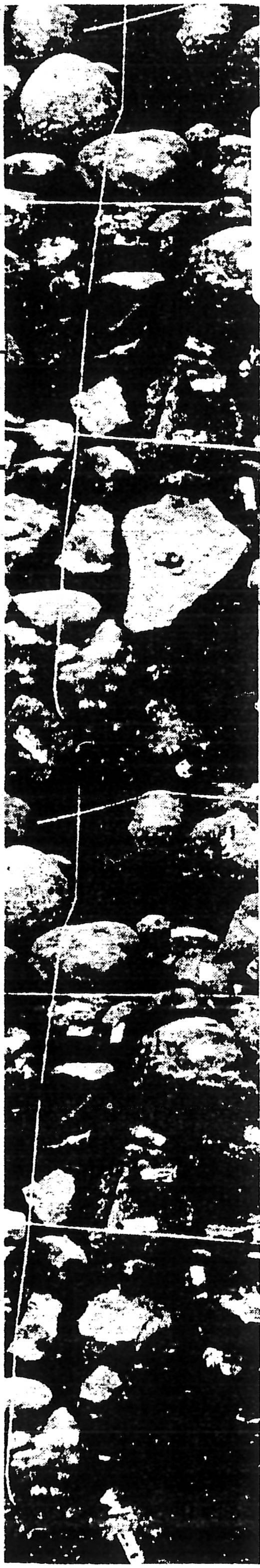

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RANCHO PARK NORTH

A SAN DIEGUITO - LA JOLLA SHELLFISH PROCESSING SITE IN COASTAL SOUTHERN CALIFORNIA

by
Russell L. Kaldenberg

IVC MUSEUM SOCIETY, EL CENTRO, CALIFORNIA

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92243

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This work has gone through several phases: first as an archaeological report resulting from an Environmental Impact Report required by the County of San Diego through the California Environmental Quality Act (Kaldenberg and Ezell 1974); then as a masters thesis from San Diego State University (Kaldenberg 1976); and several professional papers (Kaldenberg 1975 and 1976, and Kaldenberg and May 1975); and finally its current form as a published monograph. This monograph is the first complete publication with all C14 dates and artifact analyses.

Since the work has been revised and reworked over a period of six years, there are a number of people for whose thoughts, foresight, assistance and persistence I wish to thank and acknowledge.

My undergraduate and early graduate days were greatly influenced by Margaret Conkey, John M. Fritz, the late Francois Bordes, Jean-Phillippe Rigaud, Frank Latta, and Chester King, all of whom taught me, through personal contact and the written word, that archaeology is an eclectic mergence of anthropology and of the hard sciences. Data are collected and analyzed so that we may see human and environmental systems interact. We are looking at data so that we can understand people who have preceded us and attempt to comprehend something about their daily lives and human values.

From my graduate years onward I have been indebted to more people all the time. A great debt of gratitude is owed my mentor, Dr. Paul Ezell. To Jay von Werlhof I owe my thanks for encouraging this publication and for giving me insight into the surface archaeology of the Southern California desert. Gerrit Fenenga is to be thanked for his late night discussions, over tall glasses of cheap wine, about California archaeology. Mike Moratto encouraged me to publish this monograph without further delay. My friends John R. Cook, Brian Mooney, Ron May, and Charles Bull have assisted since the beginning of the project and persist in being my most powerful critics. John did the background research for the prehistory section and authored the original draft of that section. N. Nelson Leonard III has continued to encourage me to make the study available to the archaeological public. Bill Olsen has persisted in making me become an anthropological archaeologist within a structured bureaucracy.

Both E. Henry James and his late wife Edith are responsible for teaching me about the Northern Deserts, as is Dr. E. L. Davis.

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My wife, Judyth E. Reed deserves a special accolade for helping me to reassemble this data and for acting as my grammatical editor for this volume. My son Casey, and daughter Cathy have put up with some degree of childhood neglect in the face of this project.

It should be noted that, while dozens of people contributed some portion of their lives to this report, I alone bear the responsibilities for any and all inaccuracies, inconsistencies, errors of logic, or any other persisting deficiencies.

Thank you one and all.

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Paul H. Ezell was the project archaeologist and this author was the supervisory archaeologist.

CHAPTER 1

INTRODUCTION

BACKGROUND

Since the passage of the California Environmental Quality Act of 1970 (CEQA), and The California Supreme Court Decision in the Friends of Mammoth case in 1972, archaeologists in California have moved from pure academia into the public and private sectors of American life. This movement out of the universities and into the realms of public and private enterprise has caused a growing interest in the goals, ethics, and principles of those engaged in Public Archaeology. It is my contention that the only real and viable difference between anthropological archaeology as conducted through the auspices of scientific research funded by foundation grants and archaeology funded by the private business sector is one of temporal responsibility. The group or individual involved with grant generated monies is more likely to have additional time in which to prepare a scientific assessment than those operating under fixed deadlines in the private sector. Reasons vary from the absence of planning on the part of the developer to economic constraints caused by high interest rates on land held in escrow. Oftentimes the interest being paid on land awaiting archaeological research is greater than the costs of the excavation (City of Irvine 1975; Sharpe 1975).

It was with the above considerations in mind that during the summer of 1974, under the project directorship of Dr. Paul Ezell, I agreed to undertake an archaeological excavation for Great Western Savings and Loan Association of Beverly Hills, California, on a proposed residential development named Rancho Park North.

Following the then recently adopted First Addendum to the County of San Diego Environmental Review Procedures (1974), a five percent test excavation on two prehistoric sites was begun June 22, 1974. Site SDM-W-49, Rancho Park North, Site A (later renamed Great Western Site A) proved to be so important in understanding San Diego County Prehistory that additional mitigatory action was recommended. Site CAL:A:16:30, also called Great Western Site C, produced data which were indicative of only a short-term, single component nature, thereby necessitating no additional excavation.

A research design was prepared, following the test excavation, which would investigate the relationship between W-49 and the exploitive behavior of the group of people who had occupied the site. Sufficient evidence was gleaned from the test excavation to indicate that the site was a habitation location utilized by the San Dieguito peoples to exploit estuarine and lithic resources from the vicinity of Batiquitos

Lagoon and the San Marcos Creek drainage system. At the time this author believed that the site was in excess of 10,000 years old. On July 29, 1974 the crew commenced a research salvage excavation. This was the first research mitigation ever imposed by the County of San Diego. The crew continued that phase of fieldwork until August 20, 1974. For the next few years, analysis has continued. Kaldenberg and Ezell (1974) prepared a report on the salvage excavation which was submitted to the County of San Diego Office of Environmental Management. During the Fall of 1975, Dr. Dennis O'Neil of Palomar College, San Marcos, California, engaged in additional field research at W-49. This excavation provided the data for my Masters thesis (Kaldenberg 1976). In July of 1980 Kaldenberg (1980) redefined the boundaries of the site for the purpose of in situ preservations of the remaining portions of W-49A.

ANALYTICAL HYPOTHESIS

Culture is the basis of all anthropological research. It consists of all the patterned behavioral systems by which any group of humans adapts to the external environment. Following theoretical concepts proposed by Steward (1955), Flannery (1967), Harris (1968), and Spaulding (1968), the goals of anthropological research in general, and archaeological research in particular, are the explanation of how cultures adapt and how and why they change. Julian Steward's cultural ecological premise and Marvin Harris' cultural materialism both focus on the interactions between cultural behavior and the natural environment. These authors believe that culture and its parts are generally variables which are dependent upon the material aspects of cultural adaptations including the environment, demography, technology, and the economic exploitation of the natural resources. To comprehend any type of cultural adaption or cultural-technological change, an understanding of the nature of adaptation depends upon the discernment of those relationships.

Processes of change in the archaeological research of Far Southwestern Archaeology have all but been ignored. Various authors have articulated a plethora of reasons for culture complex changes in this region, including migrations (Rogers 1945; Warren 1967; Moriarty 1969), climatic fluctuations (Warren and True 1961; Warren and Pavesic 1963; Moriarty 1969; Kaldenberg and May 1975), demographic reasons (Davis, Brott, and Weide 1969; Moriarty 1969). A number of authors have recently discussed technological change in Southern California, ignoring the stone tool record and concentrating on general classes of material or upon the linguistic "record" (Bull 1977 and Bull 1980). Davis (1980) has proposed looking at items such as Pleistocene deposits, stone alignments, and unconventionally patterned stones which she calls "teks: and "morphs" in order to get at culture change in the Southern California region.

Where change is visible in the archaeological record it is assumed that there is also a change in ethnicity (Rogers 1945:171; Moriarty 1966:23), a metamorphosis from one distinct ethnic group probably with a different language, et al, to another. Thus far, no author has proposed reasons for technical change occurring in the archaeological record of Coastal Southern California which can be documented using both archaeological field methods and scientific laboratory analysis. Moriarty (1969:2-18) indicates that the reason changes occurred in archaeological complexes was due to the increased aridity of eastern California environments beginning about 6000 years ago. This desertification stimulated groups of people in the deserts to migrate to the Southern California coasts and either amalgamate with the local residents or displace them. Moriarty did not examine any site systematically by excavating numerous units, instead he excavated several sites with a few units. Rogers (1939) also felt that he could see different cultures represented on the ancient shorelines of playas in the desert, and as such proposed different stages of cultural development from them. He, of course did not consider either foodstuffs or workshop shifts in economy, but related it to ethnic change. It is my philosophy that one of the basic problems confronting local archaeologists has been the failure to use cultural process ideals while retaining stringent archaeological control. The loss of one cannot compensate for the ideal treatment of the other. They must complement one another in both theory and practice.

Although the material manifestations of three archaeologically identified cultural complexes were discovered at Rancho Park North, the two complexes which will be emphasized within this monograph are the basally occurring cultural horizon, termed the San Dieguito (Rogers 1939), and the medially situated culture, the La Jolla Complex (Rogers 1945). The late prehistoric phase, which will only be discussed generally since it is only partially relevant to the discussion of the site, was either the Luiseno culture or the Yuman III aspect of the Northern Dieguino or Kumeyaay.

The hypothesis developed and tested in this monograph is that at some particular time, between 7,000 and 8,000 years ago, the generalized hunting technology of the San Dieguito Complex as evidenced at Rancho Park North, underwent a transition.

A technology dominated by scraper-planes, blades and knives, and comprised of various desert lithics, added tools not associated with hunting-gathering but associated with a milling and seed grinding economy archaeologically known as the La Jolla Complex. It is proposed that this change in technology was the result of a cultural response to an environmental stimulus, where hunting-gathering and collecting economies were superseded by seed-gathering and economic plant food harvesting. Rather than migrate to more favored hunting environs, the people of the San Dieguito Complex adapted their technology to the dry conditions of the

Altithermal, a time when less ground water and probably less small game was available in the littoral zone (Baumhoff and Heizer 1965:697-707). The adaptations were not severe because the San Dieguito peoples at W-49 had been exploiting shellfish resources from the local estuaries since at least 8,400 B.P. (Years Before the Present). Added to the tool-kit were milling stones to augment seed processing. These milling stones are all unifacial manos which were made on unshaped, unmodified cobbles. Other variables which will be examined in this thesis include the local environmental conditions including physiography and hydrology, the local paleo-botanical record, the paleo-faunal record (especially molluscan remains), and the lithic assemblage. It is also proposed that Rancho Park North was a village site which was never completely abandoned but was reused by the various local hunting-gathering peoples practicing the seasonal rotation for over 8,000 years.

The change from the Paleo-Indian Tradition to the Archaic Tradition has been of great interest in anthropology (Flannery 1967). However, there is great professional debate over the definition of Paleo-Indian. Wormington (1957:3) defines it as

> . . . referring to people who hunted animals which are now extinct, to the people who occupied the western United States prior to about 6,000 years ago, and to the makers of the fluted points found in the eastern United States.

Clarke (1968:32) believes that the term "Paleo-Indian probably reflects no more than widely diffused technologies in use in similar contexts although undoubtedly subsuming true entities of cultural status." If it is assumed, as do most of the local prehistorians, that the San Dieguito is the local manifestation of the Paleo-Indian, then Wormington's definition is void, since we have no evidence that the San Dieguito hunted extinct animals, nor do we have local evidence of fluted points. We do, however, have dates for several San Dieguito Complex sites greater than 6,000 years of age (Kowta 1969), and there is a continuity in technologies over a very large area as proposed by Clarke (1968), who sees the Paleo-Indians as being a series of lithically-oriented "industries united by the possession of large flint projectile points, some of them noted for the hunting of specified species" (Clarke 1968:327). Any change in such a widespread industry would be construed as a techno-complex change, reflected in both technology and subsequent cultural changes so that the old techno-complex is no longer a stable strategy for cultural interaction with the environment. The results of such a change in strategy are either technological change or environmental change in the form of population movement into other compatible environs.

The adoption of new means for coping with the environment and the cultural adaptation to that environment is considered to involve the:

> . . . formation of a new techno-complex [and] is therefore largely a matter of the general acquisition integration of certain widespread variety and its augmentation by internal invention or convergent lines (Clarke 1968:332).

Therefore, while the San Dieguito peoples probably exploited large-game and practiced the rotational harvest, fluctuating seasonally between the hinterlands to the east and the littoral of western San Diego County, either over-exploitation (Martin and Wright 1967) of large game, or the aridity of the Anathermal (Baumhoff and Heizer 1965), or both, stimulated an entire techno-complex change throughout coastal California. In order to show a climax cultural development, the San Dieguito had to situate their territory astride several closely associated ecological zones, and by such successive exploitation they could have achieved settlement stability. According to Clarke (1968:336), this usually embraces a land and sea strip with deep-sea, marine shallows, littoral, estuary and river, inland forests and lakes, as ecological niches with a great variety of resources with a rotational harvest. All of these ecological zones with all of the above mentioned components can now be located within a twenty-mile radius of Rancho Park North. During the Altithermal much more ground water (Baumhoff 1965) was available than at present; therefore it is assumed that these eco-zones were closer to the site than current evidence indicates.

The presence of gregarious staple resources in a small area can be suggestive of cultural stability. The depletion of one resource, for example big game, still leaves shellfish, acorns or seeds found in grassland and chaparral communities for a stable subsistence alliance. The presence of varied resources set the stage for cultural continuity to occur between the early phases of San Diego County prehistoric complexes.

Archaeologists must synthesize their data; therefore, it is necessary to organize wide concepts or cultures expanding many miles and over a great number of years into an acceptable format. The concept of the Archaic stage is generally agreed upon as being later in development than the Paleo-Indian stage. The Archaic is conceded as being a polished and groundstone technological development which is pre-ceramic in placement (Kreiger 1953; Willey and Phillips 1955).

The late V. Gordon Childe (1956:137) felt that

> . . . all cultures under identical environmental conditions are liable to exhibit quite a number of common traits--behavior patterns and archaeological types expressing them are imposed on men by external natural conditions such as raw materials, or at least adaptations peculiarly well fitted to securing survival in a particular environment.

It is possible with this framework to postulate the members of the Paleo-Indian Stage, the San Dieguito, and the members of the local Archaic Stage, the La Jolla Complex, to have been the same people (Rogers 1977:5-6); the latter are only the descendants of the former who have undergone technological change as a result of successful adaptation to environmental stimuli. It is proposed that this local environmental stimulus was the advent of the Altithermal, a meteorological condition which precluded the presence of adequate ground water in the hinterlands and, in effect, caused cultural continuity to transpire on the San Diego coast.

CHAPTER 2

A CRITICAL REVIEW OF THE LITERATURE OF SAN DIEGO COUNTY PREHISTORY

Prehistorians have divided western San Diego County into three major traditions or archaeologically-known cultures (Rogers 1966; Warren 1967; Moriarty 1969). These traditions are the Paleo-Indian, Milling Stone, and Ceramic phases of local historic development. Here, the Paleo-Indian tradition is known as the San Dieguito Complex; the Milling Stone Horizon, the La Jolla Complex; and the Ceramic Tradition is identified as the Yuman III aspect of the Dieguino (Rogers 1945; Moriarty 1969) or the Kumeyaay (Ezell and Kaldenberg 1973) phase.

PRE-PALEO-INDIAN BEGINNINGS

Prior to the Paleo-Indian colonization of San Diego County, it is widely believed by archaeologists that the littoral zone was unoccupied except for a scant hunting-gathering population (Wormington 1957:224). There are those, however, primarily geologists and chemists, who believe that the antiquity of Man in the New World manifests itself in Coastal San Diego County. George F. Carter (1950, 1952, 1954a, 1954b, 1957, 1975) a geomorphologist, feels that he had discovered evidence which places a small but stable hunting-gathering population in the littoral of San Diego County as early as 180,000 years ago (Carter 1975). Carter's dating methods are based upon geomorphological techniques and geological stratification. Artifacts located within his sites, which are primarily in the Mission Valley area, are essentially composed of quartzite cobbles that have been percussion flaked and battered, probably as the result of rolling and tumbling (Wormington 1957:223). Several archaeologists including Witthoft (1955), Moriarty (1975), and Singer (1975), feel that the quartzite core tools and flakes associated with the sites Carter identified are items which were indeed manufactured by humans, and they are not a simple result of naturally-occurring geological processes. The question, though, is when were these artifacts manufactured, and are they *in situ*, or are these artifacts the result of redeposition caused by torrents of water engulfing the various canyons such as those in Mission Valley? Experiments by Taylor (1975) on quartzite artifacts excavated by Moriarty and Minshall (1972) from the Buchannan Canyon site adjacent to Mission Valley indicated that:

> . . . [although] "the manufacture of chipping" event should date to the Pleistocene does not seem to be supported in the case of this particular sample. Based upon fluorine diffusion data, the Buchannon [sic] Canyon sample seems to be associated with the La Jolla materials tested (Taylor 1975: 131-133).

The question as to the antiquity of this site remains unresolved.

Other more recent "believers" in the extended antiquity of humans in the New World are Simpson, who along with Bischoff, have pushed the antiquity of human occupation in the desert near Calico Ghost Town in the Mojave desert to nearly 200,000 years ago (Schuiling 1979), Davis, who has dated mammoth bones at Lake China to about 40,000 years ago (Davis 1978; Davis et al 1980); and Minshall (1976) who argues that the morphology of stone tools at some of the more ancient-looking sites throughout the west indicate that it was Homo Erectus and not Homo sapiens sapiens who left the first stone tools in the New World.

Calico has sparked controversy since the early 1970s. Although Bischoff (1980), Simpson (1973) and Budinger (1979) feel that the site is of considerable antiquity, up to and perhaps older than 200,000 years of age, archaeologists such as Duvall and Venner, who have studied the collections conclude that "...man had no part in the modifications of the siliceous materials.....the materials labeled as tools at the Calico site were form-selected and represent a biased sample of the naturally fractured rock population of an alluvial fan at the base of the Calico Mountains" (Duvall and Venner 1979:462). The controversy is compounded since it rests in part on faith, whether one believes that the artifacts are tools or opportunities of a shifting alluvial fan.

The debate over the Yuha burial continues, even though it has been dated at 21,500 ± 1000 B.P. and 22,125 ± 400 years (UCLA-2600; UCLA-1854), since the dates were on caliche. It is unlikely that this debate will be solved in the near future since emotions run fervent by a number of proponents and antagonists (Childers 1974; Bischoff et al 1976; Protsch 1978).

Another scientific proponent for Pleistocene period populations in San Diego County is Dr. Jeffrey Bada, a chemist who was instrumental in the development of the amino acid dating technique. Bada et al (1974) believe that they have evidence to support the presence of a coastal-living population in La Jolla, California as early as 48,000 years ago. Recently, Bada has been joined by Berger (1975) in an attempt to correlate early New World dates obtained by the amino acid technique with those obtained by Berger (1975) as a result of collagen-extraction radiocarbon dating. In dating the Laguna Cranium, Berger (1975:178) obtained a collagen date of 17,150 ± 1,470 years. Berger concluded that "This date produced considerable consternation because it antedated any other clearly human skeletal material in the New World by almost 7,000 years." Other early dates obtained by Berger included 23,600 B.P. for the Los Angeles Man cranium (Berger 1975:181), and 30,400 ± 2,500 B.P. (Berger 1975:182) for the Santa Rosa Island dwarf mammoth reported by Orr (1968:74).

Unfortunately, no early dates have been obtained from archaeologically stratified sites. Archaeologists must rely upon human skeletal material which has often remained on museum shelves for dozens of years (e.g., the Del Mar Man, the Laguna Man, and the Los Angeles Man). At Rancho Park North, Bada and Helfman tested human bone material by the amino acid method and obtained dates ranging from 9,700 to 49,000 years of age (Helfman 1976a), dates which do not correlate with information currently accepted by most New World archaeologists. More recently, Helfman (1976b) had stated that further experiments with the specimens have produced similar dates; she is currently attempting to extract amino acids from shell obtained at the same stratigraphic level as the human burials at Rancho Park North.

Shell from the midden which produced the Del Mar Man skull has yielded a date of 9,200 B.P. (Tyson 1976), a date comparable with the known chronology of San Diego County. The 40,000$\pm$ years difference between the results obtained by radiocarbon and amino acid dating implies that the discrepancy is too great simply to be attributed to radiocarbon errors. The errors probably lie in the experimental amino-acid technique itself.

Thus, San Diego County has yielded many Pleistocene period dates but none have yet been proven to be archaeologically reliable since none have contained an archaeological record which can be interpreted as being complete. Therefore, it is only reasonable to state that the Pleistocene archaeology of San Diego County has not readily yielded to test situations which will allow the antiquity of man in the New World to be further extended. Until evidence permits, archaeologists must continue to base their understanding of the prehistory of San Diego County on the three archaeological traditions which will be discussed in this chapter.

SAN DIEGUITO PHASE--A LATE PALEO-INDIAN TRADITION

The earliest documented inhabitants of the Pacific littoral in San Diego County were Paleo-Indians of the San Dieguito Complex, first reported by the late Malcolm J. Rogers, who termed it the Scraper Maker Culture (Rogers 1929:454-467).

Since then, archaeologists have authored papers concerning the problems of interpreting the San Dieguito culture (Hume 1972; Norwood 1980; Norwood and Walker 1980; Bull 1980; and Vaughn 1980). However, the advent of radiocarbon dating, plus continued field research on the complex, have allowed a concise and well-documented synthesis of the San Dieguito cultural history to be compiled.

Rogers perceived this culture as having a generalized hunting economy, camping along now-extinct lake shores, playas and streams, subsisting on the flora and fauna associated with these environments. The San Dieguito complex has been classified according to four temporal phases and four spatial aspects, and is estimated to have existed from 10,000 B.P. until the advent of the Desert Culture or Early Milling Stone Horizon, circa 5,000 to 6,000 B.P. (Rogers 1966). In San Diego County, at the Harris Site, SDi 149 (a coastal manifestation of the San Dieguito, La Jolla, and Yuman cultures), Rogers identified the San Dieguito component to be Phase III of the San Dieguito Complex. The Harris Site has since been re-excavated by Warren and True (1959), Ezell (1964), and Warren (1965), and has been utilized as the San Dieguito Type Site for continued local research (Warren 1966) into the Paleo-Indian occupation of western San Diego County.

According to Warren (1967), the San Dieguito Complex is distinct from the Desert Culture and represents a generalized hunting tradition which moved into the area along a north-south belt in the western Great Basin region. While some regional variation is apparent, the San Dieguito Complex is characterized by leaf-shaped points; stemmed and shouldered points generally termed "Lake Mojave" and "Silver Lake" points; ovoid, large-domed, and rectangular end sidescrapers; engraving tools; and crescents.

The San Dieguito Complex in Southern California has come to mean a flake industry characterized by well-made knives three to five inches long, leaf-shaped points, a great diversity of plano convex scrapers, including scraper planes, and crescents (Moriarty 1969:2). Moriarty also interprests the San Dieguito Complex as Pre-Desert, with an initial date of 8,000 to 11,000 B.P. Little evidence of grinding technology has yet been found in association with the complex. Warren (1968) and Davis (1969) suggest that some grinding implements may have been associated with the San Dieguito but grinding implements are not a recognizable component of the San Dieguito tool assemblage. von Werlhof (1980) has found a number of unshaped grinding slabs along with San Dieguito artifacts in the deserts of Imperial County. This has also been the case with numerous other sites found throughout the California Desert. Bull argues (1980) that milling is not a criteria for isolating the San Dieguito from the Archaic La Jollas as does Davis (1980) who has found several grinding slabs with San Dieguito era sites such as the stone alignments associated with Lake Hill Island in North Panamint Valley. von Werlhof records a date of 13,900± 500 B.P. on charcoal at the Ocotillo site, where unmodified grinding or pounding slabs are located in a San Dieguito context (von Werlhof 1980). Throughout the Southwest and Pacific Littoral area of the North American continent, there are numerous industries and complexes which closely resembled the lithic assemblages of the San Dieguito Complex. The recurrence of general categories and frequencies in lithic typologies suggests a common ecology for these local manifestations. The recurrence of specific and specialized tool types suggests prehistoric connections and constitutes a complex (i.e., a series of locally varying cultures united by a basic tradition in material culture and by a common pattern of life). The San Dieguito and other locally varying complexes are thus combined, producing what Moriarty terms the Early Playa-Flake Complex, which is placed chronologically at the end of the Pleistocene Wisconsin glaciation around 11,000 B.P. (Moriarty 1969).

Simpson (1958:4-10) suggests that the term San Dieguito be applied solely to the Pacific coast manifestation of a broader complex. According to Brott (1969:7), the San Dieguito component of the Harris Site should be classified as a pattern of the Paleo-Indian Stage. This Paleo-Indian Stage would belong to the Paleo-Coastal Tradition of the Western Lithic Co-tradition. The Western Lithic Co-tradition as described by Davis (1969:13) would encompass the Paleo-Indian industries identified by Campbell (Campbell et al. 1937), the Playa Industry (Rogers 1939), San Dieguito III (Rogers 1950; 1966), and various other associated industries.

In Meighan's (1965:710) recent summary of Pacific Coast archaeology, he concludes that there is no firm evidence for interglacial man on the Pacific Coast, despite claims for such discoveries, i.e., Carter (1957). There is conclusive evidence that the Pacific Coast had been settled and inhabited by at least 8,000 to 10,000 years ago (Warren 1968). There are even scattered indications that the cultural record will soon be documented to at least 10,000 to 12,000 B.P. (Warren 1967; Berger 1975). Meighan (1965) feels the artifact assemblage of the complex represents a culture dependent upon hunting and is comparable in a general way to such other North American Paleo-Indian sites such as Folsom and Clovis (Llano).

Temporal and spatial relationships must be evaluated to achieve a proper perspective of the cultural history for the San Dieguito. The interpretation of these concepts will generally follow those of Rogers (1966), Warren (1967), and Davis (1969) combined with various other authors' descriptions and interpretations of the archaeological data, albeit from a critical point of view.

In Rogers' (1966) final definition of the San Dieguito, the cultural unit was subdivided into four phases of development based upon geographic and typological differences in the entire complex's tool assemblage. Of these four chronological phases, San Dieguito I, II, and III were considered to be the major culture phases, with the entire complex dated to have initially existed around 10,000 B.P. and to have terminated by 5,000 to 6,000 B.P. No absolute dates are assigned to the various phase changes, for they fluctuate spatially as well as temporally throughout the complex. The geographic boundaries of the San Dieguito Complex were divided into the Central, Southeastern, Southwestern and the Western Aspects. It is in the Southwestern Aspect that we have a coastal manifestation of the San Dieguito Complex, as exemplified at the Harris site, SDi 149.

Warren and True (1961;259-263) dated the San Dieguito Complex at the Harris site by stating that a radiocarbon date from the La Jolla component represented the termination of the San Dieguito Complex at this site. The initial date for the La Jolla Complex was set at 7,500 to 8,000 B.P., thus the San Dieguito Complex must predate 8,000 B.P. (Warren 1967:179). Later, C-14 samples assayed confirmed this temporal placement for the complex, placing San Dieguito III at 8,540± 400 B.P. (Warren 1967:179). Included under the San Dieguito Complex are manifestations described at locales throughout the Southwest: the Playa Industry (Rogers 1939), the San Dieguito Complex (Rogers 1958); the Lake Mojave Complex (Wallace 1962). According to Warren (1967), the San Dieguito Complex has a known distribution from the San Diego Coast north and east into the Mojave Desert and north into Death Valley, Panamint Basin and the Owens Valley as far as Owens Lake. Other isolated pockets have been indicated along portions of the Lower Colorado River and the Colorado Desert of California, and north into the region of Mono Lake (Davis 1963; 1964).

Davis (1969) interprets the San Dieguito Complex as the San Dieguito Pattern of the Western Lithic Co-tradition. According to Brott (1969:8), a pattern combined temporal, ecological, stylistic, social, and geographic information and is an organization of the culture complexes and traits which appear to occur consistently together. Thus the San Dieguito Pattern as interpreted by Davis would include the coastal manifestations such as the Harris site and the desert manifestations such as the Lake Mojave Complex. A date of 9,080± 350 B.P. at the Harris site is the accepted temporal placement for this pattern (Warren 1967:179). As mentioned before, the San Dieguito component at the Harris site would be classified as the San Dieguito Plateau Variant of the San Dieguito Pattern of the Paleo-Indian Stage. The Paleo-Indian Stage is of the Paleo-Coastal Tradition of the Western Lithic Co-tradition.

In the following discussion, the terms San Dieguito Complex (Warren 1967), San Dieguito Pattern (Davis et al. 1969), Early Playa-Flake (Moriarty 1969), San Dieguito I, II, III (Rogers 1966), Lake Mojave Complex (Wallace 1962), and Lake Mojave Culture (Campbell et al. 1937) shall be considered synonymous.

Different authors' typologies of the San Dieguito lithic technology vary. The most typical San Dieguito typology has been proposed by Warren and True (1961) and it appears in Warren's (1966) publication of Rogers' 1938 Harris Site excavations. This monograph contains a modified version of Rogers' lithic typology for the San Dieguito Complex. Rogers perceived San Dieguito I and San Dieguito II phases as using the percussion technique and San Dieguito III as utilizing both percussion and pressure flaking techniques. Two percussion-flaking techniques were observed in the first phase of the complex: reverse flaking (a corrective process), and the intermittent retouch technique. A diagnostic feature of the second phase is the addition of the double-convex blade or knife, which, because of the presence of a possible transitional form, the plano-convex blade, does not necessarily connote a cultural change or the advent of a new people into the prehistoric picture. Previous phase types were not discontinued during the third phase, but were refined in form and function by pressure flaking (Rogers 1939).

In both San Dieguito II and San Dieguito III, the assemblage is almost identical from area to area, except for the absence of the stemmed blade in the western region of the Pacific Coast. Another criterion used to distinguish San Deiguito III is pressure flaking of finer-grained materials such as chalcedony, jasper, and obsidian, which are more amenable to fine flaking (Rogers 1939:27-28).

At the Harris site, Warren and True (1961:251-254) summarized the artifact inventory as including a wide range of scraper types, leaf-shaped knives and dart points, with an occasional stemmed or notched specimen, chipped-stone crescents which are often eccentric, relatively few hammerstones, and crude chipped tools. For the most part, the artifacts were percussion-flaked by a well-controlled technique and made of local felsitic materials. Some specimens were pressure-flaked and other local fine-grained volcanics and imported materials were utilized occasionally. Pottery is absent, and grinding implements are extremely rare (Warren and True 1961: 254). No cultural change was evident in the artifact assemblage at the Harris site, according to Warren and True, though the small number of artifacts recovered made it impossible to evaluate Rogers' phases of the San Dieguito Complex. Warren (1967:171-173) states that Rogers' original field notes on the Harris site mentioned the possibility of San Dieguito I, II, and III being represented at the site. On the other hand, in Warren's (1966:17) report on the Harris site, he reinterates that no stratification of San Dieguito II and III is demonstrated. The interpretation is clarified by Hayden (1967: 43-44) on the basis of Rogers' published reports, an analysis by Warren and True (1961), and his own field experience; the type site (the Harris site) is properly assigned to Phase III (Rogers 1966).

In Davis' (1969) analysis of the lithic material of the San Dieguito Pattern, the assemblage of typical San Dieguito artifacts included:

1. Heavy, "horse-hoof" planes;
2. Rounded end-scrapers, retouched by light percussion and probably hafted;
3. Side-and-end scrapers, probably hafted;
4. Ovoid scrapers, probably hafted;
5. Choppers, made on large and heavy primary flakes;

6. San Dieguito Type 1 knife/points;
7. San Dieguito Type 2 knive/points;
8. Long-stemmed point/knives with weak shoulders;
9. Crescents;
10. Hammerstones;
11. Macroflakes;
12. Thick primary flakes; and
13. Thin trimming and finishing flakes (Davis 1969:75).

In the comparative studies of eight quarry workshops of the Western Lithic Co-tradition, Davis, Brott, and Weide (1969:xi) mention four interpretations of the lithic technology. First: the lithic materials are not merely "blanks and rejects," but were probably shaped, used, or modified for special purposes. Second: the preponderance of choppers, chopping tools, notched scrapers and ovate bifaces indicates that these sites may have been for secondary manufacturing of wooden implements. Third: the Paleo-Indian stoneknappers of western North America did not focus on blade production. Fourth: the Western Lithic Co-tradition included a variable complex of core-and-flake industries.

Various authors have contributed to the paleoenvironmental information concerning the San Dieguito Complex (Davis 1974; Donnan 1964; Moriarty 1969; Warren and True 1961; Warren 1966, 1967). Moriarty's (1969) environmental interpretation of the San Dieguito Complex involved paleo-climatic factors; he stated that the latest phases of the Wisconsin glaciation appear to be contemporaneous with the Early Playa-Flake Complex. In considering the southeastern manifestation of the San Dieguito Complex, Moriarty (1969:9) states:

> The conclusion emerging from all this evidence is that in the late Pleistocene, especially during the terminal stages of the Wisconsin glaciation, southeastern California was arid, though precipitation was somewhat greater than now. It was enough to fill many now dry basins with substantial lakes and to spread vast forests of pinon and juniper. This precipitation increase was not enough, however, to take the region out of the category of desert or steppe.

As the Pleistocene came to a close, the basins and lakes began to diminish rapidly in southeastern California, causing the destruction of the Early Playa-Flake Complex environment. It is hypothesized that these people migrated to the wetter region toward the west in coastal San Diego County and found it difficult to pursue a living there with their generalized tools and their previous adaptation to a lakeshore habitat.

Although the San Dieguito were probably hunters, their generalized tool assemblage suggests that they may also have subsisted on familiar plant foods found in stream valleys along the coast (Moriarty 1969:10). Evidence from the Harris site suggests that plant foods were not the only form of protein gathered for subsistence: Warren (1966) states that at the Harris site is the first San Dieguito midden found that contains marine shell.

> The site was a very late San Dieguito III site, coincident with an extremely arid period. It is suggested that during this period game became very scarce and that the San Dieguito people were compelled to overcome their traditional avoidance of shellfish in order to supplement their normal diet with it to some extent (Warren 1966:12).

The postglacial chronology may be subdivided into three major periods: the Anathermal, the Altithermal and the Medithermal. Absolute dates vary, but the most probably interpretation would palce the Anathermal somewhere between 11,000 B.P., at the end of the Wisconsin glaciation, and 8,000 B.P., at which point the Altithermal period begins (Daugherty 1962; Butler 1962). It is the Anathermal period in which the San Dieguito culture existed and the hypothesized flora and fauna flourished. According to Butler (1962), previous to the Anathermal period there was a time of cool and moist climate, which he terms Period I. Directly following Period I, around 11,000 B.P., the Anathermal or Period II occurred with its increasing warmth and dryness, followed by Period III, or the Altithermal, around 8,000 B.P., a climate of maximum warmth and dryness.

An analysis of pollen samples from the Anathermal period arranged into a temporal sequence shows fluctuations in the percentages of arboreal and nonarboreal species (Moriarty 1969:8). Pinon pine represents the majority of the aboreal pollen, with juniper the second most abundant, particularly in the samples dating 10,000 to 12,000 B.P. Thus, even in the late Pleistocene, pinon and juniper were the dominant forest species of the Great Basin, for both were adapted to a semi-arid environment.

The fauna associated with this semi-arid climate, such as deer, elk, and bighorn sheep, were probably not numerous. Thus, while the Early Playa-Flake people undoubtedly hunted them, their probable scarcity suggests that they were not the major source of food (Moriarty 1969:11). A major food source, along with the pinon, would have been the semi-aquatic and moisture-loving plants growing on the wet and shallowly inundated fringes of the lakes and streams. Waterfowl and freshwater mussels may have also added protein to the Paleo-Indians' diet (Moriarty 1969:11).

Donnan (1964:8) states that the early hunting horizon (San Dieguito Complex) encompassed a variety of ecological zones. Besides the lake shores or playas, sites near water holes, streams, and even on the tops of mesas and ridges were found in the desert region. Originally, this cultural tradition was probably adapted to forest and grassland environment following a hunting, fishing, gathering pattern in which big mammals were of considerable importance, and were supplemented by small game, fish and fowl (Warren 1967). According to Wallace (1962), the Lake Mojave implements are designed for the chase and related activities, such as butchering and scraping hides, thus supporting the conclusion that subsistence patterning relied on the hunting of large game.

Settlement patterns may be interpolated from the subsistence aspects of the complex, as mentioned by Warren (1967). He suggests that since the bones of these animals do not seem numerous in the site, they were hunted from camps in the hinterland, and only the desired parts of the animals were brought to the site. Wallace (1962) states that the exceptional circumstances of the local environment may have permitted these people to maintain fixed residences during a good portion of the year.

