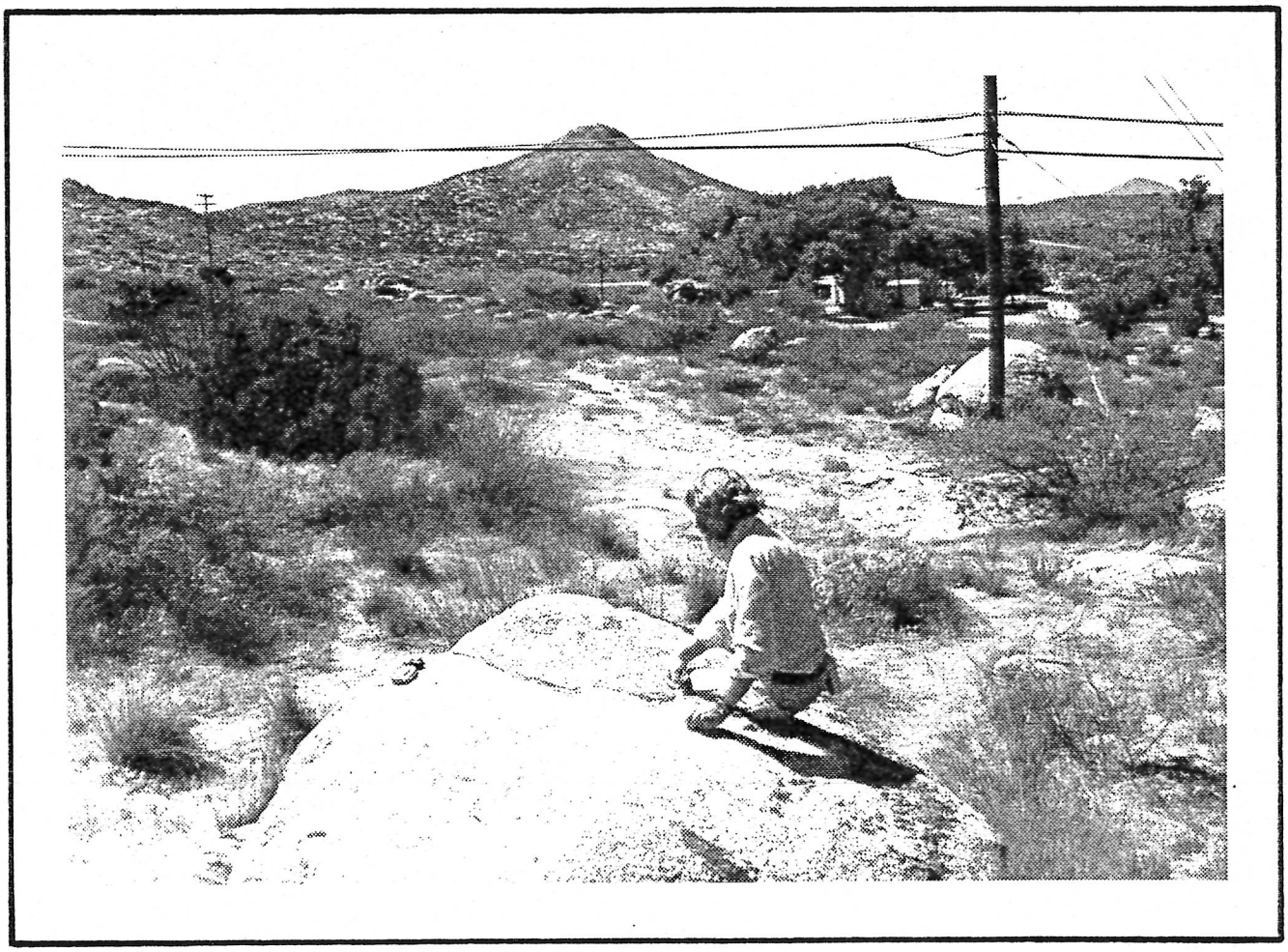


Figure 118. The SDi-4455 site, the Three Rock Locus, outcrop A, looking northwest.

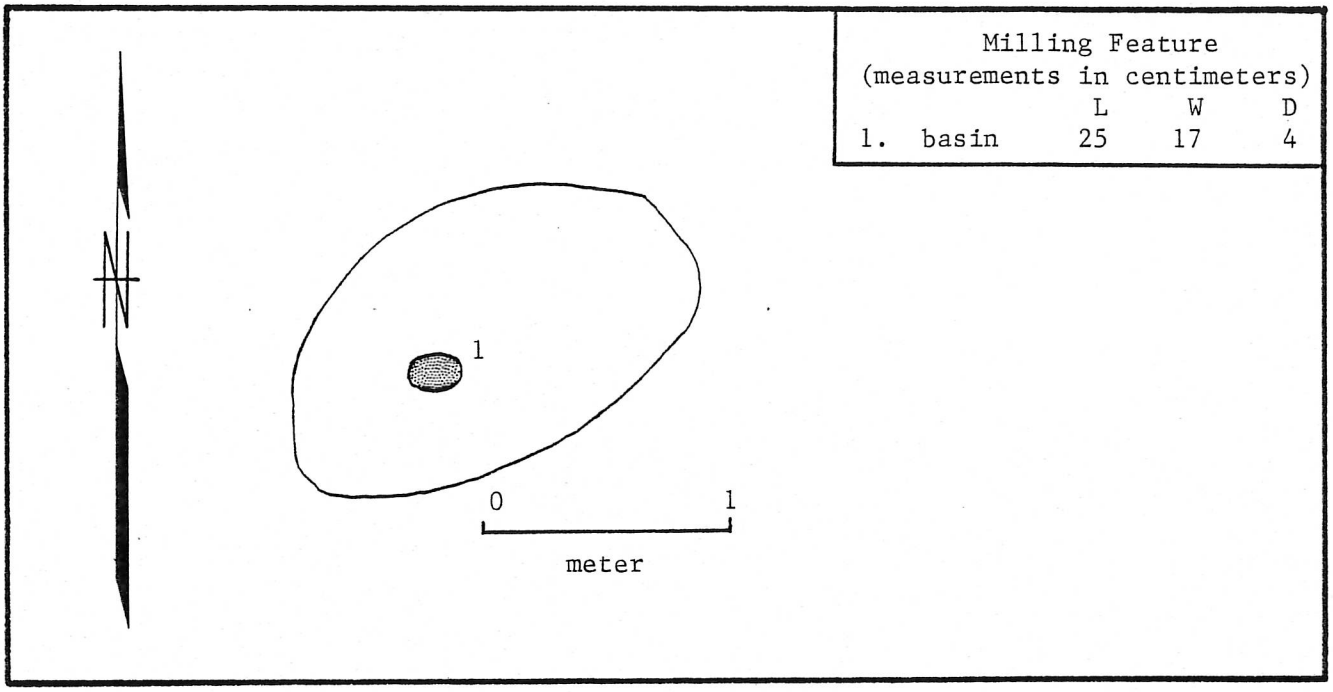


Figure 119. Micro-map of the milling feature on outcrop B at the Three Rock Locus of the SDi-4455 site.

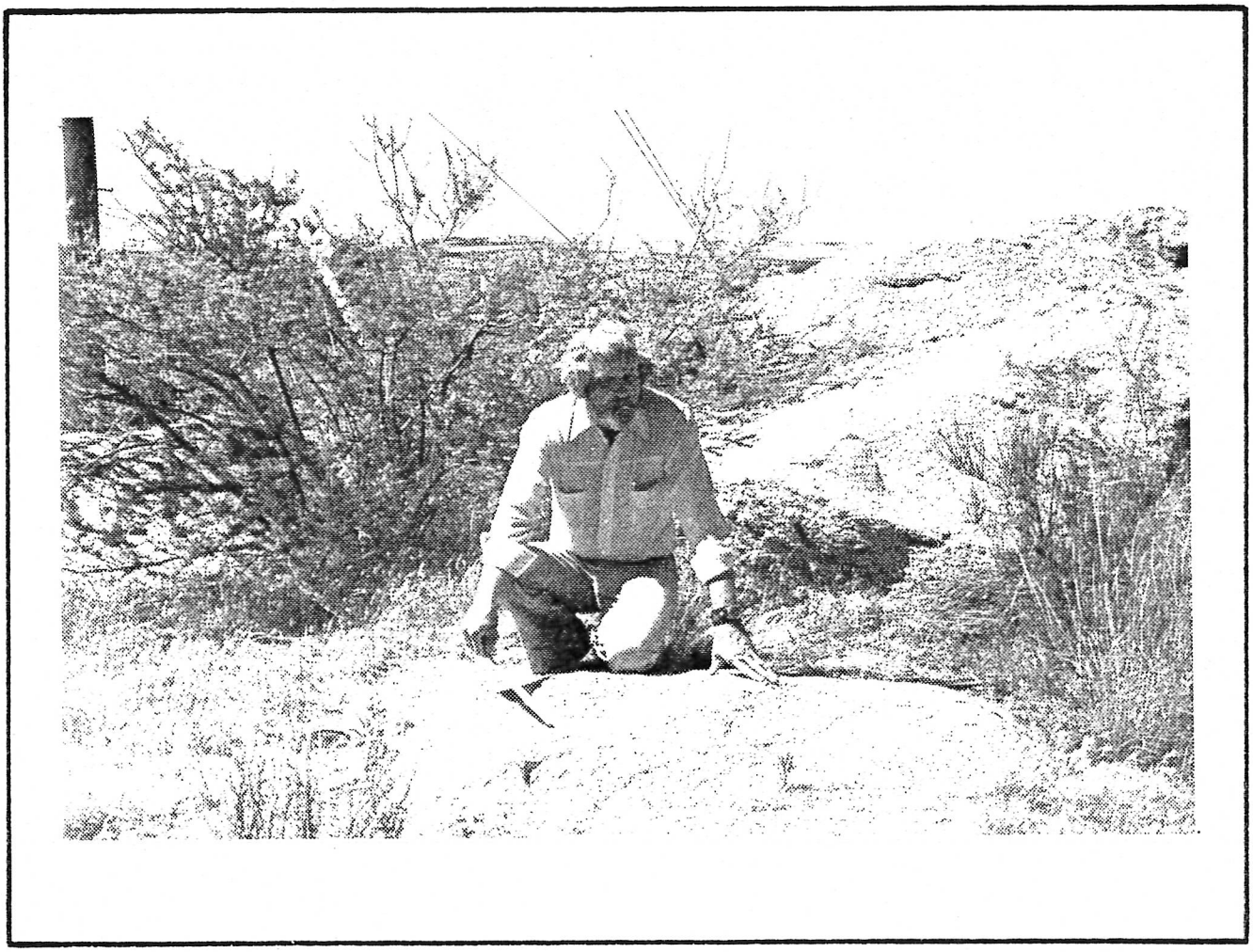
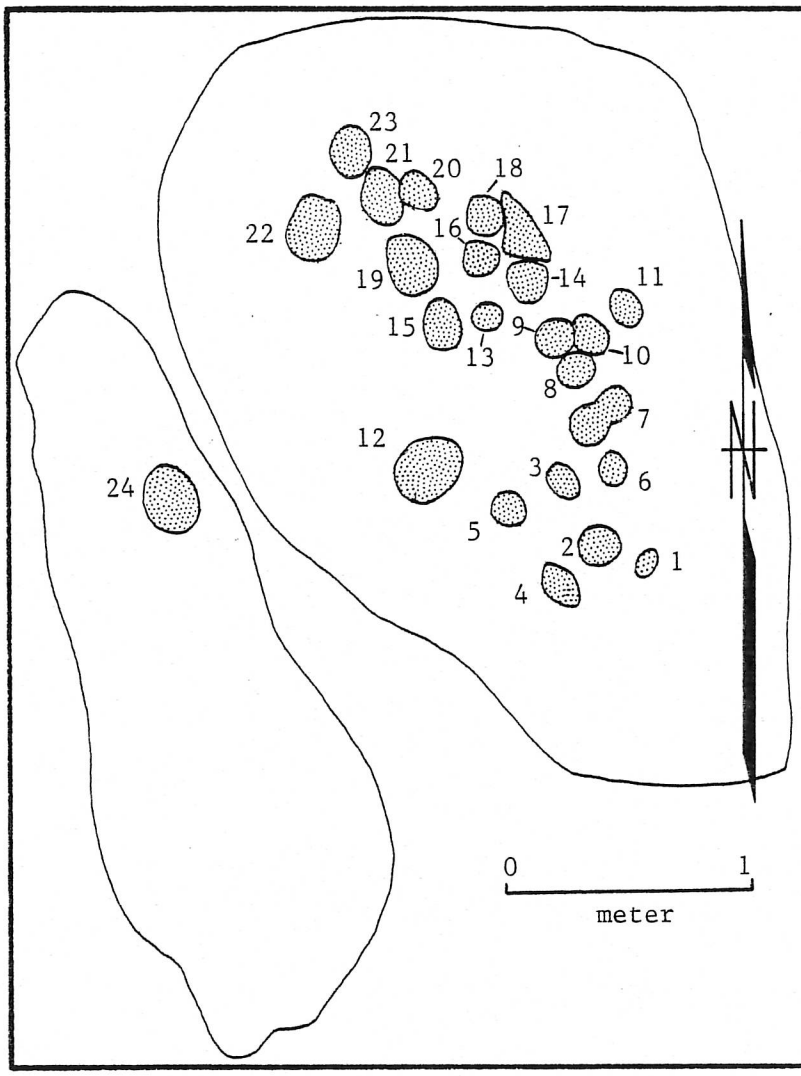


Figure 120. The SDi-4455 site, the Three Rock Locus, outcrop B, looking northwest.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	14	11	3
2.	mortar	20	20	14
3.	basin	14	14	3
4.	slick	18	14	0
5.	basin	15	14	3
6.	basin	16	15	2.5
7.	basin	30	19	3
8.	basin	15	14	2.5
9.	basin	15	12	2.5
10.	basin	13	11	3
11.	basin	15	14	3
12.	mortar	30	25	21
13.	basin	14	13	2.5
14.	basin	19	16	3
15.	basin	21	17	3
16.	basin	16	14	2.5
17.	slick	36	20	0
18.	basin	20	17	3.5
19.	basin	25	20	4
20.	basin	20	19	2
21.	basin	24	20	3
22.	basin	26	25	3
23.	basin	21	20	2
24.	basin	30	23	2

Figure 121. Micro-map of the milling features on outcrop C at the Three Rock Locus of the SDi-4455 site.

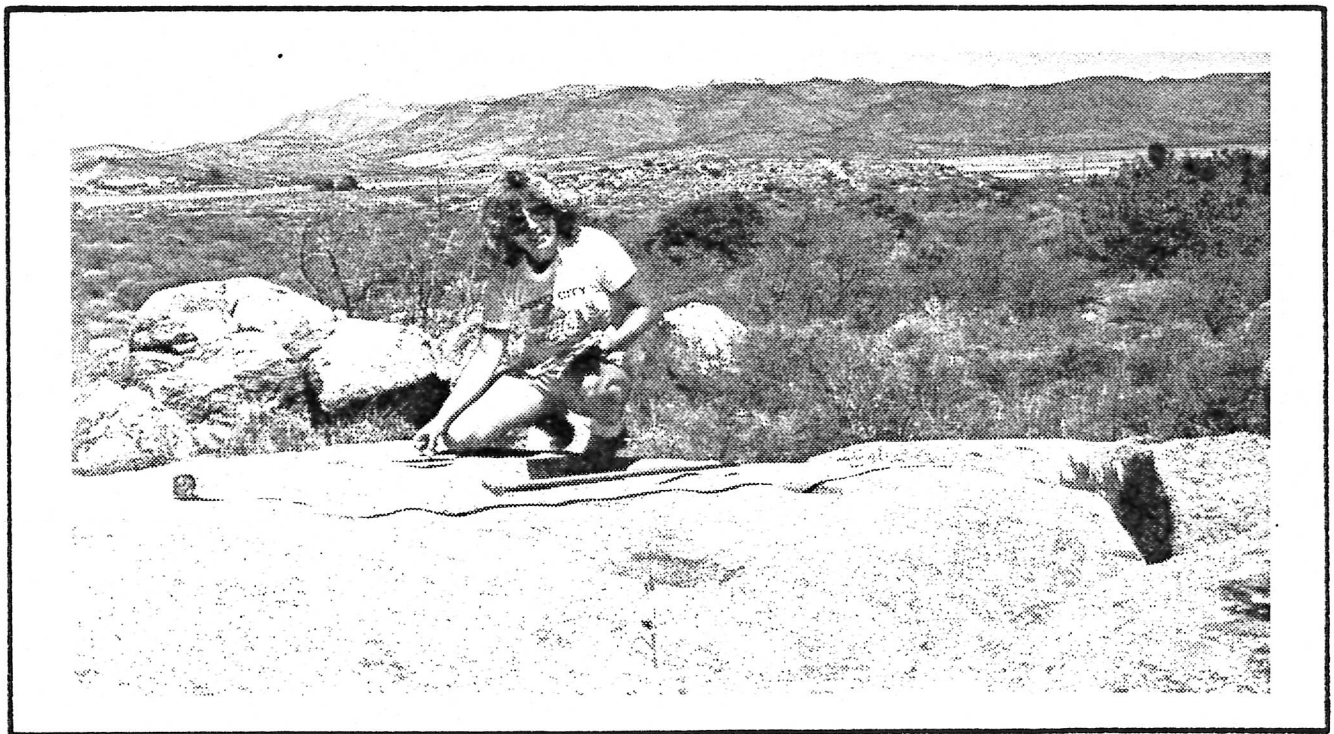


Figure 122. The SDi-4455 site, the Three Rock Locus, outcrop C, looking southeast.

Milling Features (measurements in centimeters)			
1. mortar	20	20	20
2. mortar	25	25	20
3. mortar	20	20	20
4. mortar	20	20	20
5. slick	20	15	0
6. slick	20	15	0
7. basin	25	20	3

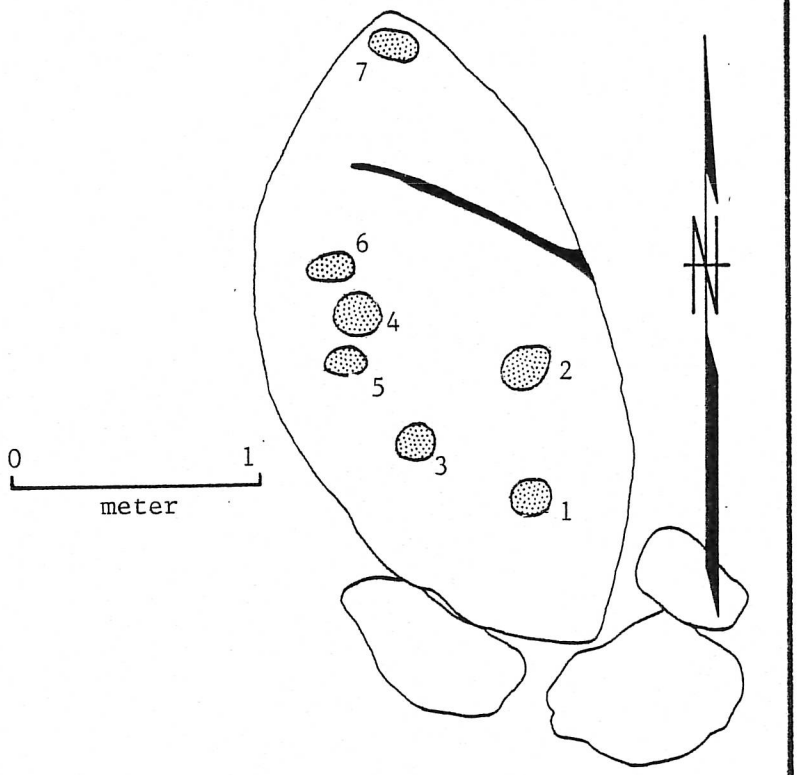
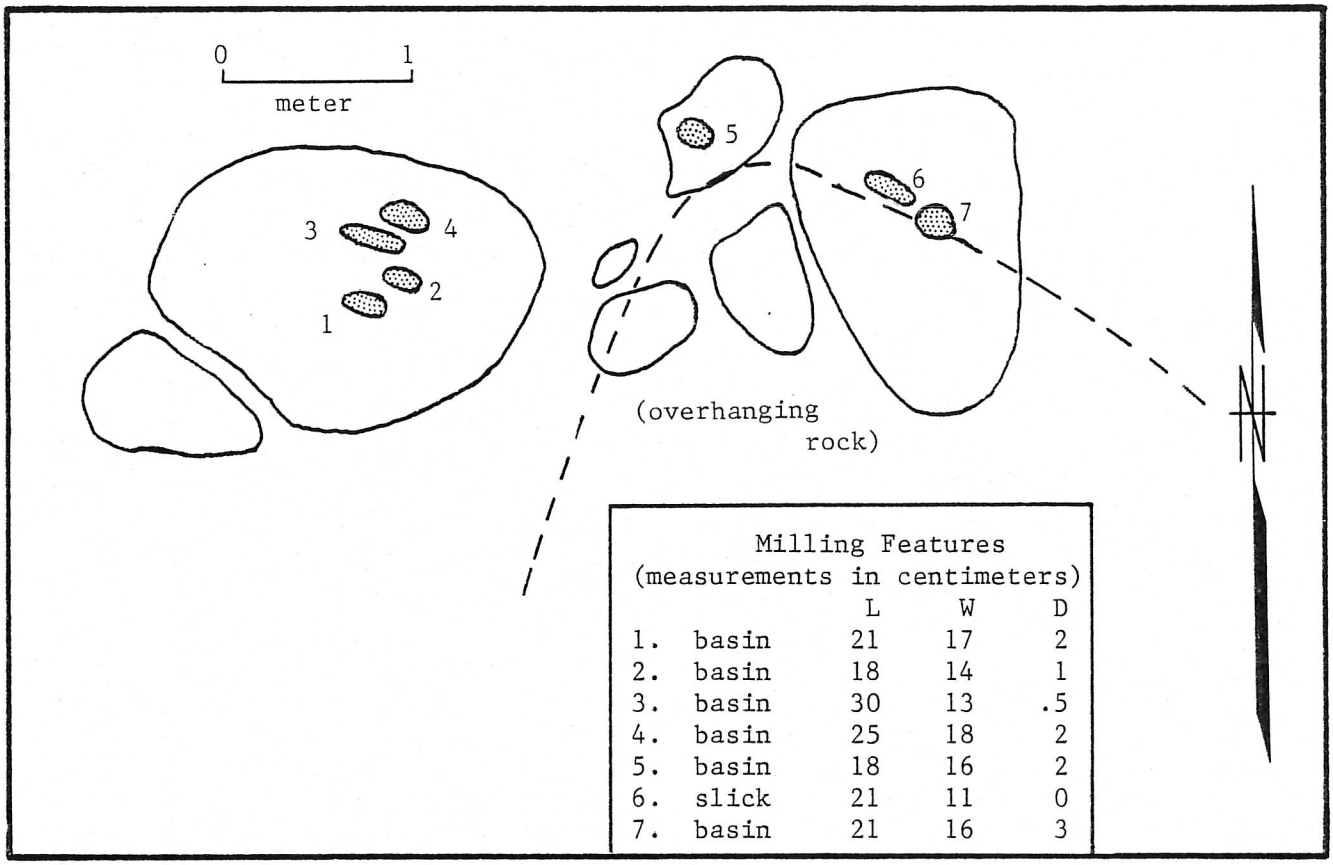


Figure 123. Micro-map of the milling features on outcrop D at the Three Rock Locus of the SDi-4455 site.

Figure 124. The SDi-4455 site, the Three Rock Locus, outcrop D, looking northwest.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	21	17	2
2.	basin	18	14	1
3.	basin	30	13	.5
4.	basin	25	18	2
5.	basin	18	16	2
6.	slick	21	11	0
7.	basin	21	16	3

Figure 125. Micro-map of the milling features on outcrop E at the Three Rock Locus of the SDi-4455 site.