Warren and True (1961) conclude that although the San Dieguito type site is located in a river valley, the majority of San Dieguito sites are located on mesas and ridges, generally lacking middens and are heavily eroded. A small San Dieguito population is suggested by the number of artifacts per site and also by the fact that the sites themselves are somewhat rare and generally lack middens.

Davis (1974:1-16), in her summary of the Paleo-Indians of the Lake Mojave area, a complex directly related to the San Dieguito Complex, hypothesizes several statements concerning the Late Paleo-Indian Phase in Southern California from 10,000 to 8,000 B.P.:

1. These people may have been descendants of the Middle Paleo-Indians (12,000 to 10,500 B.P.), and their technological heirs.
2. They were organized at the band level of sociopolitical organization and had to range higher into the mountains and foothills than did the Middle Paleo-Indian peoples.
3. Family bands became larger but remained the basic social and work units. [In her Middle Paleo-Indian Phase, these small bands probably did not exceed 25-30 individuals.]
4. Throwing javelins (and probably atlatls) replaced stabbing spears, as animal targets and hunting technology changed.
5. The people continued to use pounding/grinding rocks of unspecialized kinds. [That is, they were used for many purposes; and regularized, patterned notions had not yet evolved for milling tasks.]
6. People began camping beside streams.
7. There was more hunting of small animals and birds. [For the Middle Paleo-Indian Phase, successful hunting of large mammals was undoubtedly supplemented by birds, rabbits, rats, insects, and grubs; probably frogs and fish as well as snakes, greens, pollen, flowers, fruit, berries, nuts, roots, and tubers in season.]

8. Bones were smashed for marrow and juice.
9. The total population increased in size as the range was expanded but probably did not exceed one person per thirty square miles.
10. Migrations probably became seasonal and encampments were no longer duration than those of Middle Paleo-Indians.
11. Late Paleo-Indian social life was probably similar to that of their ancestors with few exceptions. Seasonal transhumance may have been determined by gathering customs of the women since big animals were becoming scarce. Use of pounding/grinding rocks for food processing began to become more specialized.
12. It is possible that new language stocks were now represented in the area. [For the Middle Paleo-Indian Phase, the possible stock was some form of Proto-Hokan.]

The linguistic data for Southern California suggest some interesting speculations about the temporal and cultural affiliations of Early Playa-Flake peoples. Moriarty (1969:13) agrees with Davis in suggesting that these peoples were probably speakers of ancestral Hokan languages. Glottochronological studies suggest that the Hokan languages are the oldest in the area, and the only other language stock represented in Southern California is Uto-Aztecan. Moriarty concludes that the evidence strongly implies a possible relationship of Early Playa-Flake Complex peoples to the linguistic groupings ethnographically known for the California area.

According to Davis (1974), in her description of the Middle Paleo-Indian Phase, and Late Paleo-Indian Phase, social arrangements probably included patrilateral band affiliation and lifelong sibling bonds of work and reliance. There probably were matrilineal ties of responsibility for the very young and for matri-orphans. Social arrangements as related to the subsistence patterns included possible male selection of migration time and route, and male hunting of large animals. Gathering and snaring of small game was done mostly by women and children, and labor and equipment was divided between the sexes. Hypothesized rituals include rites of passage for both sexes and magical control of a precarious environment, with burial rites including placation of the dead and interment in shallow graves.

Indications of cultural change, migration, contact, and development for the San Dieguito Complex can best be viewed from the varying hypotheses in archaeological literature. Suggestions of migration can be interpolated from Meighan's (1965) discussion of Pacific Coast archaeology, stating that early man probably found the Cascade-Sierra Nevada ranges impassable in winter and poor in plants and game in the summer. The probable route of settlement in North America is generally considered to have passed east of these mountains across ice-free land, then through the river valleys to the West Coast and around the southern end of the Sierra Nevada to southern California. These early cultures have been proven to have been pre-Milling Stone, but there seems to be no convincing argument for the hypothesis of a "pre-projectile point" horizon (Wormington 1957:224; MacNeish 1973:5).

Moriarty (1969:14) suggests that the immediate successor of the Early Playa-Flake Complex in the inland areas (desert) is the Pinto Industry, dated to have begun about 7,000 to 8,000 B.P. The main difference between the Early Playa-Flake Complex and the Pinto Industry appears to be a wider variety of points which constitute a larger percentage of the lithic assemblage, and the presence of milling stones (this complex will be discussed later in the text).

The hypothesis developed for the Western Lithic Co-tradition, of which the San Dieguito Complex is considered a pattern, states that a series of related lithic industries existed in the Great Basin and throughout the desert, south coastal and peninsular California as early as 10,000 B.P. These industries may have persisted for several thousand years without substantial change, but as change accelerated (probably due to changing environment) and other influences invaded the area, highly stylized artifacts were altered and replaced. Only a substratum of core tools, choppers, chopping tools and a predominance of side-struck or at least ovate flakes remained unchanged (Davis 1969).

The general lithic assemblage from west of the Cascade-Nevada ranges differs in detial from the forms found in the Great Basin and Southwest. According to Meighan (1965), early hunting horizons of the interior are typified by fluted points of the Clovis-Folsom tradition, whereas early hunting traditions of the western mountains and coast are typified by bipoint and leaf-shaped projectile points, such as those of the San Dieguito Complex. While there has been found no association of West Coast assemblages with the bones of Pleistocene animals as has been found for interior traditions, there is evidence of a possible combining of traits as patterned in the tool assemblages.

At Ventana Cave in western Arizona, Haury (1950:531-537) interprets the Ventana Complex as representative of the combining of elements from the High Plains Folsom Culture and the San Dieguito I Complex of the Lower Colorado River Basin. Evidence supporting this conclusion has been suggested by Davis (1974), who stated that a Middle Paleo-Indian Phase, dated 12,000 to 10,500 B.P., shows evidence of special lanceolate tips for stabbing spears, of which many are fluted. This phase is termed the Fluting Co-tradition, and precedes the Western Lithic Co-tradition of which the San Dieguito Complex is considered a pattern. This is the first evidence of a fluting tradition west of the Cascade-Nevada range. It is suggested that these people hunted large herd animals (including mammoth and bison) by such practices as driving the animals into bogs. As Davis (1969) noted for the Western Lithic Co-tradition in the north and east, influence from the Great Plains can be recognized in the skill of pressure flaking of point/knives reminiscent of Plains forms. To the south, Mexican influence is suggested in the greater number of bipoints and Lerma-like point/knives.

According to the hypothesis developed by Warren (1967), the San Dieguito Complex is a regional expression of a non-Desert Culture western tradition which derived from the North and represents an older, as yet undefined, cultural stratum that is present throughout a large part of North America. These people had adapted to the northern environment, following a hunting, fishing, gathering pattern. As these ecological zones changed, they migrated south along the Sierra Nevada and Peninsular ranges into the Great Basin and the Lake Mojave and Colorado deserts, where they found an environment similar to that of the northwest. Eventually, they reached the Pacific Coast following adjacent ecozones with their generalized hunting and gathering assemblages. It is noted that this western tradition is distinct from the Plains traditions, and was probably adapted to forest and grassland environments as it may have already been when it crossed the Bering landbridge.

Davis (1969) adds that many local adaptations to the changing environment were developed by these hunter-collectors and the original similarities of their lithic technology became obscured by new inventions which were eventually replaced by the tools of the Archaic Stage of the Desert Tradition, the Milling Stone Horizon.

Hume (1972) believes that the San Dieguito coincides in time, apparently, with the cool-moist phase in the Mohave (sic) during which pinon-juniper woodland expanded into areas where it does not now exist. "Therefore, in the absence of major lake-side sites and definite kill sites of large herbivores, there is no reason to assume anything but a diversified hunting-foraging Desert Archaic pattern for the San Dieguito" (Hume 1972:9-10). Bull harkens Hume's beliefs when it comes to stone tool frequency when he states that the problems of "flaked lithic materials of highly patinated felsite in association with milling implements (at Rancho Del Dios), further complicates the definition of San Dieguito materials and its juxtaposition with Milling Stone pattern assemblages. It emphasizes the problem of defining a premilling occupation in San Diego County... (t)he problem inherent in differentiating cultures based on the presence or absence of single technological classes, reflects the tenuous nature of the present prehistoric arguments" (Bull 1980:not paginated).

Therefore, the question of the acceptance of the San Dieguito complex in the literature as being a separate and distinct cultural group has recently come under professional scrutiny and a great amount of professional discussion. I, for one believe that an assemblage exists which can be classified as a San Dieguito assemblage and it is based upon stone tool morphology and the presence/absence of artifact types, rather than on any other single class of items.

TRANSITIONAL PHASE: SAN DIEGUITO TO LA JOLLA

Succeeding the San Dieguito Complex on the Pacific Coast littoral was a cultural complex based upon the gathering of shellfish and seeds for primary subsistence--the La Jolla Complex. While it had appeared that the La Jolla Complex was culturally and temporally distinct from the earlier San Dieguito Complex, there are several suggestions in the present archaeological literature which propose the possibility of a transitional phase linking these two complexes.

At Agua Hedionda Lagoon in San Diego County, a transitional pre-Desert phase has been described as linking the San Dieguito and La Jolla Complexes, dated 9,070 B.P. (Moriarty 1967:553-556). According to Moriarty, this lagoon site clearly demonstrates a continuous occupation from the San Dieguito coastal manifestation to the later La Jolla phases. The excavation of U.C.L.J.-M-15 at Agua Hedionda Lagoon determined that

> . . . no variation in the profile occurred and there appeared to be an unbroken continuity of occupation from this lowest level up through the overlying midden to the surface (Moriarty 1967:555).

Typological variance occurred at the thirteen-decimeter level when milling and grinding implements no longer appeared. Below this level, mineralogical content changed to the greenish felsitic materials which are generally associated with those of the San Dieguito Complex. The technique and pattern was later proved to be that of the San Dieguito by comparison with the assemblage found at the Harris site, yet within this level were intermingled artifacts of the La Jolla I Phase.

According to Moriarty's hypothesis, the San Dieguito, a pre-Desert hunting tradition, migrated to San Diego and Imperial Counties about 10,000 to 11,000 years ago, eventually settling near the coastal areas. Sometime before 9,000 B.P. until around 7,500 B.P., this complex entered into a transitional phase characterized by a generalized hunting and a milling-stone culture (Moriarty 1966:20-30).

Temporal and spatial variations in the transitional phase fluctuated somewhat, based upon suggested environmental different ecozones:

> Radiocarbon evidence from the Agua Hedionda site tends to indicate that the first occupants had already entered a transitional phase between a hunting and a milling culture. The necessity for the creation of large points (that is, the continuance of the hunter tradition) on the coast is abrogated to a large extent by the abundance of faunal material in the marine shoreline ecologies, which produced more than sufficient protein. On the other hand, the more inland areas may well

have retained a pre-Desert culture longer because the climatic and physiographic changes inland were slower and less dynamic than those on the coast. Environmental variation, therefore, may well have been the major factor which led to the transition of the hunting culture into the Milling Complex (Moriarty 1967:555).

Closely related to this transitional phase is a similar inland manifestation combining traits of the San Dieguito and La Jolla Complexes: the Pauma Complex. Originally True (1958:255-263) placed the Pauma occupation just prior to or during the initial stages of the Altithermal, about 8,000 B.P., within the temporal range described by Moriarty for the coastal transitional phase (Moriarty 1967:553). This complex was characterized by flaked stone implements and grinding tools similar to those of the San Dieguito, Topanga, Oak Grove, and La Jolla Complexes. The diagnostic traits and material types of recovered projectile points suggested contact and influence between desert cultures and the Pauma Complex, yet points had a low frequency in the total lithic assemblage. A predominance of milling and grinding implements suggest a seed grinding economy much like that of other inland Desert Complexes of the Milling Stone Horizon.

Although the Pauma Complex was later re-evaluated in its relationship to the La Jolla Complex (Warren, True, and Eudey 1961), original inferences suggested from the absence of shellfish remains and surface artifacts indicate the possibility that the Pauma Complex is represented by seasonal campsites rather than permanent villages and settlements. Thus, the probable seasonal migrations to the coast brought the people of the Pauma Complex in contact with those of the San Dieguito. The milling technology and gathering economy also suggests relationships to the La Jolla, Topanga, and Oak Grove cultures. It should be noted that the Pauma Complex will be discussed later in relationship to the La Jolla Complex and Archaic Milling Stone Horizon.

Other possible interpretations of transitional phenomena can be observed at the Harris site. According to Warren (1966:18), the Locus II assemblage "represents the terminal phase of the San Dieguito, perhaps reflecting an early influence from the desert." While this locus had been radiocarbon dated to 2770 B.C., Warren's contention is that if we accept this date, then we must assume that a culturally distinct group which intruded upon the area already occupied by the La Jolla population is represented at Locus II.

Another interpretation of Locus II at the Harris site is suggested by Brott (1969:9) in classifying the type site according to his revised taxonomy. He states that technological analysis of the lithic material by several experts revealed that the material is morphologically and chronologically different from that of the San Dieguito Pattern, and accepts the radiocarbon date of 4,700 B.P., which falls within the range for the La Jolla Complex. Brott (1969:9) concludes that "It is quite possible that we are uncovering the Hunting Mode or the Male-activity Mode of the La Jolla Pattern."

It is concluded by this author that until more archaeological data and interpretations are gained, the probability of a transitional phase between the San Dieguito and La Jolla Complexes can only be moderately suggested. No absolute dates have been gleaned from the Pauma Complex sites which will assist archaeologists in the exact temporal placement of this complex.

THE LA JOLLA COMPLEX--THE SAN DIEGO COASTAL ARCHAIC TRADITION

Davis (1969:15) suggests three substages within the Archaic. The first, Substage One, is that of the Milling Archaic, followed by Substage Two, the Pottery Archaic, then the third, the Post Contact Archaic. Succeeding the ill-defined transitional stage, the La Jolla Complex appears around 7,500 B.P., as the local manifestation of the Milling Archaic. According to Wallace's (1955) definition, the La Jolla Complex is placed within the second of four horizons, the Milling Stone Horizon. Warren (1968:2) states that there are several local expressions of this cultural tradition, i.e., La Jolla, Topanga, and Oak Grove; thus in the following discussion of the La Jolla Complex, consideration of non-local factors must be included.

Originally, based upon lithic technology, Rogers (1929) described the La Jolla Complex as having preceded the San Dieguito because he felt that the La Jolla Complex was less technologically advanced than that of the San Dieguito. Tentatively named the "Shell-Midden" people, this complex was later termed the La Jolla Culture by Rogers in 1945, at which point the complex was subdivided into two developmental phases, La Jolla I and La Jolla II. According to Rogers (1945:171):

> Immediately after the disappearance of the San Dieguito people with their excellent stone-flaking technic, a new stock with a seafood-seed-gathering complex and no ability to work stone moved in, probably from the north at the beginning of the Christian era.

Since Rogers' early work, archaeological research has resulted in contributing valuable interpretations of the Milling Stone Horizon and its local expression in San Diego County. Before a detailed discussion of the La Jolla Complex can begin, it is necessary to gain a general overview of the complex and its archaeological manifestation. According to Warren, True, and Eudey (1961), the La Jolla Complex can be summarized as follows:

> A simple gathering people arrived on the littoral area of San Diego County sometime prior to 7,500 years ago. They apparently came from the interior desert and brought with them a way of life adapted to areas where large game was scarce and where a greater dependence was placed on gathering of vegetable foods and hunting and trapping of small game. Such an economy was not readily adaptable to the ocean resources; however, it appears to have been easily adapted to the lagoons which wrinkled the San Diego coast line and supported abundant supplies of easily gathered shellfish. The use of shellfish resulted in a food supply capable of supporting a relatively large population for [sic] a gathering economy. While the shellfish represented a large portion of the food supply, gathering of vegetable foods and to some extent hunting of small game still continued, possible with some seasonal migrations to the foothills of the Peninsular Range (Warren, True, and Eudey, 1961:28).

Spatial and temporal factors vary considerably, dependent upon the limits placed upon the research unit, which may be either the entire coastal Milling Stone Horizon, or a local expression such as the La Jolla Complex. Warren (1968) interprets the entire coastal Milling Stone Horizon as the second tradition to manifest itself on the Southern California coast. Termed the Encinitas Tradition, this tradition is represented by the combination of the various local expressions of the coastal Milling Stone Horizon from Santa Barbara County to San Diego County, and extending from the coast to the foothills of the Peninsular Range. The limits of the La Jolla Complex extend from southern Orange County through San Diego County, into an as yet undefined area of central Baja California. It is important to note that the La Jolla Complex is geographically the southernmost expression of the entire tradition. This spatial placement determines several crucial factors which interact with the cultural development of the complex, possibly the most important factor being that of environmental differences between the northern and southern local expressions of the tradition. The differences in spatial delineations closely correspond to temporal variation within the tradition.

According to Kowta (1969), the Milling Stone Horizon in Southern California first manifests itself as the noncoastally-oriented Topanga I Complex about 8,000 B.P. in the Los Angeles-Santa Monica Mountains area. Upon close examination of the Topanga I Complex lithic assemblage, it is found to be relatively similar in composition to the assemblage of the Pauma Complex in San Diego County. The 8,000 B.P. date postulated for the Topanga I Complex also appears to be consistent with that hypothesized by True (1958) for the Pauma Complex, and also for Moriarty's (1967) Transitional Pre-Desert Phase in coastal San Diego County. Thus it may be suggested that by 8,000 B.P., a non-coastally oriented complex or series of geographical variants of the Milling Stone Horizon became apparent on the Southern California coastal strip, initiating the basal tradition for the later coastally oriented Milling Stone Horizon complexes.

Adaptation to the coastal environment is assumed to have begun about 7,500 B.P. and is represented by several local variants of the Milling Stone Horizon, the La Jolla Complex in the coastal San Diego County area, and the Oak Grove Complex in the Santa Barbara area. According to Kowta (1969:36):

> The coincidence of these dates with the initial phase of the Altithermal has led some authors (e.g., Warren and Pavesic 1963:420-421) to suggest that the Milling Stone complexes represent a coastward movement of inland populations finding the interior increasingly unfavorable for human occupation. If, in fact, such a movement did take place, . . . it would be reasonable to assume that the 5500 B.C. [7,500 B.P.] age for the dated Oak Grove and La Jolla components, which already show some adaptations to the coastal environment, represents not the initial arrival of these populations but a somewhat later period.

Warren (1968:2) concurs with Kowta, stating that "The Encinitas Tradition apparently begins at about that same time in San Diego and Santa Barbara Counties." Yet, as local expressions of the tradition, the La Jolla Complex persists until about 2,000 B.P. in San Diego County, while in the Santa Barbara area, the tradition terminates between 5,000 and 3,500 B.P. with the inception of the Campbell Tradition. Variation in spatial-temporal relations is important when considering the possible cultural influences upon the La Jolla Complex.

The La Jolla Complex is thus considered as a local expression or variant of a tradition which has been variously termed the Encinitas Tradition (Warren 1968), the Milling Stone Horizon (Wallace 1955), and the Milling Archaic (Davis 1968). Within the La Jolla Complex, several authors have suggested the subdivision into various developmental phases based upon environmental and cultural changes. Rogers (1945) proposed a chronology for the La Jolla according to two developmental phases, the La Jolla I and La Jolla II. The material pattern of the first phase may be summarized as consisting of "a basined metate, unshaped mano, a few primary flakes of stone, and an even lesser number of crude, beach-cobble choppers" (Rogers 1945:172). Other characteristics of this phase include the lack of evidence of the use of the bow and arrow, unsegregated interment of the dead without mortuary offerings, new tool types, improvement of flaking technique, and the increased use of the metate. Phase II is characterized by gradual technological and cultural enrichment, formation of true cemeteries through the segregation of burials, and trade contact with the Channel Islands.

More recently, Moriarty (1966:21-23) has proposed the use of stratigraphically controlled radiocarbon dating coordinated with typological change for the development of culture phase divisions. According to his chronology, La Jolla I would begin about 7,500 B.P. with the termination of the transitional phase, and persist until about 5,500 B.P., when the second phase begins. The second phase, La Jolla II, would range from 5,500 B.P. to 4,000 B.P. and the third and last phase, La Jolla III, would persist from 4,000 B.P. until 3,000 B.P., when a process of amalgamation between the La Jolla culture and Yuman culture begins. Phase-by-phase characteristics are summarized below so that a general description of the La Jolla culture patterns and traits can be observed through time.

La Jolla I: 7,500 to 5,500 B.P.

1. Appearance of milling implements.

2. Mineralogical change in lithic assemblage from felsitic materials of the transitional phase, to local rhyodacites, meta-quartzites, and diabases for Phase I.

3. Crude percussion-flaked lithic assemblage based upon a cobblestone, chopper, and scraper typology.

4. Increase in variety of tool types and flaking technology.

5. Burials are complete inhumations, flexed, unsegregated with no attempt at directional orientation, and occasional mortuary offerings such as shell beads.

6. Artifact assemblage indicates stable food-gathering economy which is fairly sedentary.

La Jolla II: 5,500 to 4,000 B.P.

1. Additions to lithic assemblage such as small stone beads, polished stone balls, and polished stone discoidals.

2. Contacts with northern coastal and Channel Island cultures.

3. Drilled and polished stone artifacts; increase in bifacial artifact types.

4. Reappearance of projectile points, of which there are four specific types: (a) lanceolate, (b) small triangular points with concave base, (c) equilateral triangle with convex base, and (d) a large blade type.

5. Burial practices now include flexed burials with a generalized orientation, segregation into true cemeteries, and occurrence of mortuary offerings.

La Jolla III: 4,000 to 3,000 B.P.

1. Geographic change in site locale to lower elevations, along edges of coastal lagoons, or possibly further inland.

2. The possibility that many of the sites representing this phase are now underwater off the Pacific Coast.

3. The beginning of the process of amalgamation, about 3,000 B.P., between the La Jolla and Yuman cultures which extended to about 2,000 B.P.

Warren, True, and Eudey (1961:22-23) discuss several differences and similarities within the La Jolla lithic assemblage. The differences correspond to spatial variation within five geographically distinct zones, possibly representing environmental areas. One similarity was the extreme paucity of projectile points and of mortars and pestles, although manos, metates, and large scraper planes were found in abundance. The majority of sites surveyed are located on knolls overlooking present or extinct bodies of water. Whenever a midden is associated with a site, it contains shellfish remains of pecten and _Chione_.

The San Marcos-Escondido and Valley Center areas of North San Diego County exhibit tool types considered representative of the Pauma Complex as described by True (1958). The assemblage of the Pauma Complex includes types which are rare or absent in the other three areas, such as numerous finely worked small domed scrapers, shaped manos, knives and points, _comales_, doughnut stones, and wedge-shaped manos. Batiquitos Lagoon and the Lower San Dieguito Valley sites are placed within the La Jolla Complex and exhibit traits common to other known La Jolla sites such as Scripps Estates Site I, the Del Mar Site, and the Sorrento Site.

> Traits characteristic of the La Jolla Complex which appear to be absent or rare in the Pauma Complex Area include cortex based scrapers, cobble choppers, and scraper plane types 2A and 2B. Coastal areas also appear to have relatively greater numbers of unshaped uniface manos than do the sites of the Pauma Complex (Warren, True, and Eudey 1961:23).

Sites in the Green Valley area were tentatively interpreted as representative of a marginal phase of the La Jolla Complex, since the assemblage appears to be more like coastal sites than of the Pauma Complex. No greater frequency of unshaped manos and/or core hammers is found in association with the Green Valley area sites than with La Jolla sites. These traits are not considered characteristic of either the coastal area or Pauma Complex sites.

The coastal manifestation of the Milling Stone Horizon in San Diego County is thus shown to exhibit both temporal and spatial variations corresponding to developmental and environmental differences. Crabtree, Warren, and True (1963:341-343) discuss the typological changes within a single site, at Batiquitos Lagoon:

> While there are no apparent major changes or really significant trends in the artifact types through time at SDi-603, a series of shifts is encountered in the relative frequency of certain artifact categories in the three strata (Crabtree, Warren, and True 1963:342).

There appear to be four shifts in the relative frequency of artifact types, as delineated, according to three strata, of which Stratum 3 is the oldest and Stratum 1 the youngest. They may be summarized as follows: (1) small domed scrapers represent approximately five percent of the lithic assemblage from Stratum 3, yet are nearly absent in Stratum 2, and completely absent in Stratum 1; (2) milling implements account for 37 percent in Stratum 3, 52 percent in Stratum 2, and 33 percent in Stratum 1; (3) flake scrapers and scraper places progressively increase in frequency during the occupancy at the site; and (4) cobble tools (uniface, etc.) decrease in relative frequency from 15 percent in Stratum 3 to less than two percent in Stratum 1.

In the interpretation of the typological changes at Batiquitos Lagoon, it is stated that:

> In general, these shifts reflect a slight technological change away from the use of cobble and other types of core tools to the use of flake tools. This does not suggest any major shift of culture type or focus. The predominance of mano and milling stone in the middle stratum suggests that the subsistence pattern had shifted toward seed gathering, accompanied by a decline in the importance of shellfish gathering. This latter interpretation is supported by the analysis of column samples which indicate a sharp decline in the amount of shell remains noted from Stratum 2 (Crabtree, Warren, and True 1963:342).

The interpretations of subsistence pattern changes by typological differences are but one approach to the study of prehistoric culture. The investigation of paleo-environmental conditions is yet another. The majority of archaeological research concerning paleo-environmental factors of the San Diego County manifestations of the Milling Stone Horizon have been centered around lagoon ecology. Interpretations still vary slightly, but generally an attempt has been made to draw correlations between the various stages of lagoon ecology and the resulting fluctuations in population size, settlement patterns, and subsistence patterns.

In their discussion on postglacial climatic change, Baumhoff and Heizer (1965:697-707) state that there is no consensus concerning the chronology for environmental change.

The time period around 7,500 B.P.--the probable initial date for the arrival of the Milling Stone Horizon in Southern California--generally corresponds to a period in the climatic sequence termed the Altithermal. The 7,500 B.P. date is within the range of all proposed climatic chronologies, and corresponds to a period of increasing warmth and dryness in the western desert areas.

On the San Diego County coast, Shumway, Hubbs, and Moriarty (1961) were able to confirm this supposition by utilizing the shell assemblage from the midden of the Scripps Estate Site to infer climatic conditions. Both sea and air temperature were postulated as being warm, based upon mass spectrometric paleotemperature determinations and analysis of species absence or presence in the midden.

> Notably absent [was] the giant chiton (*Cryptochiton stelleri*), which is an excellent indicator of the cold that extended from about 1600 years B.P. or earlier to about 600 years ago (Shumway, Hubbs, and Moriarty 1961: 109).

The presence of the species *Tegula* (*pismo clam*) is considered yet another indicator of *warmer temperatures* around the San Diego coast. Rainfall during the Altithermal was probably greater than the present, yet was still inadequate to create permanent water bodies except in the larger canyons and valleys. With this greater rainfall, many areas may have held enough water to produce small marshes in depressions adjacent to habitational sites. The coastal environment also appears to have been different during La Jolla Complex times.

Many La Jolla middens contain quantities of California mussels, *Mytilus californianus*, and rock oysters, *Pseudochama exogyra*, which are molluscs adapted to rocky foreshore environments. That these species were gathered for consumption suggests a different shore from that presently existing off the San Diego County coast. Even greater quantities of bay molluscs, primarily pecten and *Chione*, are present in La Jolla middens, suggesting that estuarine conditions were also somewhat different from the present. The inferred physiographic conditions indicate that:

> . . . during the period from 7300 years ago or earlier until at least 3700 years ago, the shore north of La Jolla was considerably more rocky than at present with estuaries sufficiently deep and in sufficient contact with the sea to maintain, in baylike conditions, flourishing populations of pecten and *Chione*. These conditions would be met by a rapidly rising sea level, during which the accumulation of shore sand would be kept low (Shumway, Hubbs, and Moriarty 1961:113).

It is later proposed that the above conditions may well have existed on the southern California coast until possibly

1,000 B.P., yet by this date, many of the shellfish-gathering peoples had abandoned the sites north of La Jolla and migrated further south in northern Baja California where bays and rocky shores remained (Shumway, Hubbs, and Moriarty 1961).

Warren and Pavesic (1963:411-424) interpret the local environmental changes in a similar way, though there is disagreement concerning the exact sequence of events. At Batiquitos Lagoon, evidence suggests that by 6,300 years ago the increasing importance of pecten and Chione can be interpreted as indicative of the disappearance of the rocky foreshore environment on the San Diego coast. The silting-in of Batiquitos Lagoon created a habitat more ecologically fit for pecten and Chione than for Mytilus. This condition existed until about 4,000 years ago, at which point the lagoons were silted to the extent that they were no longer habitable by either pecten or Chione. From 4,000 to 1,200 years ago, these environments were no longer capable of supporting as large populations as the previous period.

The final hypotheses proposed by Warren and Pavesic (1963) combine the conclusions of Warren, True, and Eudey (1961:24-28) with recent radiocarbon data.

> It is maintained that there is little evidence for a heavy population on the San Diego Coast after 3000 years ago, except where permanent fresh water supplies and bays now exist, such as around Mission and San Diego Bays, the Santa Margarita River, and possibly the San Dieguito River. Even at these places, it may be that the populations were also declining by 3500 years ago (Warren and Pavesic 1963:418).

Thus, according to the sequence proposed by Warren and Pavesic (1963), around 6,300 B.P. the rocky foreshore on the San Diego coast was gradually being replaced by sandy beaches and mud flats. This condition resulted in the silting of numerous lagoons creating favorable habitats for large populations of pecten and Chione capable of supporting sizeable aboriginal populations. These environmental zones remained essentially unchanged until 3,000 to 3,500 B.P., at which point the continued silting of the lagoons destroyed the mollusc populations. It is further suggested that the La Jolla culture reached its population climax during the period between 7,000 and 4,000 years ago. With the reduction of the food supply in the lagoons around 3,000 to 4,000 B.P., the population on the coast decreased and seed gathering and/or hunting became of greater economic import (Warren, True, and Eudey 1961:25).

The occupation of coastal La Jolla sites was seasonal during the period before 6,000 B.P., although later the occupation became increasingly intermittent and of a lower intensity, with general food procuring activities remaining the same (Crabtree, Warren, and True 1963). The seasonal occupation suggests that activities other than shellfish gathering occurred during La Jolla times. Warren, True, and Eudey (1961) suggest that the possible seasonal migrations of the La Jolla may be represented by the Pauma Complex further inland. As the lagoons became unable to support the large La Jolla populations around 4,000 B.P., seed gathering and hunting may have taken a larger place in the aboriginal subsistence pattern. The Pauma sites may have been temporary seasonal campsites, supporting small portions of the La Jolla peoples as the destruction of the coastal subsistence pattern forced their hunting and gathering activities further inland. Thus, the settlement pattern may reflect the population shift of the La Jolla from the littoral zone to the western foothills, leaving a small population near the mouth of a lagoon where some fresh water and shellfish remained. Although the Pauma Complex is yet undefined temporally and its exact relationship to southern California prehistory is still unknown, Crabtree, Warren, and True (1963:344) state that:

> The suggestion that the occupation (at SDi-603) has always been seasonal raises the very real possibility that the little known "Pauma Complex" (True 1958) might prove to be an inland variant of a later, more evolved La Jollan Complex.

The relationship of environmental factors to aboriginal subsistence patterns has played an important role in the interpretation of prehistoric cultures. Recently, Kowta (1969) suggested ecological implications of the scraper planes found in the assemblages of the Milling Stone Horizon. The scraper plane may be considered a generalized tool of many functions, such as sharpening grinding implements, as suggested by Treganza and Bierman (1958:73). Kowta (1969:52-69) hypothesizes that it was utilized in the exploitation and preparation of agave and yucca for food and fiber. According to Kowta (1969:55), the scraper planes might have been utilized in the manufacture of the "crucial chisel-ended digging stick: which is pounded into the agave plant to sever the crown from the root. Other tools found at archaeological sites of the Milling Stone Horizon possibly utilized in the exploitation of agave for food and fiber include hammerstones and manos involved in pounding the leaves for preparation; knives used to remove excess leaves; a metate upon which to scrape the fibers free of the pulp, to crush the leaves preparatory to drying them for later consumption, and probably to grind up the dried cakes in preparation for eating; and a scraper plane to remove the pulp in preparing fibers for cordage (Kowta 1969:55).

Kowta's analysis of scraper planes indicates not only the function of the tool, but also the possible origin of the technology, involving prehistoric migrations, contact, and the related ecological factors. Kowta (1969:55-56) hypothesizes that:

> . . . at the onset of the Altithermal, agave-adapted peoples of the interior either migrated to the southern California

coastal areas bringing with them the technology of agave exploitation or transferred the technology to resident California groups, in either case initiating the Milling Stone Horizon. Archaeological implications of this are: (a) the Milling Stone Horizon dates to the onset of the Altithermal; (b) the Milling Stone Horizon assemblages contain items that are identifiable in the context of agave exploitation; (c) no pre-Altithermal coastal assemblages exhibit these items; (d) there were resident groups in California at the onset of the Altithermal in a position to adopt such items if the introduction of the traits did not take place through migration; and (e) there were pre-Altithermal populations in the interior already adapted to agave exploitation.

The close correlation between the Altithermal conditions and the possible migrations from the interior to Southern California is noted also by Warren and Pavesic (1963). They consider the migrations to be a result of the desiccation of the grasslands, and finally, "the coast must have been more strongly influenced by diffusion and migration of the people from the interior" (Warren and Pavesic 1963:420).

According to Warren (1968), the Encinitas Tradition (milling Stone Horizon) persisted along the coast without major interruption for about 2,500 years after its arrival from the interior. There appears to be little evidence for cultural changes during this period and nothing to suggest major ecological shift to maritime hunting and fishing. The economic pattern of the Encinitas Tradition appears to have been centered around collecting activities, a pattern which was apparently well adapted to the various plant communities and the littoral zone, with a rocky foreshore and long, narrow estuaries at the mouths of the streams (Warren, 1968:12).

About 5,000 B.P., this tradition ended in the Santa Barbara area, with the introduction of the Campbell Tradition, yet apparently persisted until 2,000 B.P. on the San Diego coast. The Campbell Tradition introduced a new technology for ecological exploitation, centered around hunting of marine resources, thus providing a wider range for environmental adaptation than that of the Encinitas Tradition. According to Warren (1968), the influence of the Campbell Tradition was only minimally felt in the San Diego area around 4,800 B.P. Two factors are given to explain this lack of influence of the Campbell Tradition toward the south: environmental differences between the Santa Barbara and San Diego areas, and the aboriginal shift in population and economic activities in the San Diego area.

It appears that the aboriginal population on the San Diego coast north of Mission Bay decreased and it is suggested that the center of economic activities and consequently the population center shifted to: (1) inland areas where fresh water and the richer ecological zones

> of oak parkland, chaparral and pinon were more easily reached and to (2) the area of Mission and San Diego Bays where the littoral resources still were plentiful. Furthermore, it seems likely that the straight sandy beaches of the San Diego coast north of Mission Bay were not as heavily utilized as seal rookeries as the rocky points and islands in the Santa Barbara Channel. Given the limited resources of the littoral zone and the shift inland of population and center of economic activities, the development of a maritime culture was prohibited and nothing comparable to the maritime adaptation of the Campbell Tradition is found on the San Diego coast (Warren 1968:7).

As mentioned earlier in the text, some influence from the Campbell Tradition was felt along the San Diego coast. Around 5,000 B.P., changes occurred in the artifact assemblages of the Milling Stone Horizon. Most noticeably, projectile points occur more frequently, and mortars and pestles appear for the first time. Although this cultural influence is of considerably short duration, it appears that it was eventually assimilated into the Encinitas Tradition, which remained relatively undisturbed on the San Diego coast (Warren 1968:3). Evidence at the Harris site, in Locus II, suggests the possible influence of the Campbell Tradition. Radiocarbon dated at 4,770 B.P., Locus II contains notched projectile points suggestive of hunting, a new economic pattern in the La Jolla culture. It is also possible that the technological influences of the Campbell Tradition, such as the mortar and pestle, enabled the La Jolla to adapt better to the inland environment as the lagoons became unable to support large quantities of shellfish necessary to the coastal populations.

Kowta (1969) has suggested that the Milling Stone complexes also had contact with interior groups between 5,000 to 3,500 B.P. He states that during this period, "the coastal Milling Stone complexes extended to and interdigitated with the desert Pinto Basin Complex in the vicinity of Cajon Pass" (Kowta 1969:39). Traits of the Pinto Basin Complex are represented in the assemblages of the Milling Stone Horizon and in possible artifact borrowings typical of central California groups. An analysis of the physical characteristics of the La Jolla population supports Kowta's statement. According to S. L. Rogers (1963:29), comparative analysis of specific physical characteristics of the La Jolla population "suggests affiliation with the stocks of the San Francisco Bay region, the Sacramento Valley and the Great Basin, rather than the Southwestern populations."

In summary, then, we can view the La Jolla culture as the San Diego coastal manifestation of the Milling Stone Horizon, resulting from either migration or technological diffusion from the interior Great Basin cultures about 7,500 B.P. Adaptation to the immediate coastal environment of rocky foreshores and lagoons appears to have been an easy tradition for the La Jolla culture until 5,000 to 6,000 B.P., when the coastal area was no longer able to support the large aboriginal populations. Influence from traditions to the north and east resulted in the diffusion of technological innovations, enabling the La Jolla culture to adapt better to the new ecological conditions further inland around the foothills of the Peninsular Ranges. Until approximately 3,000 to 2,000 B.P., cultural and ecological conditions remained relatively stable, with probably seasonal migrations between the coast and foothills, exploiting a wide variety of marine and land resources. It has been suggested that with the arrival of the Yuman and Shoshonean cultures, the La Jolla people either migrated further south into Baja California, where the culture may have persisted until 800 B.P., or eventually have become assimilated into the later cultures.

LATE PREHISTORIC CULTURES: THE CERAMIC ARCHAIC

The Late Prehistoric Horizon as defined by Wallace (1955) includes a number of geographically distinct complexes throughout Southern California. In San Diego County, the manifestations of this horizon were represented by two separate areal patterns which correlate to known linguistic differences. The discussion in this section will be confined to archaeological interpretation involving the establishment of these late complexes in San Diego County, and will not attempt to summarize the vast body of ethnographic data.

During the later phases of the La Jolla occupation along the coast, a fairly stabilized cultural tradition had developed. This condition had resulted from a subsistence pattern altered because of changes in ecological and environmental factors around 4,000 B.P. By 3,000 B.P., two separate patterns were recognized within the La Jolla culture: (1) a land-based gathering subsistence in place of the lagoon-oriented, shellfish-based economy; and (2) a retention of the basic marine-oriented subsistence pattern in certain locales, with the subsequent development of a quasi-maritime-based economy (True:290). According to True (1966), it was some time following or during these later stages of adjustment that strong influences were introduced, possibly coordinated with the actual migration of the people.

The acorn-based subsistence economy was quickly adopted by the land-based gatherers of the inland areas. This influence probably came from the Santa Barbara area where a similar economy can be inferred from the earlier cultural assemblages. The acorn-based subsistence economy is characterized by the utilization of the mortar and pestle seed-grinding equipment as opposed to the mano and metate grinding implements of the Milling Stone Horizon (Leonard 1966).

The next influence to be introduced into the La Jolla culture area was the concept of cremation. The beginning of cremation practices apparently corresponds with the actual migration of the Yuman people into the San Diego coastal area. At the Beach and Tennis Club Site, U.C.L.A. M-6, Moriarty (1966:23) has found evidence which suggests that the process of amalgamation between the Yuman and La Jolla cultures began about 3,000 B.P. and culminated around 2,000 B.P. At this site, cremation replaces inhumation around 2,500 B.P. although by 3,000 B.P. enough Yuman additions were present in the artifact assemblage to infer the settling of the Yumans among the La Jolla peoples of the coast.

At some point following the mixing of the Yuman and La Jolla cultures, a group of Shoshonean speakers penetrated into the area between southern Los Angeles County and northern San Diego County. According to True, the combined results of this so-called Shoshonean intrusion and the Yuman-La Jolla amalgamation can be seen in the development of two separate cultural traditions in San Diego County. The first development terminated in the Kumeyaay (Diegueno) occupation of southern San Diego County, with

> . . . the continuation of the basic milling stone base, modified by the introduction of an acorn economy, modified by the introduction of cremation disposal of the dead and by a continuous series of influences from the desert areas to the southeast (True 1966:29).

The second development resulted in the Luiseno occupation of northern San Diego County, where

> . . . the basic milling stone pattern was terminated and replaced by the mortar and the pestle. Here the change was more marked than in the previously described Diegueno area, and milling stone elements were greatly reduced in importance. The same appears to have been the case with scrapers and hammerstones (True 1966:292-293).

The Yuman Horizon appears to have started with an uninterrupted transition from the Armagosa phase into what Rogers called the non-ceramic Yuman Horizon (Donnan 1964:11, Rogers 1945:173-174). By 4,000 B.P., a group of tribes occupying the junction of the Gila and Colorado Rivers and extending southward to Yuma shared linguistic and cultural elements which defined the Yuman culture area (Moriarty 1968:2). A slow migration or expansion into new environmental zones resulted in the contact between the westerly-moving Yuman people and the coastal La Jolla about 3,000 B.P. as evidenced at U.C.L.J. M-6. Whether this contact was the result of political or territorial expansion of the Yumans into new areas or of a possible forced migration is unknown. Donnan (1964:13) states the possibility that increased aridity and the expansion of the Shoshonean people into the Mojave Desert area resulted in the retreat of the Yuman groups. It is possible that this added stimulus may have initiated the Yuman migrations into the thinly inhabited area to the west, resulting in contact with a remnant La Jolla culture.

Whatever the case, by 2,000 B.P. a non-ceramic Yuman Horizon on the Pacific Coast appeared in certain La Jolla sites. Stratigraphic evidence suggests a cultural continuum between the La Jolla and Yuman traditions. According to Moriarty (1966), the process of amalgamation between these two cultures appears to have begun as early as 3,000 B.P. and lasted until 2,000 B.P. The amalgamation resulted in an increased diversity of pressure-flaked artifacts, importation of desert lithic materials, the appearance of the practice of cremation, and the knowledge and utilization of the bow-and-arrow technology.

The Yumans of the pre-ceramic horizon appear to have adapted to two different ecological zones in San Diego County which closely correspond to the two separate patterns recognized within the La Jolla culture. The Yuman adaptation to the coastal environmental pattern can be seen in the amalgamation between the La Jolla and Yuman peoples at U.C.L.J. M-6. At this site, there appears to be a cultural continuum from the La Jolla tradition through both the pre-ceramic and ceramic Yuman horizon. Inland, the Cuyamaca complex or phase represents the Yuman adaptation to the varied ecological zones of the Peninsular Range (Warren 1968:9-10). The close relationship between the La Jolla and Yuman cultural traditions is exemplified by Warren, who states:

> The Yuman Tradition appears to have adapted to the same range of ecological zones as the earlier Encinitas Tradition. However, the methods and techniques of food production were somewhat different. The presence of the bow and arrow and the knowledge of how to process acorns, for example, apparently allowed for a more extensive exploitation within this range of ecological zones. This increase in food production made possible and perhaps stimulated a cultural fluorescence that was not found in the earlier Encinitas Tradition (Warren 1968:10).

Although no pre-ceramic horizon is associated with the inland Cuyamaca complex (thus denoting it as the Cuyamaca phase), Moriarty presents evidence of a pre-ceramic Yuman horizon on the coast. This horizon is radiocarbon dated to 2,300$\pm$250 B.P. (Moriarty 1966:27).

The exact chronological sequence for the Shoshonean intrusion into Southern California is as yet unknown. Kroeber has suggested that the Shoshoneans of California do not represent a single migration or drift, but rather a succession of local waves (Donnan 1964:13, Kroeber 1925: 578-580). Kowta (1969:50) hypothesizes a date of around 3,000 B.P. for the first appearance of Shoshonean speakers in the Los Angeles Basin, although 2,000 B.P. is generally accepted as the date for the complete intrusion which resulted in the division of the Chumash and the Kumeyaay, both of whom are Hokan speakers.

According to Warren (1968), there is linguistic evidence of this late Shoshonean intrusion from the interior of California to Los Angeles, Orange, and northern San Diego Counties. To the north, the Shoshonean speakers appear to have borrowed heavily from the Chumash, and adopted a maritime economy on the coast. However, the inland sites of Los Angeles County appear to have affiliations with the desert. In northern San Diego County, the Shoshoneans seem to have adjusted easily to the ecological zones of the Peninsular Range, borrowing from the Kumeyaay to the south. These southern groups are represented by the San Luis Rey phases as described by Meighan (1954), and illustrate the Shoshonean adaptation to the inland areas as differing from the northern groups, which are in contrast with them in their maritime adaptation (Warren 1968:9). The differences between the two phases are as follows:

> San Luis Rey I is defined by the occurrence of small triangular projectile points, mortar and pestle, mano and millingstone, and simple flake scrapers. San Luis Rey II exhibits all of these plus pottery, cremation and pictographs (Warren 1968:5).

Although, as mentioned, no inland pre-ceramic Yuman phase has been identified with which to compare the San Luis Rey I phase, the Cuyamaca phase is considered similar to the San Luis Rey II phase in many respects. Yet True (1966, 1970) has noted several differences between these two phases upon which he hypothesizes the existence of two separate cultural traditions related to the cultural developments of these linguistically distinct groups.

> The following traits or elements are suggested as typical for the Cuyamaca complex are are [sic] those elements that set the Cuyamaca complex apart from the San Luis Rey complexes in spite of a number of shared traits:
>
> 1. Defined cemetery areas apart from living areas;
> 2. Use of grave markers;
> 3. Cremations placed in urns;
> 4. Use of specially made mortuary offerings such as miniature vessels, miniature shaft straighteners, elaborate projectile points, etc.;
> 5. Cultural preference for side-notched projectile points;

6. Substantial numbers of scrapers, scraper planes, etc., in inventory in contrast to small numbers in San Luis Rey area on this time plane;
7. Emphasis and stress placed on use of ceramics. Wide range of forms and several specialized ceramic items such as rattles, bow pipes, effigy forms, etc.;
8. Steatite industry;
9. Substantially higher frequency of milling-stone elements when compared to San Luis Rey;
10. Clay-lined hearths (?) (True 1970:53-54).

The linguistic and cultural differences of these two distinct complexes culminated in the known historic occupation of the Yuman-speaking Kumeyaay of the southern portion of San Diego County and the Shoshonean-speaking Luiseno of the northern section of the county. Much work has been recently undertaken in the eastern portion of the county by May (1975, 1978, 1980) which suggests complex relationships between the Kumeyaay, their neighbors, and their interaction with their environment. Recent investigation by Cook (1980), Chace (1980), and Christenson and Russell (1980) have indicated that an intricate network of obsidian exchange from the Imperial Valley quarry site of Obsidian Buttes found its way into nearly every late prehistoric site in San Diego County during the late prehistoric period after about 1640 AD. A time when the quarry was available since Lake Cahuilla had receded and obsidian could be easily obtained and traded. The settlement pattern of the late prehistoric populations was disrupted in the late 18th century with the advent of Spanish colonization in San Diego County.

In summary, then, the prehistory of San Diego County is intricately associated with the influx of populations from the interior valleys and basins of the west. The earliest widely accepted cultural manifestation to be accepted in the western San Diego County area is the San Dieguito Tradition, represented throughout coastal and inland San Diego County by temporary campsites and knapping stations.

The La Jolla Complex is associated in San Diego County with the deposition of extensive shell middens along the many estuaries and seacoast. By 2,000 B.P. the La Jolla Complex was giving way to the inhabitants of the Late Prehistoric complex.

At Rancho Park North, all three archaeological cultures were found to be represented. The San Dieguito phase and the La Jolla Complex are most predominantly manifest in the archaeological record, but the shallow occupation of the later prehistoric population also represents a significant component, since evidence from the ceramic analysis suggests that shell was utilized as temper for pottery, implying that pottery may have been manufactured in coastal San Diego County, a heretofore unknown phenomenon. Source

CHAPTER 3

PHYSICAL DESCRIPTION AND ENVIRONMENTAL SETTING OF THE SITE

Rancho Park North is located in Northwestern Coastal San Diego County (Figure 1) in an area renowned for its intensity of archaeological resources (Crabtree, Warren, and True 1963). The general region is called the Batiquitos Lagoon area since archaeological sites are known to cluster around Batiquitos Lagoon and the ephemeral creeks which flow into the now stagnant lagoon (Figure 2). Archaeological surveys have been conducted in the area since the late 1920s (Rogers:field notes), and have continued sporadically since that time. A recent survey of Kaldenberg (1976) for the La Costa Land Company, has produced evidence of additional shell-exploitation sites more than three miles east of the lagoon. Based upon evidence generated from surveys conducted by the University of California Archaeological Survey in 1963, Farrell's (1976) and Kaldenberg's (1976) studies, it appears that the area was intensively inhabited by the San Dieguito, La Jolla, and Late Prehistoric pottery-bearing peoples, just as was Rancho Park North Site A.

Rancho Park North is situated approximately two and one-half miles southeast of Batiquitos Lagoon, in Township 13 South, Range 4 West in the western portion of the unsectioned triangle bounded by Rancho Santa Fe Road on the east and an unimproved dirt access road on the north. It is situated on a marine-cut terrace at approximately the 190-foot contour (Figure 3). A perennial creek, Encinitas Creek, is situated approximately 1,000 feet south of the site. More descriptively, the site is located approximately 2.1 miles north of the community of Olivenhain, California, and 3.6 miles east of the Pacific Ocean. According to Kroeber (1925), the site is near the ethnographic boundary between the Shoshonean speaking Luiseno and the Yuman-speaking Northern Diegueno (Kumeyaay).

Chaparral surrounds the site on all sides. The eastern portion of the archaeological site quickly slopes to a small erosional arroyo where the yellow sandstone of the Del Mar formation is exposed.

The precise definition of the boundary of the site (Figure 4) was determined by exhaustive systematic post-hole auguring at five meter intervals, surface collection and mapping, and by a five percent subsurface excavation as recommended by the San Diego County Office of Environmental Management (1974).

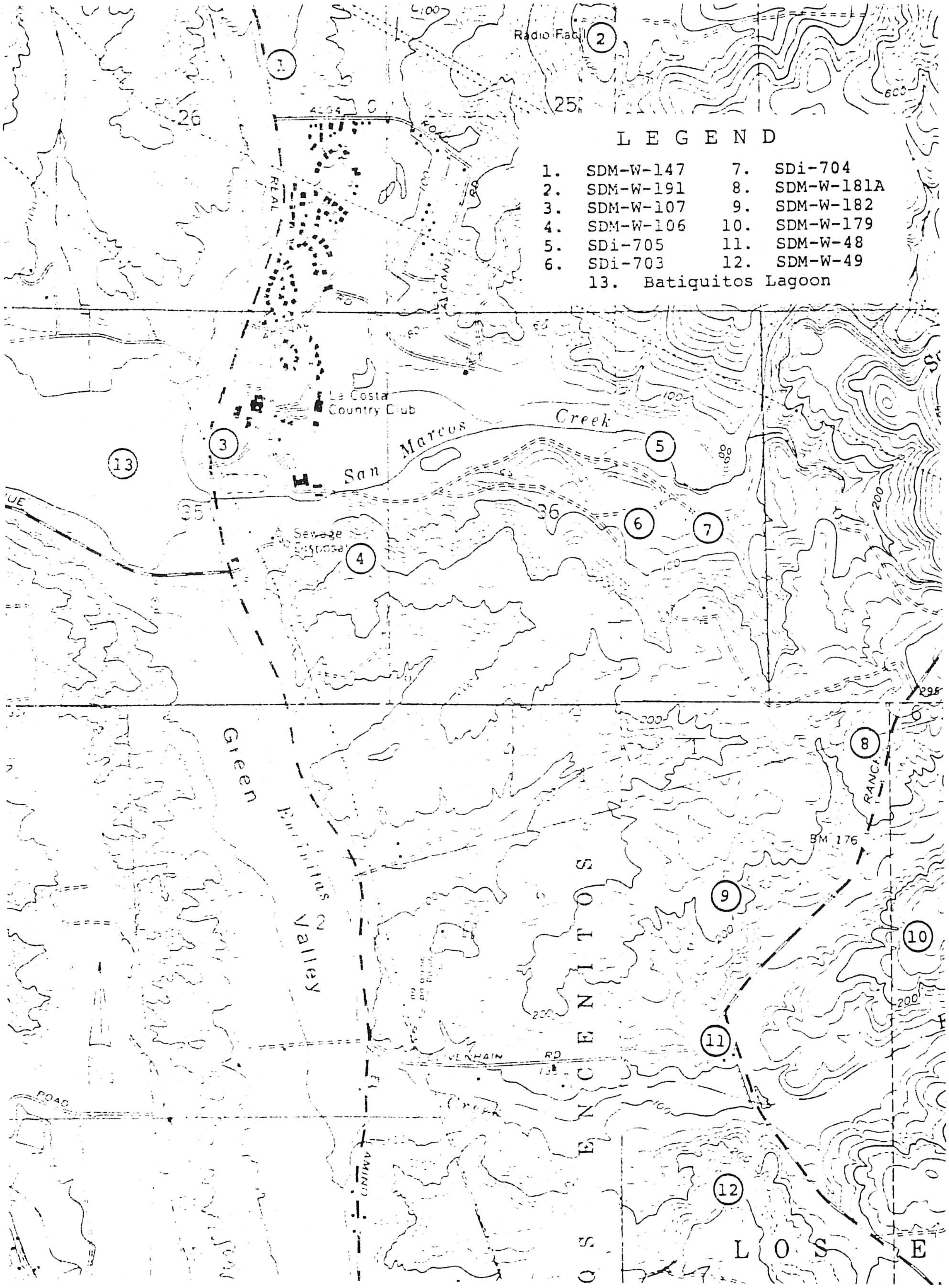


Figure 1. Rancho Park North and its vicinity. The numbers indicate large or well-known La Jolla and San Dieguito sites. Scale 1" = 2,000'.

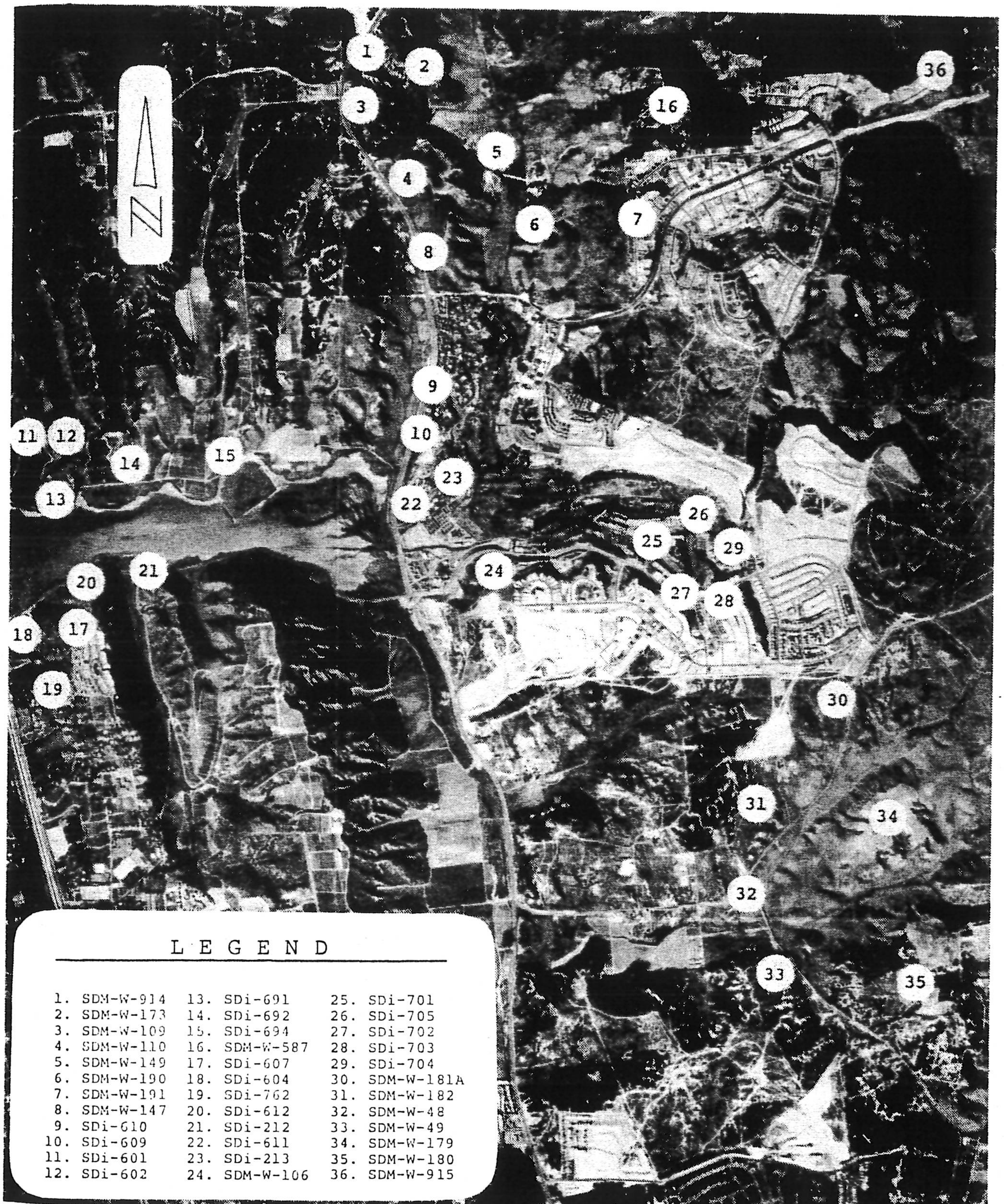


Figure 2. This aerial photograph depicts the distribution of the major San Dieguito and La Jolla Complex sites in the Batiquitos Lagoon area, San Diego, California; site number 33 is Rancho Park North, Site A. (Photo taken June, 1974.)

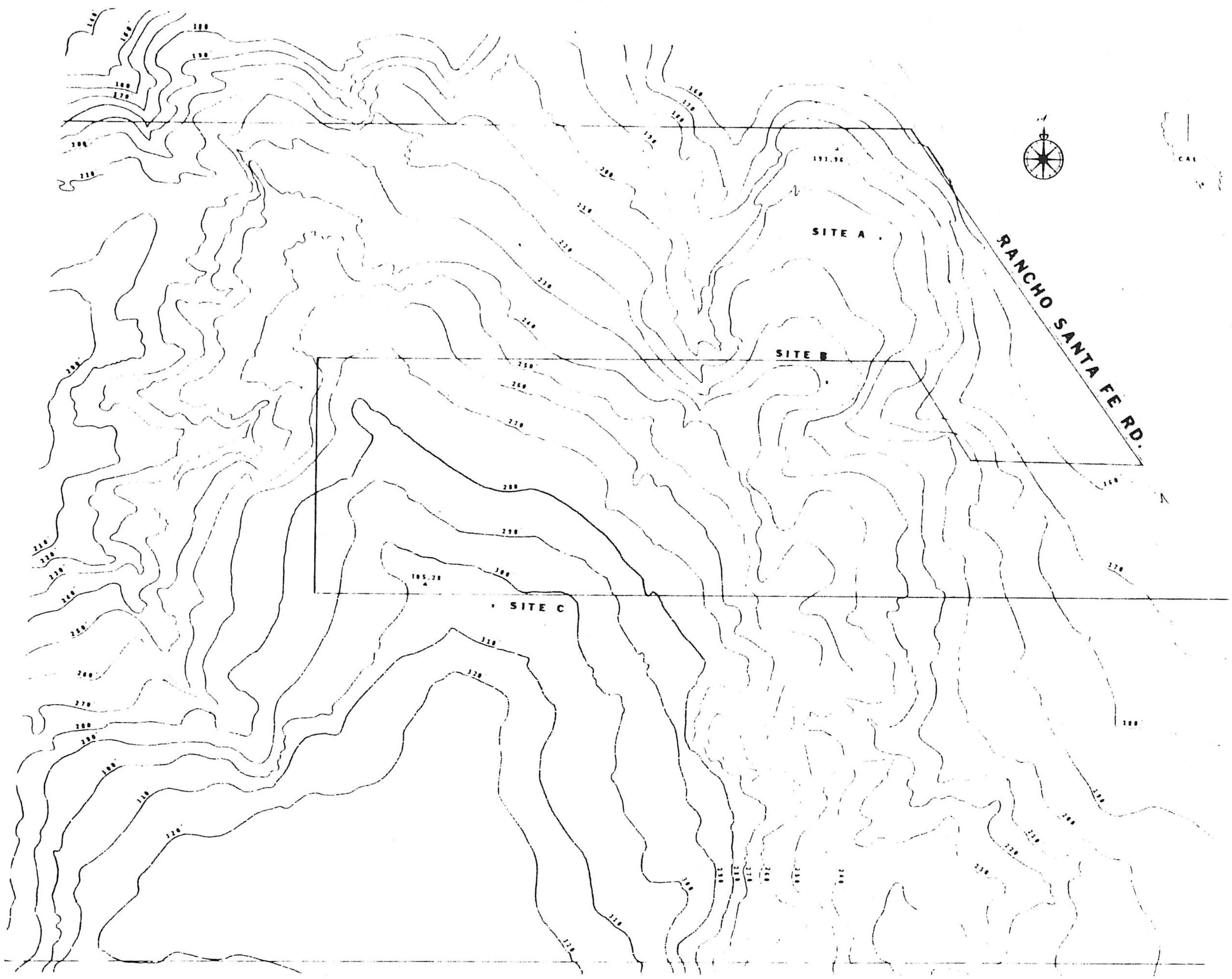
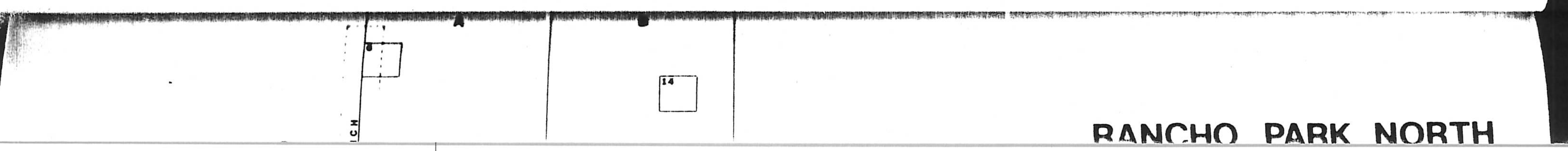


Figure 3. Location of Rancho Park North Sites A, B, and C.
Scale: 1" = 180 feet.



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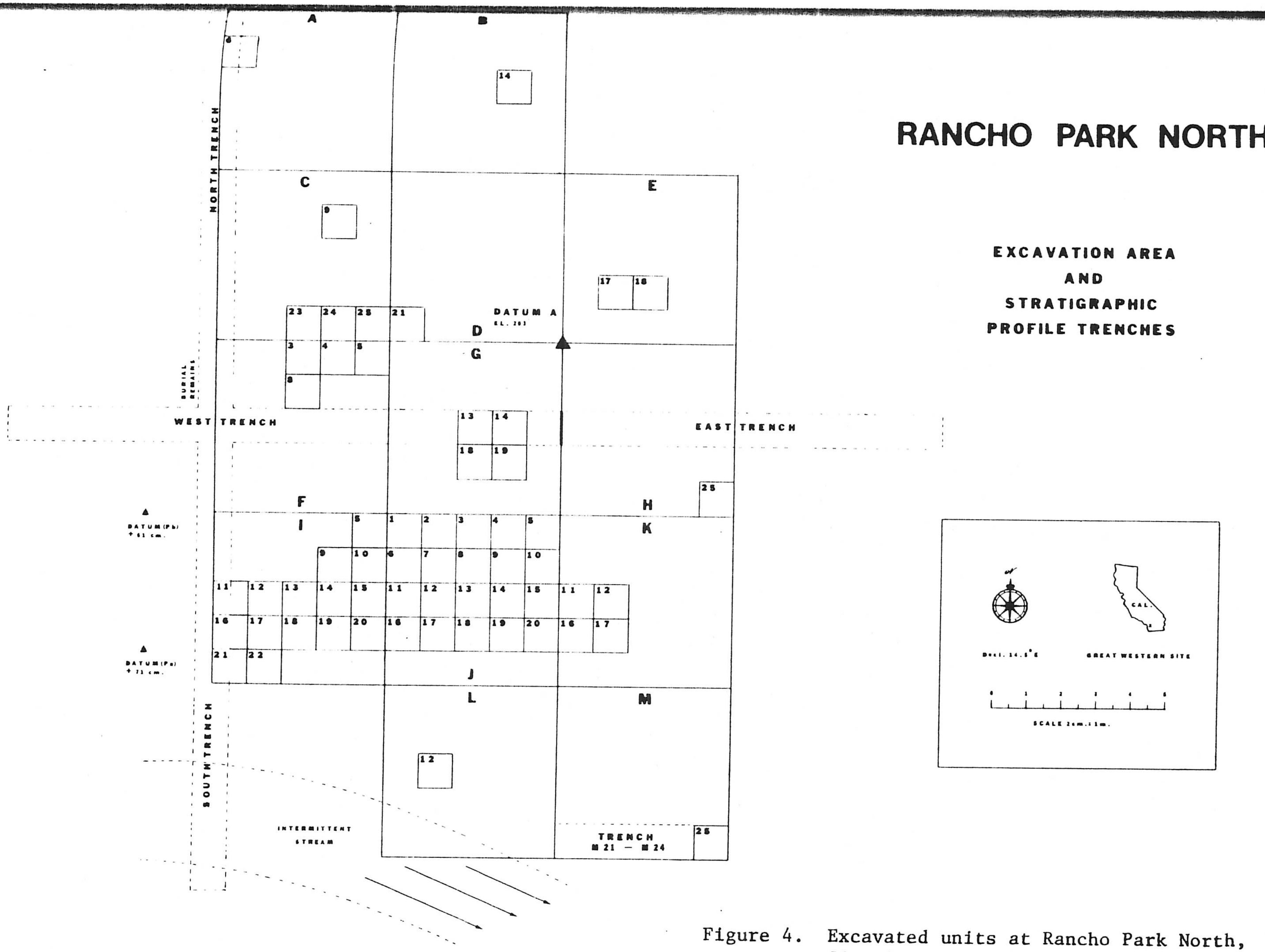


Figure 4. Excavated units at Rancho Park North, Site A, summer 1974.

RANCHO PARK NORTH

STRATIGRAPHIC PROFILE

PART ONE

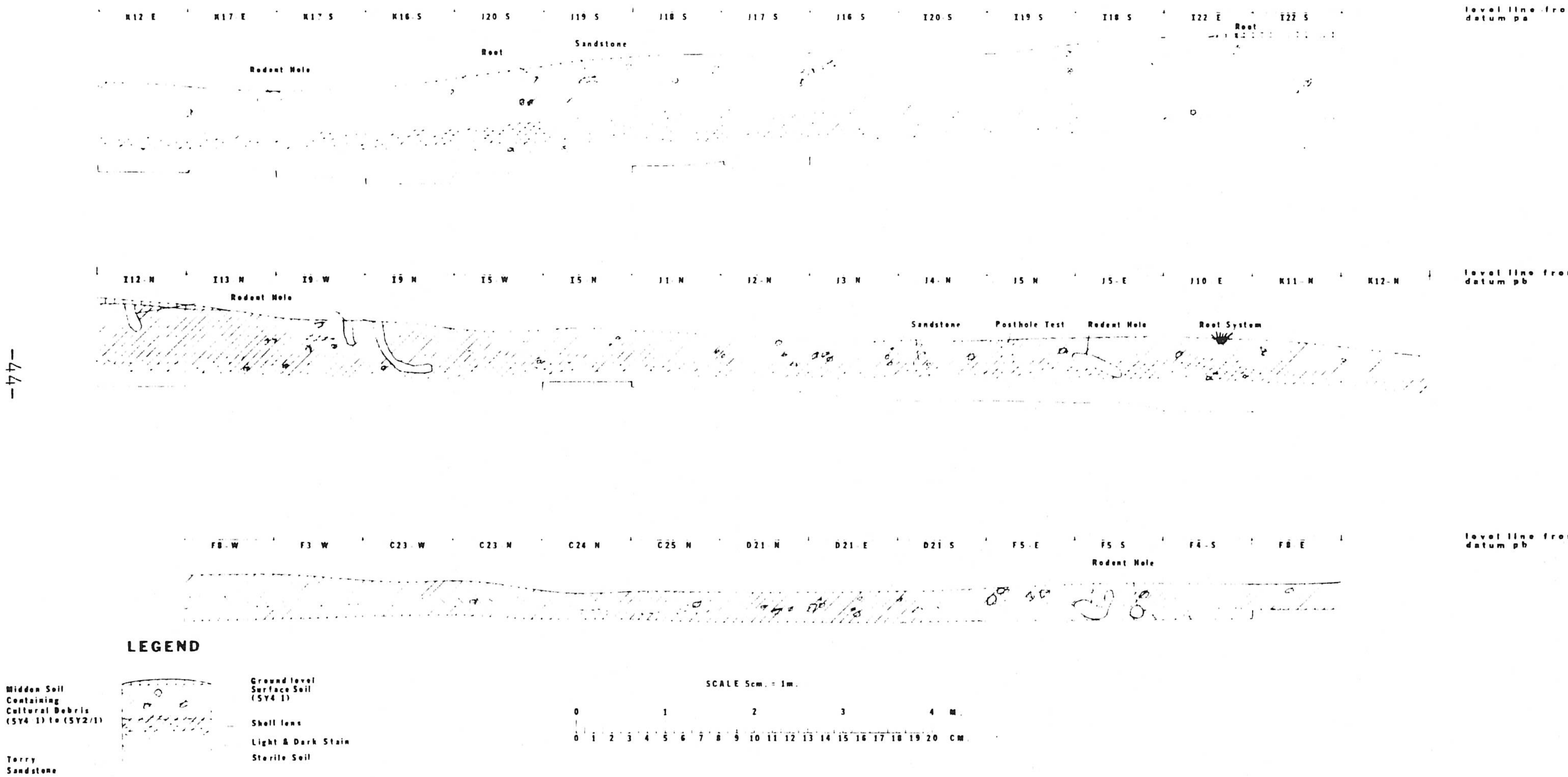


Figure 5. Soil profile, northern portion of Site A.

The distribution of lithic artifacts which assisted in defining the site boundaries was an area of 325 square meters. Through excavation, 15 percent of this area was recovered. An added 16 percent of the subsurface component of the site was recovered by three mechanically excavated trenches, which were excavated for the purpose of exposing cultural and geological stratigraphy. All of the backdirt from these trenches was screened for the recovery of artifactual materials.

A distinct area of very black midden was located near the eastern edge of the site. According to pH investigations by Welch (1974), the acidity of the soil and the consequent soil discoloration is a direct result of the long and intense cultural occupation at and in the vicinity of the site.

STRATIGRAPHY

The soil profile at W-49 is divisible into four stratigraphic units based upon internal structures and superpositionary relationships (Bowersox 1974). These units were given letter designations for ready reference by the geologist (Figure 5). All soil color schemes were identified as the result of the use of a Munsell Color Chart.

Unit A

This unit is located at the southerly end of the north-south profile trench. It is defined by its pale yellowish-brown (10YR6/2), fine grained, well sorted, friable, cross laminated, moderately indurated subarkose exposure. It is approximately two meters thick at its greatest exposure, although nowhere in the excavation is the contact with underlying sandstone exposed.

The fine grained size of the sediment and the internal cross lamination suggests deposition in an intermittent braided-stream environment. The suggested temporal placement for this stream is either late Pleistocene or early Holocene at its base and perhaps only several hundred years of age at its terminal deposit (Bowersox 1974). The stream would have provided only an intermittent source of fresh water, although it would seem to have generated greater vegetation cover than in other areas in the vicinity of the site (Figure 6).

Unit B

This unit is composed of a modern surfacial soil horizon. It consists of about 0.35 meters of olive gray (5Y4/1), very fine grained, moderately sorted, massive, moderately to poorly indurated subarkose. This unit contains the bulk of the modern plant roots and indications of rodent activity. It apparently developed in place from a combination of wind-blown soil, alluvium washed down from the higher slopes, and older *in situ* soils at the site. This unit is classified as a chestnut-colored soil.

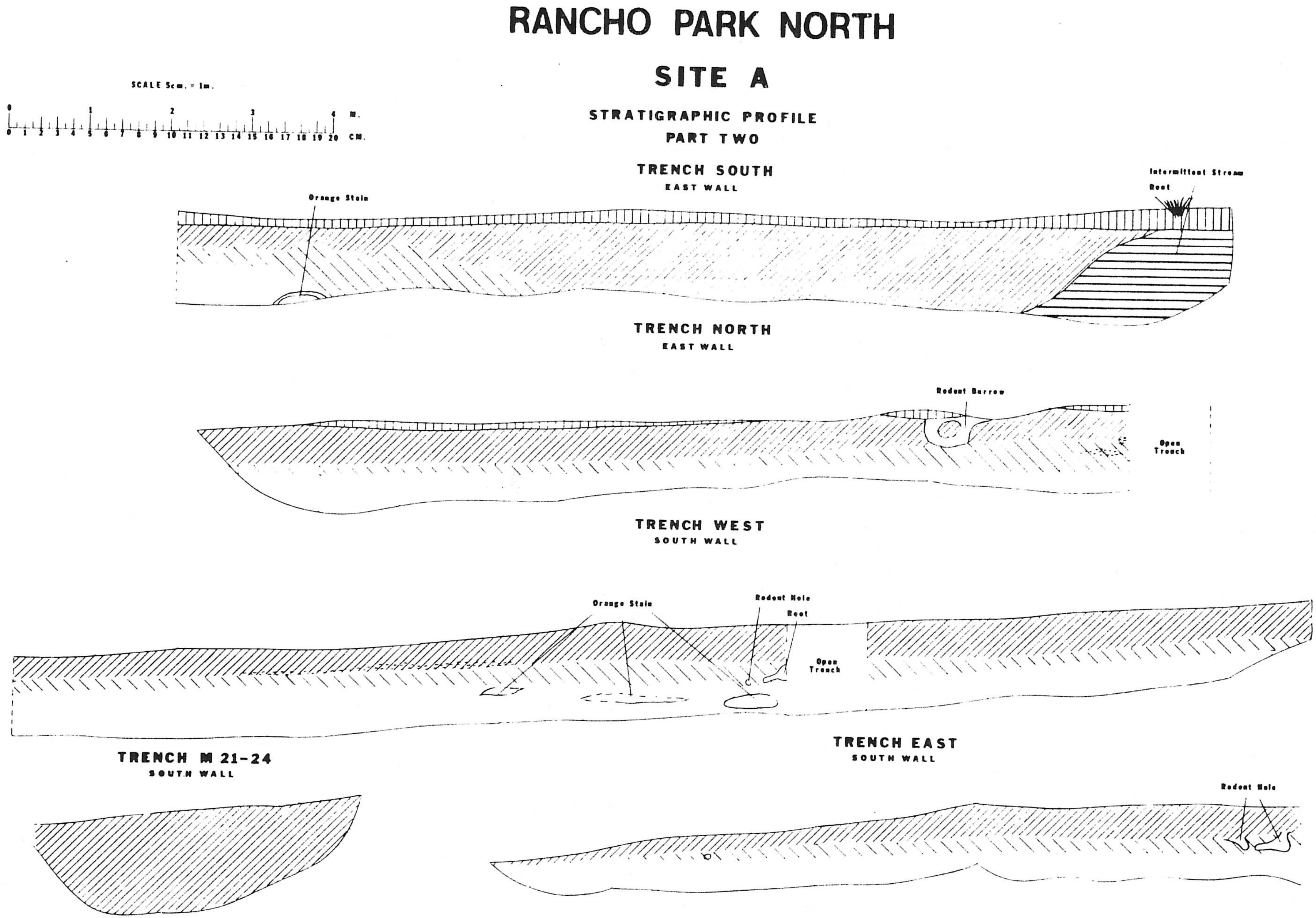


Figure 6. Soil profile, southern portion of Site A.