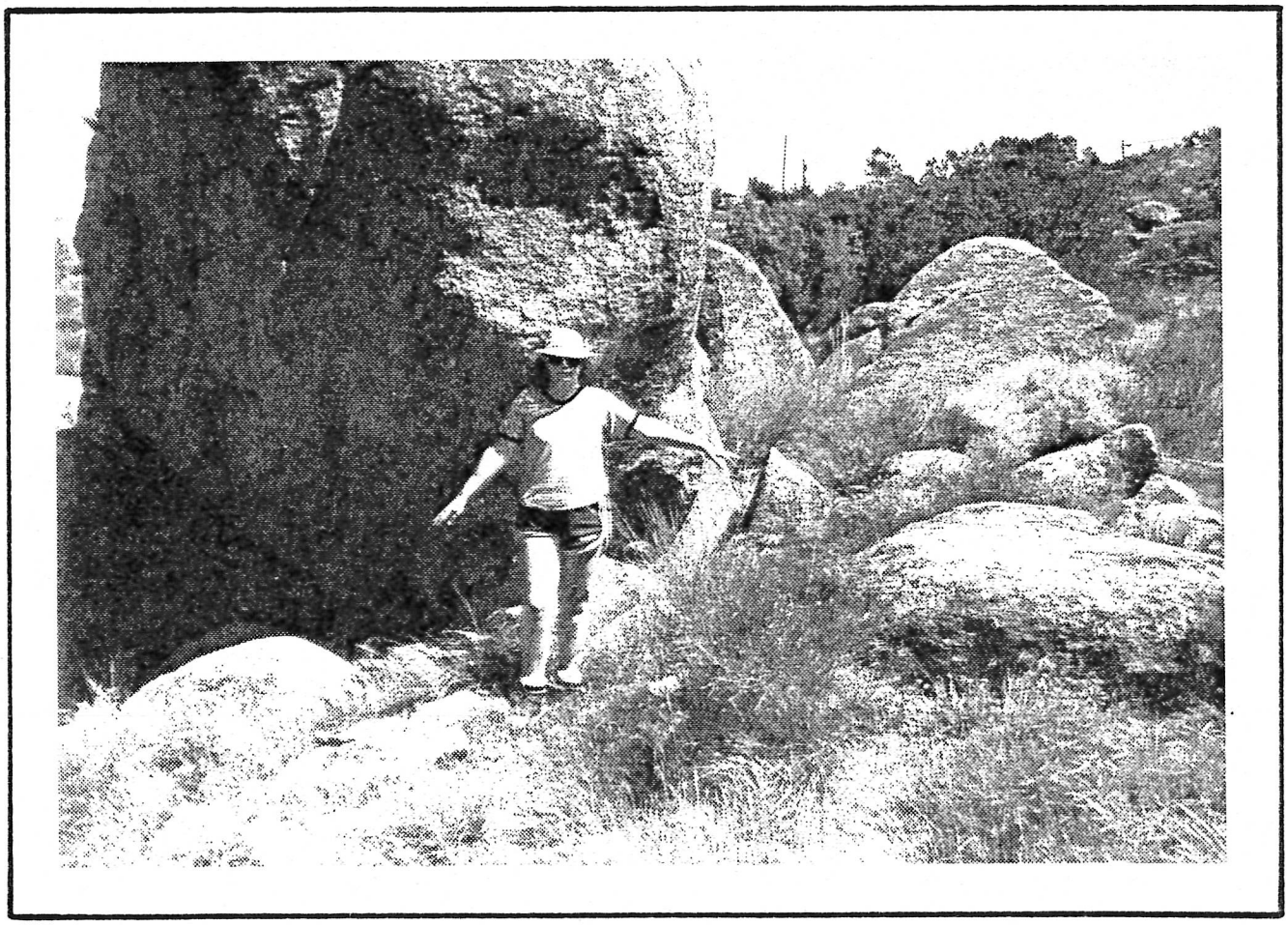
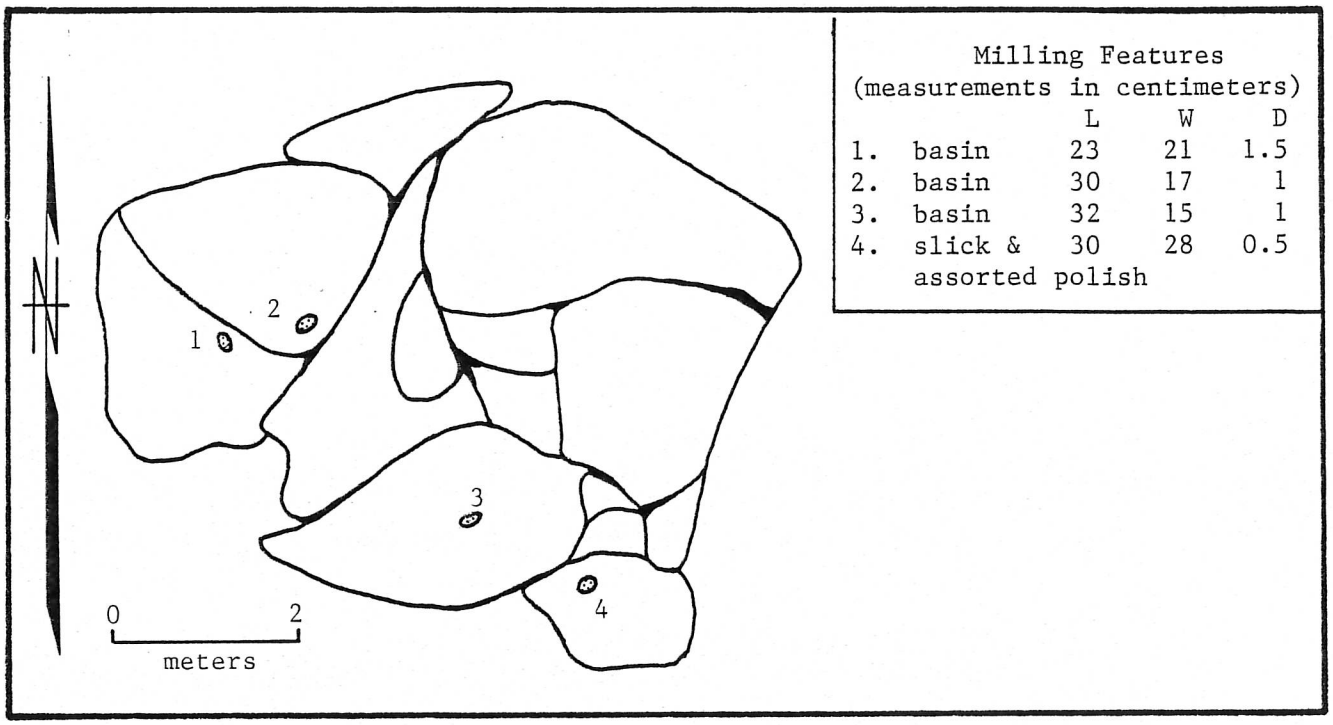


Figure 126. The SDi-4455 site, the Three Rock Locus, outcrop E, looking southeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	23	21	1.5
2.	basin	30	17	1
3.	basin	32	15	1
4.	slick & assorted polish	30	28	0.5

Figure 127. Micro-map of the milling features on outcrop F at the Three Rock Locus of the SDi-4455 site.

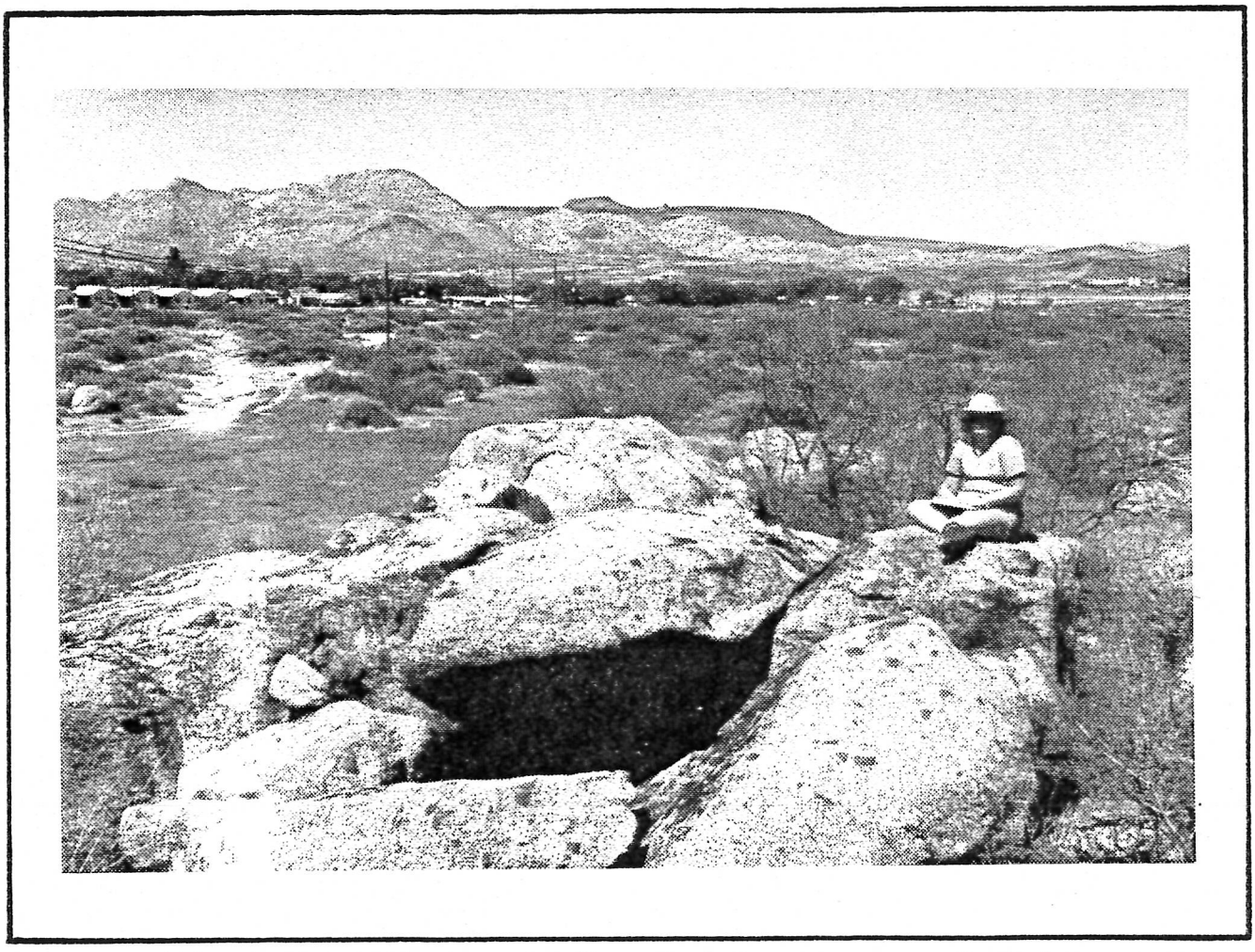
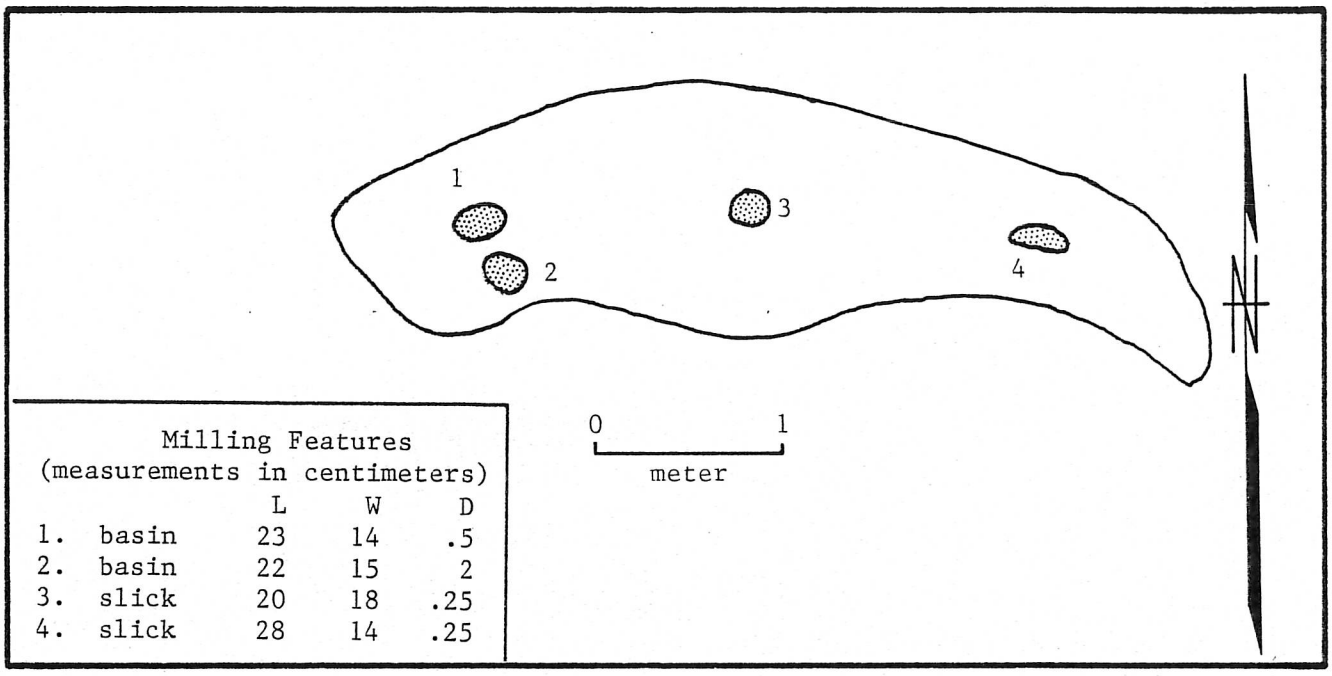


Figure 128. The SDi-4455 site, the Three Rock Locus, outcrop F, looking north.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	23	14	.5
2.	basin	22	15	2
3.	slick	20	18	.25
4.	slick	28	14	.25

Figure 129. Micro-map of the milling features on outcrop G at the Three Rock Locus of the SDi-4455 site.

Figure 130. The SDi-4455 site, the Three Rock Locus, outcrop G, looking northwest.

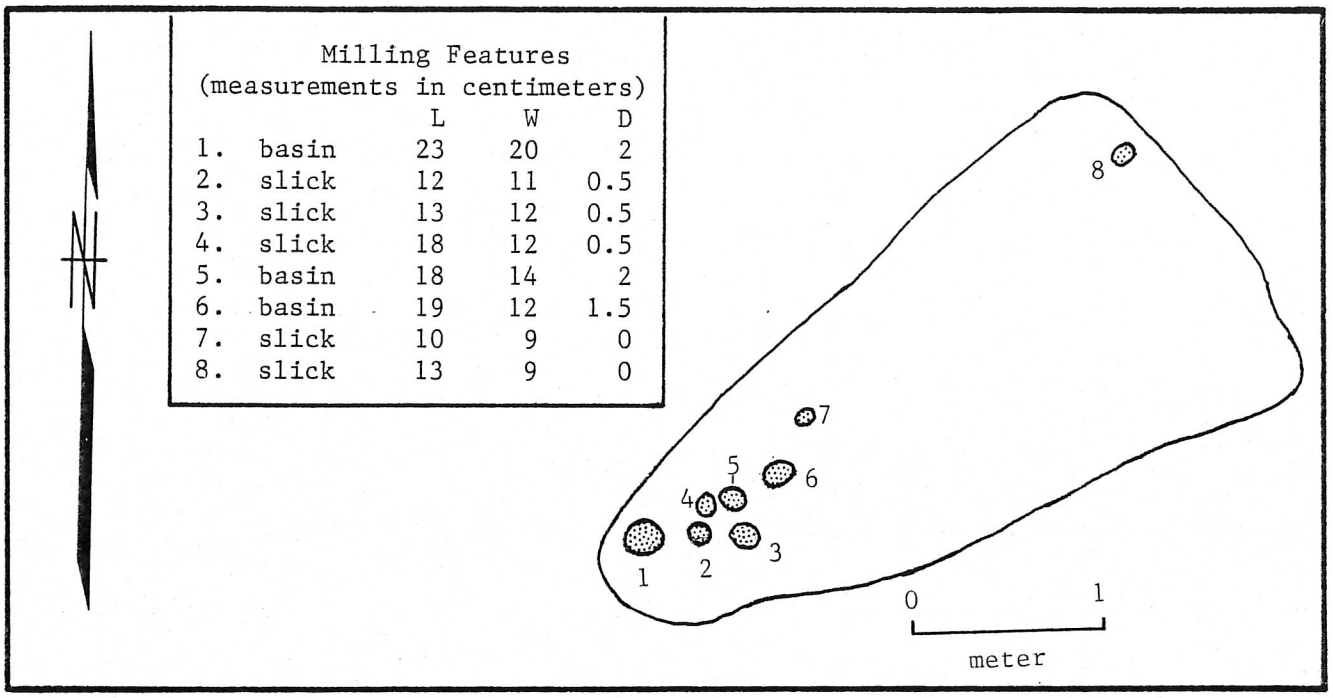


Figure 131. Micro-map of the milling features on outcrop H at the Three Rock Locus of the SDi-4455 site.

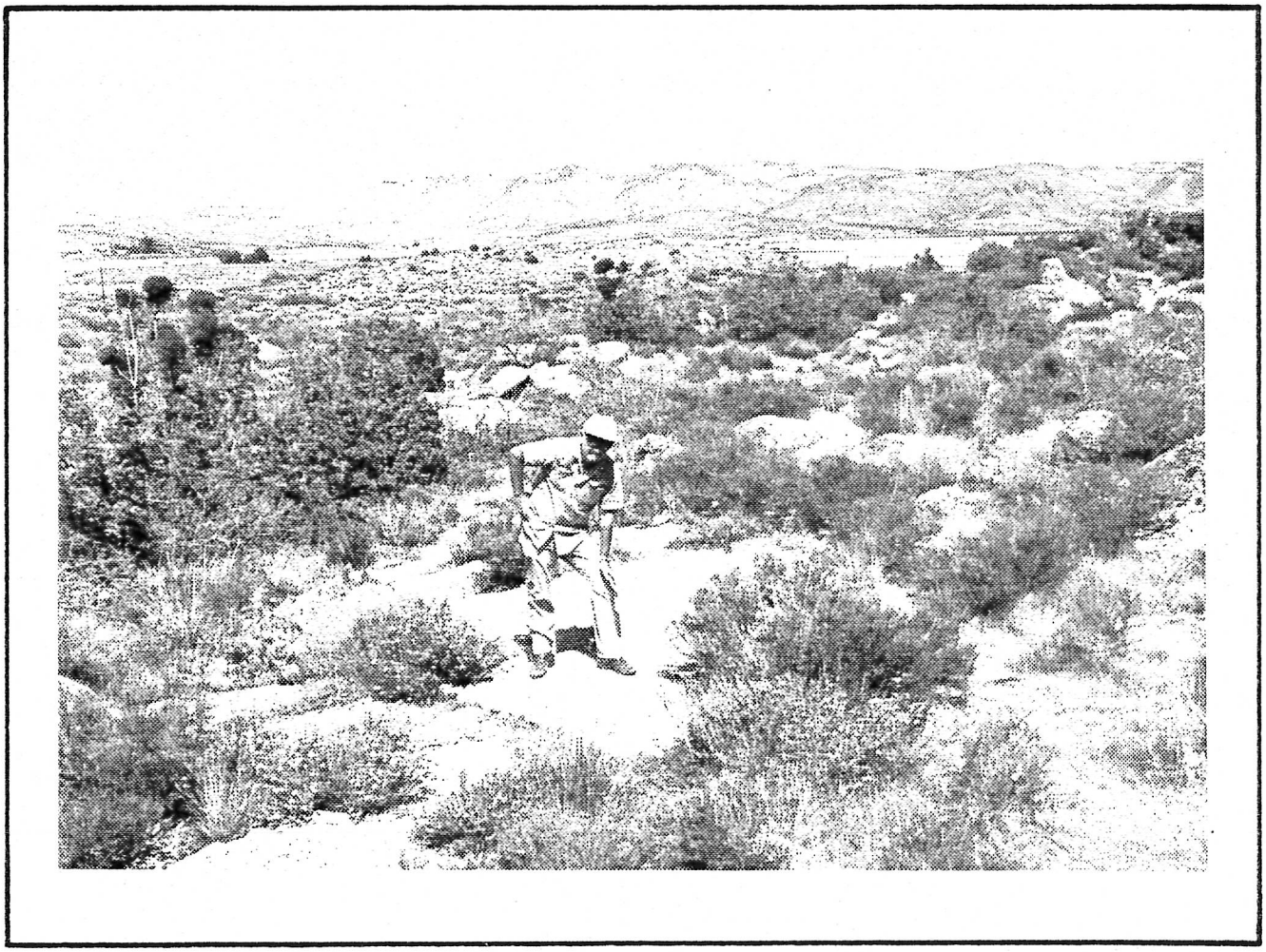


Figure 132. The SDi-4455 site, the Three Rock Locus, outcrop H, looking east.

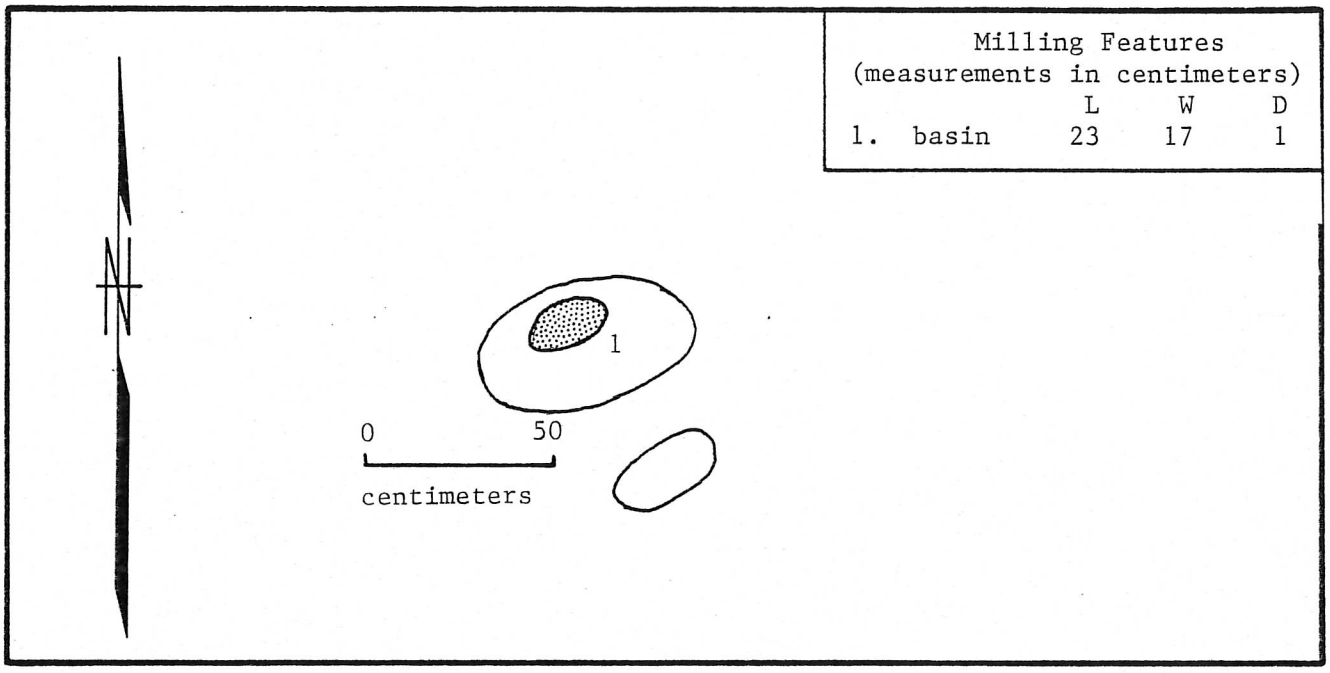


Figure 133. Micro-map of the milling features on outcrop I at the Three Rock Locus of the SDi-4455 site.