Within this layer of sediment is contained the late prehistoric phase of site occupation, a phase which, based upon ceramic types, can be assigned to the Kumeyaay aspect of the Late Milling Stone Horizon (May 1974a). La Jolla materials with their typical milling stone, Teshoa flakes, and dependency upon a shellfish economy make their first appearance in this unit.

Unit C

The majority of the cultural material is concentrated within this soil horizon. The unit is olive gray (5Y4/1) to olive black (5Y2/1), fine grained, moderately indurated, friable, moderately sorted chestnut soil. It varies in thickness from about 0.35 meter in the most northerly excavation area to about 1.0 meter in the southeast. The darkest color is associated with the greatest concentration of cultural material and probably stems from the presence of charcoal in the soil from fire hearths. Mollusca shells among the cultural materials of this horizon have been slightly leached by humic acids. The cultural remains in this unit represent the La Jolla and San Dieguito Complexes.

Unit D

This unit combines many of the features of Units B and C. It is olive black (5Y2/1), very fine grained, poorly indurated, well sorted, turbated chestnut soil. Included in this unit are bits of the underlying Torrey Sandstone. Its form is a circular lens approximately 0.8 meter in diameter. This has been interpreted by Bowersox (1974) to be an infilled rodent burrow of some variety, since other burrows in the vicinity of similar structure appear to offer this interpretation.

The thickness and distributions of the soil horizons suggest the presence of buried topography with a slope to the south, probably suggesting that the south slope of the site was once part of an intermittent stream valley or arroyo. The knoll was at one time isolated from the rest of the hill, but due to alluviation the small valley bed has filled. The overlap of Unit C over Unit A suggests that runoff through the stream decreased through time and allowed for greater development of horizon C.

The culturally sterile soil underlying Unit C is the Torrey Sandstone deposit of Eocene deposition, which is erosionally exposed elsewhere. It consists of fine to coarse horizontally bedded yellowish sandstone, with an occasional lens of gravel.

Figure 6. Soil profile, southern portion of Site A.

HYDROLOGY

Currently Encinitas Creek, 1,000 feet to the north, is a perennial stream which flows into Green Valley, then into Batiquitos Lagoon. During the occupation of W-49 it is highly probable that this creek carried much more water than today. This is evidenced by the width of the stream's drainage area. It would have been a dependable supply of fresh water. A small, marshy pond can still be seen in the drainage area approximately 600 feet north of the site area, suggesting that a semi-permanent stand of water may then have been available. During excavation, an intermittent creek was found to have intersected the site in the vicinity of Quad L (Figure 4). It was probably never a constant supply of potable water, but it would have provided an additional and proximal water source for the site's occupants.

Fresh water could also have been obtained from Escondido Creek, approximately one mile to the southeast, and at an unnamed creek which bypasses the Encinitas Ranch House northeast of Encinitas Creek. San Marcos Creek, two miles to the west, would have provided drinking water throughout the year.

Both Batiquitos and San Elijo Lagoons would have provided abundant food and lithic resources which could be used in the daily lives of the site occupants.

CLIMATE

The current climate in the vicinity of the site is typical of the coastal environment in Southern California. The mildness of the summers and winters is due to the oceanic influences from the west. The annual climate fluctuates from a mean maximum of 67 degrees F. to a minimum of 53 degrees F. Average precipitation as recorded at Palomar Airport is 8.2" (U.S. Weather Service). During much of the occupation of the site, the climate was very similar to today's conditions. The pollen samples (Berryman 1974) substantiate that only changes in the amount of precipitation seem to have occurred in the recent past since chaparral is the dominant form of vegetation from the base of the site to its upper levels. Oak and pine pollen occur in the pollen profile throughout the site, indicating that a wetter, less arid climatic condition existed during the earliest occupation of the site (Berryman 1974).

ENVIRONMENTAL SETTING

The site is located in the California Biotic Zone (Munz and Kech 1959). In this area of Southern California the coastal hills of the California Zone are indicated by the Coastal Sage Scrub and Chaparral plant communities. On north-facing slopes, like those at W-49, less sunlight is received than on south-facing slopes, thus supporting a heavier growth of plant cover (Bakker 1972:70).

FLORA

The site is covered with a well-developed chaparral plant community and a number of typical coastal sage scrub species (Hedges 1974). In a small drainage northwest of the site, increased available moisture has enabled chaparral plants such as scrub oak and manzanita to attain heights of twenty to twenty-five feet. A few remaining large plants indicate that a similar situation existed in the large drainage east of the site.

These drainages are tributaries to Encinitas Creek, which flows north of the site and into Batiquitos Lagoon. The site area and the property immediately to the west and south retain the native ground cover. The valleys of Encinitas Creek and the drainage east of the site and the hills beyond the site to the north and east have been cleared, cultivated, and grazed, resulting in nearly complete replacement of the natural vegetation by wild and cultivated introduced grasses and various small weedy plants.

The vegetation present on the site is primarily composed of chaparral species. Manzanita (Arctostaphylos sp. and Xylococcus bicolor), scrub oak (Quercus dumosa), chamise (Adenostoma fasciculatum), toyon (Heteromeles arbutifolia), holly-leaved cherry (Prunus ilicifolia), buckwheat (Erigonum fascilatum), ceanothus (Ceanothus sp.), coyote brush (Baccharis pipularis), white sage (Salvia apiana), black sage (Salvia mellifera), chaparral pea (Pickeringia montana), lemonade berry (Rhus integrifolia), chaparral bedstraw (Galium angustifolum), poison oak (Rhus diversiloba), Spanish dagger (Yucca schidigera), California sagebrush (Artemisia californica), snakeweed (Gutierrezia sp.), cane tea (Ephedra sp.), prickly pear (Opuntia occidentalis) and mistletoe (Phoradendion sp.), are all present at the Great Western sites.

In addition to the above flora which exist on the sites, several other varied plant species exist in the surrounding area. Some of these plants may have been equally important as food resources and raw materials for the manufacture of baskets and other utilitarian items. Especially important is the small stand of remnant live oak (Quercus agrifolia) which is located to the east of Site A. Also within easy walking distance from the sites exists a dense stand of poison oak (Rhus diversiloba), scrub oak (Quercus dumosa), chaparral honeysuckle (Lonicera subspicata var. denudata), giant rye grass (Elymus condensatus), coffeeberry (Rhamus californica), Spanish dagger (Yucca schidigera), elderberry (Sambucus mexicana), wild cucumber (Marah macrocarpa), and monkey-flower (Mimulus sp.).

Other native plants observed in the drainage to the east of the sites include willow (Salix lasiolepis), toyon (Heteromeles arbutifolia), cottonwood (Populus fremontii), dove weed (Eremocarpus setigerus), ragweed (Ambrosia sp.), buckwheat

(*Eriogonum fasciculatum*, California sagebrush (*Artemisia californica*), deer weed (*Lotus scoparius*), and several species which also occur in the dense growth near the live oak trees.

A variety of introduced plants which were not present during aboriginal occupation of the site was observed in the drainage area to the east. These include the sweet fennel (*Foeniculum vulgare*), mustard (*Brassica nigra*), saltbrush (*Atriplex* sp.), goosefoot (*Chenopodium* sp.), tumbleweed (*Salsola kali*), and watermelon (*Citrullus vulgaris*) (Hedges 1974).

Pollen samples taken by Berryman (1974) indicate that several other varieties of plants were present in the past but are not currently located near the site. The most exotic plant remains located by pollen sampling were deer grass (*Muhlenbergia rugens*), the lace pod (*Thysanocarpus curvipes*), mustard and pepper grass (*Descurainia pinnata*), the sea-blite (*Swaeda californica*) and a variety of pine (*Pinus* sp.). Laurel sumac (*Rhus laurina*) and Mormon tea (*Ephedra* sp.) were also located in the pollen samples.

Thus, within easy walking distance can be found abundant plant resources for the manufacturing of cultural items and for dietary supplementation. Although the current plant resources would sustain but a meager population, and then probably poorly, a more abundant flora in the past would adequately supplement a diet primarily consisting of gathered seeds and shellfish. Since the average daily rota of hunters and gatherers is known to be approximately five kilometers (Vita-Finzi and Higgs 1970), the entire La Costa, Batiquitos Lagoon area would have provided ample floral resources for subsistence economies.

FAUNA

Prior to Euro-American utilization of the lands in northern San Diego County for agricultural purposes, a more abundant population of mule deer (*Odocoileus hemionus*) existed. This is verified in the archaeological record by the osteological remains recovered during excavation, which included several fragments of deer which were probably consumed at the site, although processed elsewhere. At least two species of rabbit can be found near the sites; these include the common jackrabbit (*Lepus californicus*) and the Audubon cottontail (*Sylvilangus auduboni*). Other animals which can be found in the vicinity include the woodrat (*Neotoma lepida*), the California ground squirrel (*Citellus beecheyi*), the coyote (*Canis latrans*), the red fox (*Vulpes fluva*), the pocket gopher (*Thomomys bottae*) and several varieties of mice. Based upon ethnographic analogy, all of these, with the exception of the coyote and the fox, may have been utilized as supplementary food resources, even the mice and gophers. Even today a number of the smaller animals are hunted by the remnants of the Kiliwa, a group of relic, hunter/gatherers living in Baja California (Michelsen 1970).

It appears that the speckled rattlesnake (Crotalus mitchelli) and the red diamond rattlesnake (Crotalus ruber) would be the most frequent snakes encountered in the vicinity. Several horned lizards (Phyrnosoma coronatum) were noted during excavation of the sites, but no evidence of utilization of reptiles was gleaned from the excavation.

Ornithologically, many waterfowl and waders now frequent the nearby San Elijo and Batiquitos Lagoons. It is probable that a much denser population of birds was present during aboriginal times. Indeed, evidence of exploiting birds as a food resource was gleaned from Site A, although the bones were so fragmentary that the species of birds thus utilized could not be identified. Bird bones were also employed in the production of tools and ornamental items found at the site.

Although it seems as though some fish must have been collected during food-getting activities, only one vertebra of one unidentified fish was found at Site A.

The above discussion of the resources, both faunal and floral, supports the contention that the food resources were highly abundant in north coastal San Diego County and could very well support the hunting-gathering population which once inhabited the coast of San Diego County.

Exploited Marine and Estuarine Food Resources

Overwhelming evidence indicates that the occupants of the site exploited estuarine and maritime food resources. The major portion of these resources was located in the stratigraphic profile between 20 and 100 centimeters of depth at Site A (Figures 5 and 6). The total amount of shell collected from the 15 percent excavation of Site A was 50,000 grams (102 pounds) (see Table 1). This amount of shell in the midden provides us with evidence that the occupants of the site relied extensively upon shellfish for their dietary needs.

The banded cockle (Chione californiensis) and the speckled scallop (Plagioctenium circularis) are the most predominant molluscs. Two varieties of oysters, the rock oyster (Pseudochama exogyra) and the native oyster (Ostrea lurida), were also exploited to a major degree at various times of site occupation. Other exploited molluscs were the southern moon snail (Polinices reclusianus), the black abalone (Haliotis cracherodii), the giant keyhole limpet (Megathura crenulata), the California mussel (Mytilus californianus), the jackknife clam (Tagelus californianus), the wavy chione (Chione undatella), the banded chione (Chione californiensis), the large pecten (Aequipecten aequivulcatus) and the razor clam (Solen rosaceus).

Table 1

Total Shell Distribution, Site A

Levels	Surface	I	II	III	IV	V	VI	VII
Gram Weight	35	627	1719	5040	8979	3324	8700	12300
Percentage Of Total Weight	0.06%	1.23%	3.39%	9.96%	17.75%	6.57%	17.20%	24%
% Cumulative	----	1.29%	4.68%	14.64%	32.39%	38.96%	56.16%	80.16%
Levels	**VIII**	**IX**	**X**	**XI**	**XII**	**XIII**		**Total**
Gram Weight	3300	3786	2298	321	107	17		50,579 50.57 kg.
Percentage Of Total Weight	6.58%	7.48%	4.54%	0.63%	0.20%	.03%		99.2%
% Cumulative	86.74%	94.22%	98.76%	99.39%	99.59%	99.62%		----

From the shell deposits it is possible to determine that the occupants of Site A exploited several aquatic ecological zones, including the turbulent rocky shores, where oysters and limpets were obtained, the calm intertidal waters of the lagoons where abalone and clams were exploited, and the sandy beaches where snails and chiones were acquired.

The concentration of deposit varies greatly, but the following pattern can be seen. The two levels where the greatest amount of lithic materials were located also contain the most abundant concentration of shells (see Figure 7). These are Levels IV and VII.

The exploitation of Chione and pecten, although fluctuating, show general consistent trends over time (see Table 2). Chione is the most exploited mollusc near the top level of the midden. As the excavation depth increased, pecten became the most exploited shellfish, with oysters constituting the most significant portion of the remaining molluscs.

From Table 2 it can be seen that the dependency upon shellfish ended during the late prehistoric period. While the La Jolla population seemed to prefer Chione, the San Dieguito peoples very efficiently exploited pectens. They also extended their efforts to the exploitation of other types of shellfish such as the oyster from the turbulent rocky foreshores.

The shellfish exploited from the intertidal rocks could simply be pulled from the rocks without any special equipment. The clams and molluscs had to be dug from the mud or sand, but these required no special equipment other than perhaps a digging stick (Table 3).

Very few crustacean remains were located, but a few barnacle shells (Balanidae) were recovered. These were most probably a byproduct of the exploitation of saltwater resources. Another shell, the Purple Olive shell (Olivella biplicata), was probably not utilized as a food resource, but as a resource for the manufacturing of ornamental artifacts such as the olivella beads which were located in what is termed the San Dieguito III cultural level.

Another explanation for the exploitation of rocky shore sea life could be the theory that the lagoons were turbulent (Warren and Pavesic 1963) and had not silted at the time of site occupation, therefore enabling the inhabitants of the sites in the area to exploit such resources from the shores of the lagoon and not from the sea coast.

Terrestrial Animal Food Resources

As can be seen in Figure 8, several species of animals are represented in the archaeological record at Site A (Kasper 1974:86-92), but animal remains are rare in comparison to the evidence of marine life. Many animal bones were not complete

Table 2

Major Species in the Shell Midden Deposits, Site A

Level	III	IV	V	VI	VII	VIII	IX	X	XI
Chione	65%	49%	30%	34%	37%	30%	35%	37%	25%
Pecten	29%	41%	67%	58%	57%	61%	55%	57%	65%
Oyster	1.5%	3.5%	2.5%	6.3%	8.3%	6.4%	6.7%	3.3%	5.6%
Other	4.5%	6.3%	.5%	4%	2.5%	2.4%	2.4%	3.3%	3.8%
C14 Dates	710 B.P.	8,030 B.P. 6,900 B.P.	8,090 B.P.	8,150	----	8,110 B.P.		8,300 B.P.	

TABLE 3

ECOLOGICAL AQUATIC ZONES EXPLOITED

Zone	Resources
Intertidal Sandy Beaches	Polinices reclusianus
	Donax gouldaii
	Chione undatella
	Chione californiensis
	Solen rosaceus
	Olivella biplicata
Intertidal Waters	Haliotis cracherodii
	Megathurea crenulata
	Tagelus californianus
Rocky Shores	Mytilus californianus
	Pseudochama exogyra
	Ostrea lurida

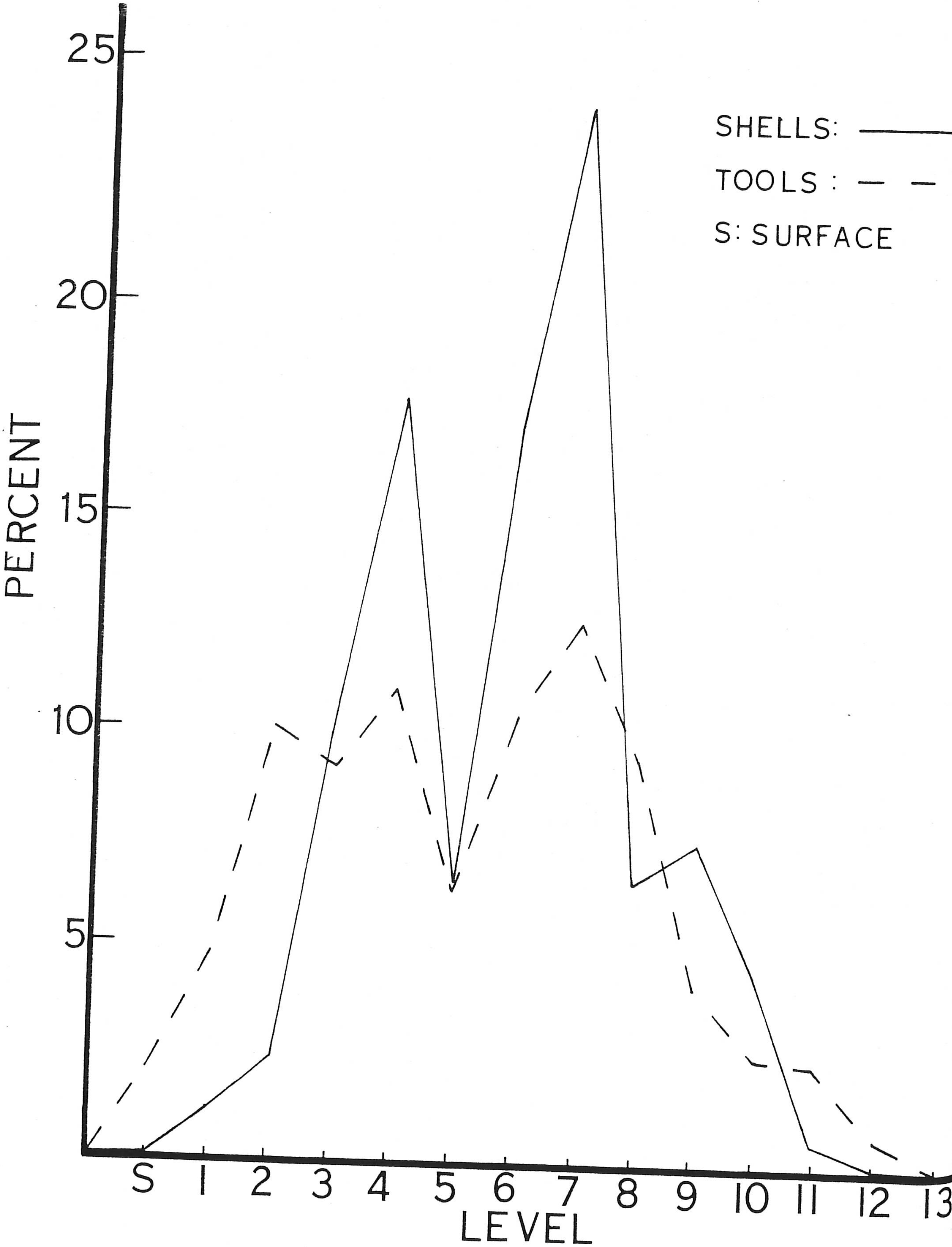


Figure 7. Percentage distribution of shells and tools.

enough to be identified. Several were charred and split in half, indicating that they had been cooked in one of the several identified cooking hearths. Afterward the bones may have been split for the acquisition of bone marrow. The most abundant split bone was long bone of larger mammals, all of which had been split laterally using torsinal stress.

The most predominant game animal appears to have been rabbit. The jackrabbit (Lepus californicus) is most often found near cooking hearths, appearing near a hearth in Level III (I13-3-17) (I14-3-21) and then again in Level IV (specimens 19-4-37 and I9-4-38). The cottontail rabbit (Sylvilangus audubonii) appears more frequently than the jackrabbit; it was probably this species which enjoyed culinary preference as a foodstuff. The cottontail was first discovered in Level III (I14-3-21), represented by a charred mandibular fragment. It is found again in Level IV (J9-4-41).

Miscellaneous bones were located in Level VIII (I18-8-59). In Unit I-9 at Level VI (I-9-62; I-9-6-63) additional charred bone was located. In Unit I-17, the distal end of a tibia was recovered. This indicated that rabbit was either the most preferred or the most readily available mammalian foodstuff.

The exploited animal which contained the greatest amount of biomass was the deer. Numerous segments of the California mule deer (Odocoileus columbianus) were located. It was first represented in Level II and found in frequent occurrence until Level VIII. Two charred metapodial fragments were located in Level II (K11-2), indicating that at least two separate individual animals were located at this locus. Mandibular and scapular fragments were also found. The teeth of Odocoileus hemionus were located in unit I20-4-25.

Level VI produced two right astragali, indicating that at least two separate deer are represented from this one unit (J9-6-72). In unit I14 another deer fragment was located (I14-8-65).

The sparse representation of deer bone indicates that the butchering of the animal was probably conducted elsewhere, but at least some of the consumption of the animal was conducted at the site. This also seems to be confirmed by the lithic inventory. Very few cutting tools were located which could have been used for primary butchering. Most of the tools located were either used for secondary butchering, food processing or for the processing of hides and vegetable matter.

Also present at the site were the remains of the woodrat (Neotoma sp.) which is represented by a mandibular fragment. It shows no signs of charring, and it may not have been always used as a food resource. This is also the case with the small pocket gopher (Thomomys umbrinus) which appears randomly throughout several upper layers of Site A. One specimen is very interesting because it had been burned as if having been intentionally placed in a cooking hearth. On the other hand, its occurrence there may have been just happenstance. The ground squirrel (<u>Citellus beecheyi</u>) continues to burrow around the periphery of the site but no osteological specimens of this genus were recovered during the excavation.

Several long bones of birds were also located <u>in situ</u>, but none have been identified. It is believed that many were aquatic birds or waders (Kasper 1974).

Many other osteological remains were also located but they are not identifiable because of their fragmented condition. Several of the bones had been charred, split, and fractured.

One fish vertebra was located in Level IV near the vicinity of a charred specimen of <u>Lepus californianus</u>. The vertabra is as yet unidentified, but it appears that some occupant of the site exploited the nearby sea or lagoon for foodstuffs and obtained a fish. It is believed that very little net fishing was conducted in this area of Southern California because, as Beals and Hester (1971:75) state:

> . . .the greater proportion of sand beaches in the south (California) not only supplied few shellfish (in recent times) but were poor surf fishing areas with aboriginal technology.

It is probably for that reason that very limited fishing was conducted. We have only minimal evidence of the practice at any of the Great Western sites. With the abundance of shellfish and mammalian remains, it seems that the absence of fishing would not have had any significant effect upon the dietary adaptation of the former occupants of the sites.

More recent excavations by Kaldenberg and Hatley (1976) have indicated that fishing was a more integral part of the La Jolla economy as early as 5,500 B.P. It appears that the absence of recovered fish remains may be the result of the use of shaker screens which are so large that the small vertebrae of fish pass through them unnoticed during excavation.

Table 4 indicates that the cottontail rabbit was preferred over other types of rabbit. The species most continuously exploited was not rabbit, but deer. Deer is initially present in Level VIII and continues until Level II while rabbit is present beginning with Level VIII and terminating in Level III. Using the unidentified species column, we can see that animal food sources were more constant than shellfish, though not in as great a proportion. The paucity of game animals in the archaeological record is also borne out in the lack of hunting weapons located at Site A (Table 5). It appears, then, that Site A may have been used for food processing rather than as a hunting camp or as a base camp (village) during most of its occupation.

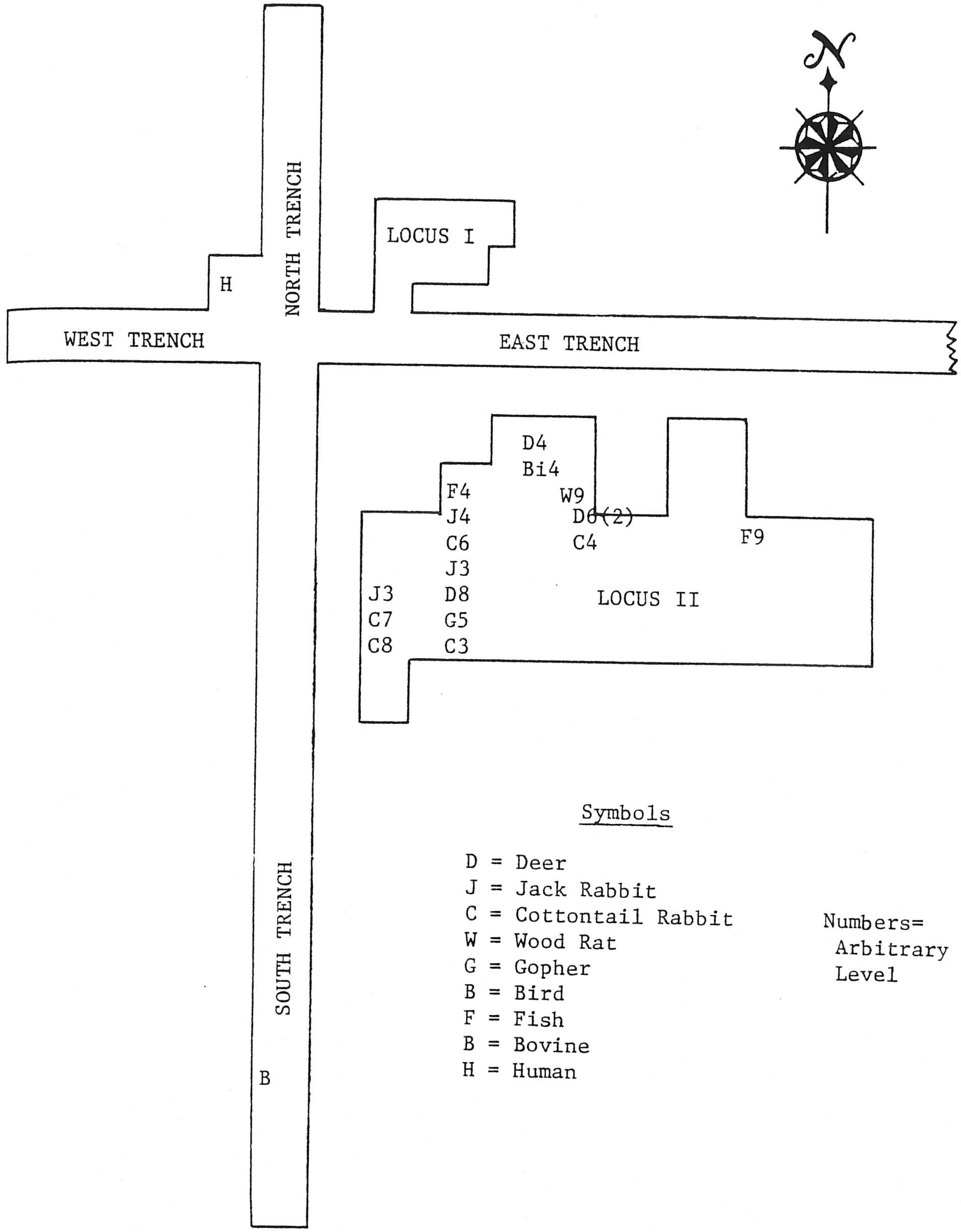


Figure 8. Distribution of faunal remains at Rancho Park North Site A. Not to scale.

Table 4

Animal Food Resources

Animal	Level	I	II	III	IV	V	VI	VII	VIII	IX	x	XI	XII
Unidentified		X	X	X	X	X	X	X	X	X	X	X	X
Gopher		X	X	X	X	X	X						
Woodrat									X				
Jackrabbit				X	X								
Cottontail				X	X	X	X	X	X				
Deer			X		X	X	X		X				
Fish					X								
Bird					X	X	X						

Type	ARTIFACTS Classification	TRENCHES South Trench	West Trench	East Trench	Misc. Trench	Back Dirt	CONTROLLED EXCAVATION LEVELS Surface	Level I 0-10cm.	Level II 10-20cm.	Level III 20-30cm.	Level IV 30-40cm.	Level V 40-50cm	Level VI 50-60cm.	Level VII 60-70cm.	Level VIII 70-80cm.	Level IX 80-90cm.	Level X 90-100cm.	Level XI 100-110cm.	Level XII 110-120cm.	Level XIII 120-132cm.	Cumulative Total
	A. Ceramic		5		1		3	36	7	1											57
	B. Lithic																				
1	Metates			1	4	1	1	1	1	3											12
2	Manos	5	5	4	5	1	10	11	11	4	6										62
3	Cores	23	28	18	10	1	3	10	22	22	23	21	23	21	11	13	8	3			260
4	Primary Flakes	209	107	124	53	18	34	279	292	319	234	149	215	195	144	155	85	35	12		2659
5	Debitage	292	55	97			13	193	417	549	398	337	306	370	200	235	243	132	24		3861
6	Bifaces												1								1
7	Blades	1	1		1		1		1	1	1	1	2	3	1						14
8	Choppers				1		1		3		4	1	1	3	3						17
9	Chopping Tools	4						2	3	1	2	2	2	2							18
10	Inverse Choppers					1						1									2
11	Crescent										1										1
12	Endscrapers		1		1			2	5	4	3	3		3	1	2	3				28
13	Gravers	1		1	1			2	1	4	2	1	2	3	1	1					20
14	Hammerstones	1	1	1	1		2		4	1	2		3	4		4	1				25
15	Knives (Typological)								1					2							3
16	Knives Naturally Backed	1		2	1		1		1		1	1				1					9
17	Pick																		1		1
18	Projectile points	2	1						2	1											6
19	Pushplanes	21	9	1	7		1	6	9	13	8	6	15	17	16	3	1	1			134
	Sidescrapers																				
20	Convex		6	1	3	2	4	6	10	5	8	8	7	8	10	6	1	5		1	95
21	Convex-Concave		1														1				2
22	Concave	6	1							2		1	1	3		1					15
23	Double Convex	3		1					3		2		4	1	1	1					16
24	Convergent	1						1	1	3	2	1		1							10
25	Double Convergent		6		1			2		1		1	1					1			13
26	Denticulated			1	1			4	1	3		1	3	5	1	3			1		24
27	Notched		1	1	1			1	3		6	2	1			1		1			18
28	Domed						2														2
29	Straight	1	1			1		1	4	2	4				2		1	1			18
30	Straight Convex		1											3		1					5
31	Straight Concave											1	1		1						3
32	Double Straight							1													1
33	Thumbnail				1					1	1										3
34	Tabular	1						2	1			2					1				7
35	Multiple	1			2						1										4
36	Teshoa Flakes		1	1	2					1		1									6
37	Misc. Retouched Flakes									1	1	1				1					4
38	Utilized Flakes			1	2	2	4	7	27	23	37	15	34	41	38	7	11	10	4	1	264
39	Thinned Base							1		1			1	1		1					5
40	Preforms								1		1		1								3
	C. Misc. Tools							1		2			1								4
	Bone Tool										1										1
	Shell Tool								1												1
	Pseudo Points							1						1							2
	Scraper Point											1									1
	TOTAL	573	226	255	98	27	77	534	825	971	749	558	625	687	430	436	356	189	42	2	7660

*excluding ornamental material

Table 5. Rancho Park North Cultural Material.

PALEO-BOTANICAL RESOURCES

Although milling implements were located at shallow levels (0-30 centimeters subsurface), oak pollen was found to the base of the archaeological deposit (Berryman 1974). It is probable that during much of this time period, oak was not utilized for a food resource, since no artifacts standardly employed for the processing of acorns have been located.

Personal interviews with an old-time resident, Mr. Herman Weigand (1974), indicated that a greater number of oak trees were present during the late nineteenth century than can now be found in the Olivenhain area. Recent agricultural practices, demands for areas for homes, and the lowering of the water table have caused the dissipation of these trees from coastal San Diego County.

In the absence of published data, the major source of ethnobotanical data specifically for the Northern Diegueno (Kumeyaay) is a manuscript by Hedges (1967), containing information collected at Santa Ysabel in the central mountains of San Diego County. For southern California in general, the most comprehensive ethnobotany for any group is Temalpakh, the ethnobotanical study of the Cahuilla by Bean and Saubel (1972). Ethnobotanical information is also contained in Sparkman (1908) for the Luiseno, and in Spier (1923), Lee (1937), and Cuero (1968) for the Kumeyaay; and scattered references are found in other sources. Where information for a single plant exists for more than one group, it nearly always is the case that uses are very similar. The three cultures occupying San Diego County west of the mountains all utilized similar arrays of plant species.

Extending this picture back in time is an uncertain procedure at best. Possible uses of plants can only be suggested for La Jolla times and earlier based upon what anthropologists know about ethnographic uses of floral resources. Geological studies indicate that there was formerly a much greater water supply than at present, including a stream running through the site while it was occupied, probably in both La Jolla and San Dieguito III times (Bowersox 1974). There are historic indications that southern California streams had greater water flows 200 years ago than at present. Under such conditions, and before the surrounding areas were cleared, grazed, and cultivated, the valleys near the site would have supported rich and varied plant communities, including groves of live oak.

Known Plant Uses

The ethnobotany section prepared for the original study was by Ken Kedges and so this section is primarily the work of Mr. Hedges.

The coast live oak provided acorns, the staple food crop of the historic aboriginal cultures of western San Diego County. Acorns were prepared in a highly specialized process involving shelling, grinding, and leaching to remove the bitter tannic acid content of the acorn. The leached meal was prepared for eating by boiling to make mush, or by baking for bread. Acorns were gathered in the fall, and stored in large storage baskets for use throughout the year (Sparkman 1908:193-194; Spier 1923: 334-335; Lee 1937:241; Hedges 1967:4-8, Cuero 1968:30-31; Bean and Saubel 1972:121-129). Acorns provided as much as 50 percent of the total Luiseno diet (White 1963:121). The remnant stand of live oak in the drainage east of the site confirms the presence of oak in the area, and it is almost certain that acorns were available close at hand in the past. It is difficult to assess the importance, if any, of acorns in the La Jolla diet, since mortars, considered essential to acorn preparation by the historic peoples, are rare in La Jolla sites (Wallace 1955).

Acorns of the scrub oak are small and difficult to grind. They were probably not normally utilized, but did provide an emergency food source if the regular acorn crop failed (Sparkman 1908:193-194; Lee 1937:144, 241; Bean and Saubel 1972:123; Hedges 1967:4).

The fruit of the elderberry and prickly pear were eaten fresh or dried for later use (Sparkman 1908:195; Lee 1937:138-142, 155-156, 241, 243; Hedges 1967:24, Bean and Saubel 1972: 97, 138). Manzanita and holly-leaved cherry are characterized by fruits having very thin pulp over a large seed; these were eaten fresh, and the seed was ground for use as food (Sparkman 1908:194, 230; Hedges 1967:34; Bean and Saubel 1972:41, 120). Manzanita berries could be dried for future use (Bean and Saubel 1972:41), and the pulp alone was sometimes ground for food (Sparkman 1908:230). Toyon berries were eaten raw, or were parched first and then eaten (Sparkman 1908:194; Bean and Saubel 1972:77). The fleshy fruit of the Spanish dagger was sometimes eaten raw, but usually was roasted in hot coals before eating (Sparkman 1908:196; Bean and Saubel 1972:151).

Seeds of the prickly pear and Spanish dagger were also processed separately for food (Sparkman 1908:230; Spier 1923: 336; Lee 1937:241). Both white and black sage seeds were ground to be made into mush, and were used with other foods, such as acorns, as condiments; pulverized dried white sage leaves were sometimes used in the same way (Sparkman 1908: 229; Spier 1923:335; Lee 1937:63, 126, 243; Hedges 1967:31; Bean and Saubel 1972:136-138). Seeds of cane tea were also ground and made into mush (Bean and Saubel 1972:70).