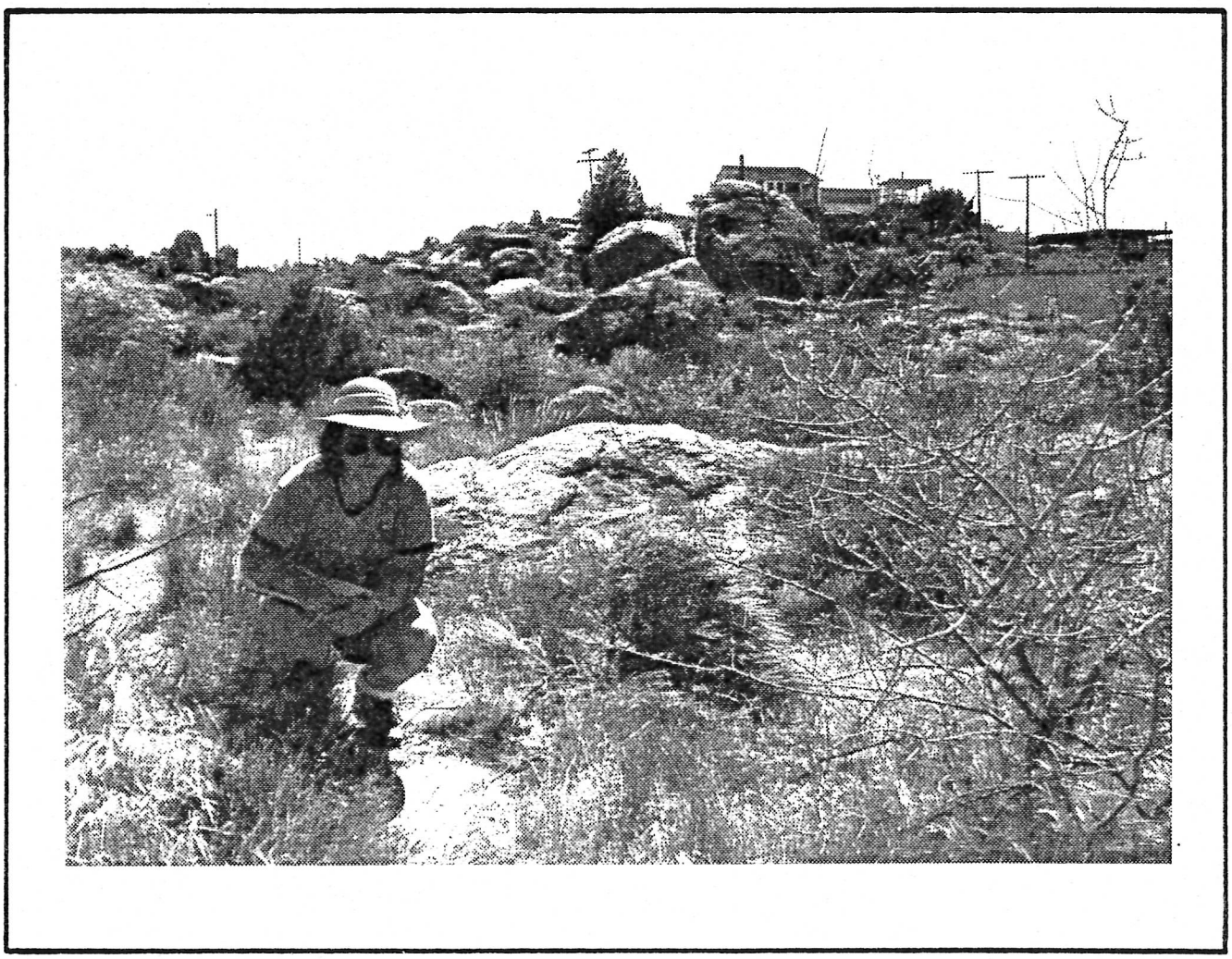


Figure 134. The SDi-4455 site, the Three Rock Locus, outcrop I, looking west.

One Rock Locus. The One Rock Locus of the SDi-4455 site is the southeastern most locus of this site located on the project property. It is a minor occupation area with several bedrock milling features and a surface scatter of camp debris. This locus is situated around an outcropping of bedrock with one huge rock, along the eastern base of a ridge some distance east of the Three Rock Locus. The locus and its setting are shown in Figure 135 and mapped in Figure 136.

A diffuse scatter of pottery sherds and basalt flakes are present over an area about 200 feet by 150 feet, but nowhere is there any apparent concentration. The soil is a coarse, decomposing quartz and granite that appears to be very shallow. An auger test in one area with a relatively promising soil demonstrated that the deposit is essentially sterile and natural.

A total of two milling basins and two milling slicks were recorded on three different bedrock outcrops within this locus. These features are micro-mapped and illustrated in Figures 137 through 142.

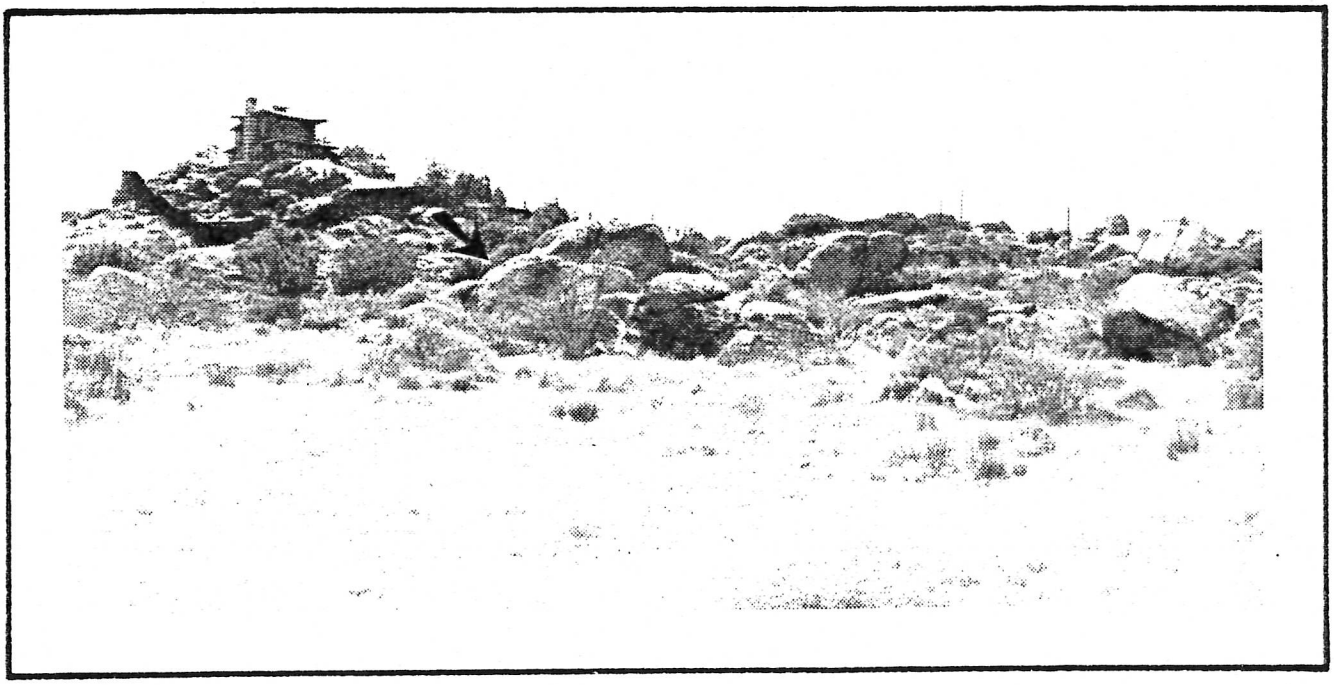


Figure 135. The One Rock Locus of the SDi-4455 site, looking southwest.

Beyond the surface materials associated with the recorded bedrock features, this site has little other apparent potential to contribute to the archaeological heritage of the region.

TABLE V

SDi-4455, One Rock Locus, Soil Auger Test Results

Test	Soil	Depth (cm)	Materials Present
A#1	light brown, friable, loam with much coarse decomposed granite	0-29	(sterile)
		29-55	1 long bone fragment (of bird or rabbit sized animal.
	stopped by rocks	55+	

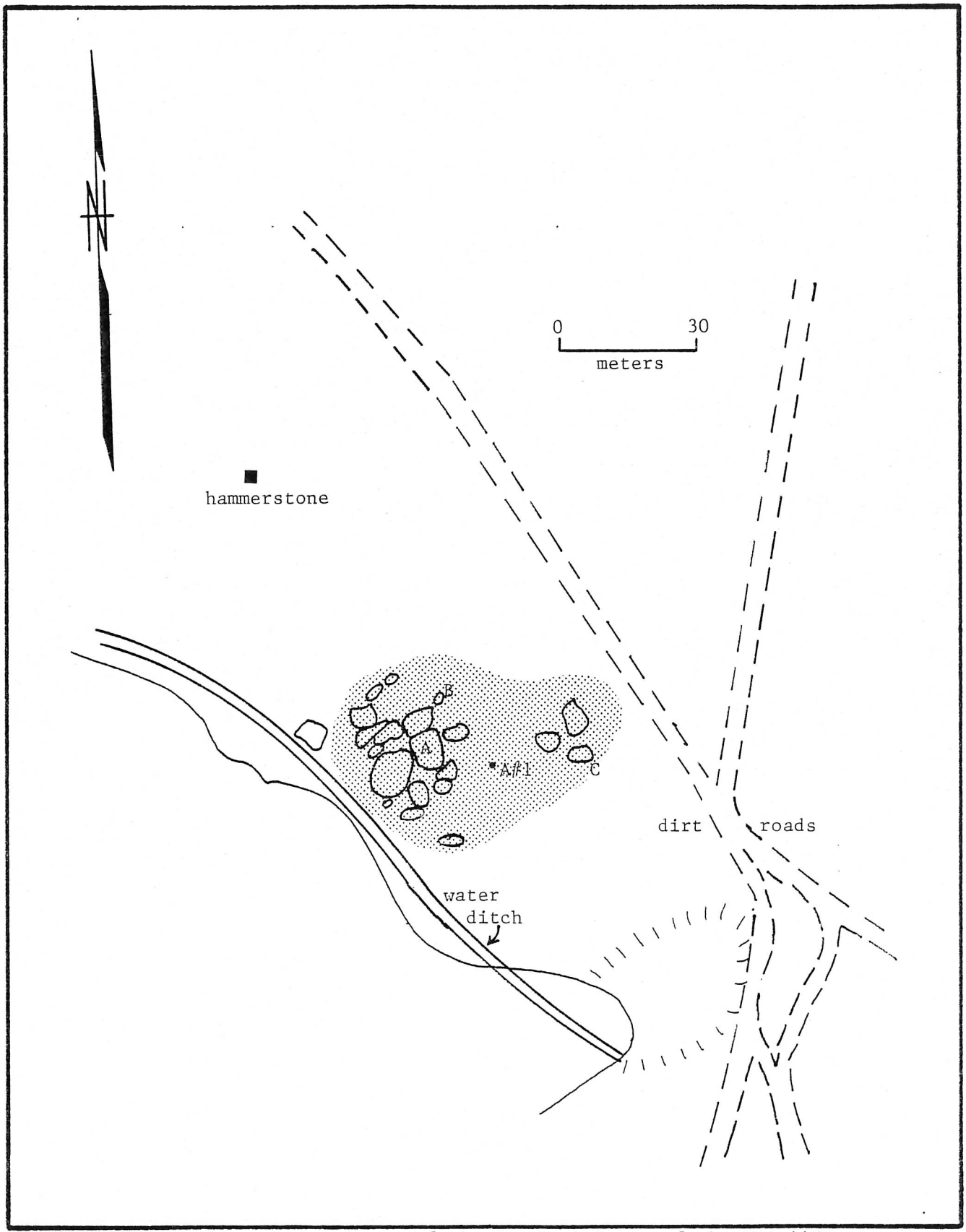
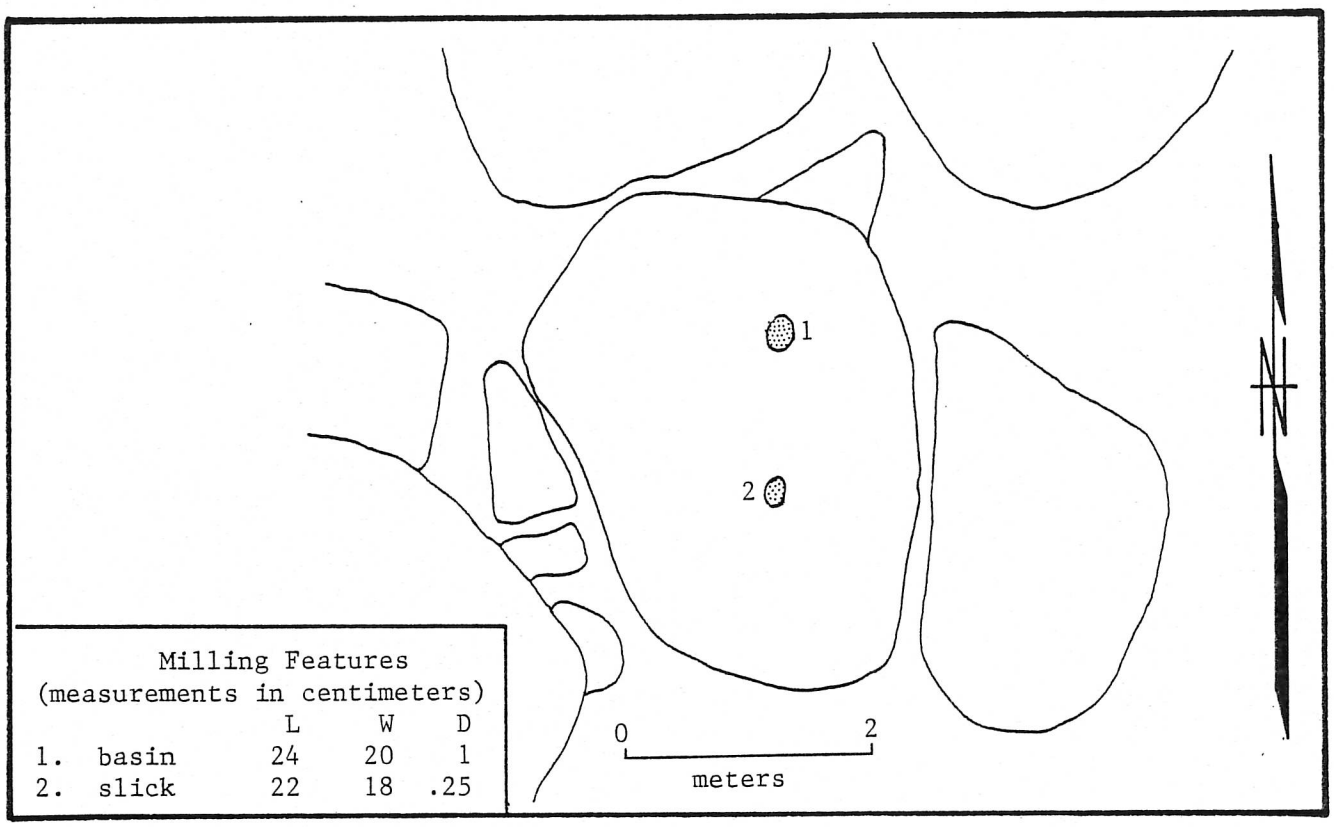


Figure 136. General sketch map of the One Rock Locus of the SDi-4455 site. Shown are the milling outcrops (A,B,C), and the position of the single soil auger test (A#1).



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	24	20	1
2.	slick	22	18	.25

Figure 137. Micro-map of the milling features on outcrop A at the One Rock Locus of the SDi-4455 site.

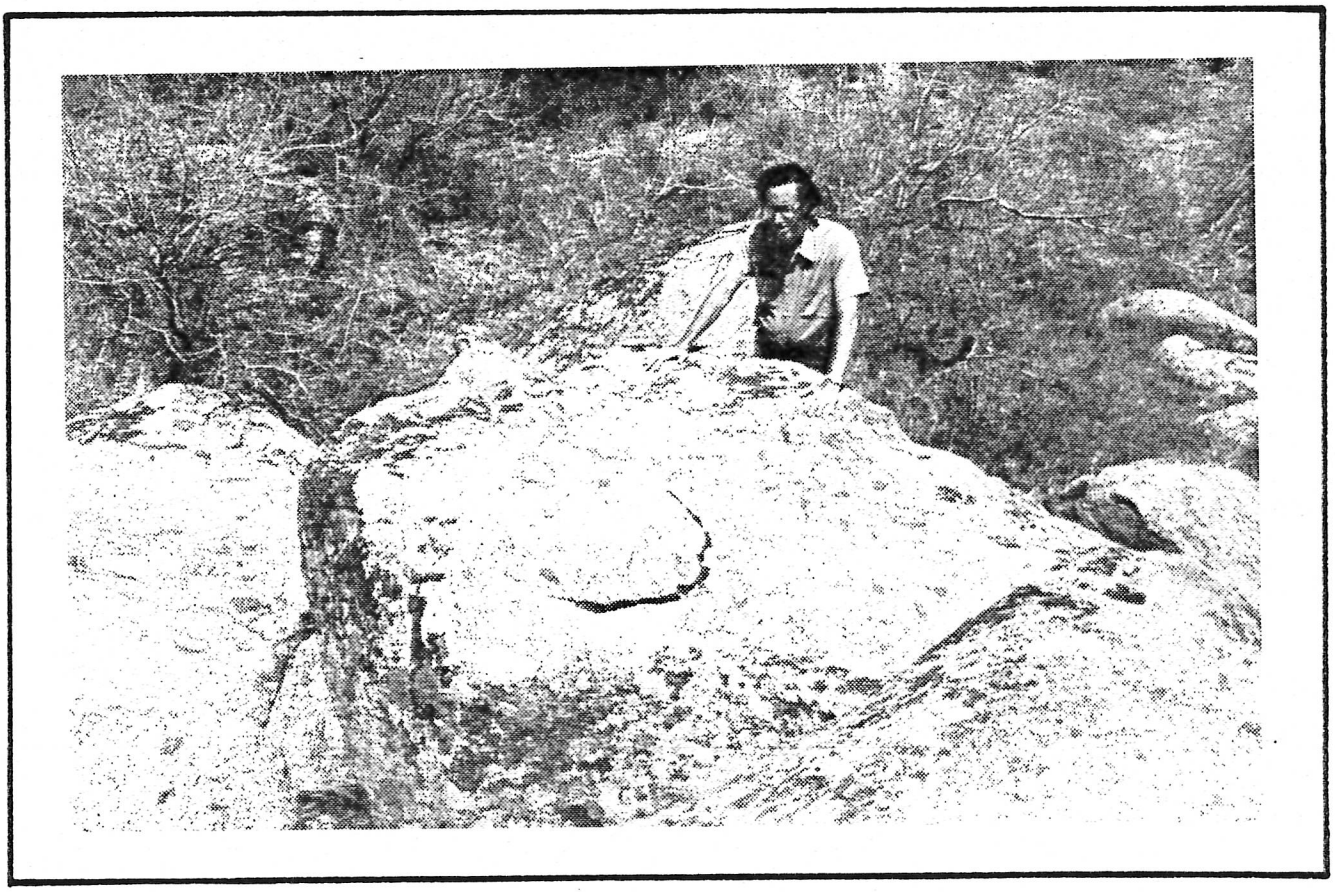


Figure 138. The SDi-4455 site, the One Rock Locus, outcrop A, looking northeast.

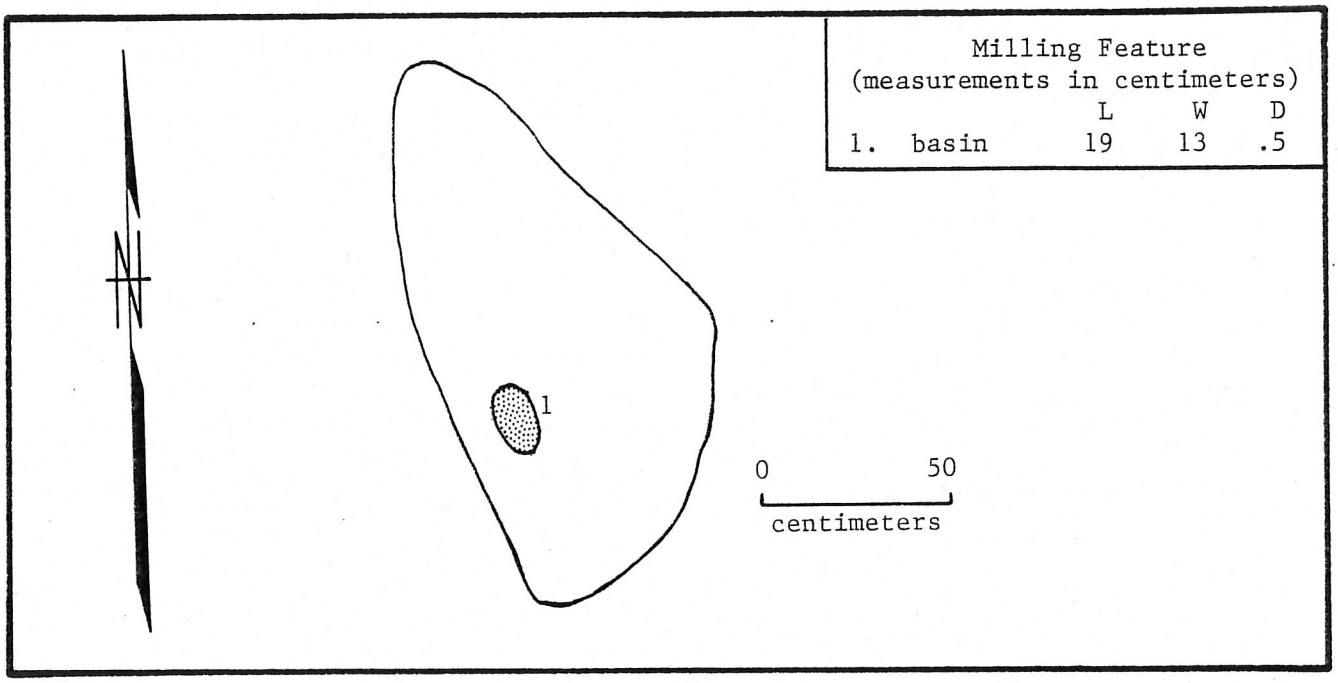


Figure 139. Micro-map of the milling feature on outcrop B at the Big Rock Locus of the SDi-4455 site.