Various greens were available to the southern California Indians, particularly in the spring; however, none of these would have been available at the time (August) the plant survey was made for this report. The adjacent watercourses would have provided the best environment for fresh greens. Of the plants recorded, the young leaves and shoots of the white sage were eaten raw (Sparkman 1908:196; Lee 1937:126, 243; Hedges 1967:31), prickly pear pods were cleaned of their spines and cooked as a green vegetable (Spier 1923:336; Hedges 1967:24; Bean and Saubel 1972:97), and the blossoms of the Spanish dagger were parboiled for food (Sparkman 1908:195).

Three types of beverage plants were recorded. Manzanita pulp, or the whole fruits, were soaked in water to make a refreshing beverage (Cuero 1968:31; Bean and Saubel 1972:40-41). Lemonade berries were added to water to make an acidic drink which gives the plant its name (Bean and Saubel 1972: 132). Cane tea was boiled to make a tea which was drunk for beverage and general health tonic purposes (Hedges 1967:19; Bean and Saubel 1972:70).

Medicinal Plants

The southern California Indians had numerous medicinal uses for plants found at the sites. Medicinal plants were widely available, and it is not likely that their presence provided a major reason for utilization of the site. In addition to the following, many other medicines were made from plants not found at the site.

Colds, flu, and respiratory ailments were treated with a tea made from elderberry blossoms (Bean and Saubel 1972:138), the leaves of white sage (Hedges 1967:31), or the bark of holly-leaved cherry (Bean and Saubel 1972:120). Leaves of both white sage and California sagebrush were eaten or smoked to treat colds, and the leaves of white sage were used in the steam of the sweathouse for the same purpose (Bean and Saubel 1972:42, 136). Fever was treated with a tea made from elderberry blossoms (Lee 1937:214, 243; Hedges 1967:44; Bean and Saubel 1972:138).

Stomach disorders and diarrhea were treated with tea made from buckwheat leaves or flowers (Bean and Saubel 1972: 72), from elderberry blossoms (Hedges 1967:25; Bean and Saubel 1972:138), or from manzanita leaves (Bean and Saubel 1972:41). An emetic was prepared from ragweed (Sparkman 1908:228), and laxatives were made by boiling coffeeberry fruit or bark (Hedges 1967:41-42; Bean and Saubel 1972:131), elderberry roots (Bean and Saubel 1972:138), buckwheat leaves (Bean and Saubel 1972:72), wild cucumber root (Sparkman 1908:229), or scrub oak galls (Bean and Saubel 1972:129). Cane tea was drunk as a general health tonic, and was said to be good for the stomach and kidneys, and to clear the system and improve the appetite (Hedges 1967:19; Bean and Saubel 1972:70). In historic times, cane tea was used as a treatment for venereal disease (Bean and Saubel 1972:70). Tea brewed from manzanita leaves was also said to be good for the kidneys (Hedges 1967: 26).

Eyewash was made by boiling buckwheat flowers or crushed galls from the scrub oak (Hedges 1967:38; Bean and Saubel 1972:72, 129), and the eyes were cleaned by placing a single white sage seed in the eye and moving it around to collect specks of dirt (Bean and Saubel 1972:136). Hair wash was made by boiling white sage (Bean and Saubel 1972:136), mistletoe (Hedges 1967:43), or ragweed (Hedges 1967:46).

Antiseptic washes were made by soaking oak bark or oak ashes in water (Bean and Saubel 1972:129), boiling oak bark (Hedges 1967:38), or boiling the leaves of chamise (Bean and Saubel 1972:30), and using the liquid to bathe the affected area. Sprains, strained muscles, cuts, and headaches were treated with poultices made of boiled cottonwood leaves (Hedges 1967:39; Bean and Saubel 1972:106). Galls from the scrub oak were used to doctor sores and wounds (Sparkman 1908:233).

Immunity from poison oak was said to be acquired by drinking small quantities of tea made from the roots of the plant (Bean and Saubel 1972:132). To cure a case of poison oak, tea made from white sage leaves was drunk (Hedges 1967:31), or the affected area was bathed with a solution of coffeeberry bark boiled in salted water (Hedges 1967:42). Poison oak rash also was treated with a tea made from manzanita leaves (Bean and Saubel 1972:41).

Menstrual disorders were prevented or cured by drinking tea prepared from California sagebrush (Bean and Saubel 1972:42) or elderberry blossoms (Sparkman 1908:229). During pregnancy, women prepared a solution for bathing by boiling laurel sumac leaves in water, and drank sumac leaf tea (Cuero 1968:44). After pregnancy, a tea made from buckwheat leaves was drunk to cause the uterus to shrink back into position (Bean and Saubel 1972:72). Newborn babies were bathed in solutions of willow bark or elderberry blossoms boiled in water (Cuero 1968:44), and were given a tea made of sagebrush leaves to flush out their systems (Bean and Saubel 1972:42). Elderberry blossom tea was also considered beneficial to newborn infants (Bean and Saubel 1972:138).

White sage was an important plant for fumigation and purification purposes. A house in which there had been sickness was fumigated and purified by burning sage leaves in hot coals (Hedges 1967:31). After a death, individuals associated with the dead person were purified in sage leaf smoke (Cuero 1968:59). Bodily odors were eliminated, especially by men going on a hunt, by applying crushed white sage leaves to the body (Bean and Saubel 1972:136). If hunting weapons had been contaminated by the close presence of a menstruating woman, they were purified by passing them through smoke from burning white sage leaves (Bean and Saubel 1972:136), or by steaming them over boiling sage leaves (Lee 1937:126, 243). Luiseno hunters stood in the smoke of a fire of white sage and California sagebrush to purify themselves and help insure success in the hunt (Sparkman 1908:199).

Other Plant Uses

The typical house of the Southern California coastal Indians was a circular dome-shaped structure of branches thatched with brush, and usually built over a shallow pit. Willow almost certainly was used in house construction, but is curiously absent from published descriptions. Of the plants at the Great Western sites, long branches of young oak, manzanita, and chamise are mentioned for house frames (Lee 1937:59; Bean and Saubel 1972:29-30, 41), and giant rye grass, deer weed, and chamise are noted as thatching materials (Spier:338; Bean and Saubel 1972:69, 87). Fiber from the Spanish dagger was preferred for lashing and tying because of its strength and resistance to rotting (Spier 1923:338; Lee 1937:58-60; Cuero 1968:25, 31; Bean and Saubel 1972:152).

The major basketry materials of southern California--bunch grass (Muhlenbergia rigens), juncus (Juncus textilis), and basket weed (Rhus trilobata)--are currently absent from the site. Acorn storage granaries, a specialized type of basket made of branches with the leaves left on, were made of willow, scrub oak, coffeeberry, and chamise (Sparkman 1908:210; Spier 1923:347; Lee 1937:79-81; Hedges 1967:13, 38, 40; Bean and Saubel 1972:135). A second type of granary consisted of a framework filled in with brush and grass; this was lashed with Spanish dagger fiber (Spier 1923:347-348). Elderberry provided two types of dye used in coiled basketry, a yellow dye from the stems, and a black dye from the fruit (Bean and Saubel 1972:138).

Women's skirts were made from willow bark (Lee 1937: 133, 146) or cottonwood bark (Sparkman 1908:223). Men sometimes wore an apron-like garment of suspended sage twigs (Spier 1923:340). Sandals were woven from bundles of Spanish dagger fiber (Hedges 1967:46). Spanish dagger provided fiber for a wide range of items, including nets, bags, brushes, cordage, and bowstrings (Bean and Saubel 1972:152). As noted above, it was an important material in house construction.

Bows for hunting were made of willow (Sparkman 1908:233; Spier 1923:350; Lee 1937:52; Bean and Saubel 1972:135) or elderberry (Sparkman 1908:229), with bowstrings of fiber or sinew. Arrows usually were the composite type, with a main-shaft of giant rye grass (Sparkman 1908:205; Bean and Saubel 1972:69) and a foreshaft of chamise wood (Sparkman 1908:205; Spier 1923:352; Lee 1937:53; Bean and Saubel 1972:30). Gum for attaching stone points was obtained from the chamise (Sparkman 1908:205; Bean and Saubel 1972:30), and was also used for other adhesive purposes.

Wood had various uses. Mortars were made of oak (Bean and Saubel 1972:129) or cottonwood (Bean and Saubel 1972: 106). Small implements such as awl handles and mush paddles were made of oak and manzanita (Spier 1923:348; Hedges 1967:10; Bean and Saubel 1972:41), and large thatching needles used in house construction were made of willow (Lee 1937:60). Cradleboard frames were made of willow or scrub oak (Hedges 1967:38; Bean and Saubel 1972:135). Elderberry stems with the pith hollowed out were used to make flutes and whistles (Sparkman 1908:211; Bean and Saubel 1972:138).

Oak was considered the ideal firewood (Bean and Saubel 1972:130), and oak bark was the preferred fuel for firing pottery (Rogers 1936:14). Large chamise roots were used as firewood for roasting, and chamise branches were bundled together to make torches (Bean and Saubel 1972:30). Because it burned hot and produced long-lasting coals; manzanita wood was a favorite fuel (Bean and Saubel 1972:41), and manzanita roots were used for indoor fires because they produced little smoke (Spier 1923:339).

Several plants were used as soap, but the preferred soap was from the large root of the Spanish dagger, which was scraped and grated and lathered into the material to be washed (Bean and Saubel 1972:151-152). The plant occurs in abundance on the Great Western property.

Most of the important ceremonial plants of the southern California Indians--toloache (Datura meteloides), coyote tobacco (Nicotiana attenuata), nettle (Urtica holosericea), and wild gourd (Cucurbita foetidissima)--do not occur at Rancho Park North. Two plants with ceremonial uses, white sage and ragweed, do occur at the site. Among the southern California Indians, adolescent girls, as part of their puberty ceremony, were placed in shallow warmed pits in the sand and covered over for a period of enforced inactivity. Among the Northern Diegueno, two of the plants used to line the pit were white sage and ragweed, and the girls wore garlands of ragweed on their heads (Waterman 1910:286-287). As part of the Luiseno puberty ceremonies, lumps of ground white sage seed and salt were given to the boys, who were required to spit them into a pit in the center of a sand painting (Sparkman 1908:222). It is likely that the lumps of "sage-seed and salt" recorded for Luiseno boys' and girls' ceremonies (DuBois 1908:83, 96) and for the Northern Diegueno boys' ceremony (Waterman 1910:304) were also white sage. Other plants with ceremonial associations of a less direct nature included elderberry stems, which were hollowed out for use in smoking tobacco (Spier 1923:315), and wild cucumber seeds, an ingredient in the paint used for making rock paintings (Sparkman 1908:210). Tattooing was done with a bundle of prickly pear thorns (Spier 1923:342), and the design was made permanent by rubbing charcoal from burnt willow, chamise, or cottonwood into the wounds (Spier 1923:342).

RESULTS OF THE POLLEN SAMPLES

Four major sample areas were selected for pollen analysis at the site. These areas were defined as 1-a, taken from an association with human remains, 2-a-j, which was taken from the exposed stream bed strata, 3-a, taken from an exposed rock pavement, and 4-2, which was a 120-centimeter column removed from Trench S. The samples taken from both 1-a and 3-a contained clay material or clay-based soils which are not conducive to the preservation of fossil pollen. Therefore the amount of pollen data obtained from these samples was limited by the composition of the soil matrix. (See Table 6.)

Materials from Feature A (an infant burial) revealed grains now present in the area: *Artemisia californica*, *Baccharis piluilaris*, *Rhus integrifolia*, and *Salvia* sp., indicating one of two things: (1) human bone was imbedded in a rather sterile and hard-packed clay, which was not conducive to preservation of pollen grains; or (2) collection of grains present indicates that the interred remains were placed in a shallow grave without any organic grave offerings.

Samples collected from the exposed rock structure/house floor (Feature B) also proved to be negative, indicating that the clay that was used to cement the floor was inadequate to retain a pollen profile or other organic materials. The clay used for this structure contained too many mineral components to contribute toward pollen preservation.

The column sample indicated that:

1. Rancho Park North is now, and has been in the past, of a Coastal chaparral or Coastal sage scrub (Munz 1974) base, indicating that the predominant species included coastal sagebrush, coyote brush, chaparral broom, wild buckwheat, lemonade berry bush, purple/white or black sage, Yucca/Spanish bayonet, sugary bush, laurel sumac, and other related flora.

2. Several species of plant were brought into the immediate area for aboriginal use or occurred in the immediate vicinity: pine, oak, scrub oak, deer grass, lace-pod, various mustard plants and sea-blithe. Such introductions indicate a necessity by the inhabitants of the area for these floral products, since none are found in the vicinity of the site. Such items as deer grass, lace-pod and sea-blithe indicate a wetter climate or growing area since all are associated with running water, such as is indicated at Encinitas Creek. All three of the above are used for basket-making. Deer grass seeds and sea-blithe were used as black dye.

3. Use was made of oak resources, since oak pollen is present at the site. Other possible arboreal resources such as pines are evident.

TABLE 6

POLLEN GRAINS RECORDED BY LEVELS, SITE A

4a:
Artemisia californica
Baccharis piluilaris
Rhus integrifolia
Salvia leucaphylla
Yucca whipplei
Rhus laurina
Quercus dumosa
Adenostoma fasciculatum

4b:
Artemisia californica
Baccharis piluilaris
Rhus integrifolia
Salvia leucaphylla
Salvia mellifera
Yucca whipplei
Rhus laurina
Quercus dumosa
Adenostoma fasciculatum

4c:
Artemisia californica
Baccharis piluilaris
Eriogonum fasciculatum
Rhus integrifolia
Salvia mellifera
Yucca whipplei
Rhus ovata
Pinum sp.

4d:
Artemisia californica
Baccharis piluilaris
Baccharis sp.
Erigonum fasciculatum
Rhus integrifolia
Salvia mellifera
Yucca whipplei
Quercus agrifolia

4e:
Artemisia californica
Baccharis piluilaris
Eriogonum fasciculatum
Rhus integrifolia
Yucca whipplei
Quercus agrifolia
Muhlenbergia rigens
Descurainia pinnata
Thysanocarpus curvipes sp.

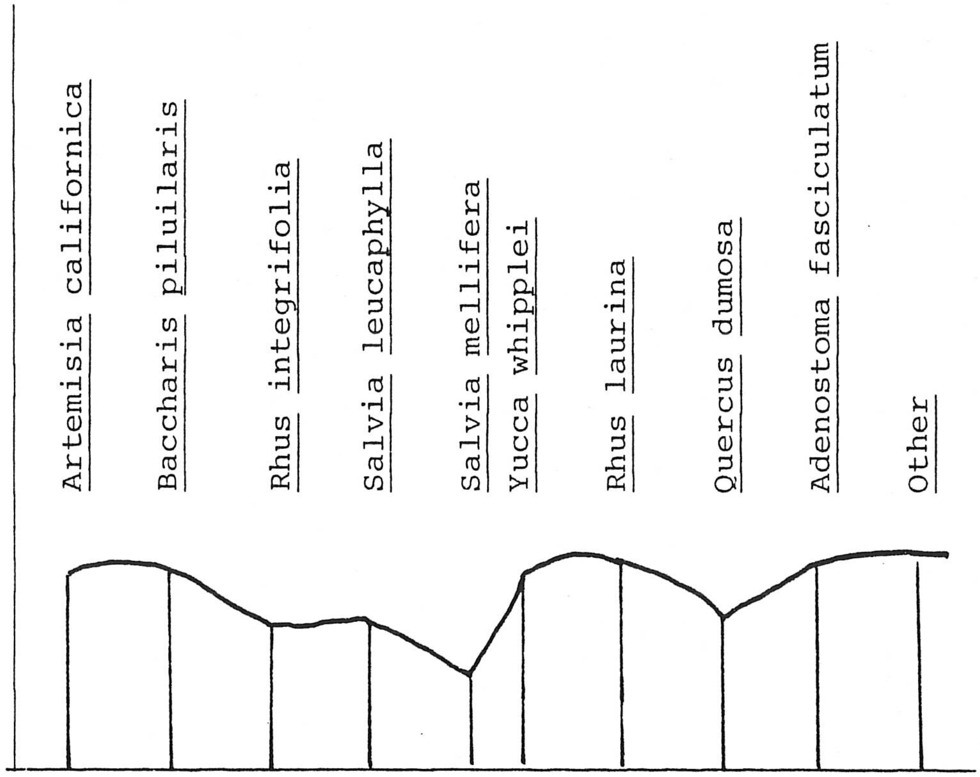
4f:
Artemisia californica
Baccharis piluilaris
Yucca whipplei
Quercus agrifolia
Muhlenbergia rigens
Descurainia pinnata
Thysanocarpus curvipes
Suaeda californica

4g:
Artemisia californica
Baccharis piluilaris
Erigonum fasciculatum

4h-j: soil heavily clay material; not suited for the preservation of pollen grains; little organic material preserved.

Botanical Association

Level II (10-20 cm): predominance of Coastal chaparral flora, large use of sagebrush, seeds from chaparral brushes and Yucca use



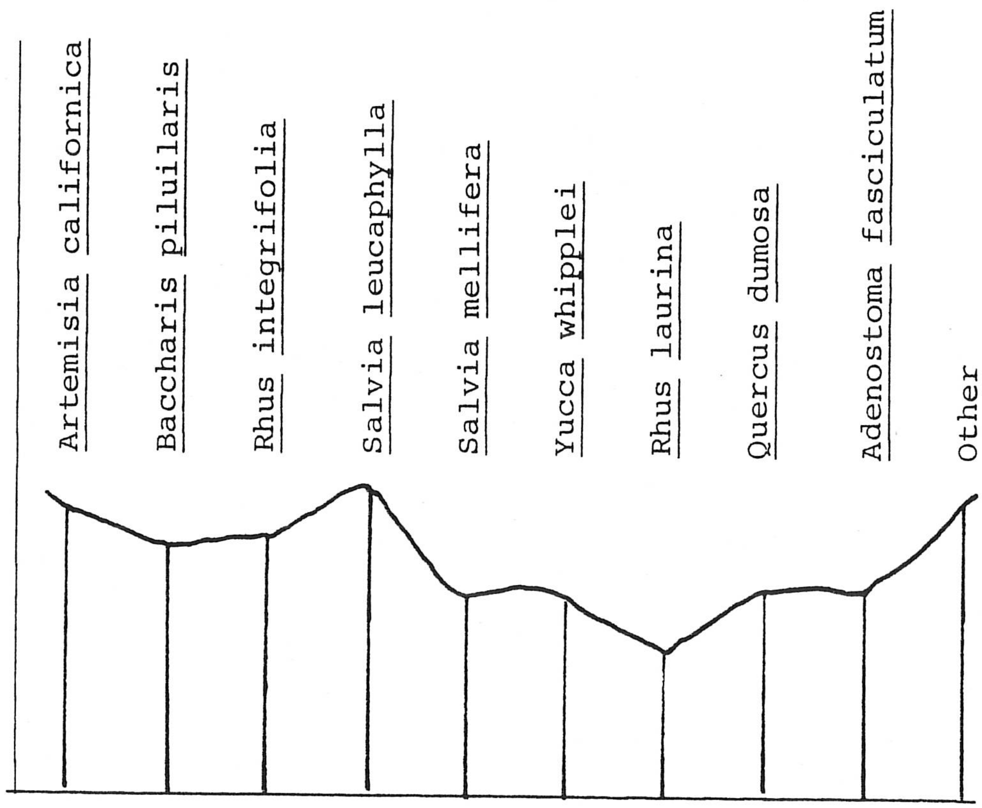
Scale: 1/4 inch = 100 specific pollen grains per 1,000 pollen grains.

Figure 9. Rancho Park North, Site A, Level II, pollen grains in sample.

Lev

Botanical Association

Level III (20-30 cm): no change in pattern

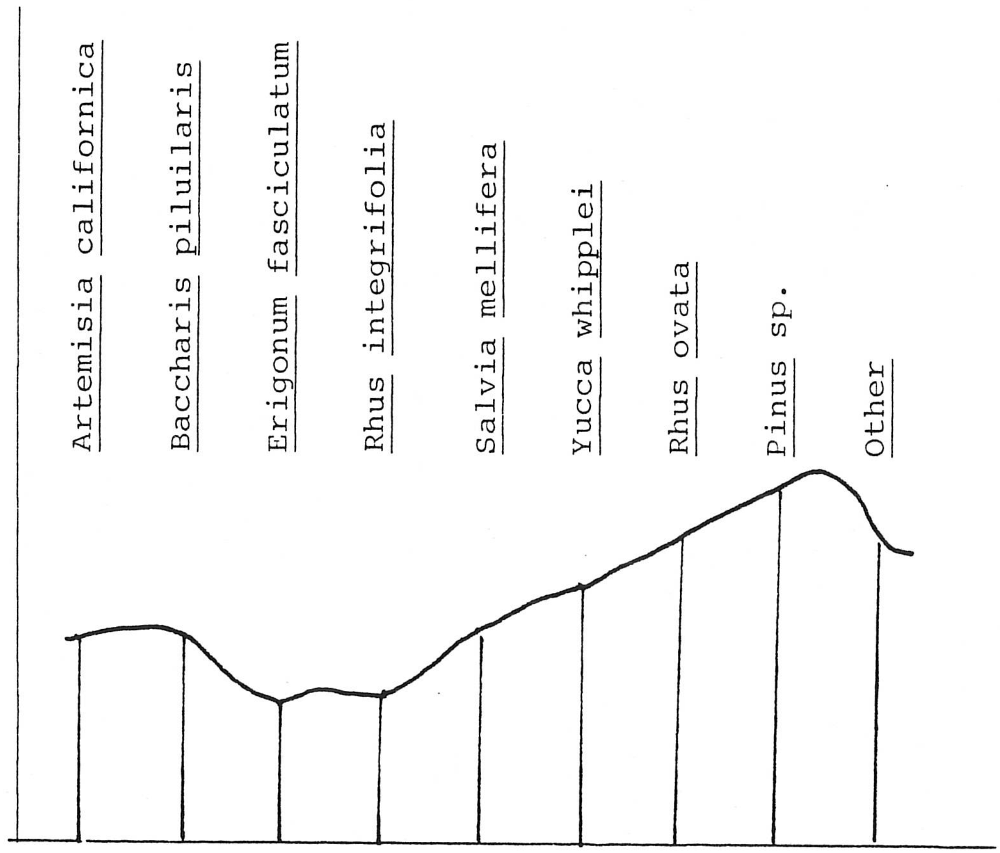


Scale: 1/4 inch = 100 specific pollen grains per 1,000 pollen grains.

Figure 10. Rancho Park North, Site A, Level III, pollen grains in sample.

Botanical Association

Level IV (30-40 cm): continuation of chaparral pattern; introduction of varied species of pine and sugar bush--both of which are not native to the immediate area (710 B.P. at Locus II, 6,900 B.P. at Locus I, and 8,120 B.P. at Locus I)

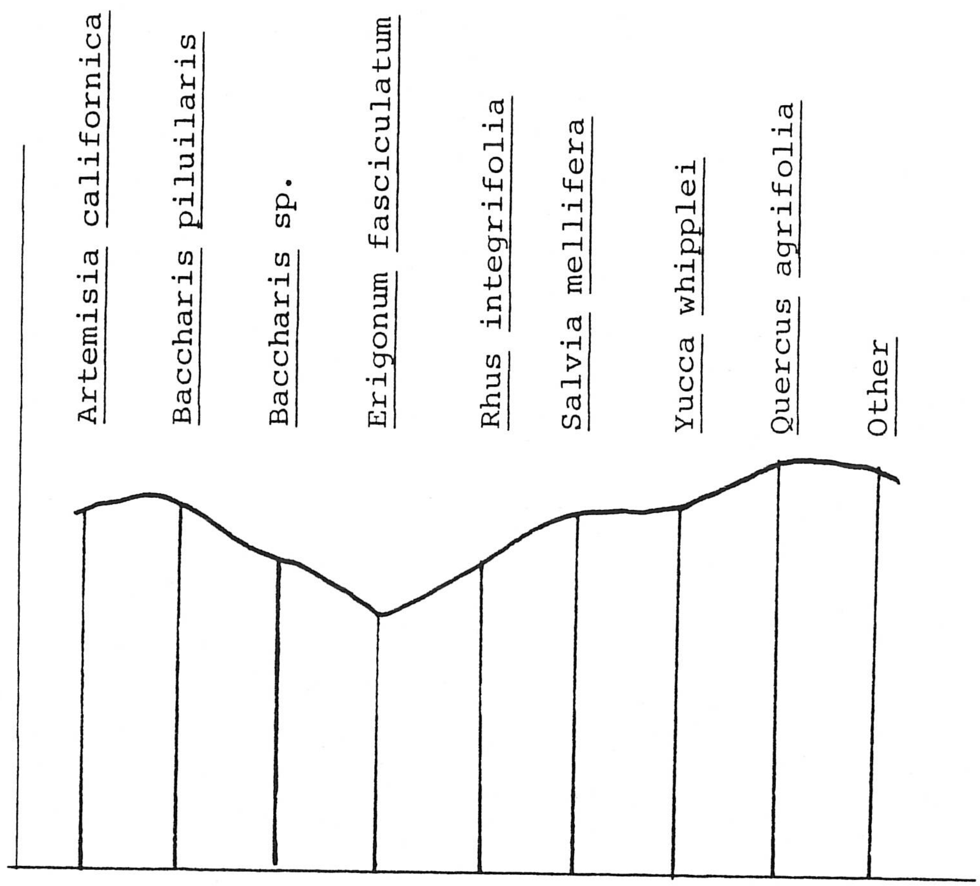


Scale: 1/4 inch = 100 specific pollen grains per 1,000 pollen grains.

Figure 11. Rancho Park North, Site A, Level IV, pollen grains in sample.

Botanical Association

Level V (40-50 cm): slight shift to plants from higher elevations; continuation of pine, oaks and other similar trees

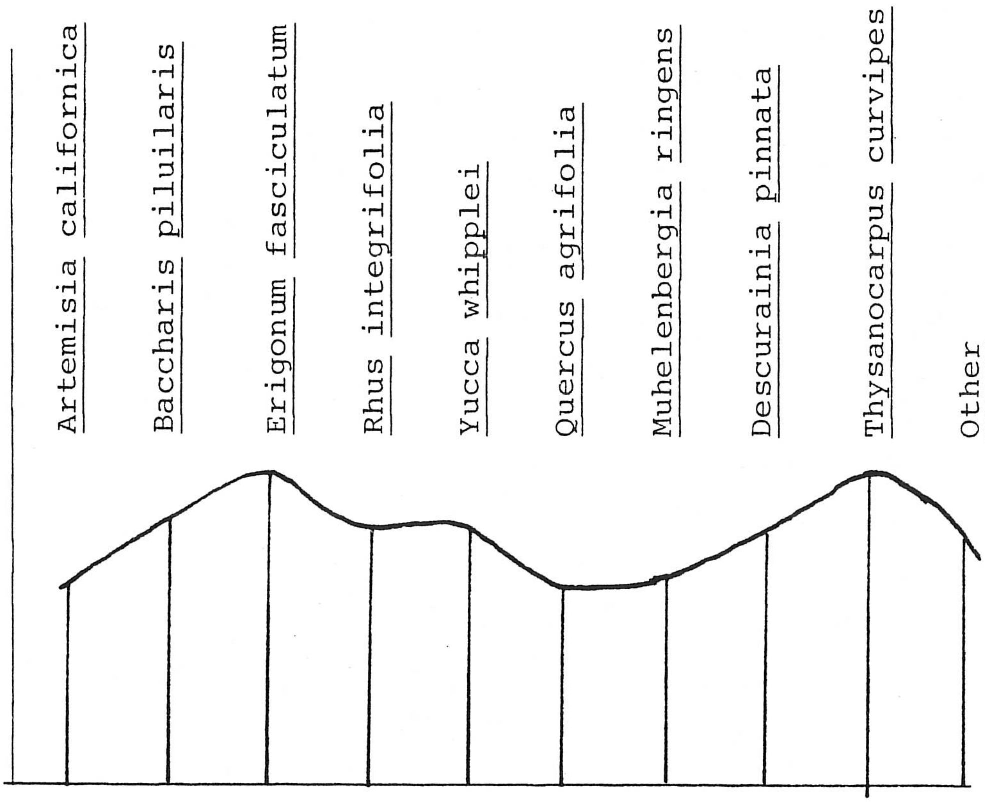


Scale: 1/4 inch = 100 specific pollen grains per 1,000 pollen grains.

Figure 12. Rancho Park North, Site A, Level V, pollen grains in sample.

Botanical Association

Level VI (50-60 cm): shift in flora pattern: 3 species from riverine bases found: deer grass, lace-pod and mustard grasses; shift from complete dominance of chaparral brush to a more varied subsistence; still evidence of pine and oak but lower percentages

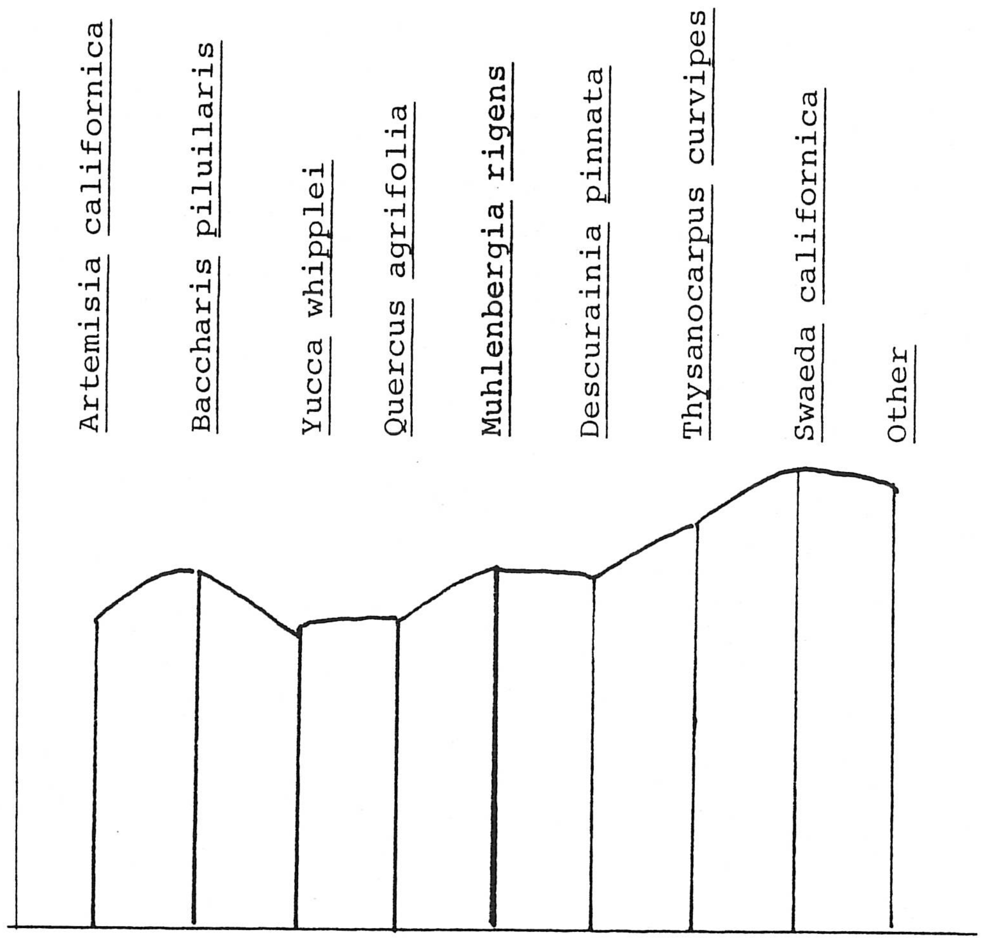


Scale: 1/4 inch = 100 specific pollen grains per 1,000 pollen grains.

Figure 13. Rancho Park North, Site A, Level VI, pollen grains in sample.

Botanical Association

Level VII (60-70 cm): increase of the preservation/ use of grasses from different ecological base; use of sea-blithe shown--based along the ocean zones; decrease of chaparral dominance; no date on this level

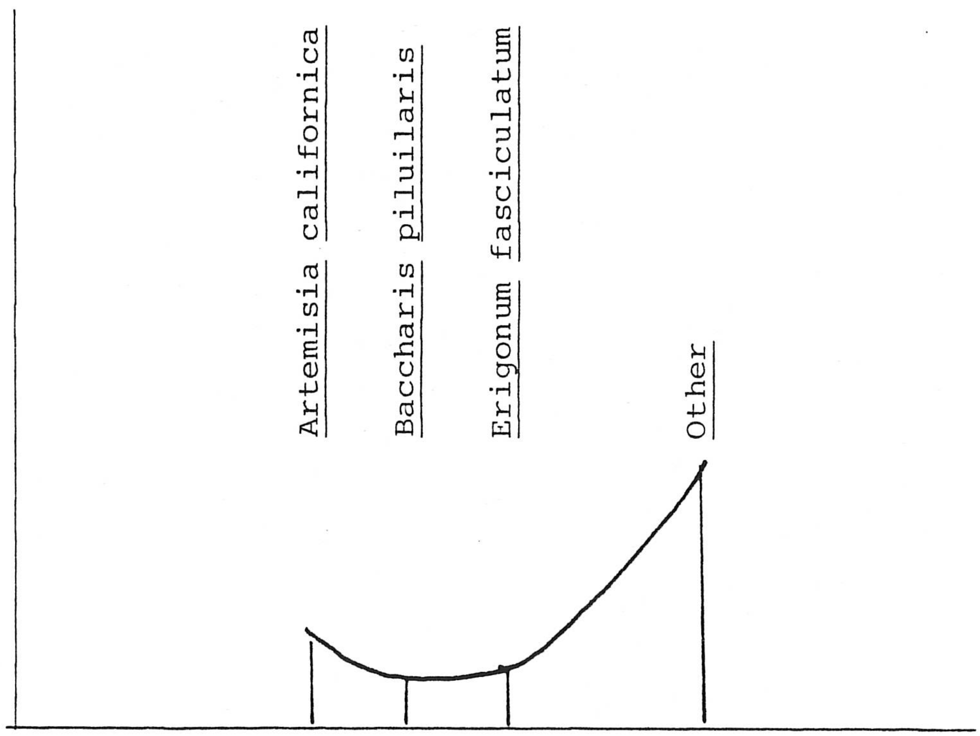


Scale: 1/4 inch = 100 specific pollen grains per 1,000 pollen grains.

Figure 14. Rancho Park North, Site A, Level VII, pollen grains in sample.

Botanical Association

Level VIII (70-80 cm): generally poor preservation potential for lower levels; chaparral based plants still dominant; lower count probably from poor sample



Scale: 1/4 inch = 100 specific pollen grains per 1,000 pollen grains.

Figure 15. Rancho Park North, Site A, Level VIII, pollen grains in sample.

By examining the figures of pollen distribution, the following summary can be given for the column sample.

As indicated by these figures, the economic base at the site was one centered around chaparral communities. Some seeds and grasses were introduced from a more arboreal ecological zone, but the dependency on grassland and chaparral communities agrees with a criterion used by King (1967:66) to define the Milling Stone Horizon in California. However, we are investigating the San Dieguito Complex, a techno-complex encompassing an area from the San Diego coast to the Mojave Desert (Kowta 1969:56) and which is characterized as a generalized hunting-oriented tradition adapted to the hunting of small game.

The presence of pine implies either a proximity to a pine forest, pine pollen humanly introduced to the site in the form of seeds, branches, etc., or pollen which was transported to the site by seasonal winds occurring during Santa Ana weather conditions.

LITHIC RESOURCES

A survey of the general area revealed two major sources of lithic materials. Directly to the north, approximately three miles from the site, we located a massive basaltic dike which appears to have been intensively exploited by the inhabitants of the site. This is site SDM-W-616.

To the southeast, along the San Elijo Lagoon, massive beds beds of quartzite cobbles are exposed. These were also exploited for tool manufacture, employment as manos, and as stone for cooking hearths. Other possible sources for the quartzites and fine grained granites may have been the erosional sandstone gullies which speckle the landscape between the Great Western sites and the coast. A source of andesite is located approximately two miles west of the site (Kaldenberg 1975).

Felsitic materials probably originated in the vicinity of Black Mountain, approximately 10 miles southeast of the site (Bowersox 1974). It appears that a few of the felsitic flakes may have been taken from cobbles located in stream beds, since cortical material on some of the felsite cores indicated that major tumbling and wear occurred on the cortical surfaces before the flakes were removed.

A few tools of clear quartz and tourmaline were located. According to Heizer and Treganza (1944:337), the tourmaline would have been derived from the Mesa Grande region of San Diego County. Nowhere at the site is this material abundant, although it is found in the temper of some ceramic fragments.

A few other types of lithic materials were utilized for tool manufacture, some of them probably derived from the desert, either as trade items or as selective material. One yellow-brown aphanitic, metavolcanic stone was recovered. It is similar to the material San Dieguito peoples were quarrying from the Truckhaven Site in Riverside County (Ezell 1974). Several pieces of green Rosarito chert were located at Site A, which may have been introduced from as far south as Baja California (Bowersox 1974). Artifact specimens manufactured from chalcedony were also located. The closest source of chalcedony is in the Pinto Basin in San Bernardino County (Heizer and Treganza 1944:331), approximately 200 miles east of Site A.

Two pieces of smoky gray obsidian were located at Site A. According to Heizer and Treganza (1944:305), the closest source of obsidian is Obsidian Butte on the southeast shore of Salton Sea, Imperial County. These small fragments may have been traded into the area as cores, since both fragments represent debitage and not flakes or tools. Chace (1967) feels that this obsidian was not available before 1600 A.D. and must therefore represent a late occupation at the site.