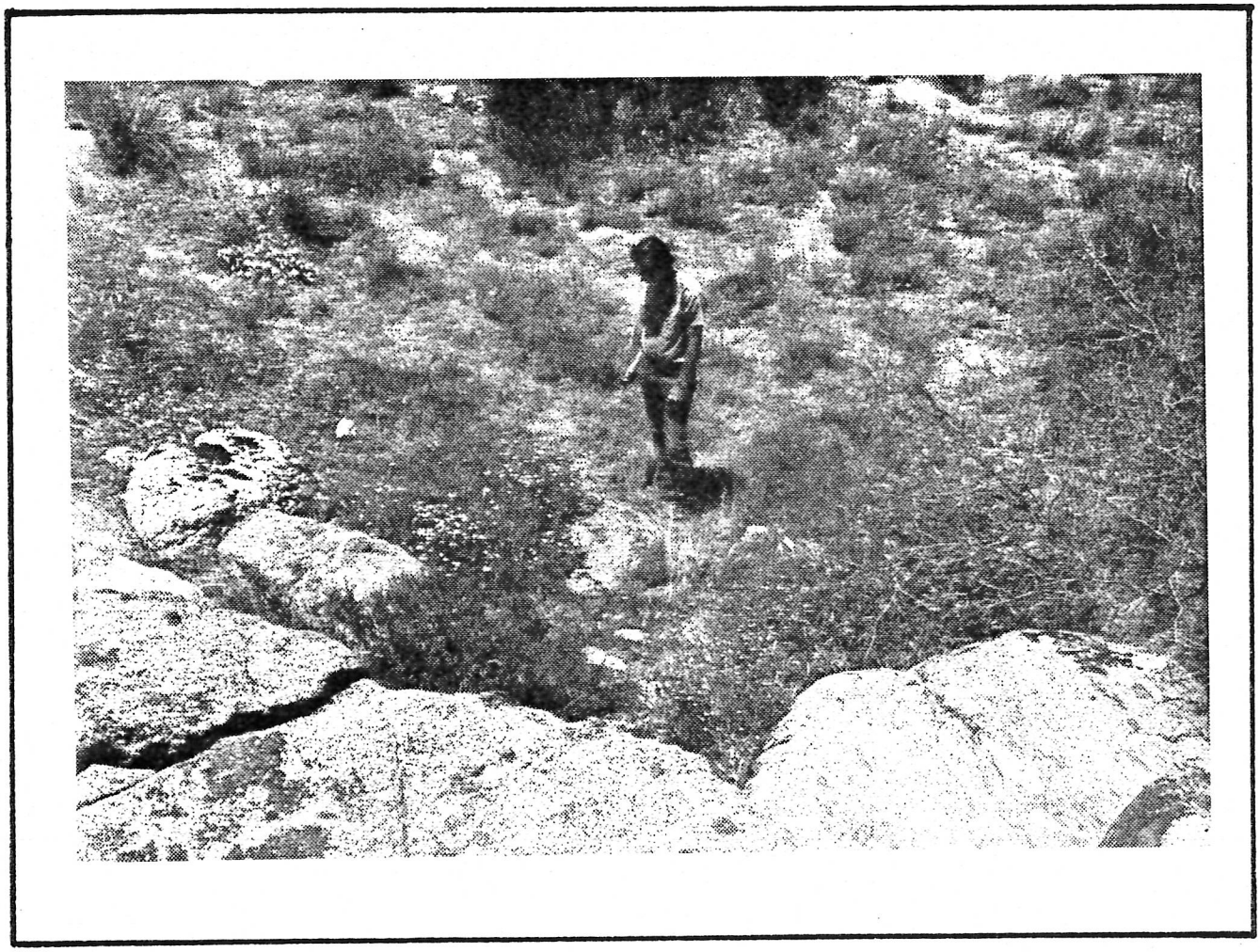


Figure 140. The SDi-4455 site, the One Rock Locus, outcrop B, looking northeast.

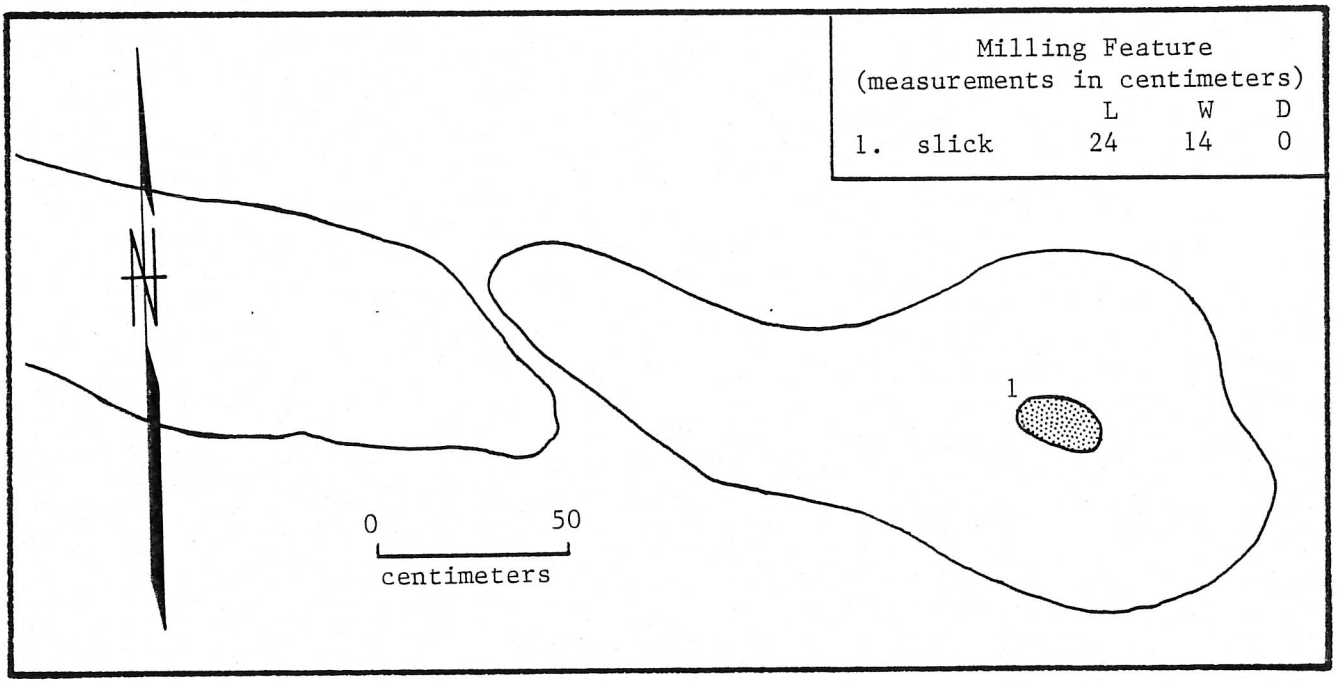


Figure 141. Micro-map of the milling feature on outcrop C at the One Rock Locus of the SDi-4455 site.

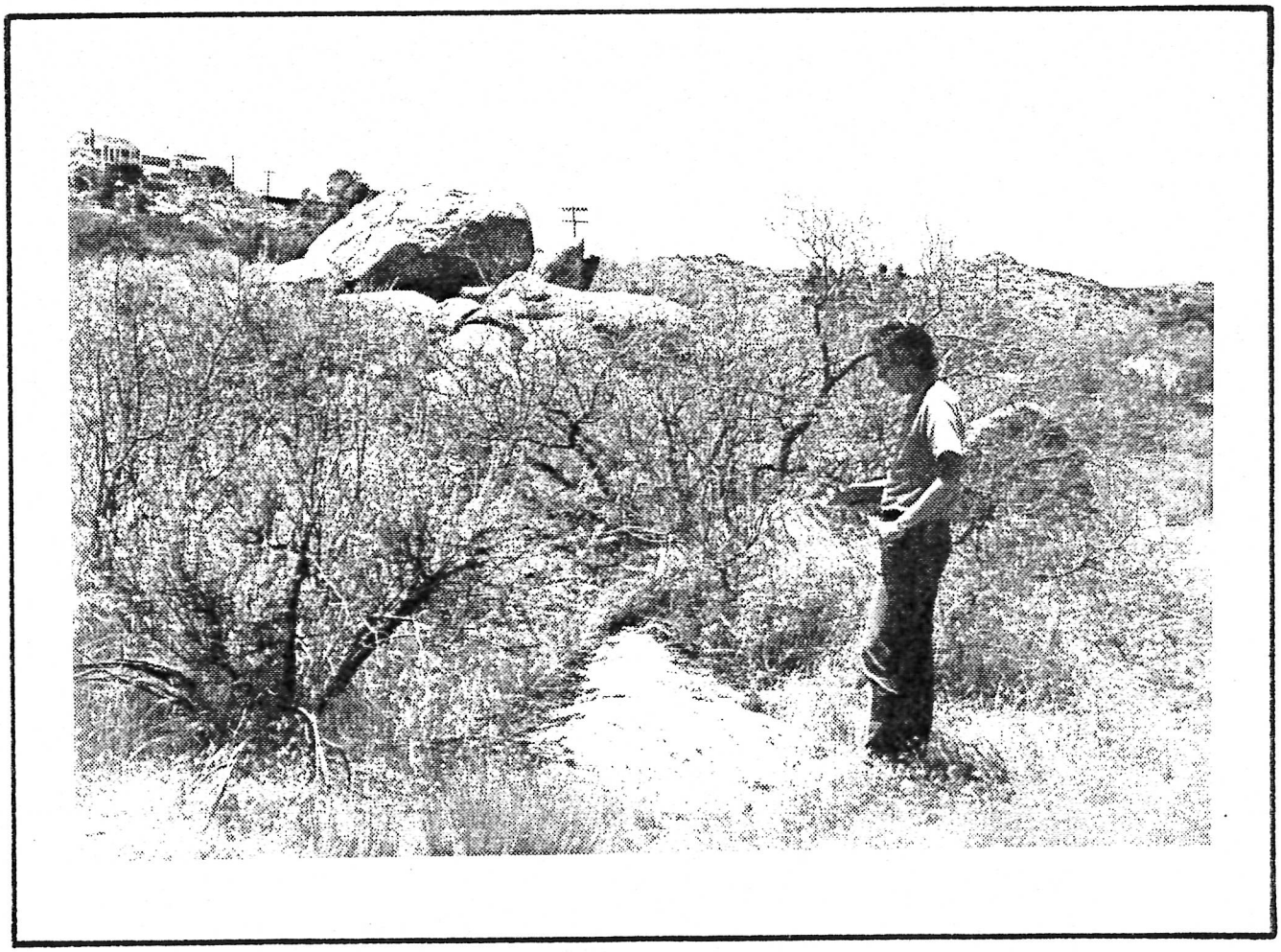
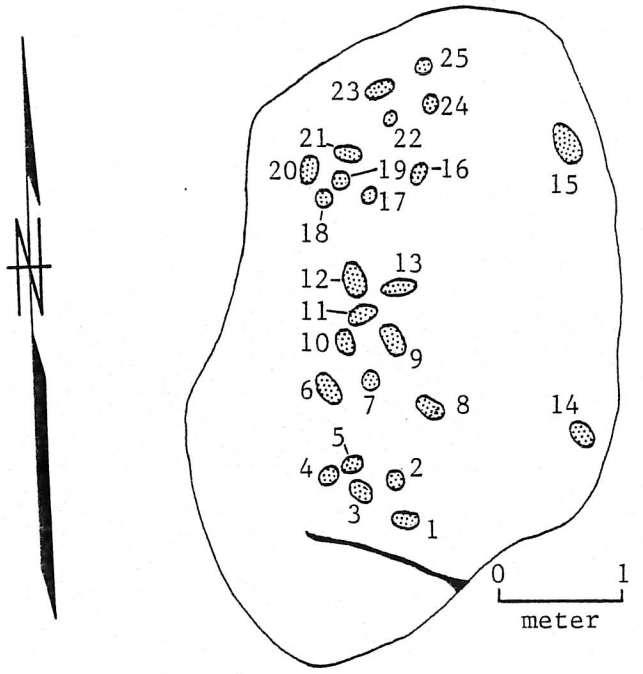


Figure 142. The SDi-4455 site, the One Rock Locus, outcrop C, looking west.

Milling Isolate A. The Milling Isolate A locus of the SDi-4455 site is an isolated milling station on the western side of the ridge south of the springs. This large, flat top granite outcrop has three milling slicks and 22 milling basins worn in it. No midden soil deposit was associated with this feature, and only two lithic flakes and one potsherd were observed on the surface. The feature is described and illustrated in Figures 143 and 144, and is mapped in Appendix IV.

Milling Isolate B. The Milling Isolate B locus of the SDi-4455 site is two milling stations 40 feet apart, high on the crest of the ridge south of the springs. A milling basin is worn into one outcrop and three slicks are present on the other. Two lithic flakes were observed on the surface near these features, but no other archaeological material or midden soil deposit were present. The features are micro-mapped and pictured in Figures 145 through 148, and the location of the locus is mapped in Appendix IV.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	16	11	.5
2.	slick	13	9	0
3.	basin	18	13	1
4.	basin	11	8	.5
5.	slick	17	12	0
6.	basin	22	12	1
7.	basin	13	12	.5
8.	basin	16	10	1
9.	basin	24	13	1
10.	basin	18	15	.5
11.	basin	22	14	1
12.	basin	26	20	.5
13.	basin	26	14	2
14.	basin	24	14	2
15.	basin	28	14	2
16.	slick	17	11	.25
17.	basin	13	13	1
18.	basin	14	10	.5
19.	basin	14	14	1
20.	basin	24	11	2
21.	basin	19	13	1
22.	basin	13	8	.5
23.	basin	20	11	1
24.	basin	15	10	1
25.	slick	12	9	.25

Figure 143. Micro-map of Milling Isolate A of the SDi-4455 site.

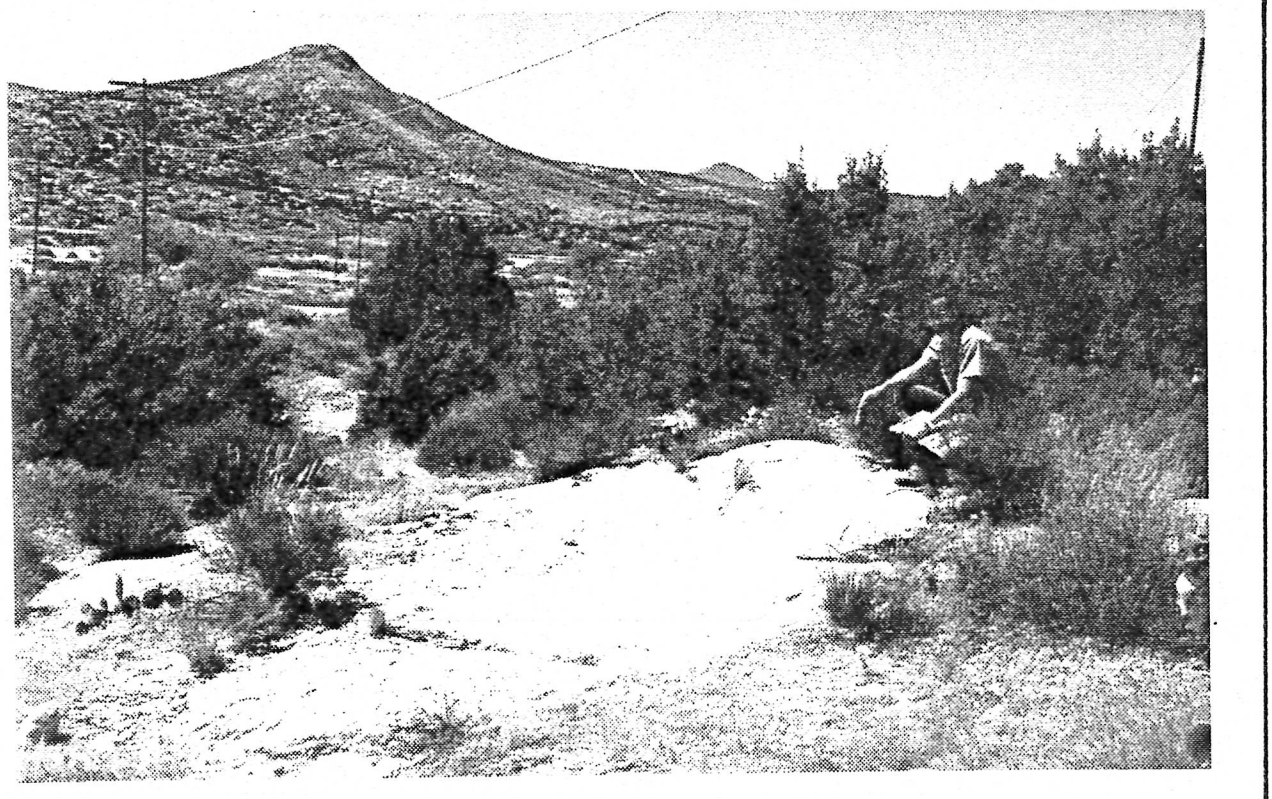
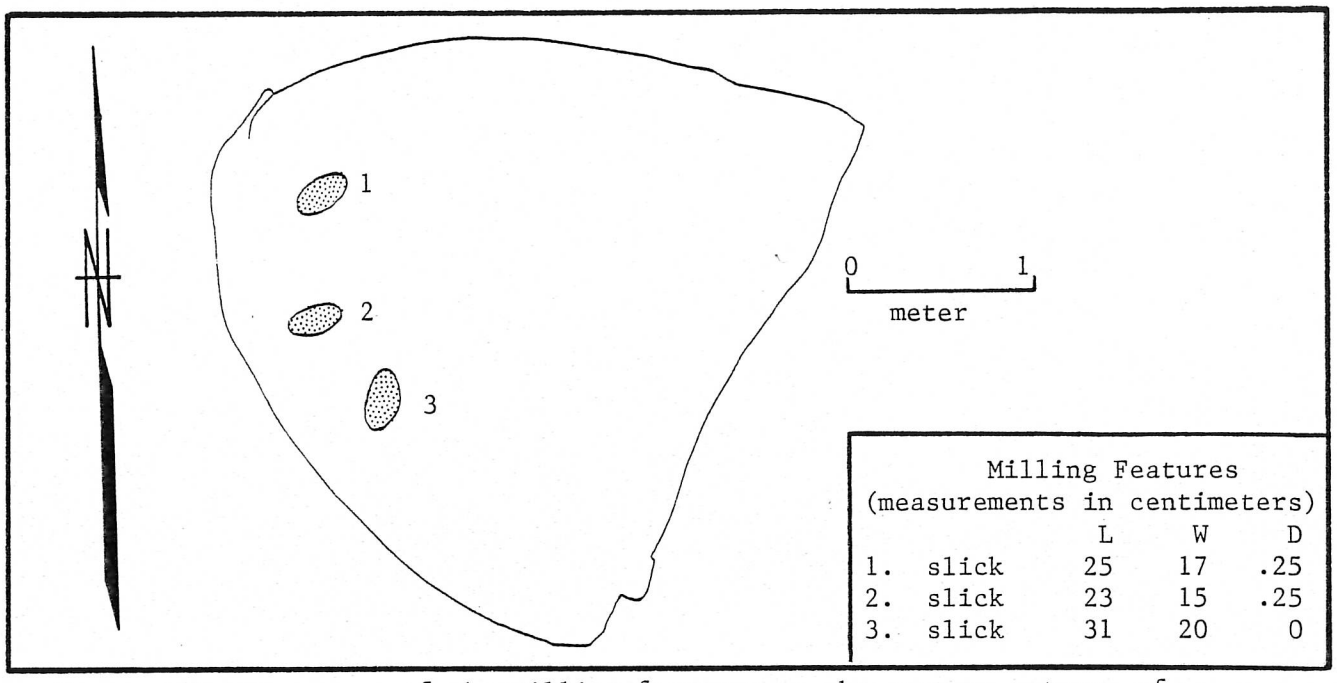


Figure 144. The SDi-4455 site, Milling Isolate A, looking north.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	25	17	.25
2.	slick	23	15	.25
3.	slick	31	20	0

Figure 145 • Micro-map of the milling features on the eastern outcrop of Milling Isolate B of the SDi-4455 site.

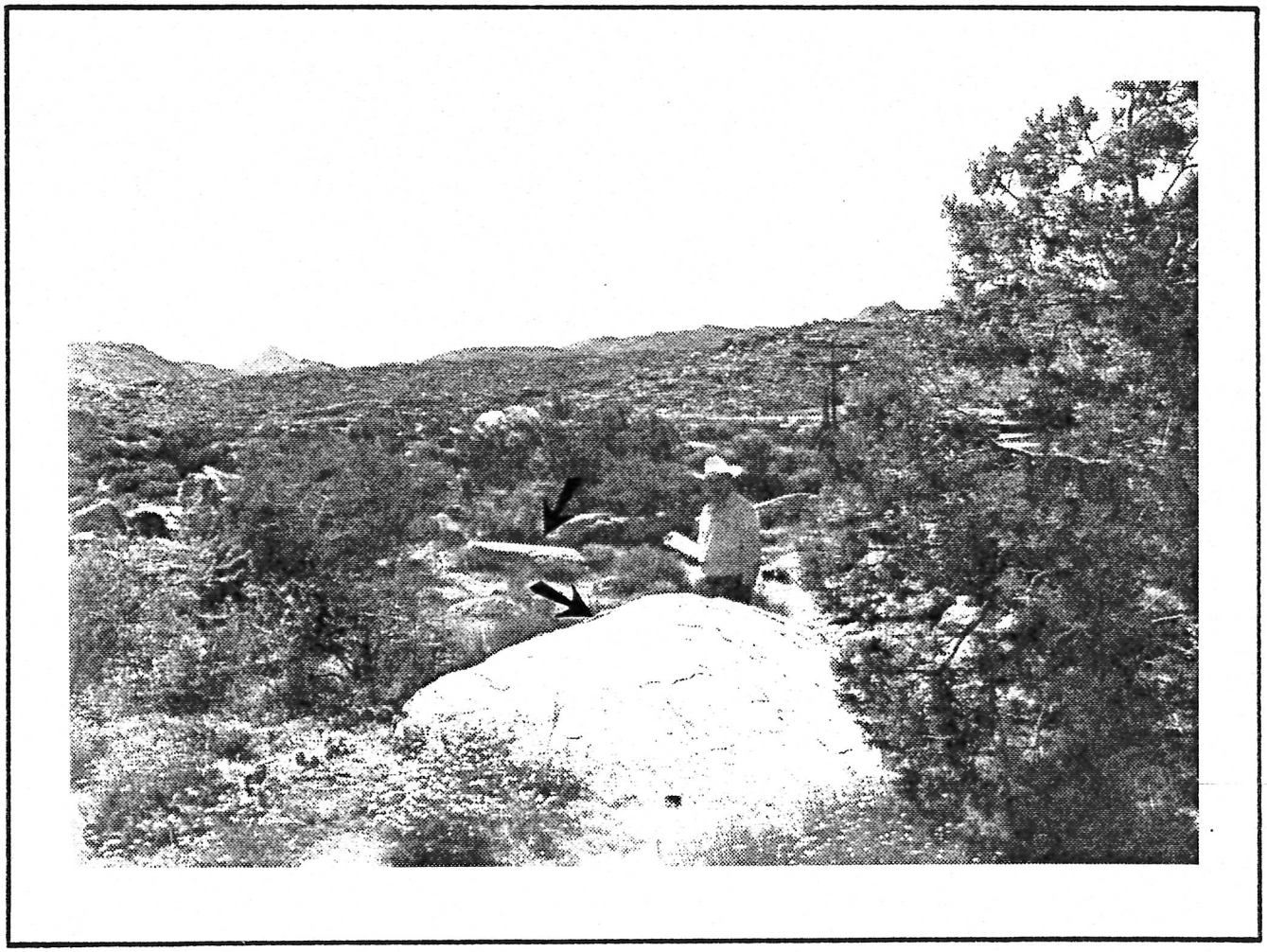


Figure 146. The SDi-4455 site, Milling Isolate B, the eastern outcrop, looking west toward the western outcrop with milling.