Several pebbles of blue schist were located during excavation. Bowersox (1974) feels that these pebbles probably came from either the San Clemente area or the Baja California area, since they cannot be located in San Diego County. Due to their aesthetic lustre, they may have been selected by one of the former inhabitants of the site while on a visit to the coast.

In addition to the above, 132 chunks of hematite and 36 chunks of limonite were located during the excavation of Site A, all of which may have been acquired at the site itself, from the underlying Del Mar formation, for use as body paint.

CHAPTER 4

MECHANICAL PROCEDURES

Before the random sampling and excavation commenced, the site was defined by surface distribution, soil discoloration, and systematic postholing at five-meter intervals throughout the general area of the site. Specifically, postholing indicated that Site A was approximately 20 meters north-south and 15 meters in its east and west orientation, with one portion of the site extending slightly to the south, thereby extending the area of the site by an additional 25 square meters.

Having established the boundaries of the site, a datum was established near what was believed to be the center of the area of cultural activity. The datum was oriented true north. From this datum marker a base line was established which ran from north to south. Another base line was established which ran from east to west. From the two base lines the surface of the site was staked off into 13 5 x 5-meter units at right angles to the base lines. Each five-meter unit was later subdivided into 25 one-meter units encompassing the 325 square meters of the site. These five-meter units were designated as squares.

Each 25-meter square was given a letter designation from square A, located in the northwest corner of the site, to square M, situated in the southeast corner of the site (Figure 4). Each 25-meter square was further subdivided into 25 individual one-meter units, each containing the numbered units 1 to 25. Each 25-meter square had a letter designation and each one-meter unit had a numerical distinction for expedient intrasite unit control.

SURFACE COLLECTION

After the sites had been laid out into their respective 25 square meter units, a total surface collection was made by a crew of archaeologists. On June 23, 1974, the total surface area of Site A was mapped, collected, and then catalogued in the field. All individual specimens, including those which were not located within the surface area of the site, were recovered and taken to the laboratory for analysis.

The preliminary surface analysis was conducted by the excavators and the maps were then given to a cartographer, who produced the final map. After undergoing laboratory analysis, the identification of most of the surface specimens as manos was found to be erroneous. Because of this, the high frequency of manos shown on the surface map is in error, as it represents an enormous amount of thermally-fractured rocks and quartzitic cobbles rather than grinding stones. The correct count of grinding implements appears in Table 5.

METHODS OF EXCAVATION

Site A

Excavation of Site A was begun on June 24, 1974 in the units selected by our sampling design. Excavation was begun on the periphery of the site to determine if the surface distribution of cultural materials corresponded to the sub-surface distribution of artifacts. Units C-9, D-21, E-17, E-18, F-8, H-25, G-13, G-14, G-18, G-19, I-6, I-22, J-13, and K-17 proved to take a much longer time to excavate than had originally been anticipated. These units were all very productive and later became the loci for an expanded excavation of the site. Unit J-13 was qualitatively and quantitatively the most productive unit. During the excavation of this unit the sterile underlying Torrey Sandstone formation was not reached until a depth of 118 centimeters was obtained (Figure 5).

The original units sampled were A-6, L-12, M-25, and B-14. All of these except L-12 were quickly excavated since they contained only two to three arbitrary levels and only a sparse amount of cultural material.

All units were excavated in controlled 10-centimeter (3.9 inch) arbitrary levels. Each individual excavator was responsible for excavating, screening, and mapping each level of their units. Individual excavators were also responsible for drawing the soil profiles of each level within each unit.

Because of the compactness of the soil at Site A, and the intensive concentration of cultural materials, the excavation was tedious. Unit J-13 was very difficult to excavate because of the confined working space and the hardness of the soil. A unit only one meter by one meter and over one meter in depth is too restrictive for freedom of movement. Had there been time enough and had the soil not been so compact, it would have been possible to enlarge this and several other deeper units to allow additional working area for the excavators.

Equipment Employed During Excavation

Trowels, picks, dental tools, small chisels, brushes, and geology picks were used to expose our cultural and arbitrary levels. We used shovels within certain 10 centimeter levels when the level appeared to be sterile and excavation would have been more expedient without costing any loss of information. Shovels were also employed for moving back-dirt off the site, placing back-dirt into screens, and for straightening the sidewalls to keep artifacts from different levels from mixing. Small handaxes were also used for straightening sidewalls when the soil was too compact for ordinary troweling or shoveling.

After the completion of each unit, one or more postholes were dug in the bottom of the floor of the unit. If the posthole produced no more signs of either midden soil or artifacts, then the unit was terminated. On the other hand, if the unit produced further evidence of cultural activity, the unit was continued until a culturally sterile level was obtained.

Mapping of Floor Materials

All concentration of material were exposed and mapped in situ. No material was removed from its unit context until it was mapped and photographed in place. When all the material in any unit had been exposed, it was recorded and removed to the catalogue table where it was washed and recorded in a cumulative catalogue book. In general, by using the step-block method of excavation (Streuver; Bordes), as we did during the 10 percent excavation, we were able to expose large areas of living surfaces and we could identify spatial arrangements between individual units and groups of units. These individual subsurface maps of Site A, some of which are included in Chapter 6, were complemented by accurate note taking during the excavation.

Recording

A contour map for the site and the adjoining area was made during the first few days of excavation. The excavated units were immediately placed on the contour map in the field using a plane table and an alidade.

After the placement of the units was recorded, individual unit excavation and recording was started. Since we used 1 x 1-meter units, all of our measuring was conducted from the southwest corner of each unit. Since each unit represents an individual universe where every artifact is individually numbered, our artifacts have been identified by unit designations. It is therefore possible to totally reconstruct the site by a replacement of artifacts on the individual unit maps.

The measurements represent three dimensions: length, width, and depth. The first measurement represents the distance from the south wall of the unit going north. It is the north measurement. The second measurement is the depth measurement made from the surface of the southwest corner of each individual unit. The third measurement was made from the west wall of each unit going east. It is therefore possible to replace each artifact in the unit where it was recovered and at the precise locale.

Artifact numbers were cumulative unit by unit. The first artifact located in any individual unit would be artifact 1 and the last artifact located before the unit became sterile would be artifact ad infinitum.

Each unit was recorded and drawn on a separate page in a Standard Carbon Copy Laboratory Notebook to a standardized scale of 1:4 centimeters. The data were recorded on the same sheet followed by the site designation, unit field number, date of excavation, excavator's name, location of unit, depth, and any remarks of interesting phenomena concerning the unit, soil, or daily events.

Field numbers were used for each catalogued item. These numbers were placed on the artifact on a piece of masking tape by the individual excavator. The artifact was then directed to the washing area where it was cleaned (after the completion of an individual level) and the accession number was placed on it with indelible ink. During the five percent sample, catalogue cards were completed in the field. Due to the enormous amount of material retrieved, catalogue cards were completed for the 10 percent excavation after the completion of work at Site A.

Laboratory analysis later established the specific type category of tools, using a morphological typology described in the appropriate section in this thesis.

Reproduced below is an example of a notebook entry:

Level 0-10 cm.		Excavator B.A. Digger			Date 13 July 1974
Unit	Artifact #	North	Depth	East	Artifact Description
Z41	1	46	3	67	projectile point
	2	87	5	91	olivella bead

After the completion of an arbitrary level a new page was started in the notebook but the numbering system was cumulative so there would not be any question as to where the artifact originated.

In the above example, the accession number of artifact number 1 would appear as RA-Z41-1-1. The RA was the field designation for Great Western Site A, Z would indicate the quad, and 41 would be the individual unit of excavation. The first _1_ indicates the arbitrary level of excavation (0-10 centimeters), the second _1_ indicates the number of the artifact encountered in the unit.

All artifacts were also plotted on a map in each excavator's notebook, in duplicate. One copy remains in the permanent notebook; the other copy is stored with the catalogued items for permanent laboratory reference.

Photographs were taken of each unit where artifacts were concentrated in any area. The units were photographed in black and white and in color. Photographs of daily activities and the excavation process were also made in color for displaying to the archaeological and general public.

Screening

We employed the standard policy of screening each unit bucket by bucket. The individual excavators were responsible for screening their own units. One-eighth and one-fourth inch mesh screens were employed for this purpose. All culturally produced material was saved and given a unit, level, and individual artifact number. Debitage was saved and given one catalogue number per each level within each unit; therefore 30 pieces of debitage might have one accession number.

All recovered shell was saved, weighed by grams, and later divided into individual species to determine the cultural preference for certain molluscs and to determine if there was an environmental reason certain shellfish were exploited more greatly than other molluscs.

All screened bone was saved, with the exception of very small rodent bones which seemed to have intruded into the site. Any rodent bone which showed evidence of burning was preserved for laboratory identification and analysis (Kasper 1974).

All chunks of hemitite and limonite were saved during screening and were recorded on individual catalogue cards.

Catalogue Cards

Standardized catalogue cards utilized by the Department of Anthropology at San Diego State University were used for the final recording of our artifacts. The cards have been sorted by unit number and by type or artifacts; therefore the cards have been made in duplicate for more ready accession.

Example

Catalogue Number	Material Class	Culture Classification
Object/Culture		Date of Period
Provenience/Description		
Dimensions, Condition, Prior Marks; Remarks		
Source		Date of Receipt
Cultural Identity by Curator		Catalogued by

The reverse side of the card has been reserved for drawing the artifact or for recording any other salient information concerning the artifact.

Step-Block Technique of Excavation

After the five percent testing of Site A, additional units were selected which we felt would represent the greatest concentration of intrasite cultural materials. These units were an expansion of J-13, J-5, I-22, I-6, K-17, F-8 and C-9. The additional units which supplemented units F-8 and C-9 were units C-23, C-24, C-25, F-3, F-4, and F-5. These units comprised Locus I located within the north-western area of Site A, and basically defined culturally as representing Late Milling Horizon and La Jolla materials, of limited concentration, and comprising a cultural matrix of 0-40 centimeters in depth.

Locus I was excavated in a modified step-block system where units were excavated by cultural levels within arbitrary levels. The locus was too limited and shallow to produce the results seen in Locus II, but by excavating these contiguous levels several living floors were found in Locus I.

Locus II was a true step-block technique. The units I-5, I-9, I-10, I-11, I-12, I-13, I-14, I-15, I-16, I-17, I-18, I-19, I-20, I-21, I-22, J-1, J-2, J-3, J-4, J-5, J-6, J-7, J-8, J-9, J-10, J-11, J-12, J-13, J-14, J-15, J-16, J-17, J-18, J-19, J-20, K-11, K-12, K-16, and K-17 were excavated as one major block isolated from the remainder of the site (Figure 4). Each unit was excavated by artibrary levels but within each arbitrary level the units were controlled by cultural levels; that is to say that whenever any artifact or accumulation of artifacts was located, the entire floor of each unit was carefully cleared of soil. All adjacent units underwent the same process so on one side of the units a standing wall existed, and perpendicular to any excavated unit another unit was located which was excavated to the same depth, allowing us to record additional information concerning the spatial relationships between artifacts and non-artifacts, hearths and even the stratigraphy. Eventually large numbers of units all reached the same level. The major advantage to this technique at Site A was that it allowed us to view the major developments during the ongoing excavation in each individual unit and in each block of units.

We excavated four square meters at a time in each level after the step block was established, therefore giving the excavated locus the appearance of a staircase, or a semi-vertical excavation. I believe that this excavation technique produced accurate, expedient, and very valuable scientific results and should be further employed.

SURFACE COLLECTION AND SITE SAMPLING TECHNIQUES

Introduction

Sampling and surface collecting have always been basic tools in archaeological work. Not only do they enable archaeologists to identify and map archaeological sites; but the range, variety, and distribution of surface finds are also guides to the general nature, chronology, and size of the archaeological site itself. It is because samples tell us so much about a site that they can be used to determine whether a more substantial expenditure of time, effort and money for excavation is justified.

Before proceeding with sampling, one must decide how large the sample is to be. Generally, this decision is based upon the nature of the problem being investigated. Since "there is no stated percentage figure that automatically yields a valid sample size" (Watson, Redman and LeBlanc 1970:122), our problem was solved when the San Diego County Environmental Review Board recommended that a five percent sample of Sites A and C be instituted. For our purposes, the five percent sample afforded us an adequate return of data to justify the request for further mitigation of Site A, while it gave us no supportive data to request additional mitigation of Site C.

The request for an additional 10 percent data universe surpasses the 10 percent total statistical sample proposed by Watson, Redman, and LeBlanc (1970:122) by 33 percent. Thus the archaeological investigation conducted here lends credence to the 1974 suggestion by the San Diego County Environmental Review Board that a five percent test sample and a total surface collection be instituted prior to the recommendation of a more extensive excavation and expenditure of time and human resources.

In archaeology, the complete excavation of sites, except the very smallest, has never been generally possible. Expense in the terms of time and money have always set the limits of this expenditure. It is possible, of course, to achieve great depth and horizontal exposure in excavations, but in doing so we collect such an immense body of data that it would take the archaeologist many years to preserve and publish the data, data which would indeed be repetitive of a 5-15 percent sample. Of course, intensive excavations using varied data gathering techniques tend to alter even more strictly the size of excavation exposures. Archaeologists are faced with the problem of an almost geometrical increase in workload with the size of the site to be explored and with the refinements in techniques for recovering and preserving an ever-widening range of objects and substances. Storage again presents an enormous problem in itself. Where will the archaeological materials be stored and who will have access to them? Thus, current trends in excavation worldwide tend to take two distinct directions:

large exposures which focus on recovering a narrow range of data, or small exposures and the extensive recovery of a wide range of data. In the first case, a vast amount of potentially important material is simply ignored. On the other hand, the second approach leads to exposures which are so small that it is impossible to place the tremendous quantities of material in a context which gives an insight into living floors or living areas.

Neither of these recent trends is ideal; hence, techniques to modify this situation should be considered worthy of attention by local archaeologists. It will be suggested that the method of resolution of this problem is to coordinate material from excavations to material recovered from sampling. If properly collected, surface and test data can be reasonably expected to outline or sketch the major subsurface patterns contained within the site. With this in mind, small excavations can be used to investigate intensively particular sections of the archaeological record without loss of massive amounts of time, money, and data. Thus, the requirement for very large exposures in most sites can be partially overcome.

There is another advantage to intensive surface collections and sampling which should be mentioned before we begin with a description of our methods. This is the fact that if they are taken in a random way they can be compared one to another without fear of sampling error--that bias which results from the inevitable over- or under-representation of items gathered in a haphazard or poorly planned fashion. For detailed comparisons between surface collections to be made, especially between rare items within them, both collections must have been made within a framework where representative sampling procedures were employed. In other words, some assurance must be made that the differences observed between two collections are true and not due to the fact that the investigator simply recovered different material from two different sites, due to errors in sample design, or due to the subjectivity of the individual archaeologist.

Selection of Sample Domains

The starting point for the sampling and surface collection was the definition of our sites, as defined under the section entitled Site Layout. After this definition took place, the sites were cleared of the overburden of brush and grasses and the sites were laid out in a systematic grid, being composed of squares each encompassing 25 square meters. The grid was oriented to true north, overlying a permanent datum marker affixed in one cubic foot of cement, thereby allowing any future investigator to be able to return and re-establish the area with only minimal difficulty.

Since no precise guidance is available for determining the size of our sampling units, we felt that they should be small enough so that when some portion is selected, adequate areal coverage would be achieved. I note that the size of the unit within which the material is collected can influence the results (Greig-Smith 1964, Welch 1974) of the sample. Kershaw (1964) further indicates that the way in which quadrants of different size will influence the degree of clustering detected by the investigator is significant, but both Greig-Smith (1964) and Kershaw (1974) indicate that sampling quadrants should be kept small. It is for this reason that we limited our units for surface mapping to five-meter squares (25 square meters), and our individual data collecting units to one-meter squares.

To deal with our problems, we needed to select 18 units in Site A to fulfill the five percent sample requirement. The 30 units in total were selected for three major reasons. The first reason is that the predominance of surface scatter determined that some concentration of units should be situated where the most dense quantity of surface materials occur. At Site A this area is reflected in the selection of units G-13, G-14, G-18, G-19, E-17, and E-18 as our control units.

Our second consideration involves the coloration of the top soil at the site. Our attention was directed only to those areas where the soil was discolored by what seemed to be cultural activities. No units were knowingly placed in an area of the site which displayed non-cultural midden soil. Our previous postholing at five-meter intervals allowed us to distinguish cultural and non-cultural areas in a very generalized manner. To establish a site boundary which is conducive to geometrically devised units it was necessary to extend the boundaries of the site to areas which contained no evidence of cultural activity, although we ignored these areas in our sampling technique.

Our third consideration in unit selection was the evidence gleaned from our postholing. These small holes allowed us to determine where the greatest depth of deposit seemed to exist, and where only limited deposit was located. In any random sampling we must investigate not only the quantitative data but the qualitative data as well. It is for this reason that we felt it necessary for units to be situated in areas of the site displaying great cultural deposits, and in areas of the site which produced only minimal cultural deposits. The selection of our units was then based upon all three of the above considerations in addition to a specialized technique for the selection of the individual units which I call the <u>compass method of unit selection</u>.

We established an imaginary compass overlying the grid. From the datum point which was established at the intersection of the north-south and east-west base line (Figure 4) we established that G-13, G-14, G-18, and G-19 were the approximate center of the site. From this center of the site we shot an imaginary N-W to S-E line placing units at fairly randomly spaced intervals. This means that the units which would represent the northwest portion of the site were A-6, C-9, and D-21. The southeastern units would be represented by K-17 and M-25. A secondary consideration entered here. During postholing we found that the M quad only contained a limited number of artifacts, and very shallow cultural soil, so we skewed the site to statistically represent the northwestern units. The northeastern-southwestern units were represented by E-17 and E-18, which were arbitrarily selected because of the accumulation of surface materials and because postholing indicated that this area of the site was also very shallow. Our southwestern quadrant was given a higher representation by the localization of units in I-5 and I-22, areas which preliminary postholing indicated might be productive. At least we knew that these units were overburdened by a large alluvium deposit.

Since a true random sample would allow clusters of squares to exist in some areas and blank spots in other areas, we decided to implement a suggestion proposed by Haggett (1966) and to place the remaining units along a northwest-southeast axis and along a southwest-northeast axis, so the site would be represented by more than an absolutely unaltered directional line. We therefore placed the northern one-meter unit in B-14 with its western boundary being perpendicular to the central-eastern boundary of our G control unit. The southern unit was placed in J-13 so its eastern boundary would be perpendicular to the central-western edge of the G control unit. Unit L-12 was selected because quad L was devoid of any sample units, particularly the portion which seemed to represent a slight rise in elevation at the site. The two remaining units were selected by the compass method. Unit F-8 represents one meter north of due west and unit H-25 represents one meter south of due east. It samples what we believed to be the eastern periphery of Site A.

At Site A, the major surface concentrations of artifactual material seem to be located in the eastern areas of the site. None of the units located along this periphery were archaeologically productive in artifact yield, but they did produce important negative information which only a five percent sample such as we employed would obtain. This method of sampling obtained qualitative information which directed our attention to the south-central portions of the site surrounding quadrants I, J, and K. These units were only moderately productive in surface yield but their depth of midden approached 1.3 meters of cultural deposit. In the absence of a test, we would have been more likely to have concentrated our efforts on the eastern limits of the site and not to the south central region of the site.

CHAPTER 5

LITHIC TYPOLOGY

Within the discipline of archaeology, artifact classification is the fundamental procedure for the isolation and identification of cultural variability. The classification of artifacts themselves has been an integral part of prehistoric studies from the historican beginning of archaeology. There are many archaeological classifications; however, there is no archaeological taxonomy which serves as an explicit universal model for comparative artifact study. It is for this reason that the typologist must either rely upon a local model, invent an intuitive model, or utilize a standard model employed elsewhere. It is the latter which I employed for data from Rancho Park North Sites A and C, as a means of comparison between our data and data from elsewhere.

The words classification and typology (and at times taxonomy) are frequently used interchangeably in the literature of the discipline; however, a "typology" is a special type of classification. It should not be used on the same level as a "classification" or a "taxonomy." I follow the writing of George Gaylord Simpson in my employment of the term typology:

> The basic concept of typology is this: every natural group of organisms [for us artifacts], hence every natural taxon is classification, has an invariant, generalized or idealized pattern shared by all members of the group (Simpson 1961:46-47).

Therefore, for us, a type must be recognizable and separable upon its own merits, with its own individual attributes which are not shared by any other members of a classificatory system.

A related problem associated with typology involves nomenclature. How does one decide upon proper nomenclature for the identification of any type of artifact? Clearly all classifications require names for their constituent groups, yet we are cognizant that tool identification represents our terminology and not the terminology employed by the maker of the artifact. We have chosen to employ morphological terminology for most artifacts, even though the utilization of physical distinctions might be at times confusing and an exercise in tautology; therefore we are employing a synchratic nomenclature which will fuse morphological distinctions to descriptive terminology. The potential difficulty here is that "the naming process itself can give an air of reality to units which have been defined arbitrarily in the first place" (Helsop-Harrison 1967:6). In biology this aspect of naming results in a persisting confusion of the process of naming species.

If unchecked, this confusion leads back to the error of basic classification on the similarity of specimens to the named type, instead of the demonstration of relationships between all members of the class. It is therefore important that the nomenclature reflects individual and shared attributes of a class of artifacts, and not simply shared attributes of an ideal or named type.

In archaeology nomenclature can lead to confusing situations caused by a misunderstanding of classification. In addition, the use of reified type names to designate distinct cultural entities carries the confusion to a higher level of abstraction. Though references to such things as a Red-On-Buff Culture (Gladwin and Gladwin 1929) or the Scraper-Maker People (Rogers 1929) are rare today, the confusion continues to be manifest in the assignment of cultural identifications to assemblage types rather than to artifact types. An apparent danger of any typological approach in any discipline seems to be the ease with which classification comes to be seen as the total purpose and ultimate goal of the study of specimens. The result is the implicit belief that once the correct classification is achieved, answers to all possible questions will be readily available. This belief seems to be the springboard for the interpretative leaps which are needed in order to use arbitrary classifications as the source for understanding many kinds of variation and relationships between different cultural adaptations or activities.

It can then be suggested that the arbitrary classification of artifacts and the comparison of types will not explain artifact variation or the structure of the behavior system which produced it, just as classical Linnaean taxonomy fails to clarify processes of evolutionary changes. Clearly, typology can achieve the goal of assigning specimens to classes. The criticisms apply only if archaeology and the study of artifact variations are conceived of as a science. In that case, typology must be replaced by classifications which are designed to order data for particular problems and which can be tested in the context of research aimed at the explanation of the data as formerly stated by Brew (1946:44-46) and more recently by Dunnell (1971).

The typological scheme employed here is actually a system based upon relatively recent attempts to obtain order in heterogeneous assemblages of stone artifacts. It is not conceived of as a science, but as an avenue for the regularizing and the ordering of a large amount of systematic data. The structure of our scheme was devised by Professor Francois Bordes (1961a) of the Universite de Bordeaux, Talence, France, to work with assemblages for Middle and Lower Paleolithic stone artifacts from the Old World. Although our material would most probably be classified as Upper Paleolithic (with the exception of the ground stone implements) if located in the Old World, nevertheless many of the same types of tools exist throughout all lithically-oriented cultures. Examples of stone tools found from the earliest advent of lithic technology include choppers, chopping tools, scrapers, hammerstones, and large hafted points. All of the above categories not only are present in Old World Paleolithic sites, but are also found throughout sites in San Diego County. It is therefore possible to use a system that was originally devised in North America for employment in Europe. To clarify our utilization of Bordes' basic format, it is necessary to investigate what he views typology as entailing. To Bordes, typology is a science which permits the recognition, definition, and classification of all the different varieties of stone artifacts (Bordes 1961a:1; 1968:22). He intended his classificatory system to be used for the study and comparison of whole assemblages by a statistical method using cumulative percentage frequency graphs (see Bordes and Bourgon 1951; Bordes 1953; and Davis, Brott and Weide 1969 for examples of their cumulative graphs). Morphological attributes are considered to be the most crucial criterion to the definition of a type, because to Bordes (1961b:803-810) it is a tool's use which makes it a tool, and its use is revealed in its morphology. He does not argue that actual function can be determined but is implying that the reason artifacts have a variety of forms is because they were used for a variety of purposes.

Classes of artifacts are generally based upon morphological attributes. For the most part these attributes are not quantified and the types are essentially intuitively recognized morphological patterns. A number of archaeologists have learned the system from Bordes and have been able to apply it consistently in the classification of assemblages from various parts of the world. His basic system works very well with our material and our classes of artifacts if we retain our strict morphological definitions regarding our population of artifacts.

By employing Bordes' concepts, we also now have a means for comparing Old World and New World lithic implements on a one-to-one basis rather than being forced into the non-comparative idea of utilizing terminology which limits our data and hinders the comparative process. We are not without problems, though. One specific problem with the employment of this scheme is that certain classificatory decisions are based upon the nature of the assemblage which is being classified, and not on the characteristics of the object which is being typed. An example of this is the so-called Teshoa Flake (Rogers 1939: 17). Under a strictly morphological typology we would classify the Teshoa Flake as either a large primary flake or as a utilized flake. It is actually only a large primary flake struck from a cobble, with signs of wear on the distal edge; yet, because Teshoa Flakes are infrequent outside the Southwestern United States, they become hallmarks of the La Jolla Complex. It is therefore important that Teshoa Flakes are recognized and typed upon their own merit, separated from Primary Flakes and Utilized Flakes. This is not without precedence as Bordes himself considers a special class of flakes (Levallois Flakes) as a separate type based simply upon mode of manufacture.

Another example of intuitive use of morphology occurs when composite tools appear in our data. These are arbitrarily defined by the tool which appears less frequently in the archaeological record. For example, in the archaeological record if a tool is both a graver and a convex sidescraper, instead of either placing the tool in a miscellaneous category or formulating a new category which would be statistically invalid, we type the graver-convex sidescraper as a graver. Statistically the category of graver is then displayed with more authority and the category of convex sidescraper is not affected statistically be a decrease of one specimen in its total artifact population because convex sidescrapers comprise a large statistical percentage of all tool types. By subjecting our data to this type of classification we not only strengthen our lesser categories but we feel that we may be able to imply additional cultural information concerning activities which were being conducted at Site A.

The typological scheme then is an abridgement of that formulated by Bordes, and those utilized by Malcolm Rogers (1966), Claude Warren (1966), and Davis, Brott, and Weide (1969). Bordes' basic classificatory system works exceedingly well for varieties of sidescrapers, choppers, chopping tools, flakes, and gravers, but in attempting to identify local tool variants we have used terms familiar to local archaeologists, such as the already mentioned Teshoa Flake. We deviate from this pattern, though, when discussing types of scrapers. Scrapers are identified under strictly morphological terms. The category of ovoid scrapers has not been singly identified for our typology but is divided into convergent sidescrapers, double convergent sidescrapers, and double convex sidescrapers. Also the categories of dome-backed scrapers, turtle-backed scrapers, scraper planes, and "horse-hoof" scrapers have been placed within the type identified as pushplanes. I do not question the further division of pushplanes into individual types within the pushplane category, but for this thesis a single typological classification of pushplanes allows our data to be handled more thoroughly and with greater accuracy.

In order to systematically analyze stone artifacts it is necessary to realize that most tools are manufactured on flakes (e.g., sidescrapers, endscrapers, burins, knives, projectile points, blades, spokeshaves) or exist as core tools (e.g., hammerstones, cores, pushplanes, and manos). When evaluating a flake tool it is essential that one examine all six sides of a flake before assigning it to a type. The item should be oriented with the butt/striking platform (proximal end) closest to the examiner, ventral side up and with the dorsal side lying on a flat surface. (The dorsal surface is defined as the outer surface, for instance, the dorsal side of a blade is the face of the core prior to its detachment [Crabtree 1976:97]). The examiner should then proceed to examine the distal end, left and right lateral edges, the proximal end, and the dorsal and ventral surfaces (see Figure 16). (The ventral surface is the plano side or inner surface of the flake of blade, the under surface which is curved outward [Crabtree 1976:97]). This is very necessary as it aids the examiner in artifact identification.

The lithic material located at Rancho Park North, Site A has been classified into 40 distinct and explicit types. Each type has been assigned a number which will be utilized in graphs and tables explaining artifact variation. The type numbers are arbitrary, but from Type 6 through Type 40 (the flake tools) the type numbers were assigned in a relatively alphabetical manner. Types 1 through 5 were assigned in number of frequency of occurrence from the least frequently occurring (metate, Type 1) to the most frequently occurring category (debitage, Type 5) (see Table 5).

Miscellaneous tools have not been assigned type numbers but are referred to by descriptive nomenclature such as "shell tool," "bone tool," etc., rather than by the assignment of a statistically invalid category.

ARTIFACT TYPOLOGY: THE RAW DATA

Type 1--Metate

Any stone basin exhibiting a flat to concave surface, generally elliptical to oval in shape, with a manufactured depression usually on one side. Double sided metates are uncommon. Evidence of pecking and grinding appears with the depression of the metates. Most of these artifacts are manufactured from granitics or sandstone. Twelve specimens were recovered from Site A.

Table 7

Type 1--Metates (Fragments)

(Dimensions of _in situ_ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-J3W-3-12	11.3	6.9	4.5	Sandstone
2. RA-113-3-30	8.7	5.7	4.6	Sandstone
3. RA-J4-2-23	9.4	9.4	4.9	Sandstone
4. RA-J19-1-1	11.3	6.1	2.6	Sandstone
Cumulative Mean	10.18	7.03	4.15	(4)

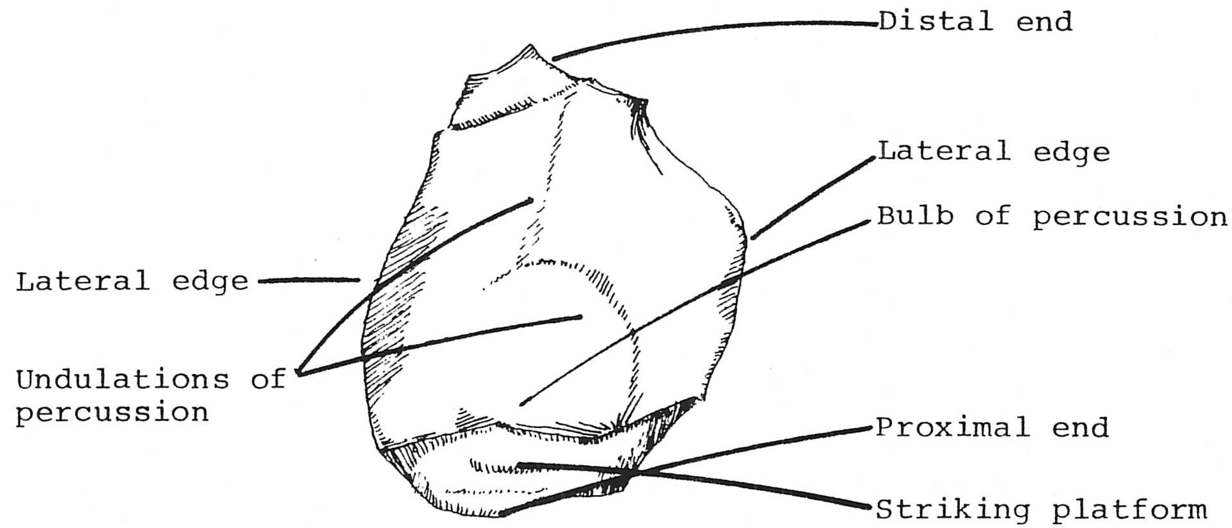


Figure 16.. Orientation of a flake for typological analysis, ventral side up. Not to scale.

Type 2--Mano

Any stone exhibiting a flat to convex surface, more or less elongated, manufactured from a pebble or cobble. The wear pattern is generally perpendicular to the long axis of the pebble or cobble. The size is variable, but the ranges are from 6 to 21 centimeters in length and from 5 to 13 centimeters in width. Manos are either unifacially or bifacially worked, and may be manufactured of any hard material. At Site A they are manufactured from either quartzite or granitic diorite. Sixty-two specimens were recovered from Site A. (See Table 8).

All of the raw data generated as a result of the artifact descriptions will be presented within this cahpter without discussion. Interpretation of the data will appropriately occur in Chapter 7.

Table 8

Type 2--Manos (Whole and Partial)

(Dimensions of *in situ* artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I10-1-7	8.0	6.7	3.5	Quartzite
2. RA-I9-4-40	11.2	9.0	3.4	Quartzite
3. RA-F5-1-3	7.5	4.6	4.0	Granitic Diorite
4. RA-F3-2-11	14.3	9.9	4.7	Quartzite
5. RA-I15-3-24	8.5	9.4	5.0	Quartzite
6. RA-I16-1-1	7.5	5.5	1.5	Quartzite
7. RA-I19-5-33	12.5	10.5	6.0	Quartzite
8. RA-I19-2-8	10.0	7.0	5.3	Quartzite
9. RA-J4-2-26	6.1	6.9	3.4	Quartzite
10. RA-J5-3-20	10.7	7.0	3.9	Quartzite
11. RA-J6-2-14	12.3	9.5	4.0	Quartzite
12. RA-J6-1-1	14.2	9.6	3.8	Quartzite
13. RA-J11-1-4	6.5	4.3	2.6	Quartzite
14. RA-J14-1-1	5.0	4.5	2.5	Quartzite
15. RA-J18-2-5	6.0	4.6	5.2	Quartzite
16. RA-K11-4-37	12.0	8.3	5.6	Quartzite
17. RA-K11-4-34	9.9	8.6	3.7	Quartzite
18. RA-K12-1-6	5.0	6.0	3.0	Quartzite
Cumulative mean	9.28	7.33	3.95	(18)

Type 3--Core

Any stone where one or more flakes have been intentionally removed and the core itself has not been utilized as a tool. In many cases an expended core has been utilized as a tool by further modification. Many pushplanes and chopping tools may be expended cores. A core may be fashioned from any material exhibiting conchoidal fracturability. Cores at the Great Western site were of felsite, basalt, quartzite, andesite, and ryolite. Two hundred and sixty specimens were recovered from Site A. Due to the large number of cores, only the cumulative mean of this category is presented in the following table.

Table 9

Type 3--Cores

(Dimensions of in situ artifacts in centimeters)

	Length	Width	Thickness	Number
Cumulative Mean	6.13	4.62	3.36	(155)
Felsite Average	6.98	5.95	3.27	(6)
Chalcedony Average	3.00	2.60	1.80	(1)
Quartz Average	5.25	3.00	2.60	(2)
Quartzite Average	6.52	5.06	3.47	(68)
Basalt Average	5.67	4.19	3.32	(78)

Type 4--Primary Flakes

Any flake which has been removed from a core and exhibits the following characteristics: it must be greater than two centimeters in length and width; it should have a striking platform or a bulb of percussion with two distinct lateral edges which are unretouched and show no signs of utilization or wear. Secondary flakes may also be classified under this type if they exhibit all the above characteristics yet have been removed from a large flake and not from a core. Recovered from Site A were 2,659 specimens. Due to the wide range of sizes and shapes of this type of artifact, no cumulative mean can be calculated which could be anthropologically meaningful.

Type 5--Debitage

Any flake less than two centimeters in either length or width and removed from a core or a primary flake or any irregularly shaped flake over two centimeters in length and width without a striking platform or a bulb of percussion. Debitage can include core detritus, trimming flakes, small pressure flakes, small percussion flakes, or use flakes. In general, debitage is any flaked artifact under two centimeters in size, without a regularized form and showing no sign of use or utilization. Recovered from Site A were 3,861 specimens.

Type 6--Bifaces

Generally bifaces are worked pebbles or cobbles, but they may also be large flakes where the most common characteristic is that they are worked on both faces by total or comprehensive retouch. To determine the type of biface (Bordes 1961b) the following statistics can be considered: the overall length of the biface = L. At the two extremes of the biface draw tangents perpendicular to the axis of maximum symmetry, which is defined as the two parallel sides which are at the greatest distance from each other. In the event the greatest distance is not symmetrical, the researcher must discover the point where this maximum occurrence of parallelism occurs. L = the distance between these lines. The maximum width of the biface = m. This is measured perpendicular to the axis of the maximum symmetry. The distance between the line of greatest width of the biface and its base = 2. The width of the biface at L/2 = n. The width at 3/4L = o. The maximum thickness of the biface = e.

At Great Western we found one biface which was determined to be an ovaloid (ovate) biface. Its greatest width is found near L/2; thus L/a is smaller. n/m x 100 is very strong (= width at L/2 divided by its maximum width). One specimen was recovered from Site A; L/2 4.5; L/a 2. (See Figure 24).

Table 10

Type 6--Biface

(Dimensions of in situ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I19-9-43	6.2	4.4	1.9	Yellow-brown basalt

Type 7--Blades

A blade is any flake which is twice as long as it is wide. A true blade must also have parallel sides. They are measured along an extension of the axis of percussion. Blades may be retouched unifacially, bifacially, or partially, or totally unretouched. A blade with retouch on only one edge is a scraper (see Figures 17 and 18). Fourteen specimens were recovered from Site A. (See Table 11).