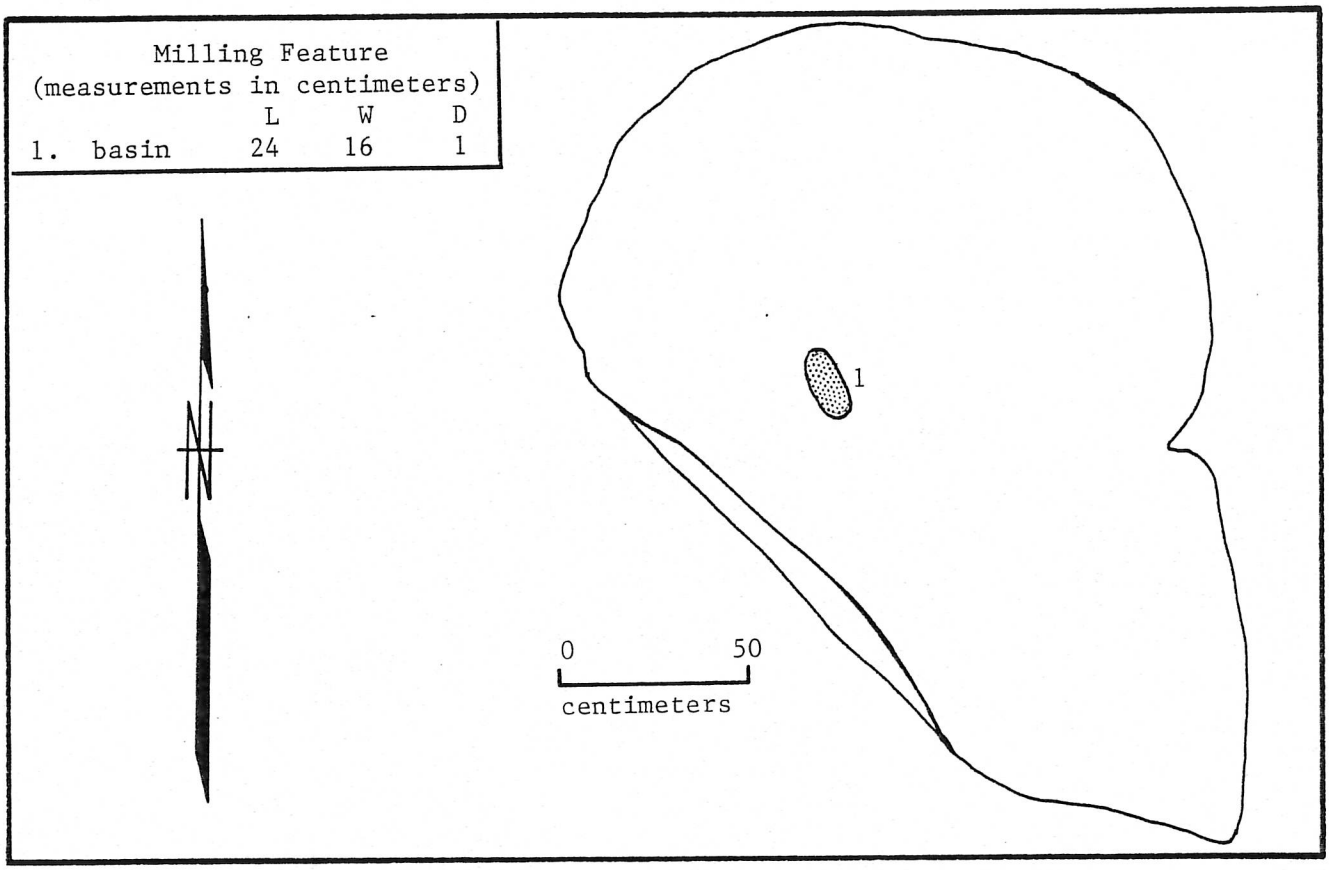


Figure 147. Micro-map of the milling feature on the western outcrop of Milling Isolate B of the SDi-4455 site.

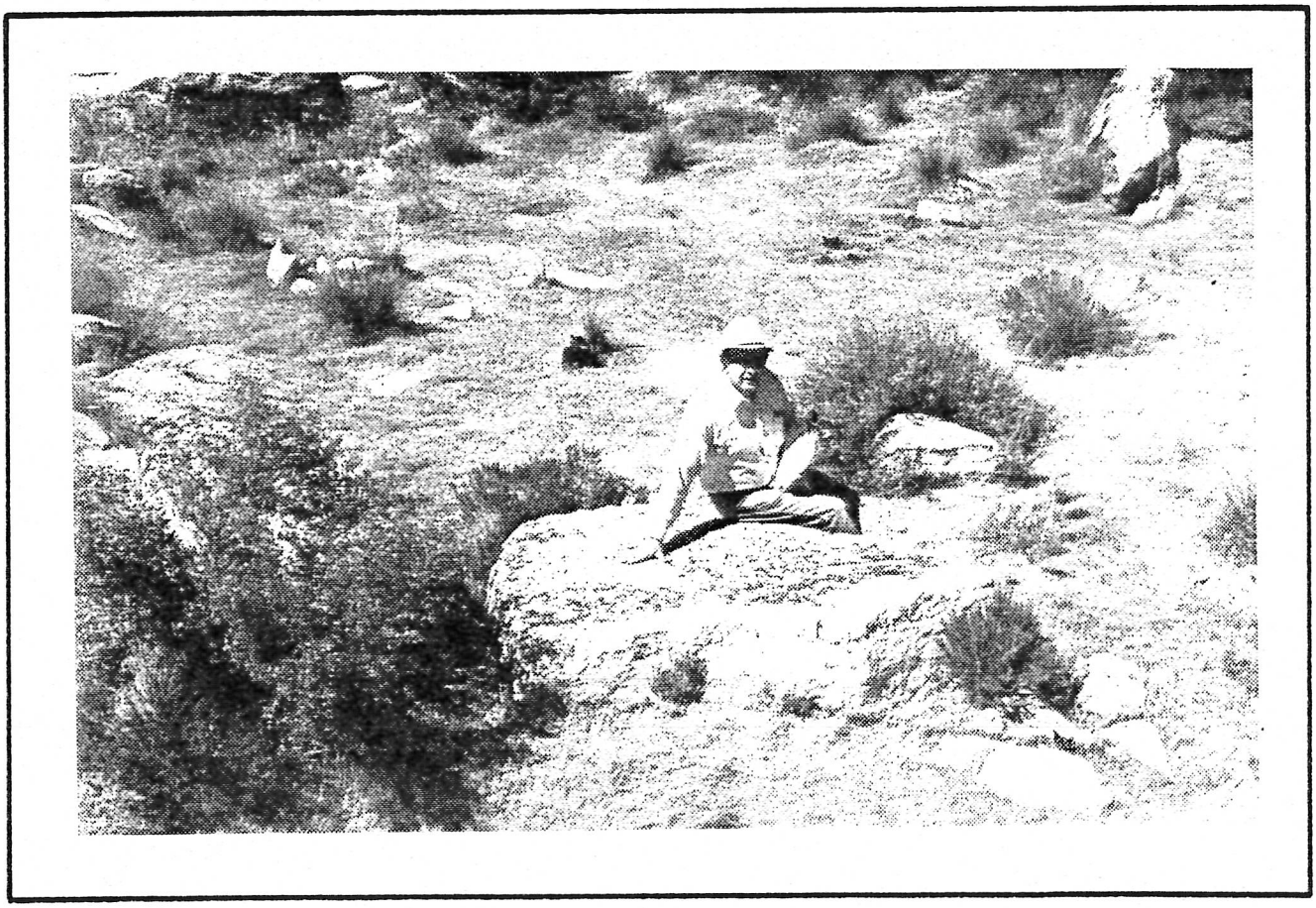


Figure 148. The SDi-4455 site, Milling Isolate B, the western outcrop, looking northeast.

SDi-4457

The SDi-4457 site is a Hakatayan Tradition campsite with an apparently deep archaeological deposit. This site is situated on a remnant of an ancient alluvial bench which extends out into the valley, as shown in Figure 149. The bench is about six feet above the valley floor and would provide a dry campsite when the valley was moist or marshy. A map of the site and its environs is presented as Figure 150.

On the surface of the bench are Tizon Brown Ware pottery sherds, a portable milling basin fragment, and numerous basalt flakes. The only really noteable item found is a quartz flake illustrated in Figure 151 which may be a unifacial projectile point. Two soil auger tests indicate sherds and lithics may extend to depths of 24 and 28 inches in the soils of the bench. The results of the auger tests are presented in Table VI. Interestingly, while the weathered surface stratum is a compact and coarse, decomposed granite alluviam, the auger tests re-

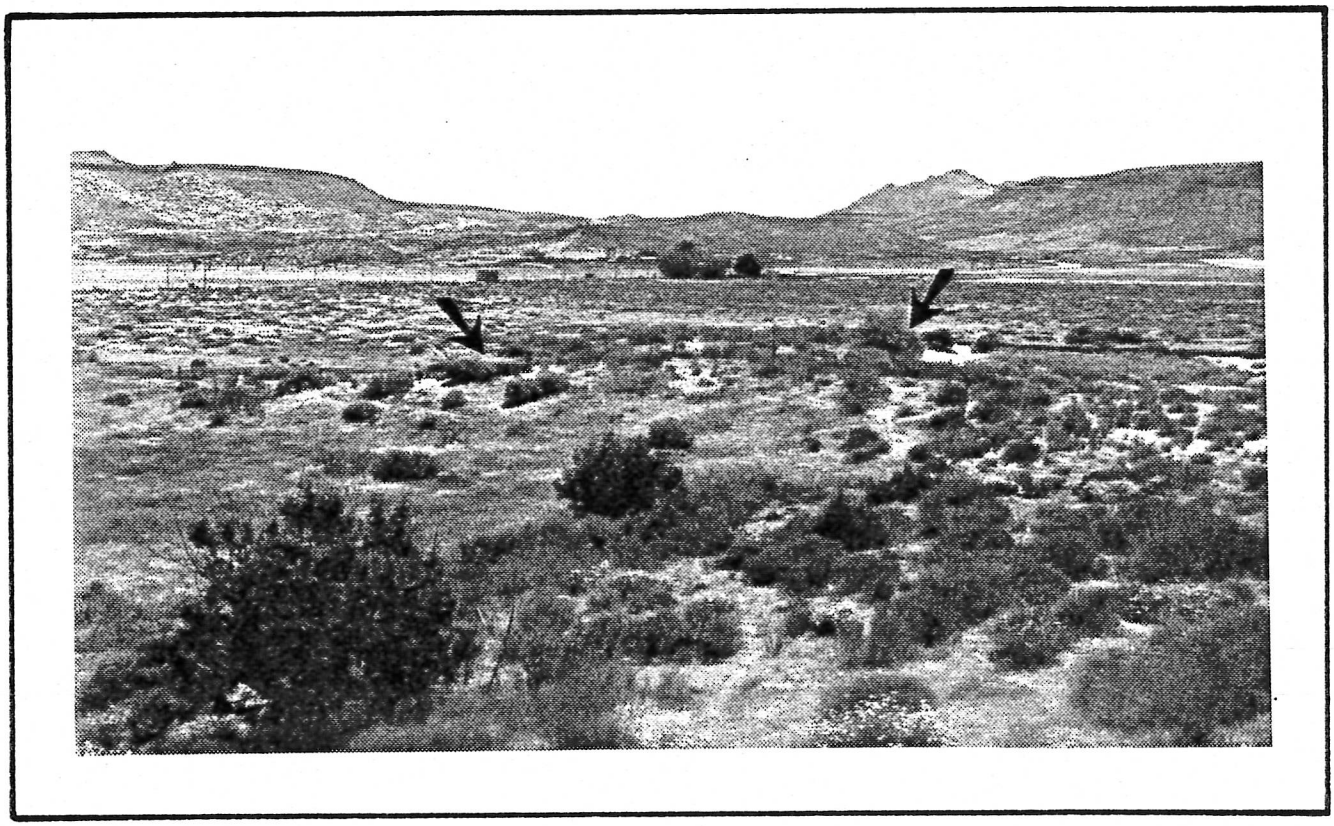


Figure 149. General view of the SDi-4457 site on an alluvial bench extending out into the floor of Jacumba Valley, looking northeast.

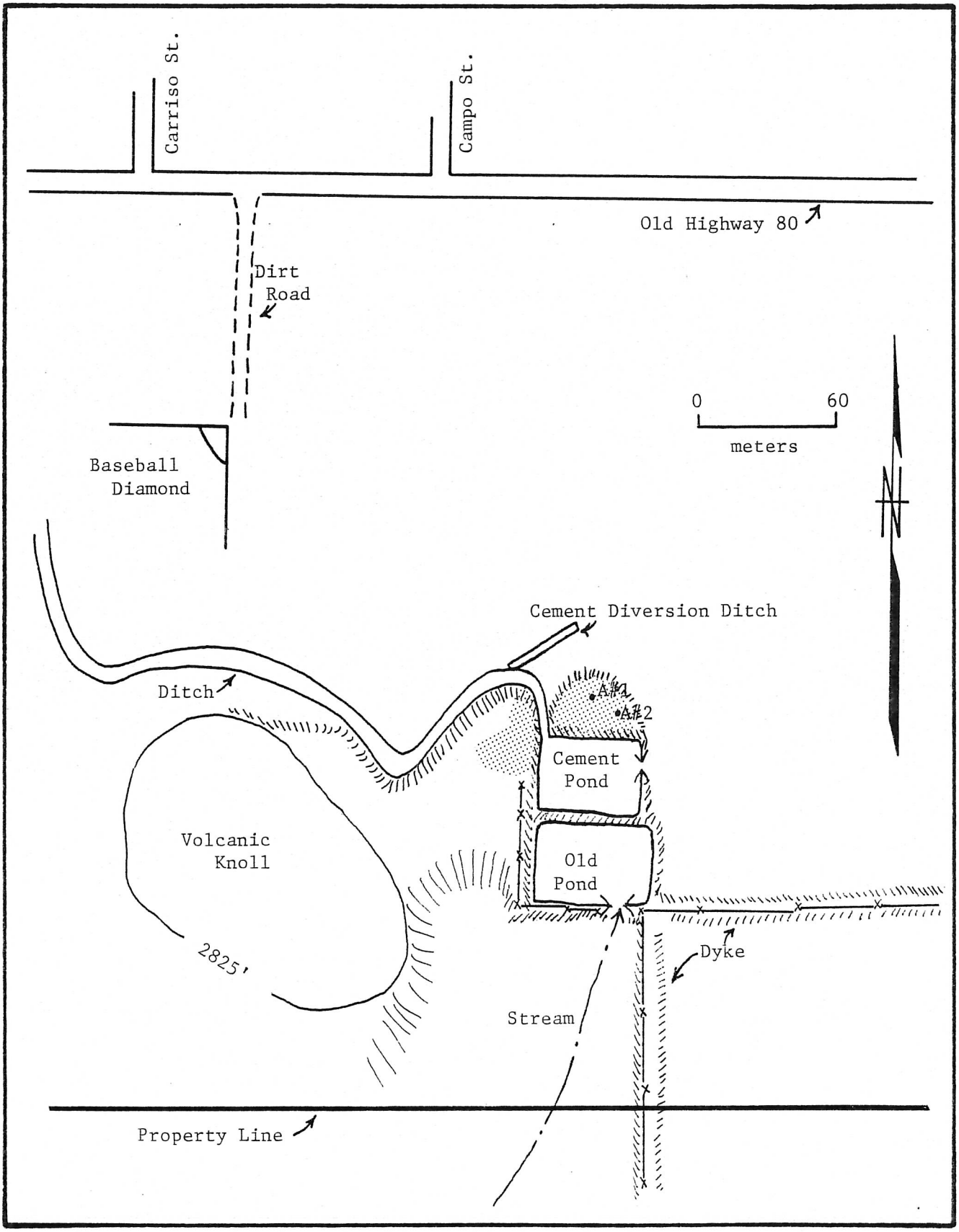


Figure 150. General sketch map of the SDi-4457 site and environs, showing the extent of the surface artifact scatter (shaded), and the locations of the soil auger tests (A#1 and A#2).

vealed an underlying stratum of fine loam which also contains archaeological materials. The geomorphology of this bench and the archaeological deposit on it warrents more detailed investigation.

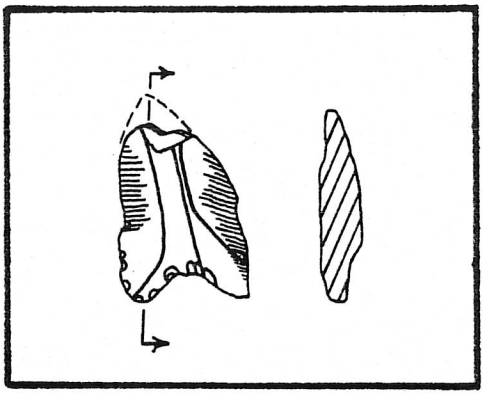


Figure 151. A quartz flake from the SDi-4457 site which may be a unifacial projectile point. Full scale.

Two very large water reservoirs have been built on the south side of the bench. Apparently, these reservoirs were designed to retain a portion of the excessive storm runoffs which occur locally and flood the agricultural valley fields. These reservoirs apparently held water supplies a few weeks until it could be released to further water the field crops. The southern reservoir appears to have been fed by a natural drainage that flows from the southwest (from the direction of the Mexican border). The northern reservoir is fed by a water ditch that flows into the valley from the northwest (from the direction of the springs). The water ditch cuts through the bench, and it can be traced back around the nearby knoll. Once, it

TABLE VI

SDi-4457, Soil Auger Test Results

Test	Soil	Depth (cm)	Materials Present
A#1	gray-brown, fine grained, loam mixed with coarse, compact, decomposed granite	0-10	2 basalt flakes, 1 quartz flake.
	same soil changing at 30 cm to dark brown, friable, fine grained loam	10-47	2 Tizon Brown Ware sherds, 3 basalt flakes, 1 rodent long bone.
	dark brown, friable, fine grained, loam changing at 65 cm to yellow, soft sandy clay	47-70	5 basalt flakes.
	yellow, unconsolidated, sandy clay	70-93+	(sterile)
A#2	gray-brown, compact, loam with much decomposed granite	0-37	6 basalt flakes, 1 quartz flake.
	medium brown, friable, loam with little decomposed granite	33-60	5 basalt flakes.
	yellow, semi-compact, sandy clay	60-68+	(sterile)

probably was connected to the major water ditch which was mapped in Figure 136 along the western side of the One Rock Locus of the SDi-4455 site. However, both reservoir systems have been breeched, partially removed by floods, and abandoned for several years. Another portion of this water system is a cement-and-cobble irriagtion diversion channel (shown in Figure 152) which leads out across the valley floor about 150 feet after branching off the major ditch just before it cuts through the bench (although they are not quite connected and must have been linked with a pipe or portable siphon).

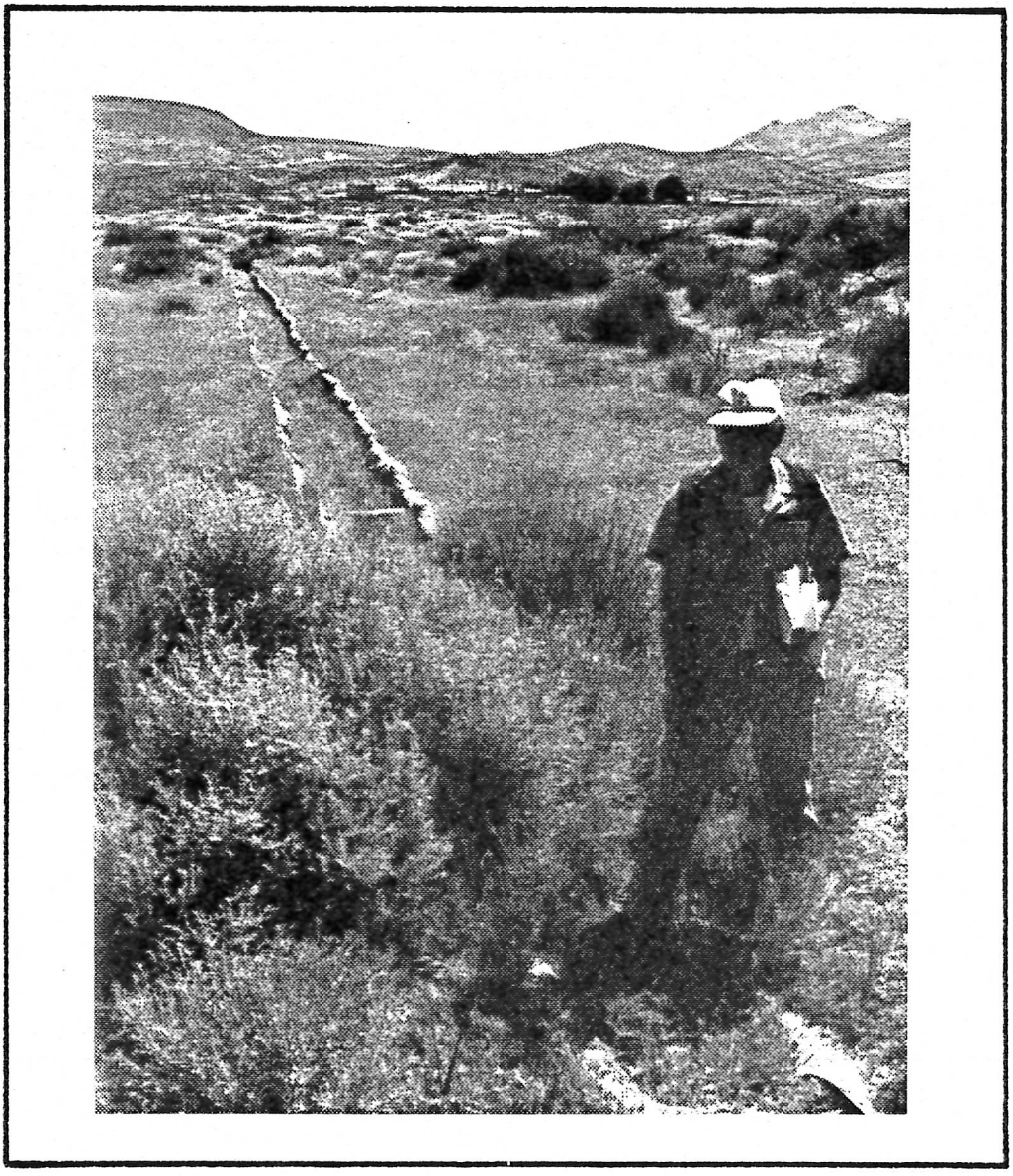


Figure 152. The cement-and-cobble irrigation ditch on the north side of the SDi-4457 site, looking northeast.

This occupational area may have special significance as a cultural resource since it may be closely associated with aboriginal agricultural activities on the nearby, moist valley floor. As this ancient alluvial bench extends out into the valley, it would have provided a dry and extremely convenient campsite from which to oversee and conduct daily agricultural activities in fields developed on the adjacent valley floor. Evidence of these locally unique agricultural activities, and even of the actual crops grown, might be preserved within the site deposits (as planting tools, charred seeds, etc.). There might even be dateable agricultural remains which would help establish when agriculture was introduced into this region.