Table 11

Type 7--Blades (Whole and Partial)

(Dimensions of <u>in situ</u> artifacts in millimeters)

Catalogue Number	Length	Width	Base Width	Thickness	Material
1. RA-88-WT	65	20	12	4	Basalt
2. RA-260-ST (Broken)	42	30	14	11	Felsite
3. RA-J2-3-46	65	31	13	6	Basalt
4. RA-D21-3-44	64	22	6	2	Basalt
5. RA-K16-5-42	70	20	15	6	Basalt
6. RA-J10-7-37 (Broken)	30	30	30	9	Felsite
7. RA-I20-1-1	40	19	17	10	Brown Basalt
8. RA-I12-6-25	80	36	20	7	Quartzite
9. RA-J4-7-92	27	29	6	11	Quartzite
10. RA-J7-8-47	54	30	5	9	Felsite
11. RA-J8E-6-52	35	35	12	6	Basalt
12. RA-J15-5-44	54	34	23	6	Basalt
13. RA-K16-7-63	38	37	18	8	Felsite
Cumulative mean	44.2	28.7	14.7	7.31	(13)

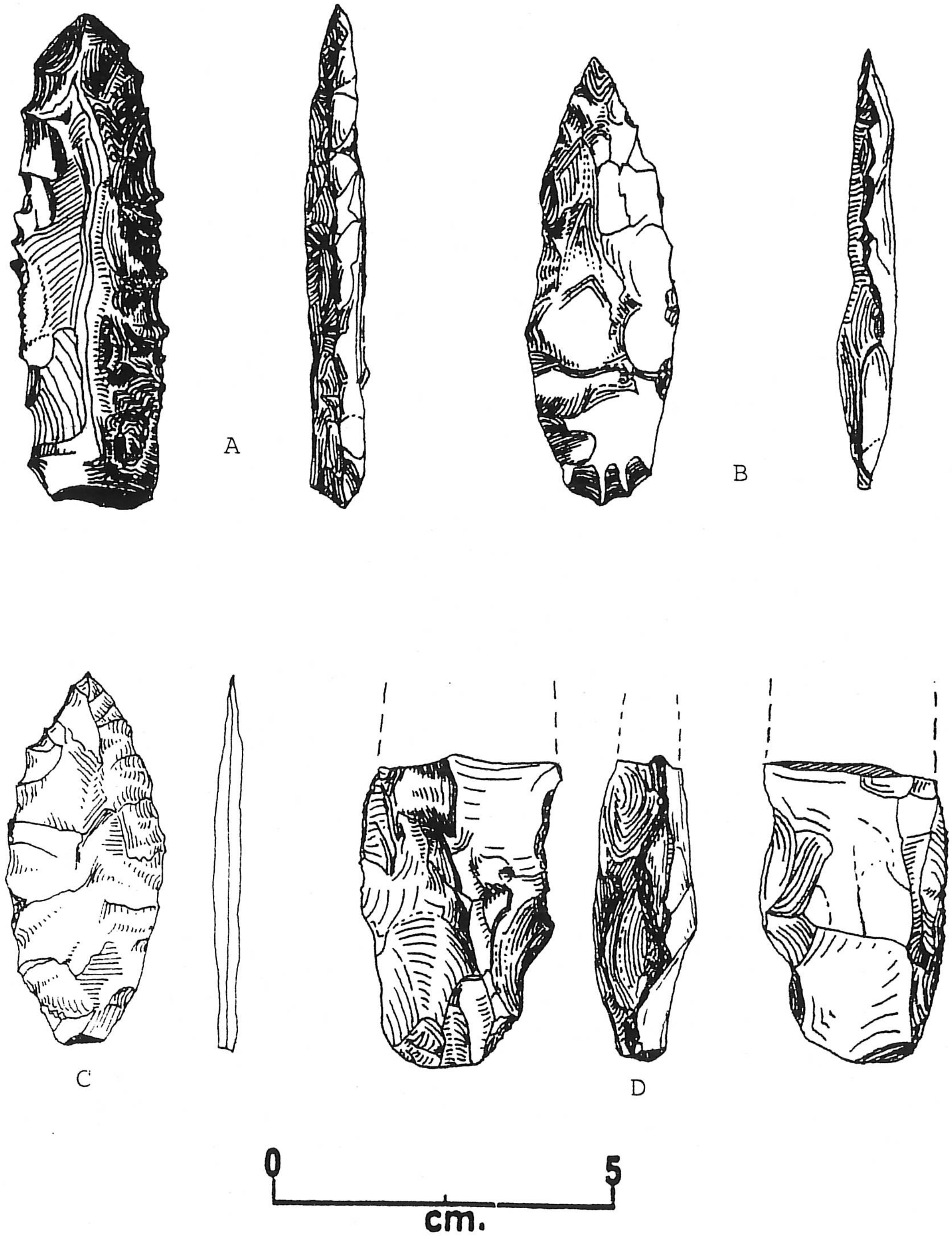


Figure 17. Blades (Type 7) from Rancho Park North, Site A.

A. Percussion-flaked, fine-grained basalt (RA-K16-5-42).

B. Convex-base, percussion-flaked, fine-grained basalt (RA-88W-T).

C. Heat-treated, Lake Mojave-style blade made from fine-grained basalt. The unit this blade was found in has been dated to 6,900 years ago.

D. Percussion-flaked, heavily patinated felsite blade with a straight base (RA-260-ST).

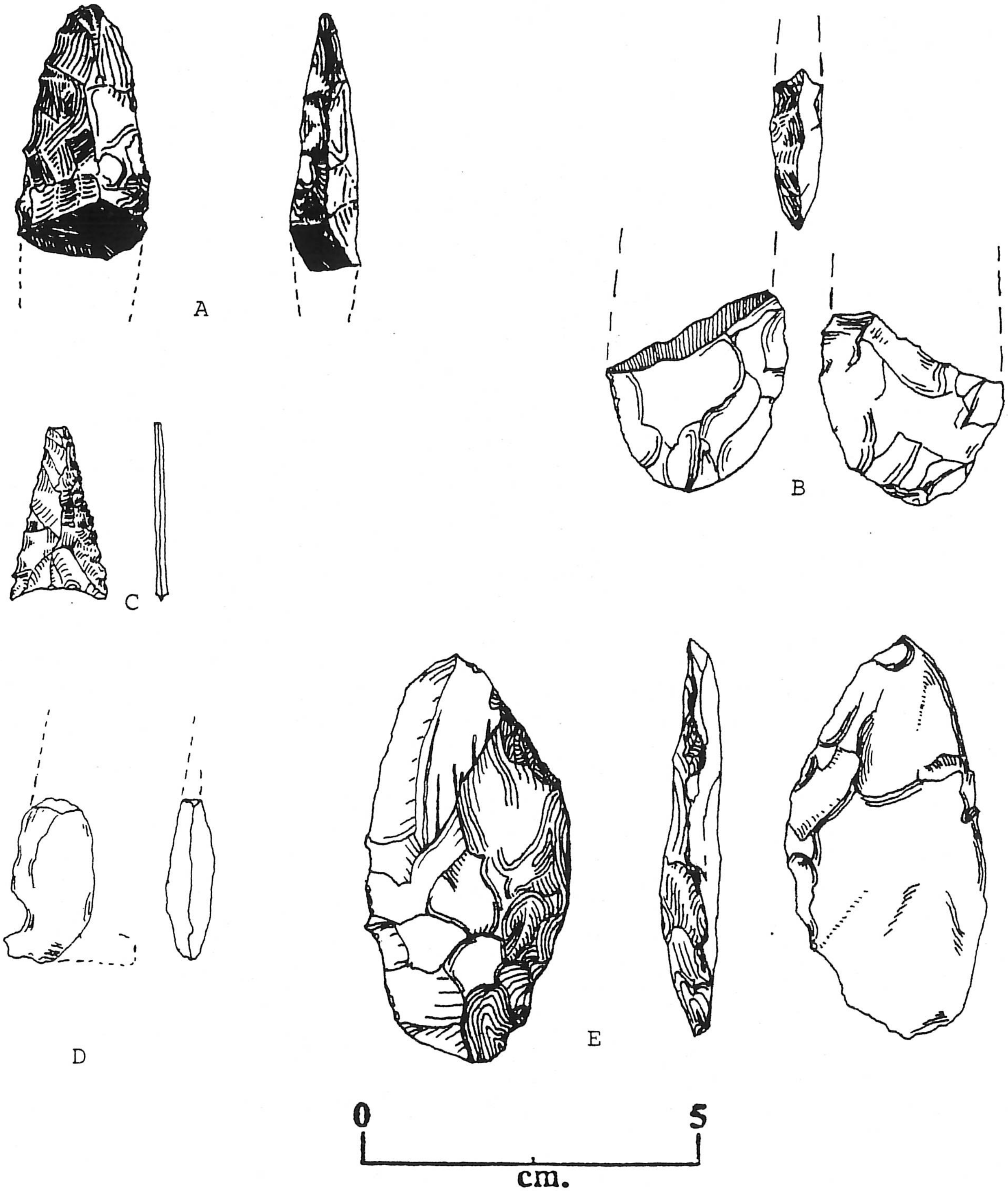


Figure 18. Various projectile tools from Rancho Park North.
- A. Percussion-flaked, fine-grained basalt blade (RA-120-1-1).
- B. Bifacially-worked, percussion-flaked green felsite blade (RA-J10-7-32).
- C. Serrated-edged, concave base, tan chert projectile point from Level II (RA-I18-2-1).
- D. Desert side-notched projectile point made from quartz (RM-J2-3-44).
- E. Unifacially-retouched basalt blade (RA-J2-3-46).

Type 8--Choppers

Tools which are usually fabricated on pebbles or cobbles, but may be also manufactured on a large primary flake. In order for a tool to be a chopper the lateral edges must be modified. This is usually done unifacially by percussion flaking but may, at times, be struck unifacially. The cutting edge is usually convex but may be straight or concave. The majority of all choppers are considered to be core tools (see Figure 19). Seventeen specimens were recovered from Site A. (See Table 12).

Type 9--Chopping Tools

Core tools which are generally made of pebbles or cobbles, or fragments of pebbles or cobbles which are more or less tabular. The cutting edge, in contrast to the worked edge of a chopper, is located on the distal end or the proximal end of the tool and may have been worked either unifacially or bifacially. The edge has a very sinuous appearance (see Figure 19). Eighteen specimens were recovered from Site A (see Table 13).

Type 10--Inverse Choppers

Rare; a cobble or pebble which has been split in the direction of its flatness. The working edge is either the distal or proximal end and has been unifacially retouched by percussion flaking. Two specimens were recovered from Site A.

Type 11--Crescentic

Rare; any small flake in the form of a lunate which has a shallow pressure-flaked concavity on the outer side or convex side of the tool. These may have been utilized as a scraper or as amulets (Rogers 1966). One fragmented specimen was recovered from Site A (Table 14; Figure 24).

Type 12--Endscrapers

Any flake or blade which has continuous retouch at either its distal or proximal end, presenting a more or less rounded rarely straight, working edge. Twenty-eight specimens were recovered from Site A. (See Table 15).

Type 13--Graver

Any flake or blade with one or more points at an angle or concavity, made by bilateral notching or retouching. One side of the point may be made by a natural fracture or a non-retouched edge. Twenty specimens were recovered from Site A. (See Table 16; Figure 24).

Table 12

Type 8--Choppers

(Dimensions of <u>in situ</u> artifacts in centimeters)

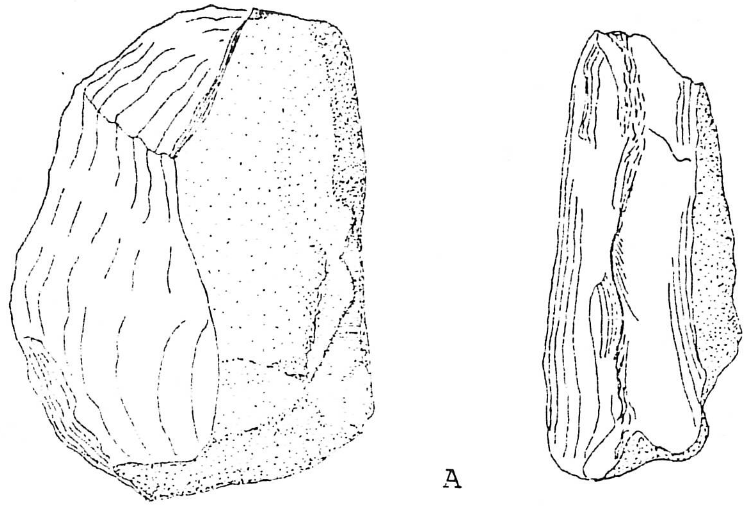
Catalogue Number	Length	Width	Thickness	Material
1. RA-I14-4-27	8.6	5.6	3.2	Basalt
2. RA-I14-4-20	4.4	4.8	2.2	Quartzite
3. RA-I15-2-10	10.9	3.1	4.0	Quartzite
4. RA-I20-8-48	8.5	6.9	3.7	Quartzite
5. RA-I20-8-49	7.5	6.5	4.0	Quartzite
6. RA-J8-6-54	9.0	9.5	4.5	Quartzite
7. RA-J9-7-78	8.7	5.7	2.4	Quartzite
8. RA-J19-7-41	8.9	8.1	3.1	Quartzite
9. RA-K11-4-35	7.3	7.4	3.3	Basalt
10. RA-K11-8-40	9.0	5.5	3.8	Quartzite
11. RA-K16-7-60	8.7	5.6	3.1	Basalt
12. RA-K16-5-41	9.4	6.7	1.3	Quartzite
Cumulative mean	8.40	6.28	3.22	(12)
Basalt average	8.20	6.20	3.20	(3)
Quartzite average	8.48	6.31	3.22	(9)

Table 13

Type 9--Chopping Tools

(Dimentions of <u>in situ</u> artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-F5-2-12	8.0	5.2	4.1	Quartzite
2. RA-C23-2-2	9.8	7.3	4.0	Quartzite
3. RA-C24-2-3	6.0	7.5	4.5	Quartzite
4. RA-I15-3-23	10.9	9.6	3.7	Quartzite
5. RA-I19-6-42	6.8	5.5	3.2	Quartzite
6. RA-I20-5-28	5.4	4.6	3.1	Quartzite
7. RA-I20-4-16	10.3	7.6	4.7	Quartzite
8. RA-J9-2-9	10.6	5.4	6.3	Quartzite
9. RA-J9-7-80	8.2	6.8	4.2	Quartzite
10. RA-J10-7-42	7.6	7.2	3.6	Quartzite
11. RA-J12-6-15	10.6	6.8	5.5	Quartzite
12. RA-J15-5-39	7.5	8.0	4.9	Quartzite
13. RA-J18-4-29	9.4	4.6	7.0	Quartzite
Cumulative mean	7.82	6.62	4.52	(13)



A

(fifty percent reduction)

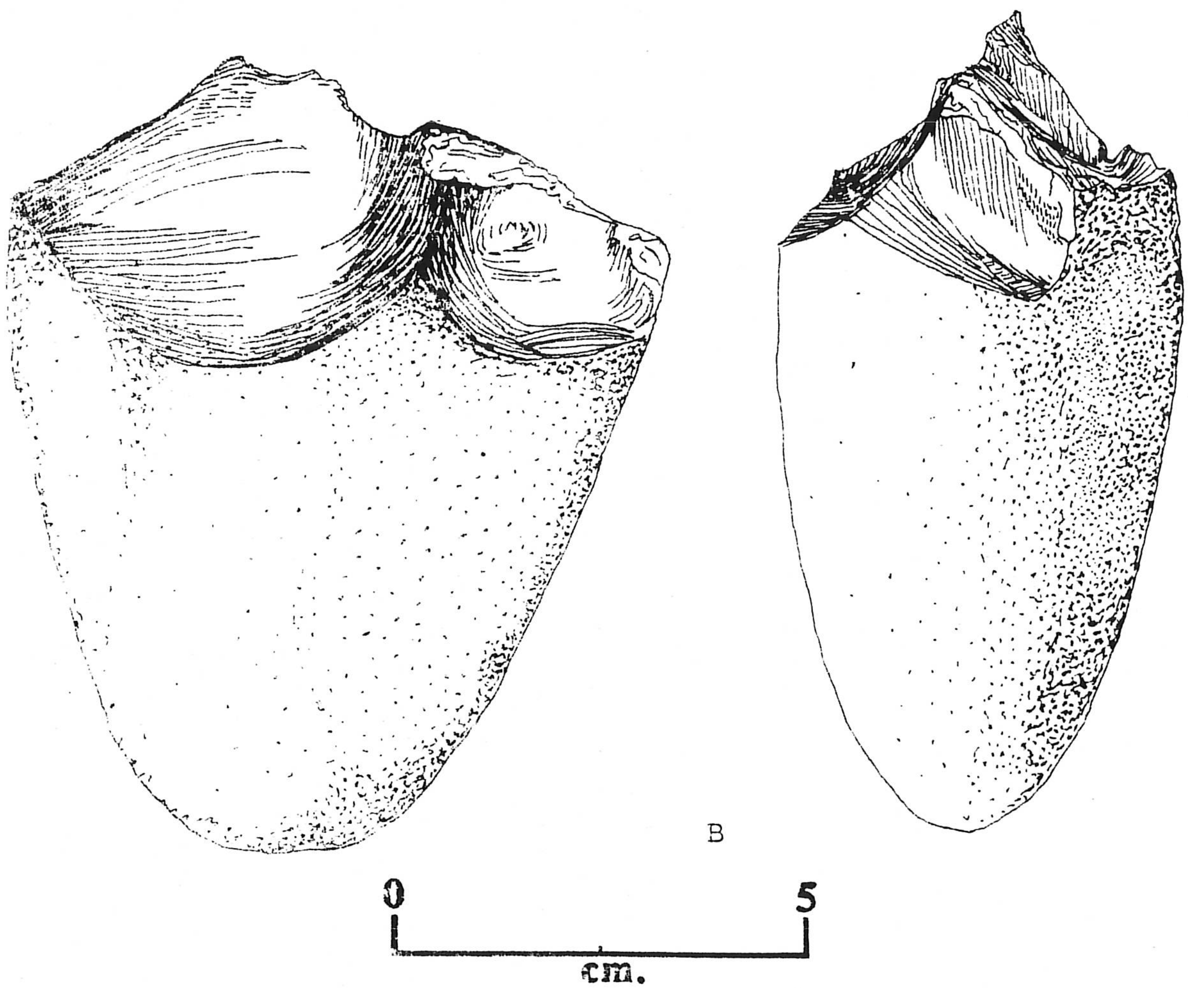


Figure 19. A chopper and chopping tool.
A. Type 8, a chopper from Rancho Park North, Site A.
B. Type 9, a chopping tool from Rancho Park North, Site A.

Table 14

Type 11--Crescentic (Fragment)
(Dimensions of in situ artifacts in millimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-142-J-13-30-40	18.0	18.0	6.0	Felsite

Table 15

Type 12--Endscrapers
(Dimensions of in situ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I1-2-16	4.5	3.2	1.4	Basalt
2. RA-B-13	4.5	2.9	2.0	Felsite
3. RA-C24-3-20	7.5	5.1	1.9	Quartzite
4. RA-C25-2-4	6.6	4.2	1.2	Basalt
5. RA-I13-4-22	6.6	5.4	1.6	Basalt
6. RA-I13-4-22	6.6	5.4	1.6	Basalt
7. RA-I16-7-8	2.8	1.5	1.1	Chalcedony
8. RA-I20-2-7	7.4	3.1	1.7	Quartzite
9. RA-J3E-7-34	8.0	5.8	2.9	Quartzite
10. RA-J5-4-30	4.7	3.8	1.0	Basalt
11. RA-J6-6-50	3.2	2.8	2.4	Basalt
12. RA-J7-8-46	4.1	2.4	1.5	Chert
13. RA-J14-4-23	1.6	3.0	0.7	Basalt
14. RA-J18-10-53	5.0	4.5	2.8	Basalt
15. RA-J15-4-34	5.2	3.9	1.9	Basalt
16. RA-K11-10-80	3.6	3.2	1.5	Quartzite
17. RA-K12-6-28	6.0	5.0	8.0	Basalt
Cumulative mean	4.98	3.65	2.10	(17)

Table 16

Type 13--Graver

(Dimensions of in situ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-C24-3-11	6.6	5.1	1.6	Basalt
2. RA-I14-8-64	3.2	1.8	1.2	Quartz
3. RA-J32-3-17	5.0	4.7	2.2	Quartzite
4. RA-J4-7-101	3.4	2.1	.8	Basalt
5. RA-J6-6-51	4.5	3.4	1.9	Basalt
6. RA-J11-1-1	5.7	3.5	2.1	Basalt
7. RA-J12-6-17	4.8	4.8	2.4	Felsite
8. RA-J14-2-18	2.2	1.0	0.4	Quartzite
9. RA-J14-1-5	3.4	1.9	0.8	Quartzite
10. RA-J15-4-39	3.2	2.4	0.8	Basalt
11. RA-K11-3-26	5.8	3.2	1.4	Basalt
Cumulative mean	4.35	3.09	1.43	(11)
Felsite average	4.80	4.80	2.40	(1)
Basalt average	4.87	3.28	1.43	(6)
Quartz average	3.20	1.80	1.20	(1)
Quartzite average	3.53	2.53	1.13	(3)

Table 17

Type 14--Hammerstones

(Dimensions of in situ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I15-3-31	7.8	6.3	5.3	Quartzite
2. RA-I17-7-35	5.4	4.9	5.3	Quartzite
3. RA-I20-7-45	7.8	8.7	4.3	Quartzite
4. RA-J17-6-18	8.5	6.8	4.5	Quartzite
5. RA-J3-4-27	5.1	4.7	3.1	Basalt
6. RA-J8E-6-49a	6.0	5.3	3.8	Basalt
7. RA-J9-9-101	9.1	8.0	3.0	Quartzite
8. RA-J10-6-27	6.5	6.5	4.0	Quartzite
9. RA-J15-4-31	5.2	3.4	5.0	Quartzite
Cumulative mean	6.82	6.07	4.26	(9)
Basalt average	5.55	5.00	3.45	(2)
Quartzite average	7.19	6.37	4.49	(7)

Type 14--Hammerstones

Any rock, usually round to ovoid, generally unmodified except by use, exhibiting slight to major battering on one or more sides. The material is generally quartzite or any other hard lithic substance. Many hammerstones appear to have been expended cores which have found secondary utilization. Twenty-five specimens were recovered from Site A. (See Table 17).

Type 15--Knives (Typological)

Any point whose length and width make it unlikely for use as a projectile point. They are nearly always percussion flaked (Rogers 1966) and many times show no evidence of utilization. This type can be further subdivided into different varieties for purposes of cultural affiliation. Three specimens were recovered from Site A.

Type 16--Knives (Naturally Backed)

Any blade or flake which has its axis perpendicular or very oblique to the plane of the tool and where one edge is raw and unretouched and the other edge is backed by cortex. Those must be greater than five centimeters in length and should be one-half or less in width than length. Note: serious controversy exists over this tool category. Peter Timm (1972) suggests that these are blanks for various categories of sidescrapers and were not fashioned as cutting implements. Nine specimens were recovered from Site A. (See Table 19).

Type 17--Pick

Rare; a variation of an elongated biface, usually worked on a slab or on a pebble, with one end coming to a sharper point than the other. The center distance is often less than one-half the maximum width due to a strangulated midsection. They generally have a trihedral appearance. These tools appear to have been hafted. They may have functioned much like a chopping tool or an axe and not like a quarry pick. One specimen was recovered from Site A. (See Figure 20).

Type 18--Projectile Points

Any flake or blade which is triangular, subtriangular, or even lozenge-shaped, more or less elongated, with sharpened extremities which come to a point, generally produced by pressure flaking. A flake may be alternately or bifacially retouched. Its bulb may be removed, and the proximal extremity may be worked in various manners to facilitate hafting. The material is amenable to fine pressure working and consists of aphanitic basalts, quartz, and felsitic material (see Figure 18). Six specimens were recovered from Site A. (See Table 20).

Table 18

Type 15--Knive (Typological)
(Dimensions of <u>in situ</u> artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. K16-5-42	7.0	2.0	1.0	Basalt

Table 19

Type 16--Knives (Naturally Backed)
(Dimensions of <u>in situ</u> artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I9-7-72	7.2	4.7	2.0	Quartzite
2. RA-I10-4-25	6.0	3.0	1.5	Quartzite
3. RA-I13-10-55	5.7	3.0	1.0	Basalt
4. RA-J7-2-9	8.0	4.6	2.4	Quartzite
5. RA-J9-7-83	7.0	4.8	2.2	Quartzite
6. RA-J20-5-46	6.5	3.6	1.5	Quartzite
Cumulative mean	6.73	3.95	1.76	(6)

Table 20

Type 18--Projectile Points
(Dimensions of <u>in situ</u> artifacts in millimeters)

Catalogue Number	Length	Base Width	Tip	Thickness	Material
1. RA-J18-2-1	29.0	19.0	3.0	2.0	Chert
2. RA-J2-3-24	26.0	16.0	Broken	3.0	Quartz
Cumulative mean	27.5	17.5	3.0	2.5	

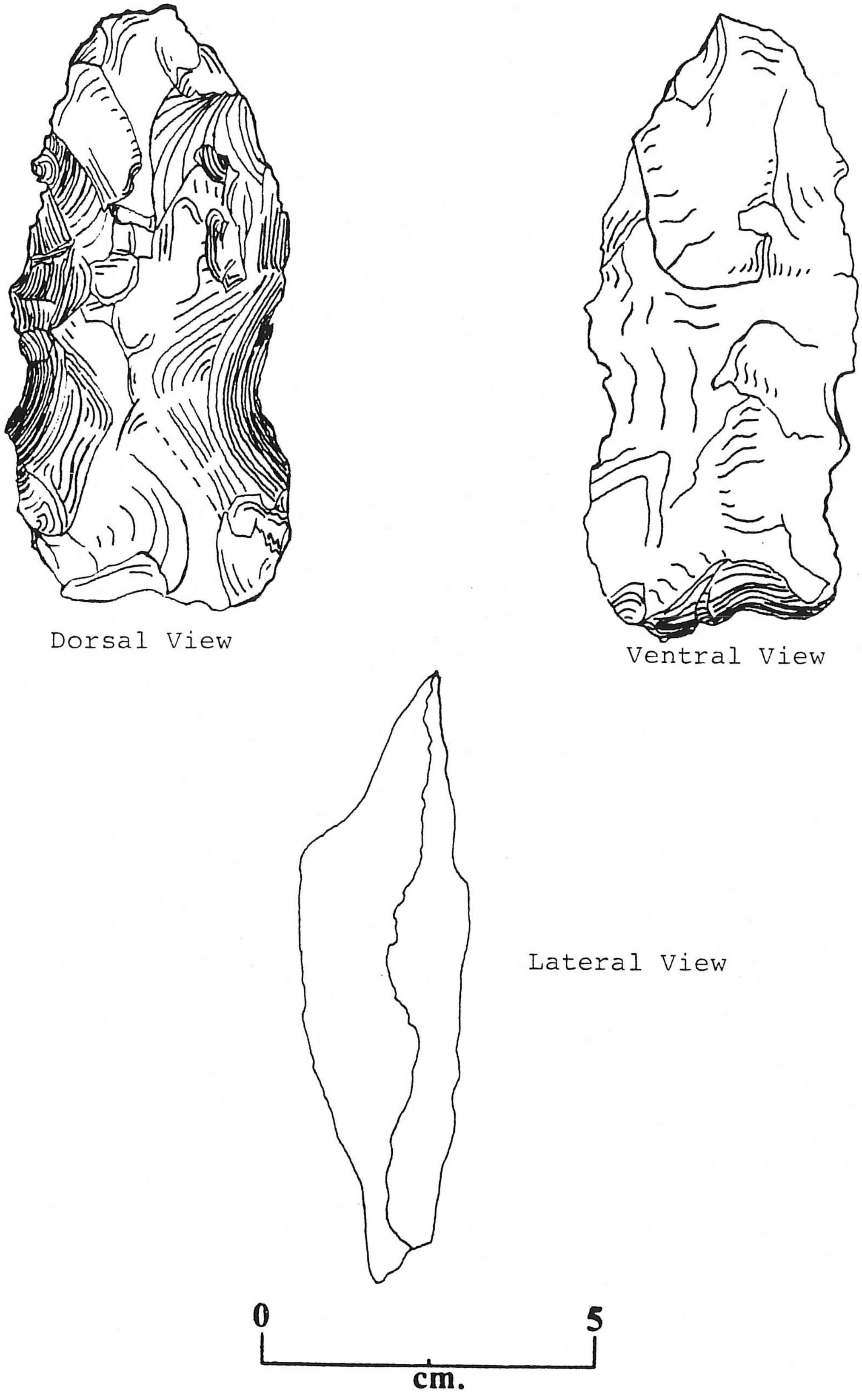


Figure 20. Type 17, a pick from Rancho Park North, Site A; this tool was found in Level XII at the base of the San Dieguito level (RA-10-436-J13).

Type 19--Pushplanes

(Domed scrapers, scraper planes, "horse-hoofed" scrapers)

A very broad category which includes discoidal, domed, and horse-hoof scrapers. These are most explicitly defined as bulky, crude endscrapers on very thick flakes or cores with the front edge straight or convex. Pushplanes can be subdivided into many different types and sub-types. More than one edge may be retouched, but at least one edge must be intentionally faceted (Figure 21). Recovered from Site A were 134 specimens. (See Table 21).

Sidescrapers

A sidescraper is an object made on a blade or flake, by continuous retouch, on one or more edges, so as to make a semi-sharp straight, convex, or concave edge, or any combination of the above, with or without notches, and sometimes with intentional denticulation present.

Sidescrapers are the most common tool category found at the Great Western sites. With the inclusion in endscrapers and pushplanes to the category of sidescrapers, 33.04 percent of the total tool population recovered from both sites are contained within this category. The term sidescraper may be a misnomer, as it is a descriptive-functional term rather than a true morphological category. Many of the sidescrapers may have never been utilized for scraping but for other purposes such as pounding or rubbing; nevertheless, because the edges of the tools have primarily been utilized for scraping activity, we have retained the nomenclature, but still classify by strict morphological guidelines. One additional scraper, Type 34 (tabular scraper), has been identified at both Great Western sites and it makes a rather strong showing in the total tool population as one-plus percent of the total tool assemblage.

Type 20--Convex Sidescrapers

Any object made on a flake or blade by continuous retouch, which has as one single edge a convex working surface. Ninety-five specimens were recovered from Site A. (See Table 22; Figure 22).

Type 21--Convex-Concave Sidescrapers

Any object made on a flake or blade by continuous retouch where one edge is convex and another non-adjacent edge is concave. Two specimens were recovered from Site A.

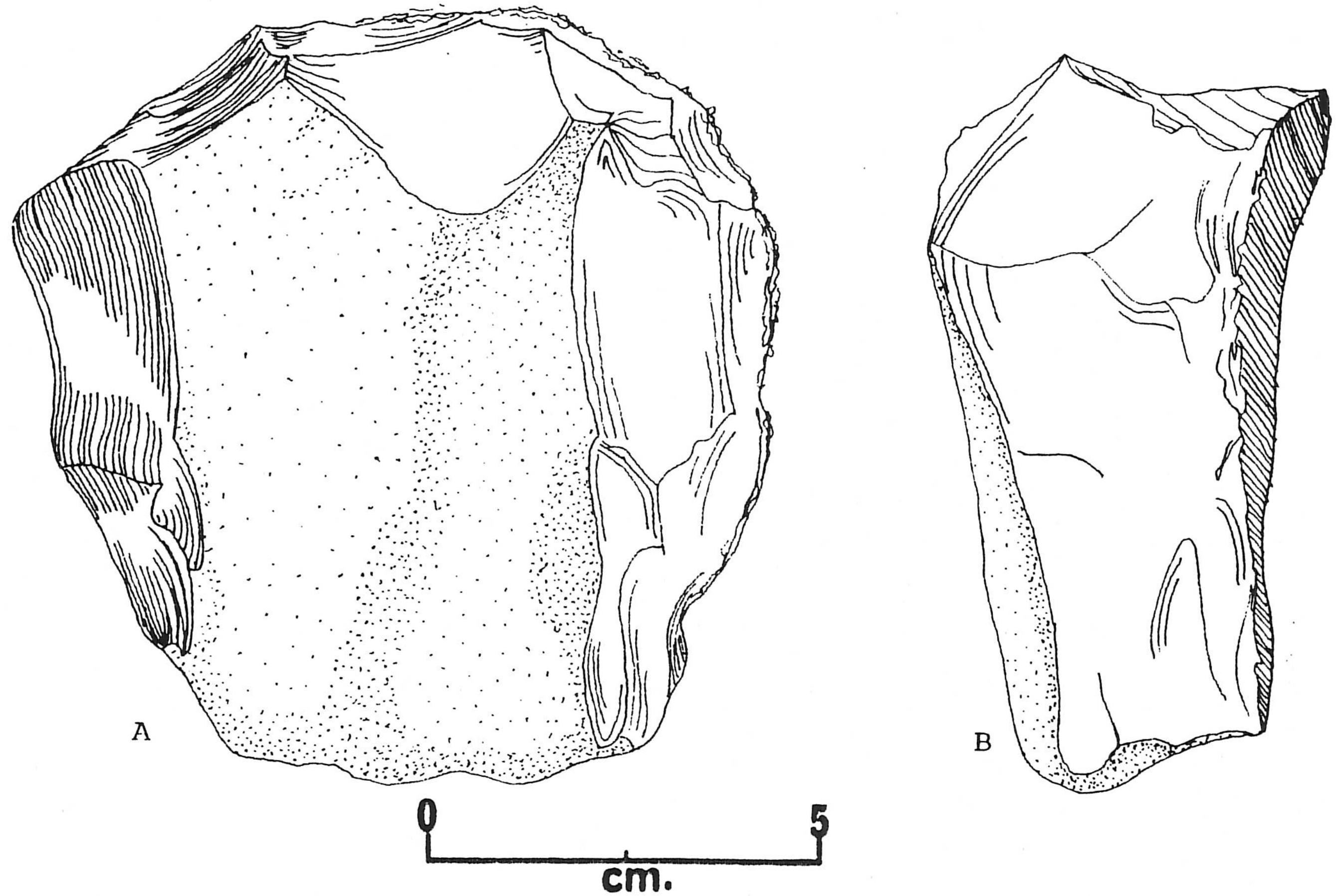


Figure 21. A pushplane (Type 19) from Rancho Park North.
A. Dorsal surface of a pushplane with convergent, retouched edges. The stone is heavily patinated basalt.
B. A lateral view of A (RPN-A-10-164).