SDi-7030

The SDi-7030 site was first recorded by Deb Dominici in 1979 as a lithic scatter. It appears upon reinvestigation to be composed of three separate loci or concentrations on the ancient alluvial surface which is the lower, southeastern flank of Jacumba Peak, as shown in Figure 153. The loci are concentrated on ridges seperated by erosional swales or arroyos. The locations of these loci are indicated on the map provided as Appendix IV. Occasional groups of basalt flakes and a number of basalt cores are to be found in a widely dispersed pattern

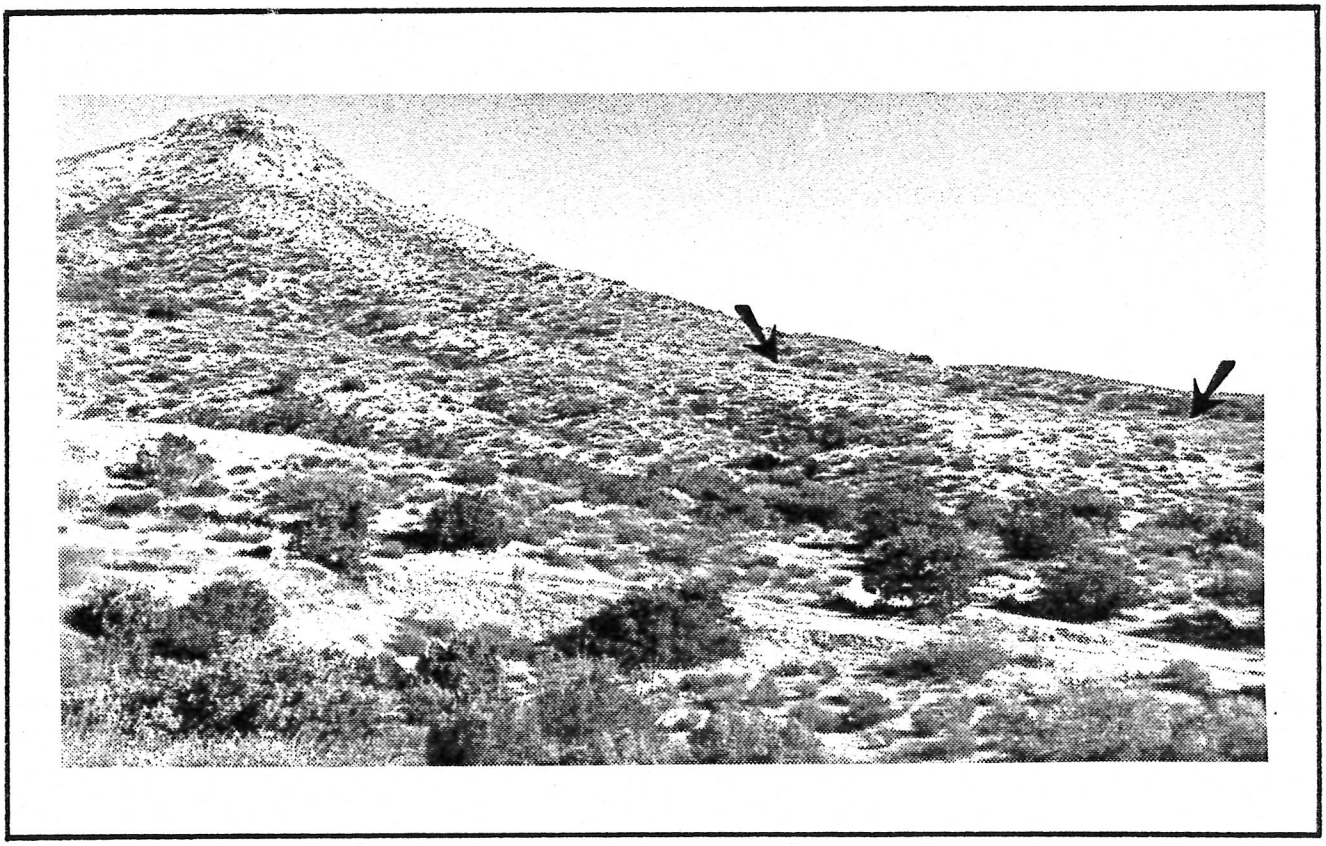


Figure 153. The lower flank of Jacumba Peak where the SDi-7030 site loci are situated, looking northwest.

on the ancient surface of these uneroded ridges. The cores may be basalt rocks selected from this old alluvial surface to provide suitable sharp-edged flakes and flaked tools for various activities. No pottery, refined tools, or items diagnostic of a particular cultural tradition were observed in either survey. This site might be very ancient, but it could be part of the pattern of Hakatayan land use. (Interestingly, no agave roasting pits are present on these slopes, although there are a few plants growing there and roasting pits are common on Table Mountain on the eastern side of the valley.)

The cultural affiliation and pattern of these prehistoric materials has yet to be clearly established, so the full extent of their significance remains to be defined. The importance of similar materials on the hills on the eastern side of the Valley also remains to be clarified (May 1979, McCoy and Theskin 1979, and Whitney-Desautels 1980).

SDi-7031

The SDi-7031 site is another concentration of lithic flakes and cores originally recorded by Dominici in 1979. It is similar in all respects to the SDi-7030 site, except that this site is situated in the base of an old, wide wash in the ancient alluvial surface just east of the SDi-7030 site. A well formed basalt scraper plane was found as an isolated occurrence farther up this wash. The site is mapped in Appendix IV.

SDi-7032

The SDi-7032 site is another concentration of lithic flakes and cores originally recorded by K. Crotteau in 1979. It too is similar in all respects to the SDi-7030 site and is situated on the top of the ridge immediately east of the SDi-7030 site. Certainly, it would appear that the SDi-7030, SDi-7031, and SDi-7032 sites are related. The location of the site is indicated on the map provided as Appendix IV.

SDi-7037

The SDi-7037 site was recorded by Jan Moore in 1979 as two isolated flakes on the sloping, hillside north of the modern railroad line. These specific flakes were not relocated during the current reconnaissance, but the lack of any concentration of materials was confirmed during this survey. The recorded location is indicated on the map provided as Appendix IV.

SDi-7038

The SDi-7038 site is composed of two very recent, historic stick shelters held in place by rocks. These features were recorded by Dominici in January 1979, and they were probably hideaways built by local youngsters. They were no longer apparent in June 1970 when the current reconnaissance of the area was undertaken. The original description indicated that they were composed of sticks stacked on or held in place by cobbles. Each one was about six feet in diameter, and they were built on the steep eastern side of the ridge 800 feet north of the railroad center. The recorded site location is shown in Appendix IV.

SDi-8066

The SDi-8066 site is a small Hakatayan Tradition occupation site with bedrock milling features and a concentration of camp debris. This site is situated in and around a rocky knob on the northwest side of Boundary Creek, as illustrated in Figure 154. A general map of the site location is provided as Figure 155.

The hugh rocks in the center of the site form a large, roofed, natural shelter about 6 by 15 feet in size, although it is only about two to four feet from the floor to the rock ceiling. The shelter has been utilized quite recently by youngsters who have shielded the openings with board panels and brush. Any deposits inside this shelter have probably been disrupted historically.

There is a diffuse scatter of both Tizon Brown Ware and Buff Ware ceramic sherds, and numerous basalt flakes on the surface around the knob. A single large flake of exotic obsidian was found which was

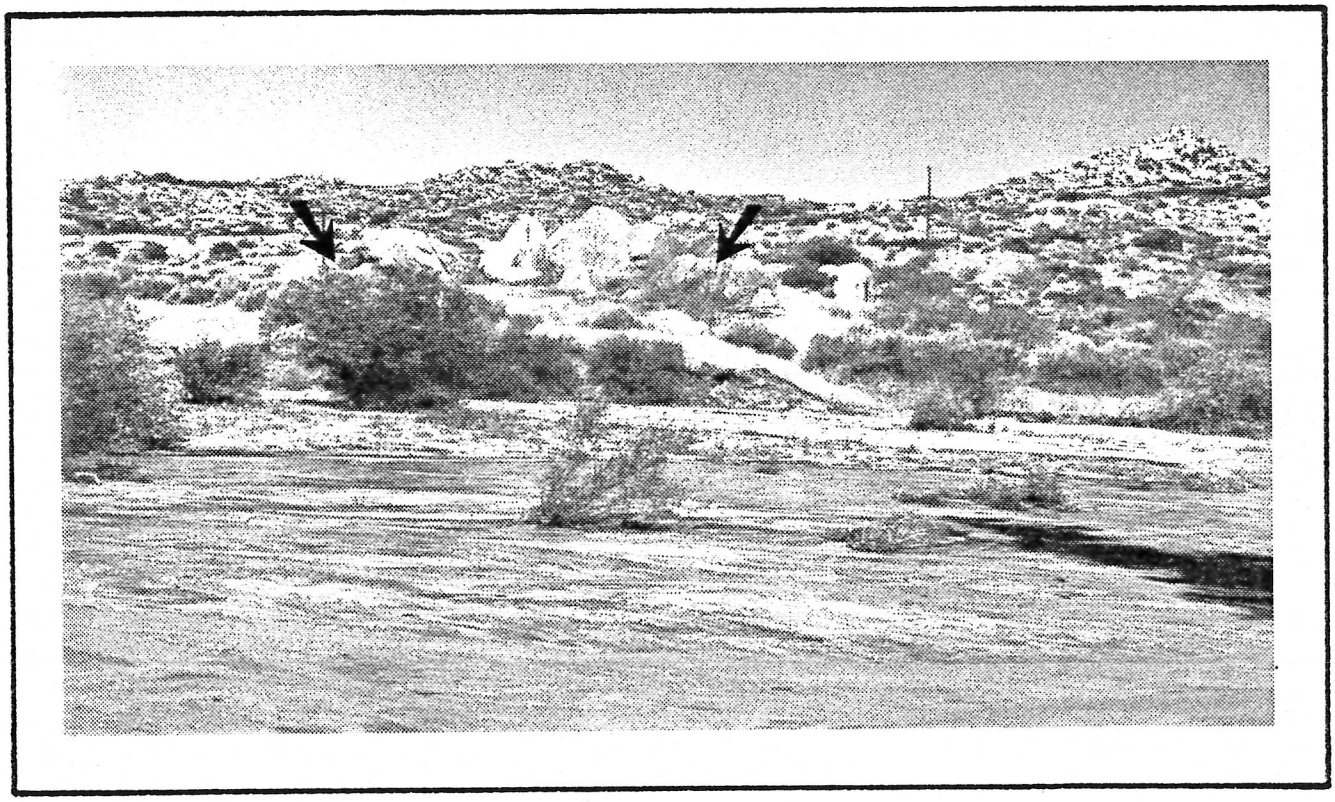


Figure 154. The SDi-8066 site, looking west across Boundary Creek.

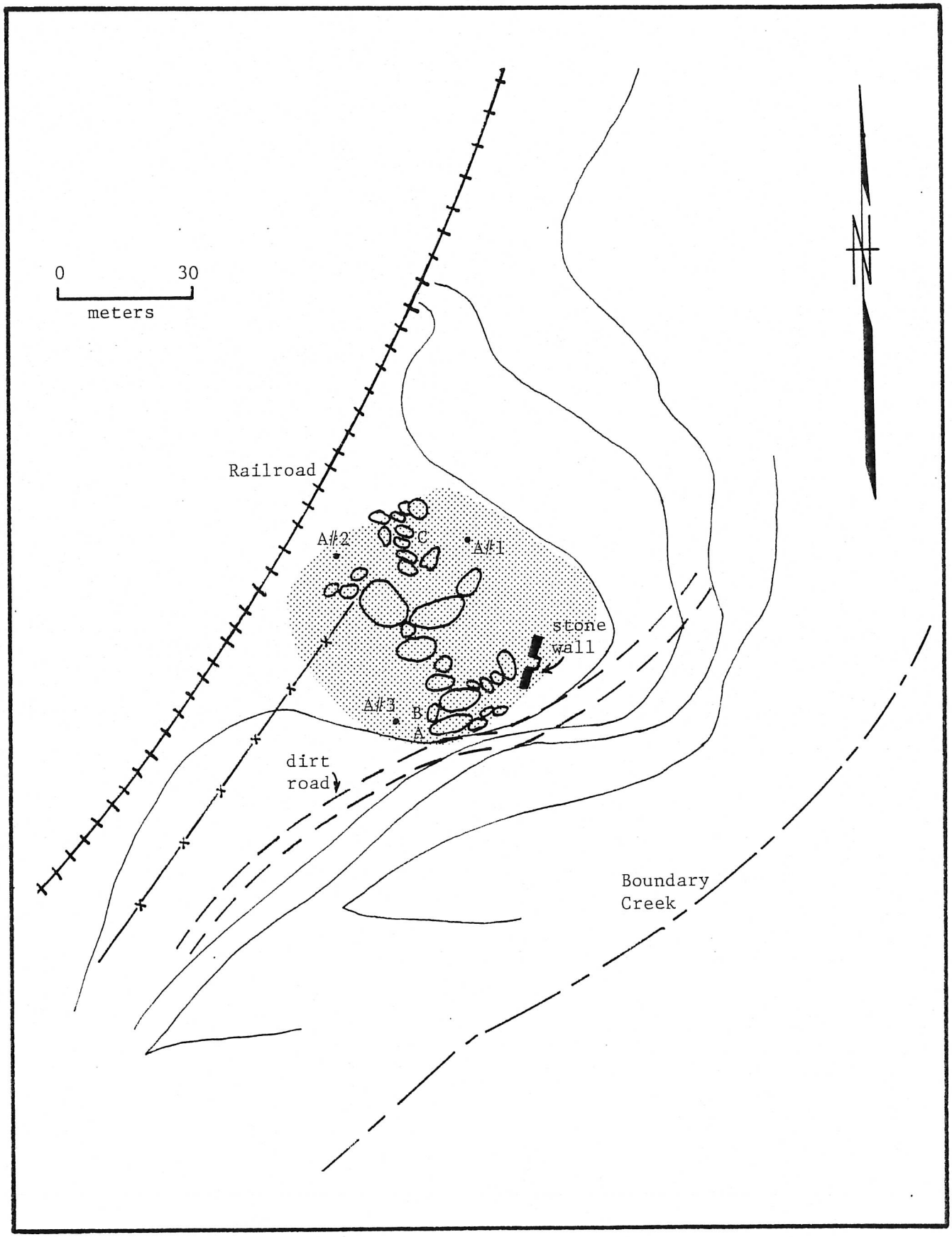


Figure 155. General sketch map of the SDi-8066 site, showing its milling outcrops (A,B,C), the extent of the surface artifact scatter (shaded), and the locations of the excavated soil auger tests (A#1-3).

collected for dating by obsidian hydration. Material is present over an area about 240 feet by 200 feet in size.

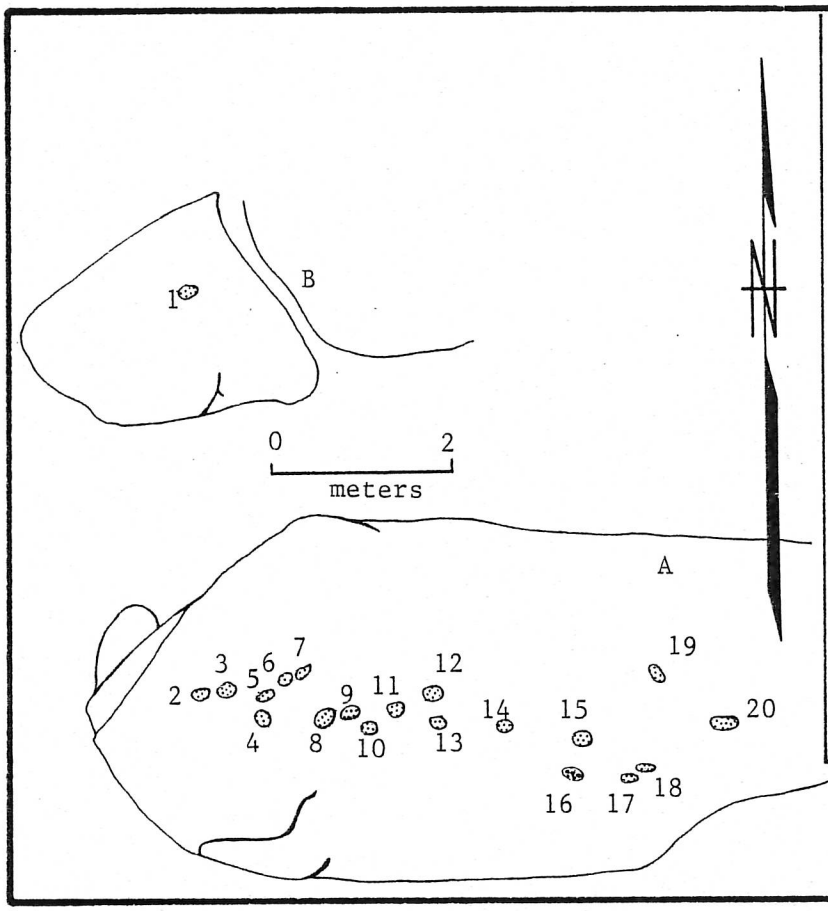
The soil on the knob is a decomposed granite loam, but some areas have a greater accumulation of fine grained, dark, loam which may represent an archaeological midden soil deposit. Three soil auger tests were made and the results are presented in Table VII. The two tests on the lower side of the knob yielded subsurface archaeological materials to a depth of 20 inches.

Three different bedrock outcrops on the knob have milling features. These include 20 milling basins, 11 milling slicks, and one mortar. These features are described and illustrated in Figures 156 through 159. Most of the bedrock is exfoliating and other such features probably have disappeared.

TABLE VII

SDi-8066, Soil Auger Test Results

Test	Soil	Depth (cm)	Material Present
A#1	gray-brown, friable, loam with much decomposed granite	0-26	1 round nail, 1 Buff Ware sherd, 1 basalt flake, some charcoal.
	medium brown, semi-compact, loam with decomposed granite	26-50	1 Buff Ware sherd, 2 basalt flakes.
	yellow, compact, decomposing granite	50+	(sterile)
A#2	red-brown, coarse, decomposing granite with some loam	0-10	(sterile)
	red-brown, compact decomposing granite	10+	(sterile)
A#3	medium brown, fine grained, loam with some decomposed granite	0-33	3 basalt flakes, 1 Tizon Brown Ware rim sherd.
	dark brown, fine grained, loam with decomposed granite	33-55	(sterile)
	yellow-brown, coarse, decomposing granite	55+	(sterile)



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	22	18	1
2.	slick	25	16	0
3.	basin	27	19	1
4.	basin	14	13	1
5.	slick	30	20	1
6.	basin	25	20	2
7.	slick	27	19	.5
8.	slick	21	20	0
9.	basin	24	19	2
10.	basin	20	14	1
11.	basin	24	16	1
12.	basin	28	28	3
13.	basin	18	15	1
14.	basin	20	20	1
15.	slick	22	17	.25
16.	slick	20	11	0
17.	basin	18	13	1
18.	basin	29	19	1
19.	basin	16	17	2
20.	slick	34	19	.25

Figure 156. Micro-map of the milling features on outcrops A and B of the SDi-8066 site.

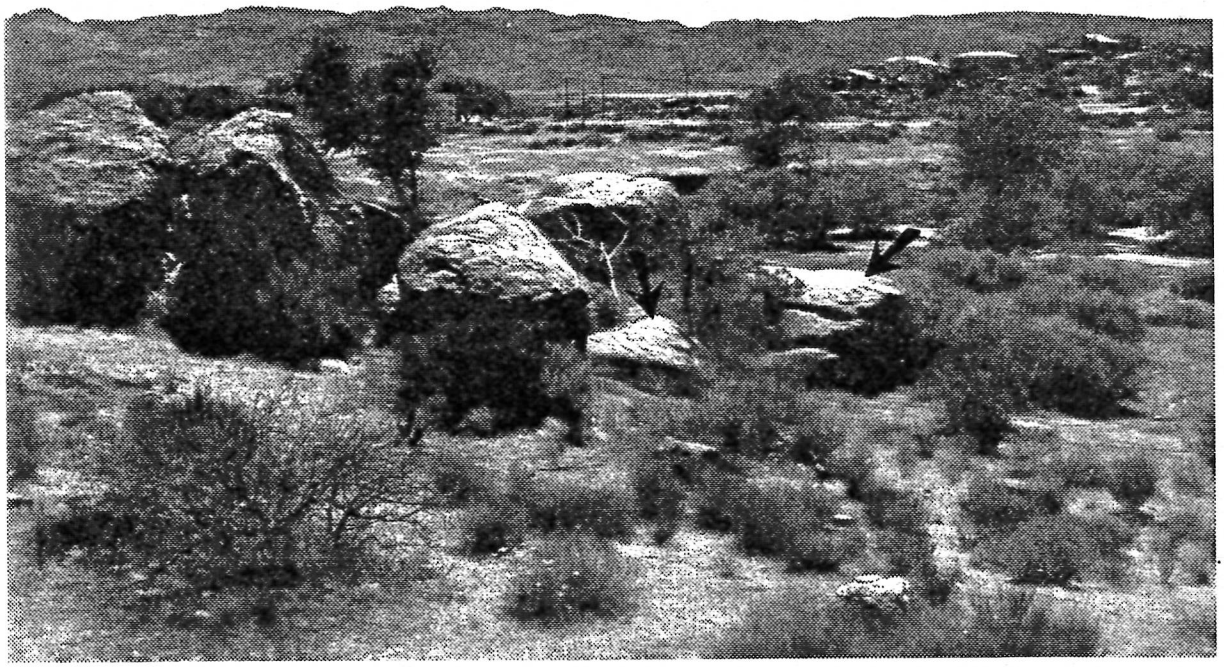
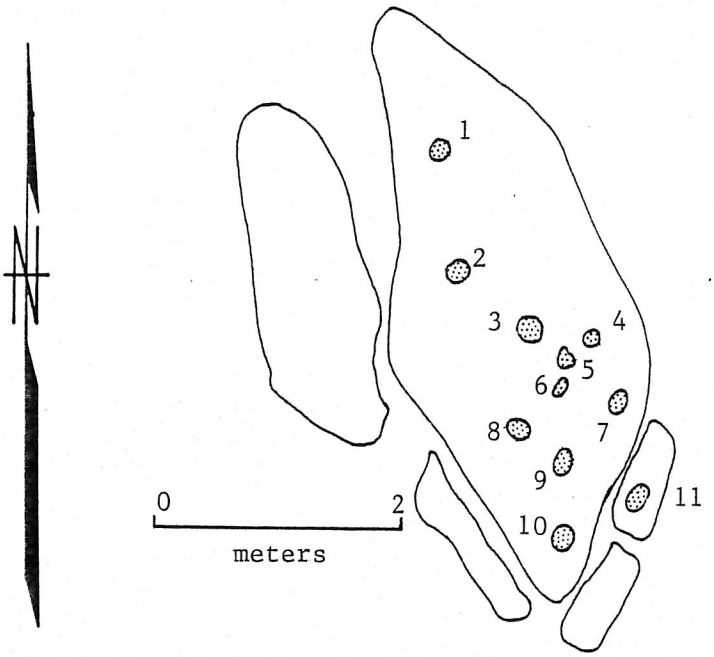


Figure 157. The SDi-8066 site, outcrops A and B, looking southeast.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	17	14	.25
2.	mortar	11	11	3
	basin	22	22	2
3.	basin	19	17	2
4.	slick	19	13	.25
5.	slick	24	17	.25
6.	slick	21	12	0
7.	slick	17	12	0
8.	basin	20	11	2
9.	basin	21	18	2
10.	basin	26	16	2
11.	basin	20	13	1

Figure 158. Micro-map of the milling features on outcrop C of the SDi-8066 site.

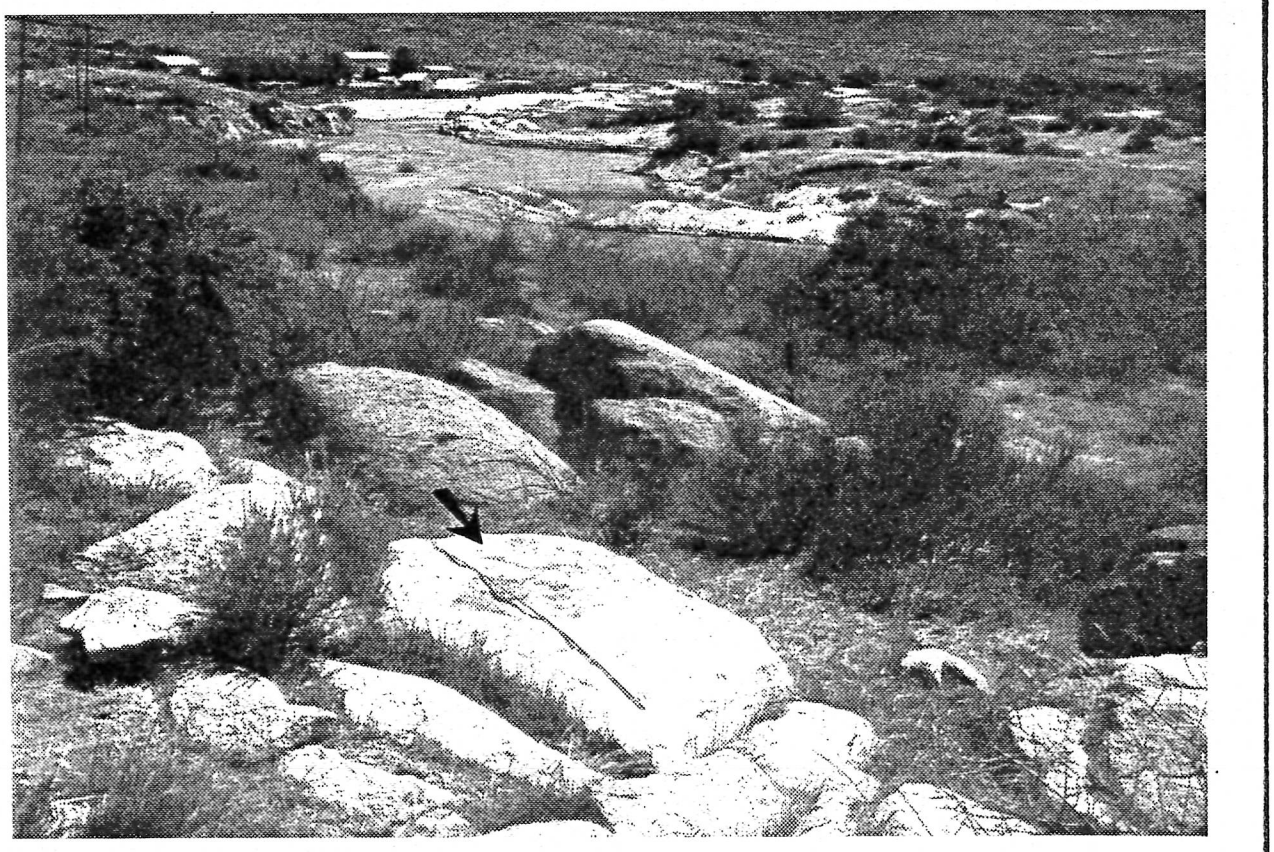


Figure 159. The SDi-8066 site, outcrop C, looking north.

SDi-8067

The SDi-8067 site is a Hakatayan Tradition occupation area with several bedrock milling features and a widely dispersed scatter of camp debris. The site is situated in a sheltered cove at the base of the hills on the western side of Boundary Creek, southwest of the modern railroad station, as shown in Figure 160. A general map of the site is provided as Figure 161.

Archaeological materials are spread over an area about 400 feet by 320 feet in extent, including a flat area on the ridge high above the southern side of the bowl. Tizon Brown Ware and Buff Ware potsherds are present, as well as a cobble mano fragment, a scraper, two hammerstones, and many basalt flakes.

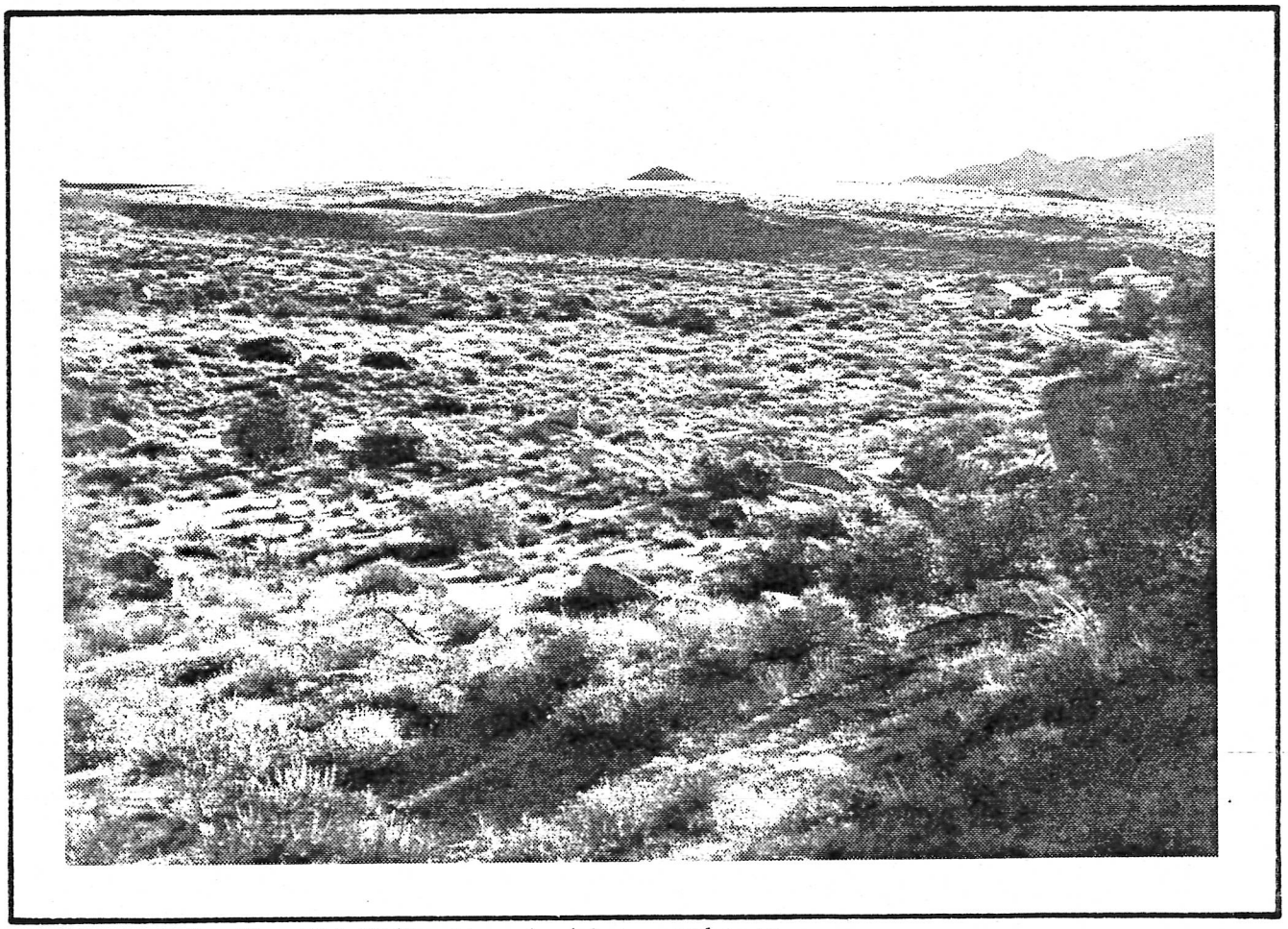


Figure 160. The SDi-8067 site, looking northeast.

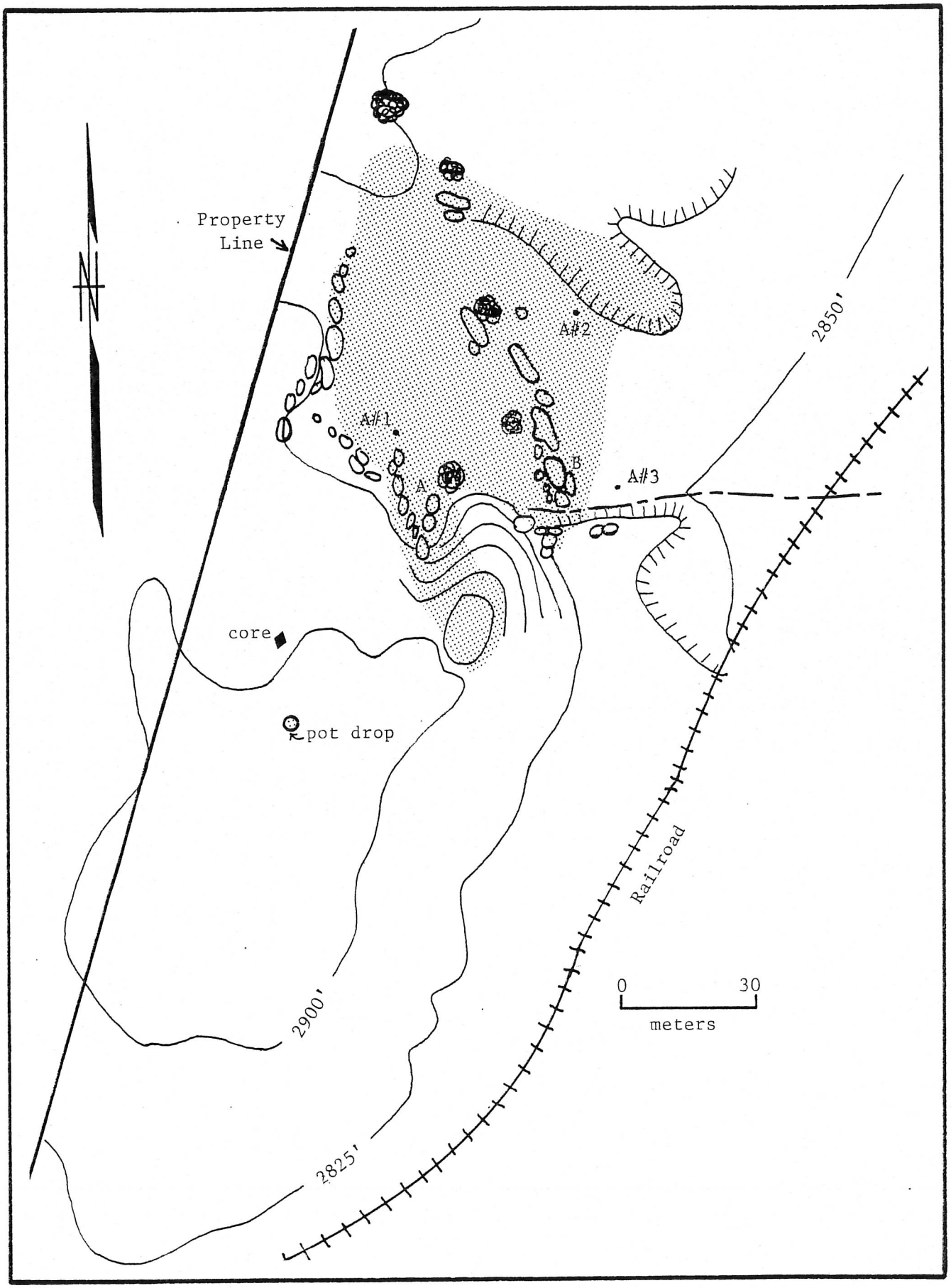


Figure 161. General sketch map of the SDi-8067 site, showing locations of the milling outcrops (A and B), extent of the surface artifact scatter (shaded), and the locations of the soil auger tests (A#1-3).

The soil developed in the site area is a decomposing granite loam. Three soil auger tests in various promising areas failed to clearly demonstrate the presence of any subsurface archaeological midden soil deposit, except possibly in A#1 which yielded buried basalt as deep as 11 to 18 inches. The results of the tests are summarized in Table VIII.

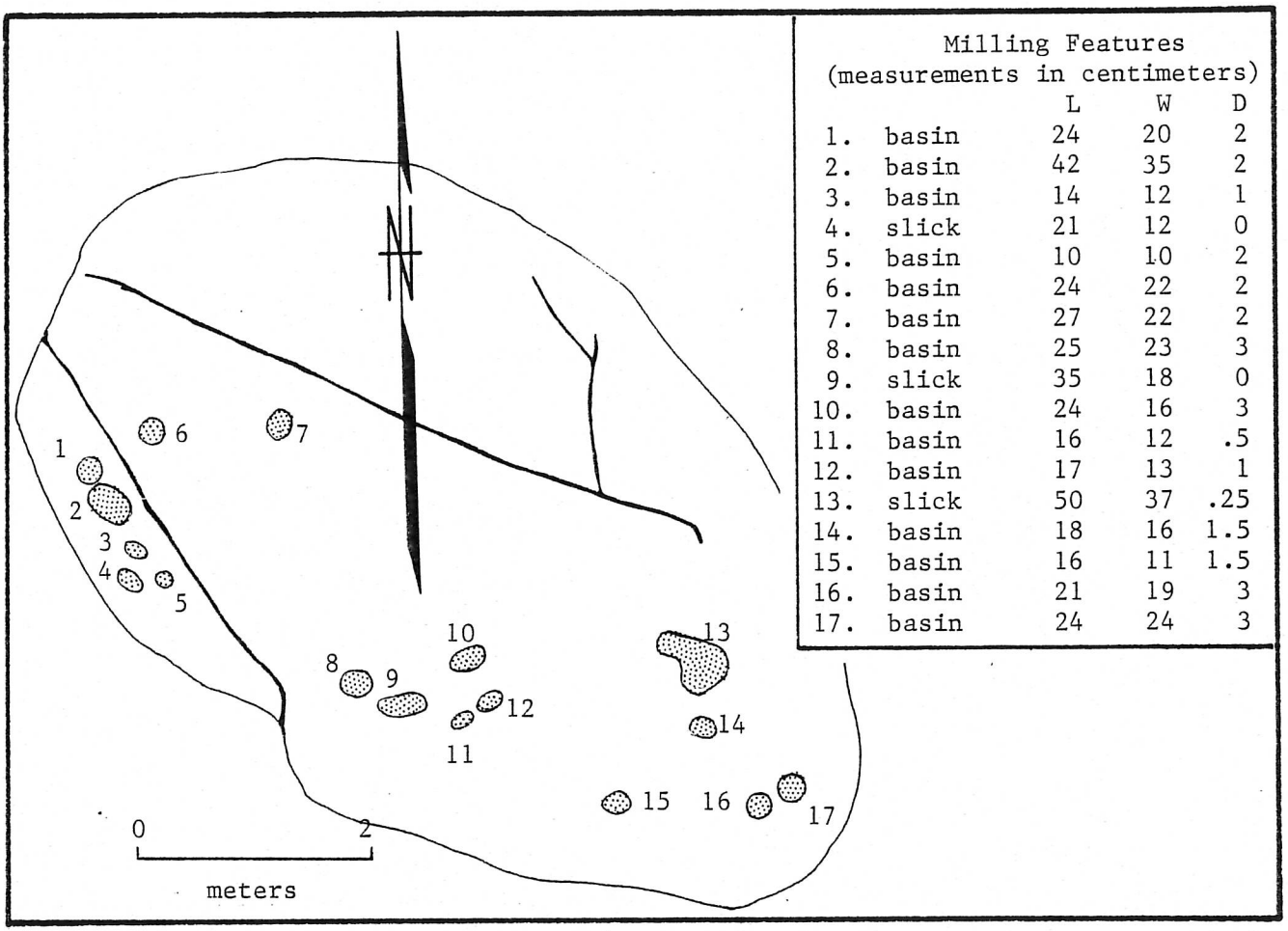
Most of the exposed bedrock is weathering badly and would not have preserved any milling features once present. Only two outcrops retained identifiable milling features, these outcrops had a total of 16 milling basins and 6 milling slicks. They are micro-mapped and illustrated in Figures 162 through 165.

TABLE VIII

SDi-8067, Soil Auger Test Results

Test	Soil	Depth (cm)	Materials Present
A#1	medium brown, fine grained, friable, soft, loam with some decomposed granite	0-28	2 basalt flakes* (*lots of material on surface nearby).
		28-47	2 massive basalt flakes.
	yellow, coarse, compact, decomposing granite	47+	(sterile)
A#2	light brown, friable, loam with much, coarse, decomposed granite	0-33	1 basalt flake* (*lots of material on surface nearby).
	medium brown, friable, loam with coarse decomposed granite	33-75	(sterile)
	white, coarse, compact, decomposing granite	75-78+	(sterile)
A#3	light brown, friable, loam with coarse decomposed granite	0-40	1 Buff Ware sherd.
		40-60	(sterile)
	stopped by rocks	60+	(sterile)

There is considerable archaeological material on the surface of this site, and there probably are subsurface materials in selected areas. Unlike most of the other sites surveyed which are in basically exposed locations, this site is situated in a sheltered cove at the base of the hills. Representing a different settlement pattern, this site might yield archaeological remains somewhat distinct from the other Hakatayan Tradition sites in the area, thus, contributing significantly to the heritage of the region.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	24	20	2
2.	basin	42	35	2
3.	basin	14	12	1
4.	slick	21	12	0
5.	basin	10	10	2
6.	basin	24	22	2
7.	basin	27	22	2
8.	basin	25	23	3
9.	slick	35	18	0
10.	basin	24	16	3
11.	basin	16	12	.5
12.	basin	17	13	1
13.	slick	50	37	.25
14.	basin	18	16	1.5
15.	basin	16	11	1.5
16.	basin	21	19	3
17.	basin	24	24	3

Figure 162. Micro-map of the milling features on outcrop A at the SDi-8067 site.

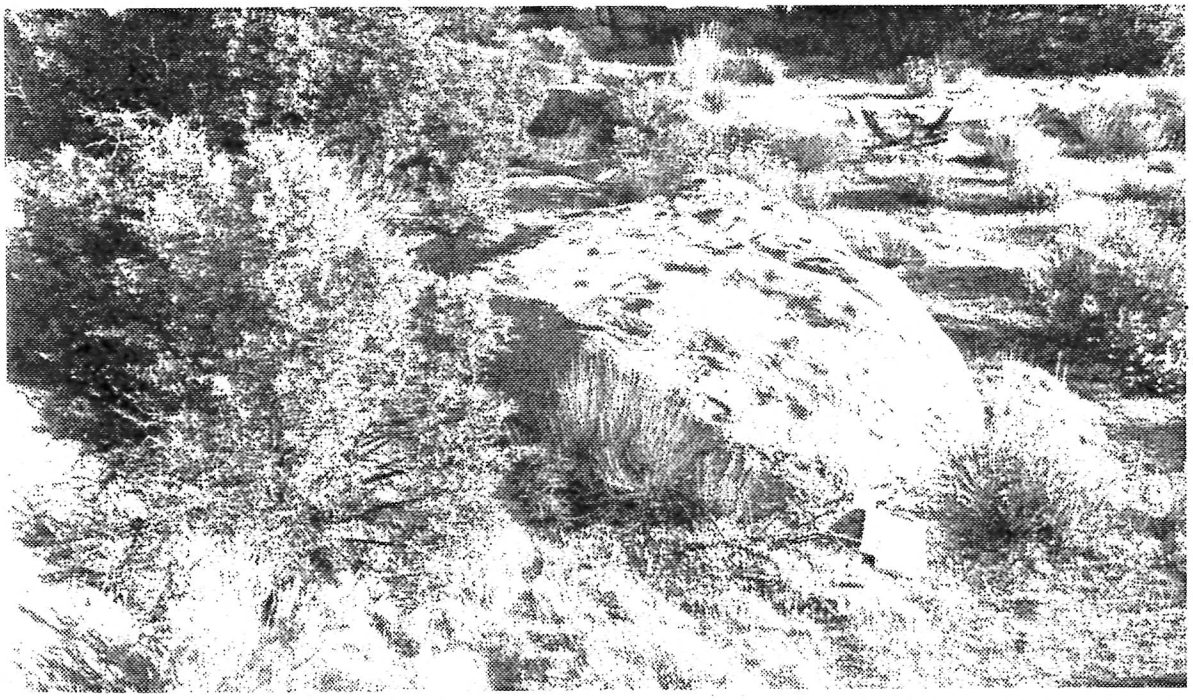
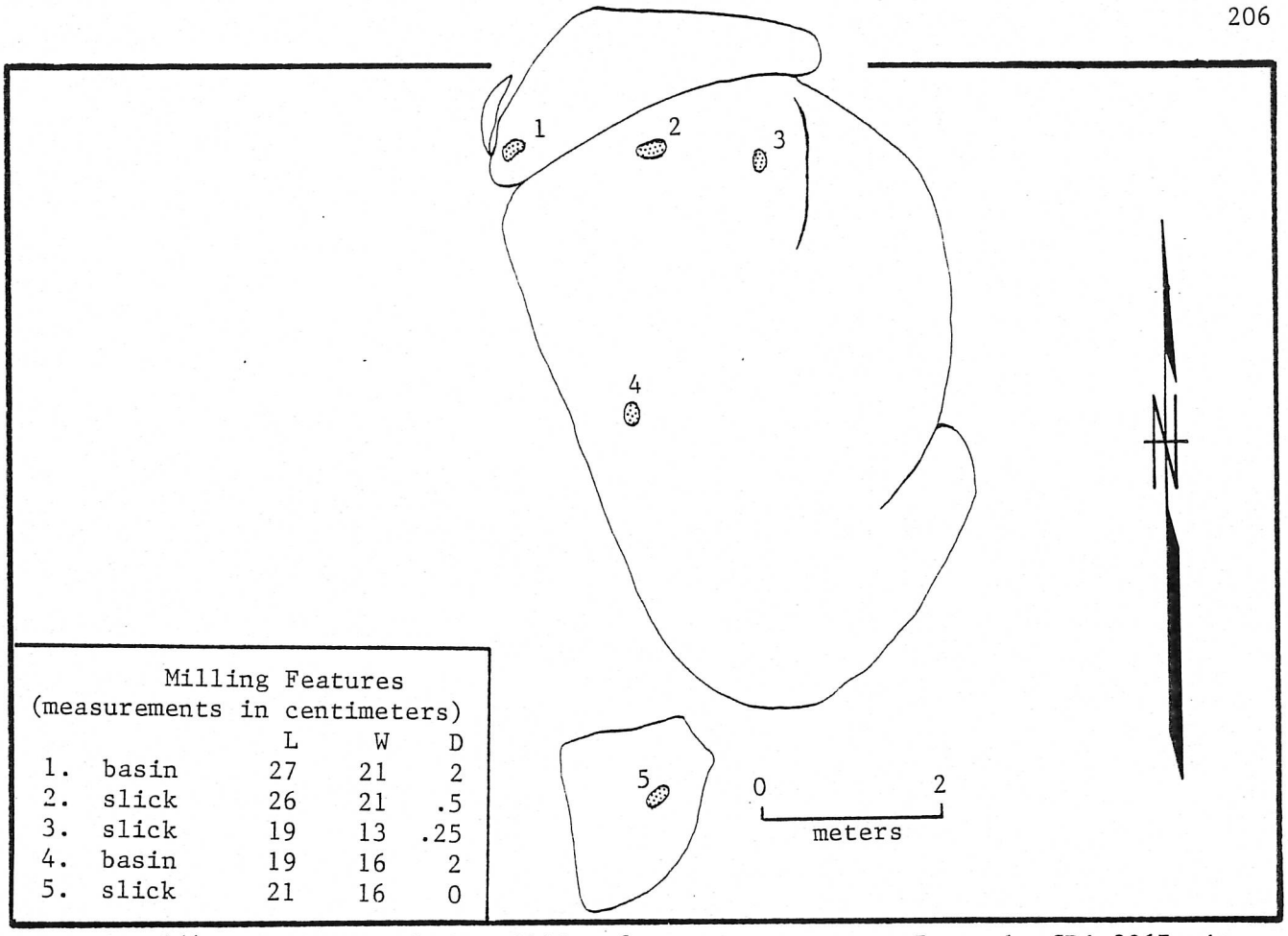


Figure 163. The SDi-8067 site, outcrop A, looking north.



Milling Features
(measurements in centimeters)

		L	W	D
1.	basin	27	21	2
2.	slick	26	21	.5
3.	slick	19	13	.25
4.	basin	19	16	2
5.	slick	21	16	0

Figure 164. Micro-map of the milling features on outcrop B at the SDi-8067 site.

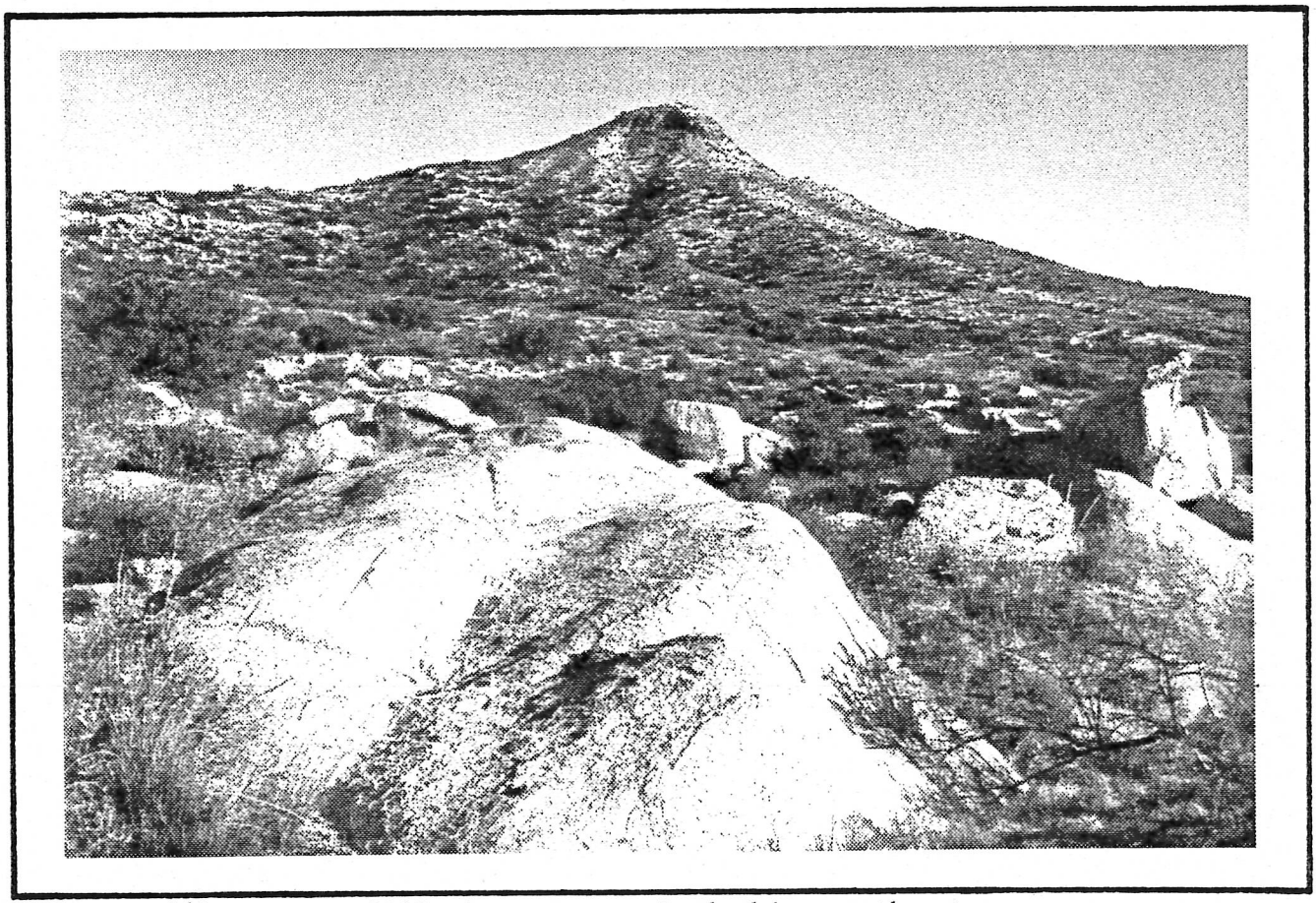


Figure 165. The SDi-8067 site, outcrop B, looking northwest.

SDi-8068

The SDi-8068 site is a workshop and lithic scatter with a nearby milling feature. It is situated along the crest of a ridge extending down the flank of Jacumba Peak with the same type of ancient, alluvial surface as the SDi-7030 site, which is directly north. The site is shown in Figure 166, and the location is mapped in Appendix IV.

There are archaeological materials to be found over an area about 240 feet by 80 feet along the ridge. There is a greater concentration of basalt cores and flakes along this ridge than over most of the similar SDi-7030 site loci. No sherds of pottery were observed, however.

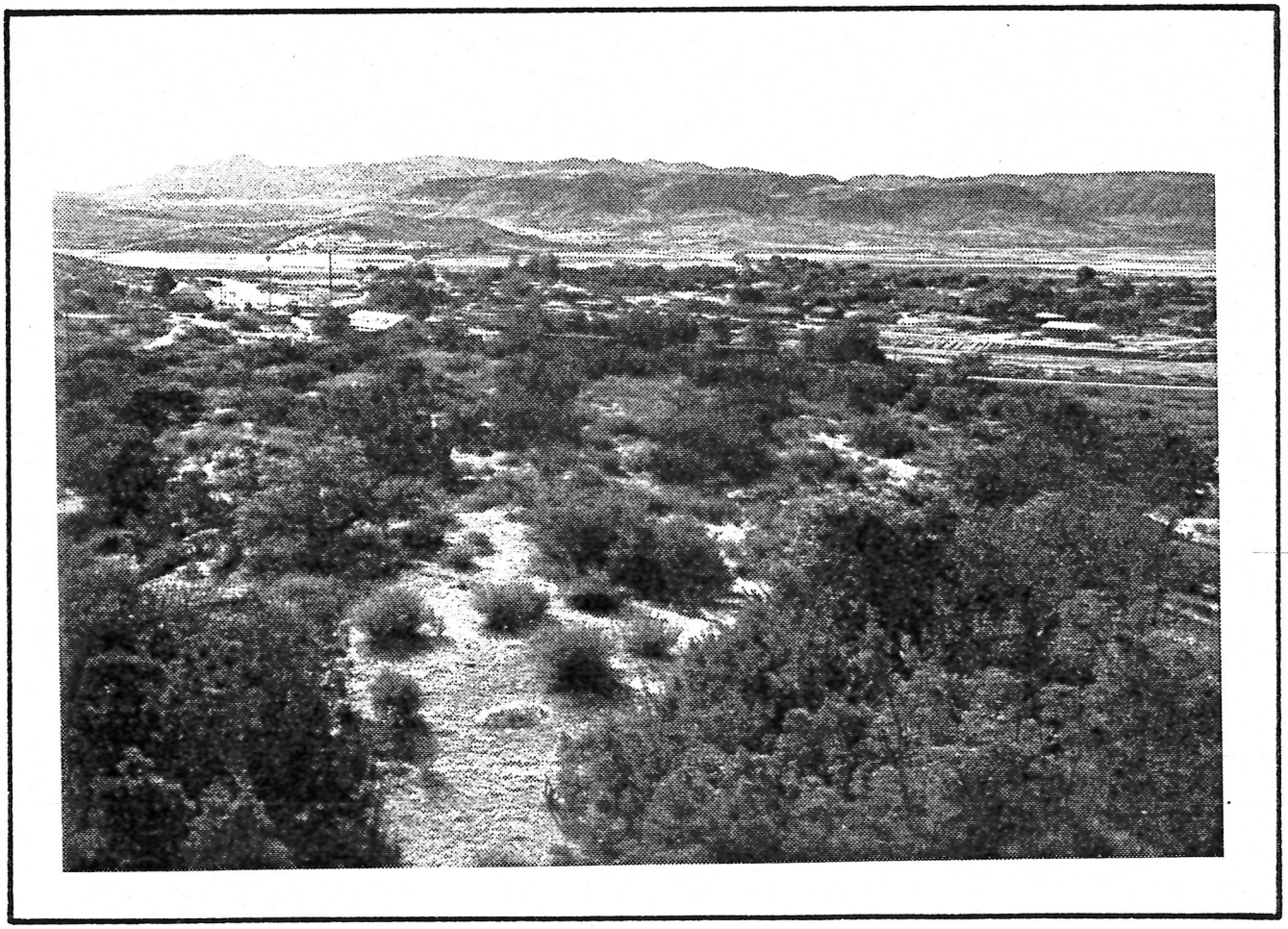
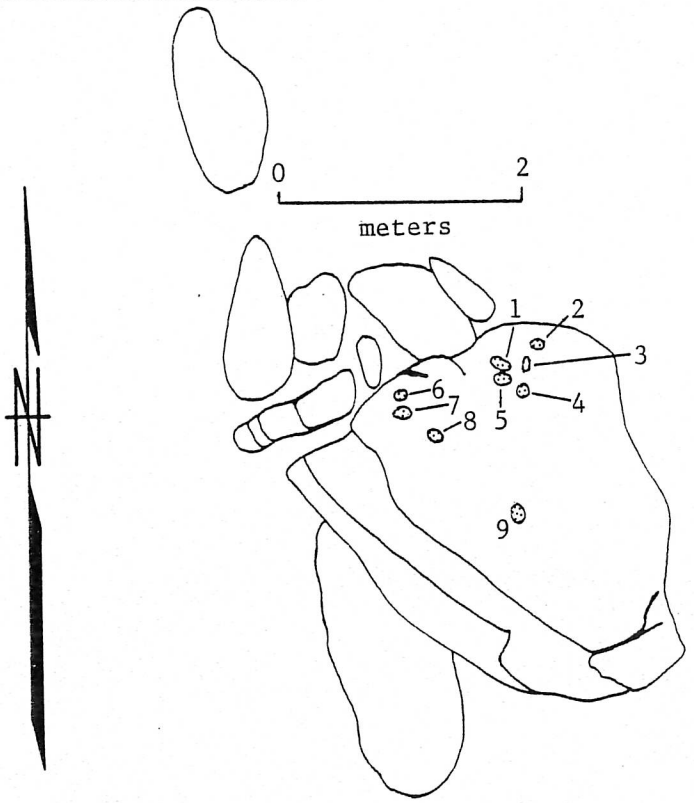


Figure 166. The SDi-8068 site, looking southeast.

At the western end of the site, there is one large granite exposure with a flat top with five milling slicks and four milling basins worn in it. It is the only bedrock outcrop on the ridge suitable for a milling station. A micro-map and photograph of this milling feature is provided as Figures 167 and 168. While such milling features are usually associated with the Hakatayan Tradition locally, this site lacks the pottery usually found on such late sites. The actual cultural tradition or traditions represented at this site are uncertain.

As with the SDi-7030 site, the cutlural affiliation and pattern of the prehistoric materials at the SDi-8068 site has yet to be clearly established, and their potential importance remains to be clarified.



Milling Features
(measurements in centimeters)

		L	W	D
1.	slick	20	14	0
2.	basin	19	16	2
3.	slick	32	18	1
4.	slick	31	14	.25
5.	basin	20	19	2
6.	basin	17	14	2
7.	slick	17	15	0
8.	slick	15	8	0
9.	basin	20	16	1

Figure 167. Micro-map of the milling features at the SDi-8068 site.

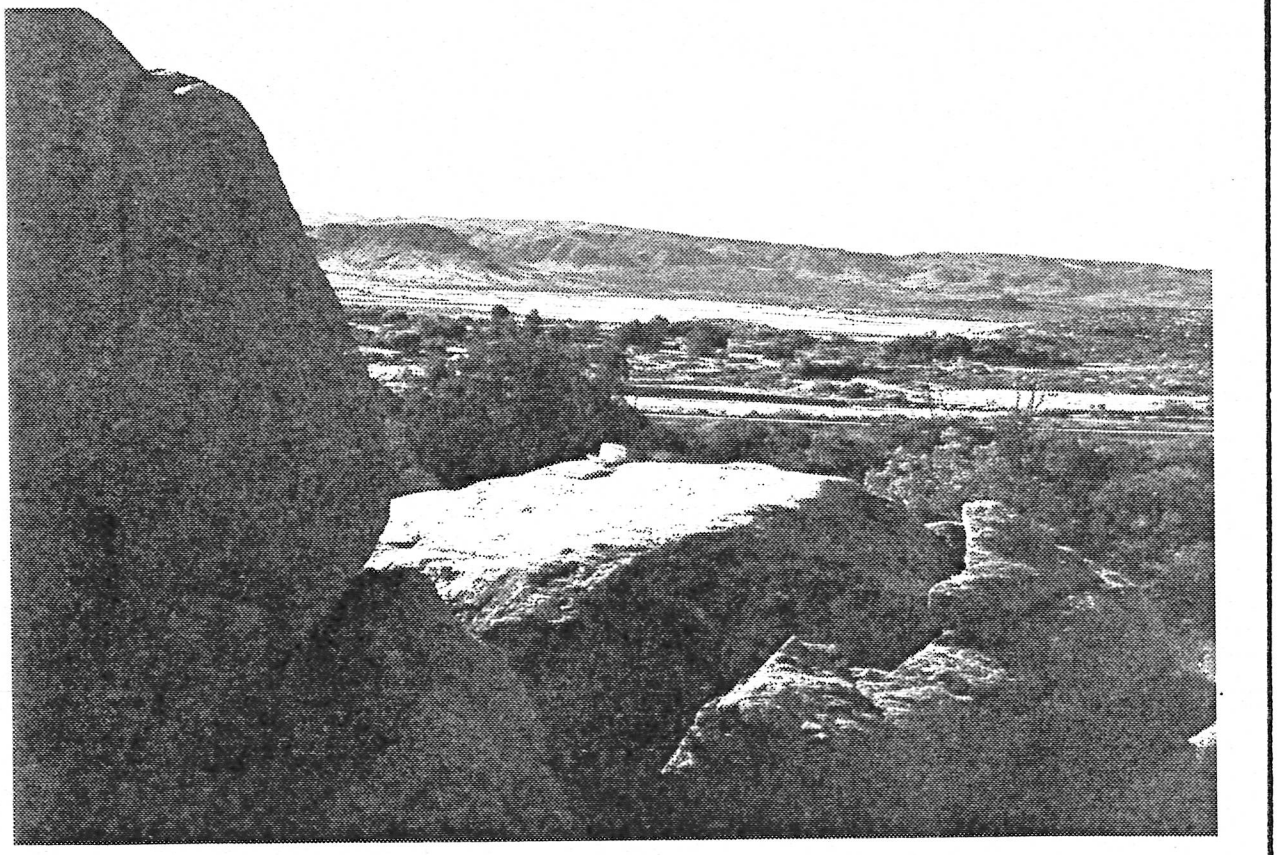


Figure 168. The SDi-8068 site outcrop with milling features.

SDi-8069

The SDi-8609 site is a small concentration of lithic flakes and cores near the base of the ridge below the larger Locus B of the SDi-7030 site. It is similar in all aspects to that site. The location is pictured in Figure 169 and mapped in Appendix IV.

SDi-8070

The SDi-8070 site is a relatively small and sparse scatter of basalt flakes near the base of the ridge below the larger Locus C of the SDi-7030. It is similar in all aspects to the SDi-7030, SDi-7031, SDi-7032, and SDi-8069 sites, and the principal material of the SDi-8068 site. All of these sites are probably related and reflect similar activities. The SDi-8070 site is shown in Figure 169, and the location is mapped in Appendix IV.

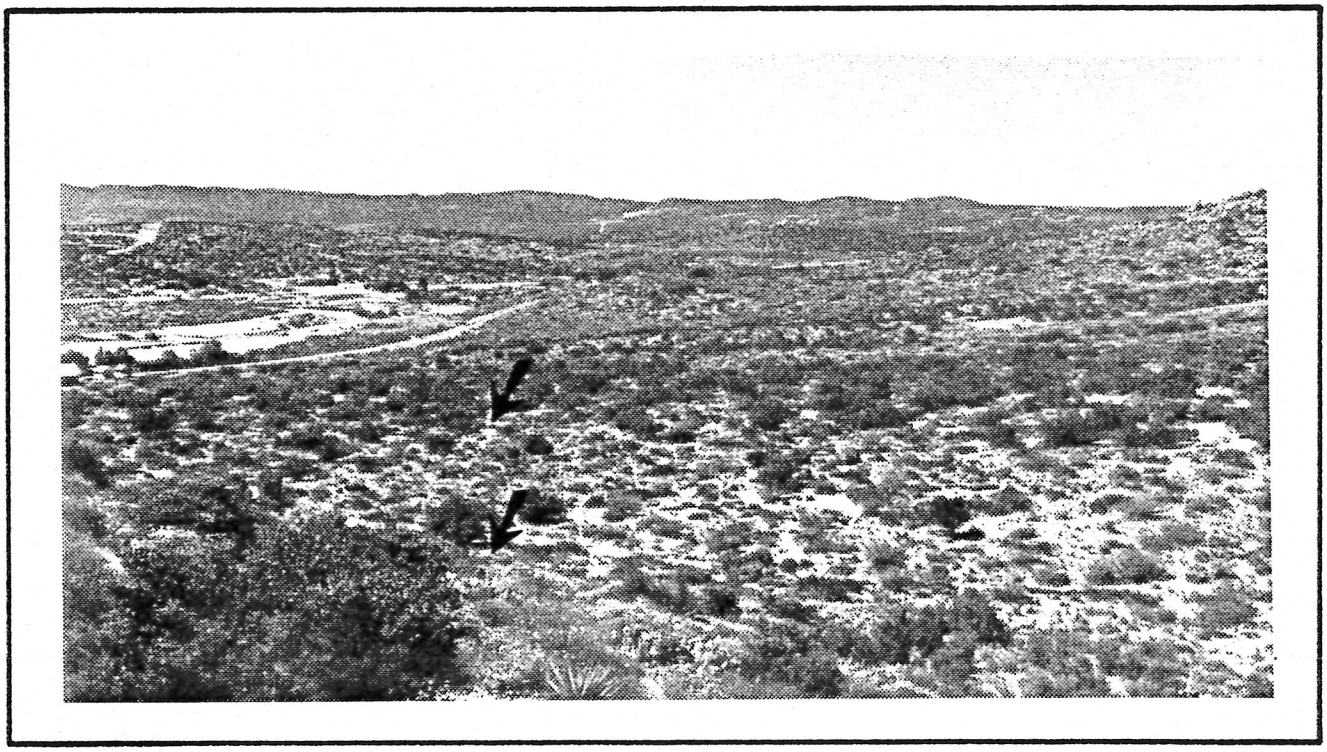


Figure 169. The SDi-8069 and SDi-8070 site locations on the alluvial slopes below Jacumba Peak, looking south.

SDi-8071

The SDi-8071 site is actually the remnant traces of a site which is now almost entirely graded and developed. All that remains is a sparse scatter of lithic flakes. This site is situated on a mesa bisected by Boundary Creek directly east of the railroad station. No archaeological midden soil deposit or other materials were observed. The location is mapped in Appendix IV.

This area has been eroded and graded by the channelization of the creek. Most of the mesa on the north side of the channel has been graded and developed for the railroad center, and residential developments are present over most of the mesa on the south side of the creek channel. The integrity of this site is essentially gone.

SDi-8072

The SDi-8072 site is a highly diffuse scatter of Hakatyan Tradition camp debris. This disrupted site is situated in the cultivated fields on the eastern side of the community. The fields on the north side of Old Highway 80 are covered by a verdant growth of foxtails, and the fields on the south side of the highway have been long fallow and are regrowing native scrubs. However, there is a long, narrow zone through these fields which has relatively little plant cover, as if the underlying soil were distinct and held less plant-supporting moisture. The surface soil to either side of the site is a very fine clayey silt which has washed in when these fields are flooded. The soil along the site area actually appears similar to very fine silt. However, this may be a very low ridge of older alluvium in the valley floodplain where flood channels used to run on either side. If so, it would have provided an occupation area adjacent to low lying areas of marsh or possible agricultural fields. With the historic era development of this land as cultivated fields, dykes have been raised around these fields and flood water has silted them nearly level, apparently to just about the height of this presumed alluvial ridge. Plowing and discing within the fields have further obscured the situation.

Archaeological materials were observed over a zone 2200 feet by 350 feet in the fields. Included were sherds of both Tizon Brown Ware and Buff Ware pottery, fragments of two cobble manos, a milling basin fragment, a scraper plane, several hammerstones, cores, and basalt flakes. Three soil auger tests located near observed surface materials all found

the subsurface to be fine, silty loam without any trace of archaeological materials. The specific results of the soil auger tests are presented in Table IX. The site location is illustrated in Figures 170 and 171, and mapped in Appendix IV.

This site area has been considerably disrupted. The fields have been long cultivated for agriculture, flooded and silted over, and trampled as cattle pasture (cattle tracks are impressed up to six and eight inches deep in the now hardened but once soggy clayey silt). The archaeological remains observed are so widely dispersed that their relationships to one another can only be presumed, and little, if any, integrity of the prehistoric activity patterns one represented remains intact. Apart from recording the apparent location, the site appears to have little, if anything, to contribute to the regional heritage.

TABLE IX

SDi-8072, Soil Auger Test Results

Test	Soil	Depth (cm)	Materials Present
A#1	medium brown, very friable, fine grained, silty loam with a little decomposed granite	0-25	(sterile)
	same soil but very compact and hard	25-40+	(sterile)
A#2	medium brown, very friable, very fine grained, silty loam	0-70+	(sterile)
A#3	medium brown, friable, very fine grained, silty loam	0-72+	(sterile)

Figure 170. The SDi-8072 site location in the middle of the now flat, cultivated fields of the Jacumba Valley, looking southeast.

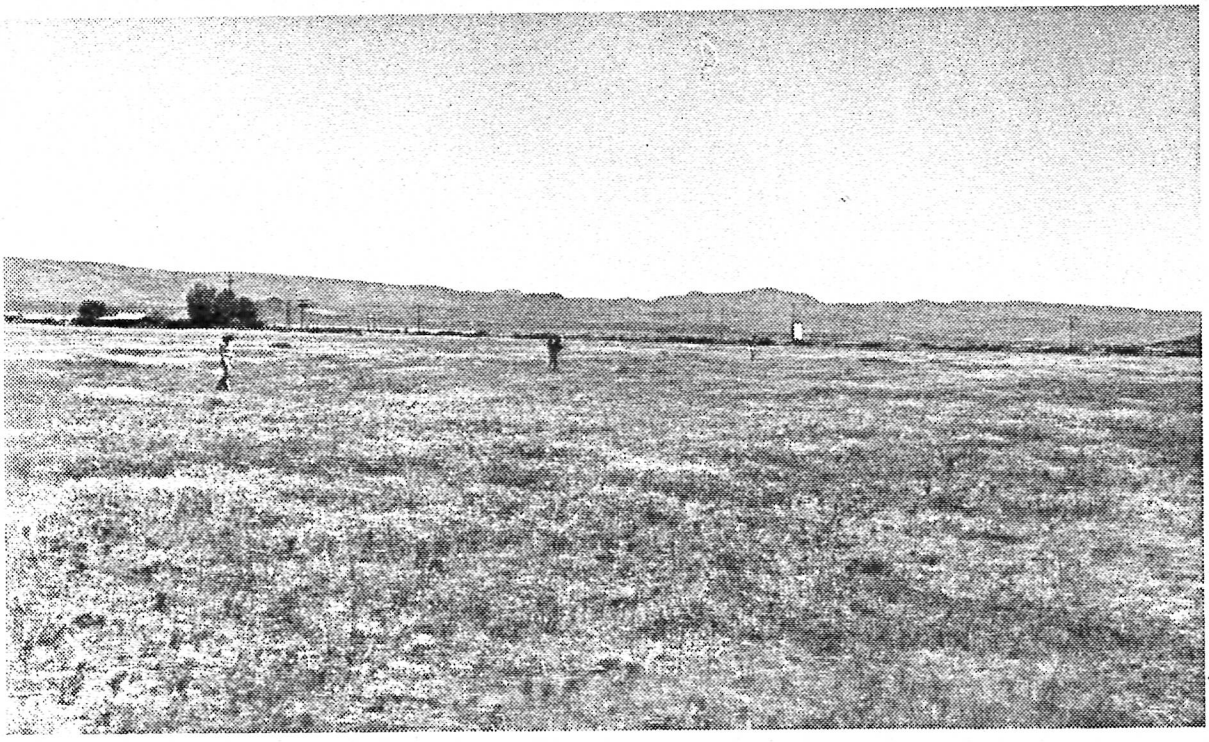


Figure 171. The northern portion of the SDi-8072 site, looking southeast toward Old Highway 80.

Isolated Prehistoric Finds

Twenty finds of isolated archaeological itmes were made during the survey. These finds were left in place but their locations are plotted on the 1" = 200' scale map provided as part of Appendix IV.

The majority of the finds were single lithic flakes found near the foot of the ridge at the northwestern end of the property. Several flakes were also observed out on the valley floor in areas of heavy silting and alluvium. In each case, these flakes were without any other archaeological associations. These items probably represent prehistoric tool resharpening activities during either plant food gathering or during animal butchering.

A single sherd of Buff Ware pottery was observed near the western edge of the survey area, just north of the railroad line. Two sherds of Tizon Brown Ware pottery were discovered elseware on the property, one was located near the base of the ridge north of the town and the other was found out on the valley floor to the south. Intensive searches at each of these locations failed to identify any additional items of archaeological significance. It is possible that these potsherds were once part of storage ollas placed in hidden supply caches. If so, the ollas became broken, and the pieces have eroded down and disappeared into the soil.

Two isolated scraping planes were observed near the northern boundary of the subject property. These artifacts probably represent plant and animal processing away from habitation sites.

In all, two hammerstones were noted at isolated locations on the Jacumba property. One was identified near the western property line, near the foot of the ridge. Another was found out on the valley floor, east of the Intermediate Locus of the SDi-4455 site. These artifacts

could represent either the in-field production or reshaping of stone tools or for seed cracking activities.

Two lithic cores were encountered near the foot of the ridge west of the town and railroad line. These objects are the residue of stone tool production.