Table 21

Type 19--Pushplanes
(Dimensions of in situ artifacts in centimeters)

Catalogue Number		Length	Width	Thickness	Material
1.	RA-I12-5-22	3.7	3.4	2.4	Basalt
2.	RA-I12-4-17	6.4	5.1	3.3	Felsite
3.	RA-I13-4-18	8.6	6.0	5.4	Quartzite
4.	RA-I9-1-5	7.8	5.6	3.8	Basalt
5.	RA-I9-2-10	9.0	7.0	3.5	Quartzite
6.	RA-I9-3-29	7.8	5.7	6.1	Quartzite
7.	RA-I9-7-67	7.0	6.0	3.2	Quartzite
8.	RA-F4-3-9	7.3	3.3	4.6	Basalt
9.	RA-F4-3-12	4.4	5.1	4.0	Quartzite
10.	RA-C23-3-13	7.2	4.9	4.9	Basalt
11.	RA-C24-2-2	6.2	5.4	4.2	Quartzite
12.	RA-C24-2-5	8.5	7.0	3.0	Basalt
13.	RA-C25-1-2	8.0	7.0	5.5	Basalt
14.	RA-C25-3-18	7.9	7.4	4.3	Quartzite
15.	RA-I13-6-39	6.7	3.5	2.6	Basalt
16.	RA-I14-6-45	7.7	7.0	4.0	Quartzite
17.	RA-I14-7-57	3.8	3.1	3.3	Basalt
18.	RA-I14-7-54	4.9	4.7	3.4	Basalt
19.	RA-I15-2-13	9.8	7.9	4.7	Quartzite
20.	RA-I15-3-19	6.5	6.6	3.0	Quartzite
21.	RA-I15-6-71	4.5	2.9	2.7	Basalt
22.	RA-I18-6-29	5.5	4.5	1.9	Quartzite
23.	RA-I18-7-50	7.5	4.5	6.0	Basalt
24.	RA-I19-5-29	4.8	2.1	2.2	Felsite
25.	RA-I19-3-15	6.0	3.6	5.6	Basalt
26.	RA-I19-3-28	5.6	4.9	4.4	Quartzite
27.	RA-I20-4-23	4.6	4.1	2.3	Basalt
28.	RA-J1-3-23	5.3	4.3	3.0	Basalt
29.	RA-J3W-3-13	6.0	4.1	3.4	Basalt
30.	RA-J3W-3-16	5.0	4.9	3.0	Basalt
31.	RA-J3E-3-12	5.6	5.5	3.2	Basalt
32.	RA-J4-6-85	3.2	1.6	1.6	Basalt
33.	RA-J4-8-109	5.5	4.8	4.9	Quartzite
34.	RA-J5-4-26	4.5	4.0	3.5	Basalt
35.	RA-J5-6-42	4.7	5.5	3.5	Basalt
36.	RA-J6-4-32	5.3	4.7	3.1	Basalt
37.	RA-J6-7-63	5.2	3.8	3.4	Basalt
38.	RA-J7-7-36	7.5	4.3	3.5	Basalt
39.	RA-J7-8-45	8.5	4.1	4.2	Quartzite
40.	RA-J8W-7-28	5.5	5.0	3.2	Basalt
41.	RA-J8W-2-7	6.5	4.5	3.5	Basalt
42.	RA-J9-6-68	5.7	4.2	3.3	Basalt
43.	RA-J9-1-6	6.7	4.6	3.0	Felsite
44.	RA-J9-7-82	4.2	4.6	3.0	Rose Quartzite

Table 21 (Continued)

Catalogue Number	Length	Width	Thickness	Material
45. RA-J9-8-95	6.6	4.7	4.0	Felsite
46. RA-J10-6-29	6.0	7.0	3.8	Basalt
47. RA-J10-7-36	7.2	3.1	3.6	Basalt
48. RA-J11-6-47	7.2	5.8	2.8	Quartzite
49. RA-J11-6-38	6.1	3.5	2.5	Quartzite
50. RA-J11-7-55	5.0	5.4	3.4	Basalt
51. RA-J14-7-52	4.9	5.0	4.5	Basalt
52. RA-J14-7-54	5.7	3.9	2.5	Basalt
53. RA-J14-7-55	4.7	4.8	2.7	Quartzite
54. RA-J14-8-60	5.5	5.9	2.7	Basalt
55. RA-J14-8-62	5.0	4.1	3.2	Basalt
56. RA-J14-8-63	5.6	6.0	5.0	Basalt
57. RA-J15-5-45	4.5	4.1	2.4	Basalt
58. RA-J15-6-68	9.3	6.7	4.0	Basalt
59. RA-J15-7-76	6.6	5.6	3.2	Basalt
60. RA-J15-8-89	6.0	4.2	3.0	Basalt
61. RA-J15-8-85	6.3	4.7	4.0	Basalt
62. RA-J15-10-126	4.1	3.2	2.3	Basalt
63. RA-J16-6-42	6.1	3.6	3.7	Basalt
64. RA-J17-4-7	6.5	5.1	3.9	Quartzite
65. RA-J17-5-11	3.2	2.6	1.8	Felsite
66. RA-J18-8-39	9.4	8.7	5.0	Quartzite
67. RA-J11-10-52	8.9	7.5	3.5	Quartzite
68. RA-J19-6-35	6.0	5.6	4.5	Quartzite
69. RA-J19-6-32	4.2	4.9	3.4	Basalt
70. RA-J19-8-55	7.3	4.5	3.1	Basalt
71. RA-J19-8-51	6.7	4.5	4.0	Basalt
72. RA-J19-9-59	6.7	5.9	2.5	Quartzite
73. RA-J19-10-61	6.4	4.2	3.8	Basalt
74. RA-J20-8-75	6.4	6.0	3.4	Basalt
75. RA-J20-7-65	5.7	4.7	2.7	Quartzite
76. RA-J15-1-1	4.0	3.8	2.0	Gray Basalt
77. RA-J15-2-9	8.2	5.0	5.2	Quartzite
78. RA-K11-5-40	7.5	5.1	3.9	Quartzite
79. RA-K11-6-49	5.1	2.8	2.7	Basalt
80. RA-K12-9-53	6.5	4.2	2.4	Basalt
81. RA-K16-7-61	7.5	6.0	4.2	Basalt
82. RA-K16-8-72	5.7	4.8	2.6	Basalt
83. RA-K16-8-73	6.3	6.1	4.2	Basalt
84. RA-K16-2-16	6.6	3.8	3.9	Quartzite
Cumulative mean	5.91	4.87	3.54	All material (86)
Basalt average	5.91	4.67	3.55	Basalt (51)
Felsite average	5.54	3.82	2.86	Felsite (5)
Quartzite average	6.71	4.97	3.93	Quartzite (25)

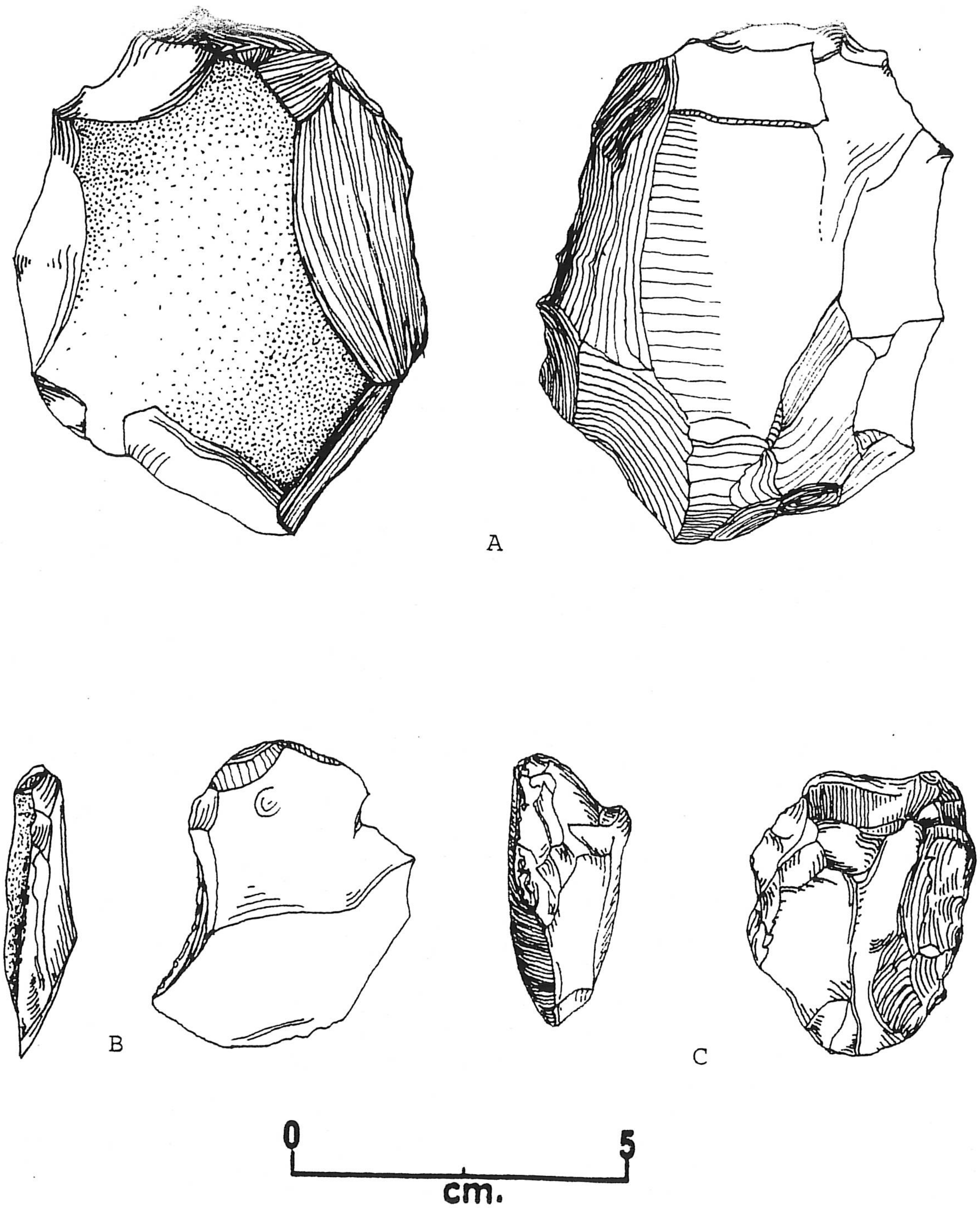


Figure 22. Various sidescrapers from Rancho Park North, Site A.
A. A convex sidescraper (Type 20) made on a basalt flake (RA-J5-5-63).
B. A lateral and ventral view of a concave sidescraper (Type 22) manufactured on a large felsite flake (RA-19-3-27).
C. A lateral and dorsal view of a convergent side-scraper (Type 24) manufactured on a felsite flake (RA-I9-3-27).

Table 22

Type 20--Convex Sidescrapers
(Dimensions of in situ artifacts in centimeters)

Catalogue Number		Length	Width	Thickness	Material
1.	RA-I11-5-3	6.1	4.5	1.5	Basalt
2.	RA-I10-6-36	6.7	5.0	2.0	Basalt
3.	RA-I9-3-27	4.6	3.6	1.4	Felsite
4.	RA-F5-1-2	6.7	5.7	1.6	Basalt
5.	RA-I6-1-2	5.3	1.5	1.8	Felsite
6.	RA-F3-2-9	7.5	6.6	1.2	Quartzite
7.	RA-B-28	4.9	5.2	1.7	Basalt
8.	RA-C23-4-20	5.3	5.4	2.7	Felsite
9.	RA-C23-2-3	4.3	2.3	1.3	Felsite
10.	RA-F3-3-18	5.0	3.5	1.5	Basalt
11.	RA-I13-7-41	3.6	2.5	.8	Quartzite
12.	RA-I15-5-52	6.6	6.3	2.1	Basalt
13.	RA-I15-5-55	5.7	3.8	1.8	Basalt
14.	RA-I15-1-7	5.0	3.5	.5	Basalt
15.	RA-I15-7-75	7.0	3.6	1.6	Basalt
16.	RA-I15-8-88	5.3	3.3	.5	Felsite
17.	RA-I15-11-103	5.6	3.4	1.3	Basalt
18.	RA-I15-10-96	2.7	3.4	.6	Basalt
19.	RA-I17-6-13	4.0	3.6	.3	Basalt
20.	RA-I18-10-76	4.7	3.2	1.5	Basalt
21.	RA-I19-6-34	7.5	5.3	2.4	Basalt
22.	RA-J2-6-54	6.5	5.3	2.1	Basalt
23.	RA-J3W-3-18	9.0	5.9	2.4	Basalt
24.	RA-J4-2-4	5.5	3.0	2.5	Quartzite
25.	RA-J4-3-40	6.3	6.4	1.5	Basalt
26.	RA-J4-5-66	4.8	3.9	1.0	Basalt
27.	RA-J4-7-100	3.8	2.8	1.6	Felsite
28.	RA-J5-4-31	6.5	4.0	1.2	Quartzite
29.	RA-J5-1-5	4.9	2.9	1.7	Basalt
30.	RA-J6-2-14	6.7	4.4	4.4	Quartzite
31.	RA-J6-8-70	5.5	4.0	1.5	Basalt
32.	RA-J8E-7-64	5.6	5.5	2.3	Felsite
33.	RA-J8E-4-39	5.6	4.7	.3	Felsite
34.	RA-J8E-3-12	6.8	6.0	2.7	Quartzite
35.	RA-J9-2-8	5.5	4.2	2.3	Quartzite
36.	RA-J9-7-84	4.9	4.0	2.5	Basalt
37.	RA-J9-7-70	6.2	5.5	1.8	Basalt
38.	RA-J10-4-17	5.1	4.4	2.0	Basalt
39.	RA-J10-4-19	6.3	5.0	2.9	Quartzite
40.	RA-J10-2-5	9.5	6.1	2.5	Quartzite
41.	RA-J11-5-29	7.7	4.9	2.4	Quartzite
42.	RA-J11-8-68	7.0	6.5	3.2	Basalt
43.	RA-J11-9-79	5.7	5.4	1.6	Quartzite

Table 22 (continued)

Catalogue Number		Length	Width	Thickness	Material
44.	RA-J12-1-1	8.6	2.5	2.2	Quartzite
45.	RA-J14-3-21	3.6	3.4	1.8	Basalt
46.	RA-J14-6-40	3.3	2.9	1.2	Basalt
47.	RA-J15-6-54	5.1	4.7	1.8	Felsite
48.	RA-J15-5-46	5.2	3.0	1.0	Felsite
49.	RA-J16-2-17	6.4	5.2	1.5	Basalt
50.	RA-J16-7-55	4.8	2.8	1.6	Basalt
51.	RA-J17-9-30	5.1	5.2	1.8	Felsite
52.	RA-J18-3-17	5.3	4.4	1.8	Felsite
53.	RA-J18-13-72	4.5	3.0	1.1	Basalt
54.	RA-J18-11-62	4.7	3.0	0.9	Basalt
55.	RA-J18-11-58	7.4	5.0	2.6	Felsite
56.	RA-J19-8-54	4.9	3.8	1.4	Quartzite
57.	RA-J20-8-78	8.4	4.0	2.1	Quartzite
58.	RA-J20-7-59	7.7	5.0	2.2	Basalt
59.	RA-J20-4-26	4.4	2.1	0.9	Quartzite
60.	RA-K11-5-43	4.4	5.7	1.5	Basalt
61.	RA-K11-11-88	4.0	4.0	1.5	Chalcedony
62.	RA-K12-10-60	6.0	4.2	2.0	Basalt
63.	RA-K16-3-29	5.1	4.0	1.3	Quartz
Cumulative mean		5.69	4.26	1.82	All material (63)
Quartz average		5.1	4.0	1.3	(1)
Chalcedony average		4.0	4.0	1.5	(1)
Felsite average		5.22	3.96	1.61	(13)
Basalt average		5.39	4.36	1.63	(33)
Quartzite average		6.51	4.30	2.15	(15)

Type 22--Concave Sidescrapers

Any object made on a flake or blade by continuous retouch, where one edge exhibits concavity. The concave edge may be made by one large single percussion blow and retouched, or by the removal of a series of smaller pressure or percustion flakes. Fifteen specimens were recovered from Site A. (See Figure 22).

Type 23--Double-Convex Sidescrapers

Any object made on a flake or blade by continuous retouch, where two non-adjacent edges are both convex. Sixteen specimens were recovered from Site A.

Type 24--Convergent Sidescrapers

Any object made on a flake or blade by continuous retouch, where two adjacent edges converge at one extremity of the tool, usually at the distal end. This category may include ovate sidescrapers, which include any scraper made on an ovate shaped flake regardless of the shape of the worked edge or of the position of the edge in relationship to the axis of the artifact (see Figure 22). Ten specimens were recovered from Site A.

Type 25--Double Convergent Sidescrapers

Any object made on a flake or blade by continuous retouch, where two adjacent edges converge at two extremities of the tool. Generally all edges are continuously retouched. This category may include artifacts otherwise classed as ovate sidescrapers. Thirteen specimens were recovered from Site A. (See Figure 23).

Type 26--Denticulated Sidescrapers

Any object made on a flake or blade by noncontinuous retouch, where one edge is contiguously but not continuously retouched. The edge may be made by fine retouching of the "Clactonian" type (a method of removing flakes by swinging the core against a larger, immovable stone, used extensively by the Clactonian techno-complex in France during the Middle Paleolithic) or by a series of continuous notches. These tools are also called saws or saw-toothed scrapers (Figure 24). Twenty-four specimens were recovered from Site A. (See Table 27).

Table 23

Type 22--Concave Sidescrapers
(Dimensions of _in situ_ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I14-7-55	7.6	5.4	3.4	Quartzite
2. RA-J1-6-49	3.7	4.3	1.4	Basalt
3. RA-J6-7-62	6.2	5.3	2.5	Basalt
Cumulative mean	5.8	5.0	2.4	(3)

Table 24

Type 23--Double-Convex Sidescrapers
(Dimensions of _in situ_ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-F5-2-13	5.5	4.6	2.9	Basalt
2. RA-I13-3-9	5.5	2.2	1.9	Basalt
3. RA-J4-6-88	5.6	5.5	1.9	Basalt
4. RA-J6-1-8	6.5	5.0	2.5	Basalt
5. RA-J8E-7-59a	4.5	4.0	1.6	Basalt
6. RA-J10-6-30	4.1	4.2	1.6	Quartzite
7. RA-J19-9-61	4.5	4.3	1.7	Felsite
8. RA-J20-2-7	5.4	3.6	1.5	Basalt
9. RA-K11-4-38	5.0	4.6	1.7	Basalt
10. RA-K11-2-22	4.9	3.7	1.0	Felsite
11. RA-K11-6-48	4.8	3.2	1.0	Quartzite
Cumulative mean	5.71	4.08	1.75	(11)
Felsite average	4.70	4.00	1.35	(2)
Quartzite average	4.45	3.70	1.30	(2)
Basalt average	5.43	4.21	2.0	(7)

Table 25

Type 24--Convergent Sidescrapers
(Dimensions of in situ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-J3W-4-21	4.9	4.7	2.1	Basalt
2. RA-J3E-7-31	4.1	2.4	0.9	Basalt
3. RA-J12-4-9	3.9	3.8	1.1	Felsite
4. RA-J18-11-59	4.1	4.0	1.0	Felsite
Cumulative mean	4.25	3.73	1.28	(4)

Table 26

Type 25-Double Convergent Sidescrapers
(Dimensions of in situ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I16-6-4	4.0	3.5	2.5	Felsite
2. RA-I20-5-29	5.5	3.2	1.5	Felsite
3. RA-J14-1-2	4.7	3.7	1.6	Quartzite
Cumulative mean	4.73	3.46	1.86	(3)

Table 27

Type 26--Denticulated Sidescrapers
(Dimensions of <u>in situ</u> artifacts (in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I10-6-33	6.3	4.7	2.1	Quartzite
2. RA-F4-5-21	4.9	4.3	1.7	Basalt
3. RA-I13-6-35	6.4	3.6	2.0	Basalt
4. RA-I20-9-60	5.9	4.5	1.1	Basalt
5. RA-J4-6-78	6.4	3.0	2.0	Basalt
6. RA-J5-7-24	3.3	1.5	0.2	Felsite
7. RA-J9-9-103	7.0	5.5	1.5	Basalt
8. RA-J10-7-38	6.1	4.8	1.5	Quartzite
9. RA-J11-7-61	2.4	3.0	0.4	Basalt
10. RA-J12-7-19	8.4	5.8	2.5	Quartzite
11. RA-J18-12-68	4.1	3.3	1.8	Chalcedony
12. RA-J19-7-34	6.5	3.5	1.5	Basalt
13. RA-K11-8-68	6.3	3.0	1.0	Basalt
Cumulative mean	5.69	3.88	1.48	(13)
Chalcedony average	4.1	3.3	1.80	(1)
Felsite average	3.3	1.5	0.20	(1)
Quartzite average	6.9	5.1	2.03	(3)
Basalt average	5.73	3.43	1.40	(8)

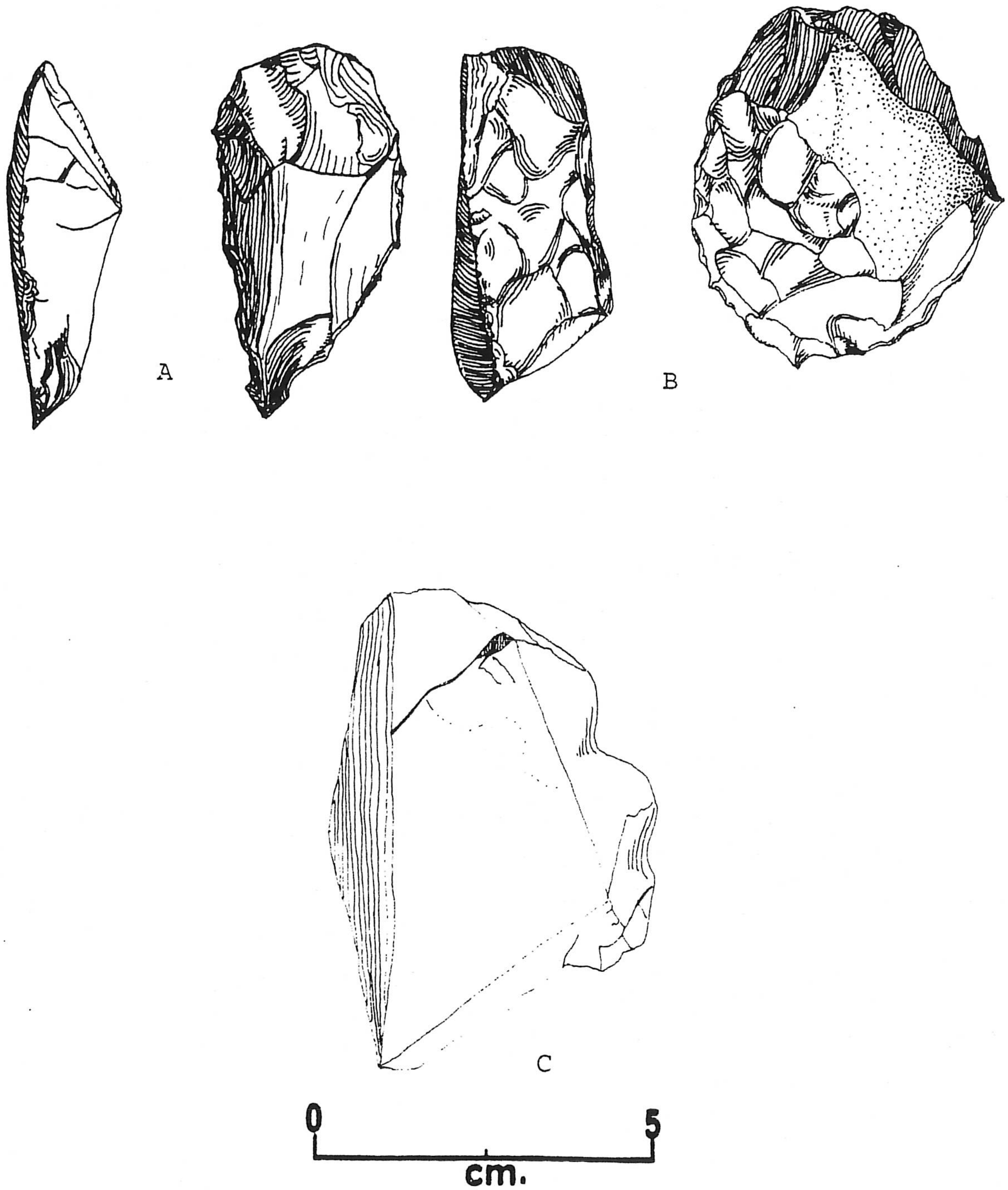


Figure 23. Specialized sidescrapers from Rancho Park North, Site A.
A. A lateral and dorsal view of a double convergent sidescraper (Type 25) made from a basalt flake (RA-I13-3-9).
B. A lateral and dorsal view of a double convergent sidescraper made on a felsite flake (RA-I15-7-76).
C. A notched scraper (Type 27) made on a basalt flake (RA-K16-9-79).

Type 27--Notched Sidescrapers (Spokeshaves)

Any object made on a flake or blade by a single blow, sometimes containing evidence of multiple retouch, more or less deep, more or less wide, sometimes very small. Most are wide notches, the result of a single blow of a hammer-stone or of a baton. Sometimes notches are regularized by small secondary retouch. Eighteen specimens were recovered from Site A. (See Table 28; Figure 23).

Type 28--Domed Sidescrapers

Any sidescraper made on a core, round to ovoid in outline, plano-convex in cross section. They are generally made on very thick flakes and have a small hump in the central portion of the dorsal side. Flaking is steep and by percussion around the periphery of the cortical surface, forming a flake-scarred hump. Oftentimes they are indiscernible from convergent side-scrapers; therefore the typological placement is an arbitrary decision. Two specimens were recovered from Site A.

Type 29--Straight Sidescrapers

Any object made on a flake or blade by continuous retouch, where one single edge exhibits straightness, which is more or less parallel to the long axis of the flake or blade. Eighteen specimens were recovered from Site A. (See Table 29).

Type 30--Straight-Convex Sidescrapers

Any object made on a flake or blade by continuous retouch, where one edge is straight and the other non-adjacent edge is convex. Five specimens were recovered from Site A. (See Table 30).

Type 31--Straight-Concave Sidescrapers

Any object made on a flake or blade by continuous retouch, where one edge is straight and the other non-adjacent edge is concave. Three specimens were recovered from Site A. (See Table 31).

Type 32--Double-Straight Sidescrapers

Any object made on a flake or blade by continuous retouch, where two non-adjacent edges are both straight. One specimen was recovered from Site A. (See Table 32).

Table 28

Type 27--Notched Sidescrapers
(Dimensions of _in situ_ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I12-6-24	10.5	6.3	2.5	Basalt
2. RA-I9-4-33	8.1	5.5	2.1	Basalt
3. RA-F4-2-1	6.2	4.7	1.3	Basalt
4. RA-I14-4-27	3.0	2.0	0.2	Basalt
5. RA-I15-8-83	3.7	3.6	1.3	Felsite
6. RA-I18-4-14	5.9	4.2	1.7	Quartzite
7. RA-J3W-2-11	6.3	4.7	1.7	Quartzite
8. RA-J4-4-51	7.0	2.0	1.0	Quartzite
9. RA-J5-5-40	6.0	7.0	2.6	Quartzite
10. RA-J11-4-25	2.5	2.0	2.0	Quartzite
11. RA-J11-4-20	3.0	3.5	0.5	Chert
12. RA-J15-11-79	6.9	3.8	2.8	Basalt
Cumulative mean	5.76	4.11	1.65	(12)
Chert average	3.0	3.5	0.5	(1)
Felsite average	3.7	3.6	1.3	(1)
Quartzite average	5.54	4.0	1.80	(5)
Basalt average	6.94	4.46	1.78	(5)

Table 29

Type 29--Straight Sidescrapers
(Dimensions of _in situ_ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I9-2-14	8.4	5.9	4.4	Quartzite
2. RA-F3-1-1	4.8	4.1	2.0	Basalt
3. RA-J6-3-25	5.0	4.4	2.7	Basalt
4. RA-J7-2-12	5.0	3.2	1.0	Felsite
5. RA-J12-4-12	2.5	2.0	1.0	Felsite
6. RA-J15-10-124	3.3	2.5	1.1	Quartzite
7. RA-J16-4-30	7.5	3.2	2.2	Basalt
8. RA-J16-4-32	3.9	5.0	1.0	Quartzite
9. RA-J18-10-50	5.8	4.1	2.0	Basalt
10. RA-J20-8-80	8.8	5.3	3.1	Basalt
11. RA-K11-8-66	4.0	3.5	1.5	Basalt
Cumulative mean	5.37	3.93	2.00	(11)
Felsite average	5.00	2.60	2.00	(2)
Quartzite average	5.20	4.47	2.17	(3)
Basalt average	5.98	4.10	2.25	(6)

Table 30

Type 30--Straight-Convex Sidescrapers

(Dimensions of <u>in situ</u> artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I9-7-66	9.2	4.3	1.7	Felsite
2. RA-J6-7-64	7.2	4.5	3.0	Basalt
3. RA-J16-7-53	9.0	6.0	2.5	Brown Basalt
Cumulative mean	8.47	4.93	2.40	(3)

Table 31

Type 31--Straight-Concave Sidescrapers

(Dimensions of <u>in situ</u> artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-J2-5-50	5.1	3.6	1.4	Basalt
2. RA-J19-8-56	5.0	4.0	2.1	Basalt
3. RA-I11-6-2	8.2	6.6	2.2	(2)
Cumulative mean	6.1	4.7	1.9	(3)

Table 32

Type 32--Double-Straight Sidescraper

(Dimensions of <u>in situ</u> artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-K16-1-1	5.0	3.1	0.9	Felsite

Type 33--Thumbnail Scraper (Micro-Scraper)

Any object made on a flake or blade by continuous retouch, where the total length or width is less than five centimeters. Any side may exhibit continuous retouch, but it is generally located on the distal edge, opposite the bulb of percussion. Some thumbnail scrapers may be accidental chips with an edge sharp enough for use (Wallace 1956:20), but many of them appear to be secondary flakes. At Great Western, Site A, all three specimens appear to have been removed by a soft hammerstone, since they all exhibit a very flattened oblique striking platform. (See Figure 24). Three specimens were recovered from Site A.

Table 33

Type 33--Thumbnail Scrapers

(Dimensions of *in situ* artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I-13-3	1.5	1.4	0.4	Quartzite
2. RA-J5-4-33	2.5	2.5	1.0	Felsite
Cumulative mean	2.0	1.95	7.0	(2)

Type 34--Tabular Scraper

Any object made on a flake or blade more or less tabular in shape and lenticular in cross section, with the distal end exhibiting continuous retouch or utilization scars. The proximal end is less than one-half the width of the distal end and appears to have been purposely truncated by intense pressure. Seven specimens were recovered from Site A.

Judge (1973) reports that he found a type he called a tabular scraper in a Paleo-Indian assemblage in New Mexico. He stated that:

> I could find no previously recorded occurrence of this implement, so I have arbitrarily termed it a "tabular" sidescraper. These are generally made from wide, flat, thin flakes from which the distal and proximal ends have been removed in a manner which forms a rough triangle. The wider of the two lateral edges is modified by steep retouch to produce a scraping edge (Judge, 1973:96-97).

Table 34

Type 34--Tabular Scrapers
(Dimensions of *in situ* artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I13-3-11	6.5	4.9	3.1	Basalt
2. RA-I18-5-26	7.4	4.0	1.8	Felsite
3. RA-I19-3-12	7.4	5.7	2.4	Quartzite
4. RA-I19-1-4	6.3	4.2	2.0	Basalt
5. RA-J3W-2-9	6.1	4.3	3.0	Basalt
6. RA-J8W-5-19	6.3	6.0	2.3	Basalt
Cumulative mean	6.7	4.9	2.4	(6)

Type 35--Multiple Scraper

Any object made on a flake or blade where one edge has been intentionally retouched either continuously or non-continuously, in any combination with any other type of retouched edge. Four specimens were recovered from Site A.

Type 36--Teshoa Flakes

Any large primary flake which has been struck from a quartzite cobble, with one thick edge and the other tapering to a semi-sharp unmodified edge. The only altering of the flake results from utilization along the edge opposite the bulb of percussion (Warren 1968:17). These are only separated from other utilized flakes (Type 38) because of their diagnostic character. Teshoa flakes have been recorded from San Diego County (Rogers 1939:12) to Santa Barbara County (Wallace 1956:20). Six specimens were recovered from Site A.

Type 37--Miscellaneous Retouched Flakes

Any flake or blade which exhibits discontinuous, random retouching, either by pressure or by percussion flaking on one edge or another. These may be broken or may be whole flakes or blades. Four specimens were recovered from Site A.

Type 38--Utilized Flakes

Any flake, whole or fragmented, which shows evidence of minute flaking which has been produced by utilization and not

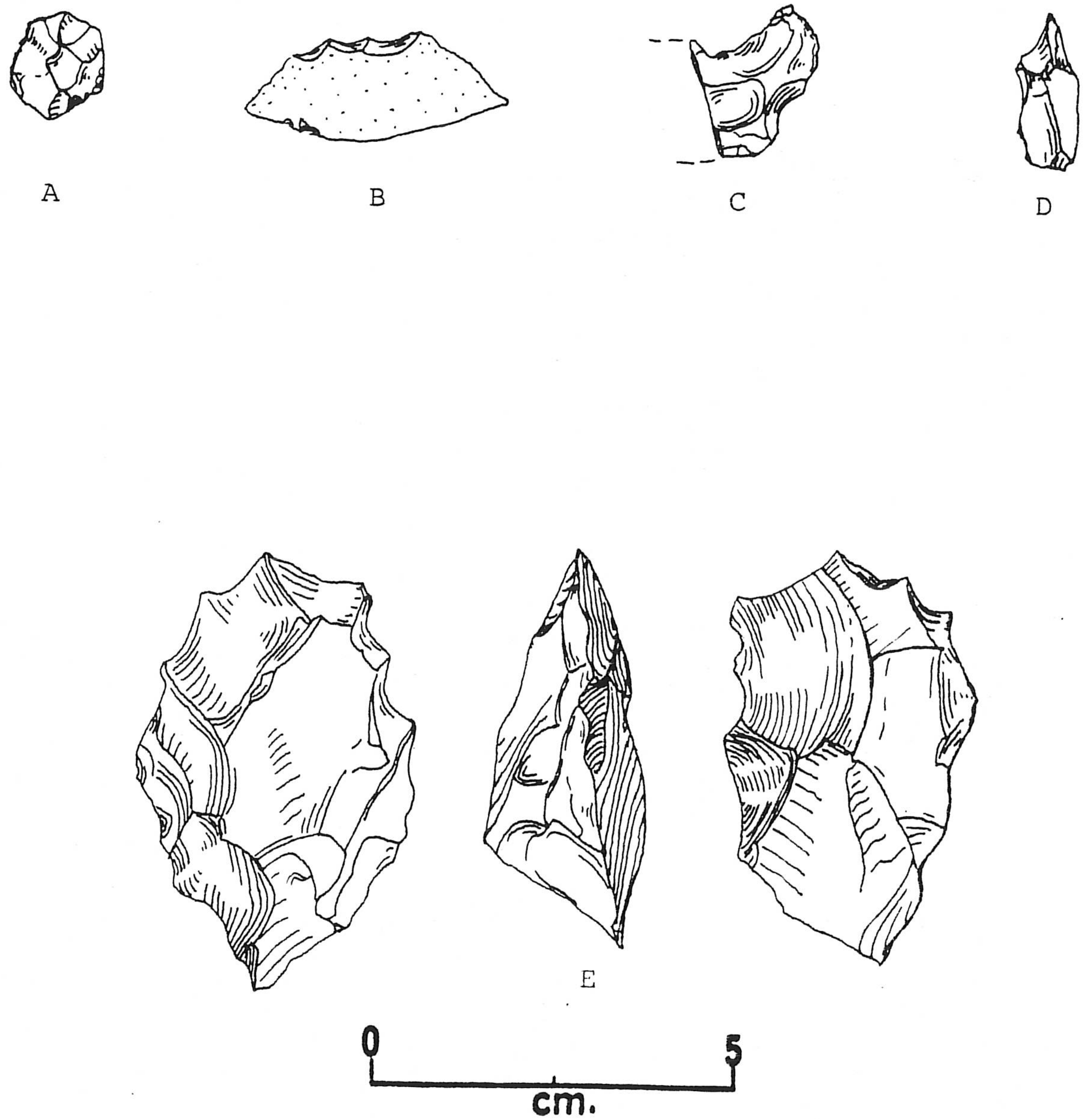


Figure 24. Miscellaneous rare or specialized artifacts from Rancho Park North.

A. An obsidian thumbnail scraper (Type 33) (RA-I-13-3).
B. A small denticulated scraper (Type 26) (RA-10-92, G-13-14-18-19).
C. A portion of a crescentic (Type 11) made on a felsite flake (RPN-A-1974-10-142).
D. A micro-graver (Type 13) (RA-J14-2-18).
E. A dorsal, lateral, and ventral view of an ovate biface (Type 6) made from yellow-brown basalt (RA-I-19-6-38).

by intentional retouching. The utilization may have been produced by pressure (most common) or battering-chopping (percussion). In some cases a microscope may be necessary to determine whether the flake has been utilized or not. The major factor in identification seems to be the duration of use and the type of material used. The distinction between Types 37 and 38 is sometimes arbitrary. Recovered from Site A were 264 specimens.

Type 39--Flakes with a Thinned Base

Any flake on which either the dorsal or ventral surface of the base has been retouched for the purpose of either thinning the base or removing the bulb of percussion. This may have been done to promote more easy hafting of the flake to a shaft, or to manufacture a stronger working edge. Five specimens were recovered from Site A.

Type 40--Preforms

Any flake whose maximum thickness is nearly the same as is its maximum width, and comes to an apex on the end opposite the striking platform. May be retouched on both lateral sides or on only one single edge. The edges are either convex or straight. This type may be an anomaly of the activity at one individual quarry or it may represent an opportune type produced from the layering of basaltic dikes. All specimens from Site A and Site C were manufactured from local basaltic materials. Three specimens were recovered from Site A.

Table 35

Type 40--Preforms

(Dimensions of in situ artifacts in centimeters)

Catalogue Number	Length	Width	Thickness	Material
1. RA-I12-4-20	6.3	2.4	2.4	Basalt
2. RA-F5-7-17	6.0	3.0	2.1	Felsite
3. RA-J4-2-39	6.5	2.5	2.1	Quartzite
4. RA-J8E-6-53	8.9	3.9	2.8	Basalt
Cumulative mean	6.9	2.9	2.3	(4)

MISCELLANEOUS TOOLS

A few tools were recovered which could not be placed in any of the forty precedint categories. Instead of intuitively inventing new statistically invalid categories for them, since they represent such a small percentage of the assemblage, they have been defined descriptively and will be described below.

Pseudo-Point

Only two pseudo-points were located during the excavation. Both are not real points but they are flakes which come to an apex at a side adjacent to the striking platform. These could also be considered to be canted points. They show neither evidence of retouch nor utilization and may have been discarded because of their irregular shape. Two specimens were recovered from Site A.

Scraper-Point

One point was recovered which showed signs of having been utilized for scraping purposes. The scraping edge was not retouched but displayed evidence of utilization flaking. One specimen was recovered from Site A.

Multiple Form Tool

One multiple form tool was located at Site A which could not be categorized by using an already defined artifact type. This is simply a miscellaneous artifact which has been alternately retouched on the one edge, battered as a hammerstone, and flaked as a core. One specimen was recovered from Site A.

Shell Tool

A *Chione* sp. clam shell was located on which the edge opposite the hinge appears to have been truncated and then retouched into a working edge. One specimen was recovered from Site A.

Bone Tool

A small scoop manufactured from a long bone of an aquatic bird (Kasper 1974) was discovered during excavation at Site A. The bone appears to have been cut laterally, then polished, probably by utilization. One specimen was recovered from Site A (see Figure 25).

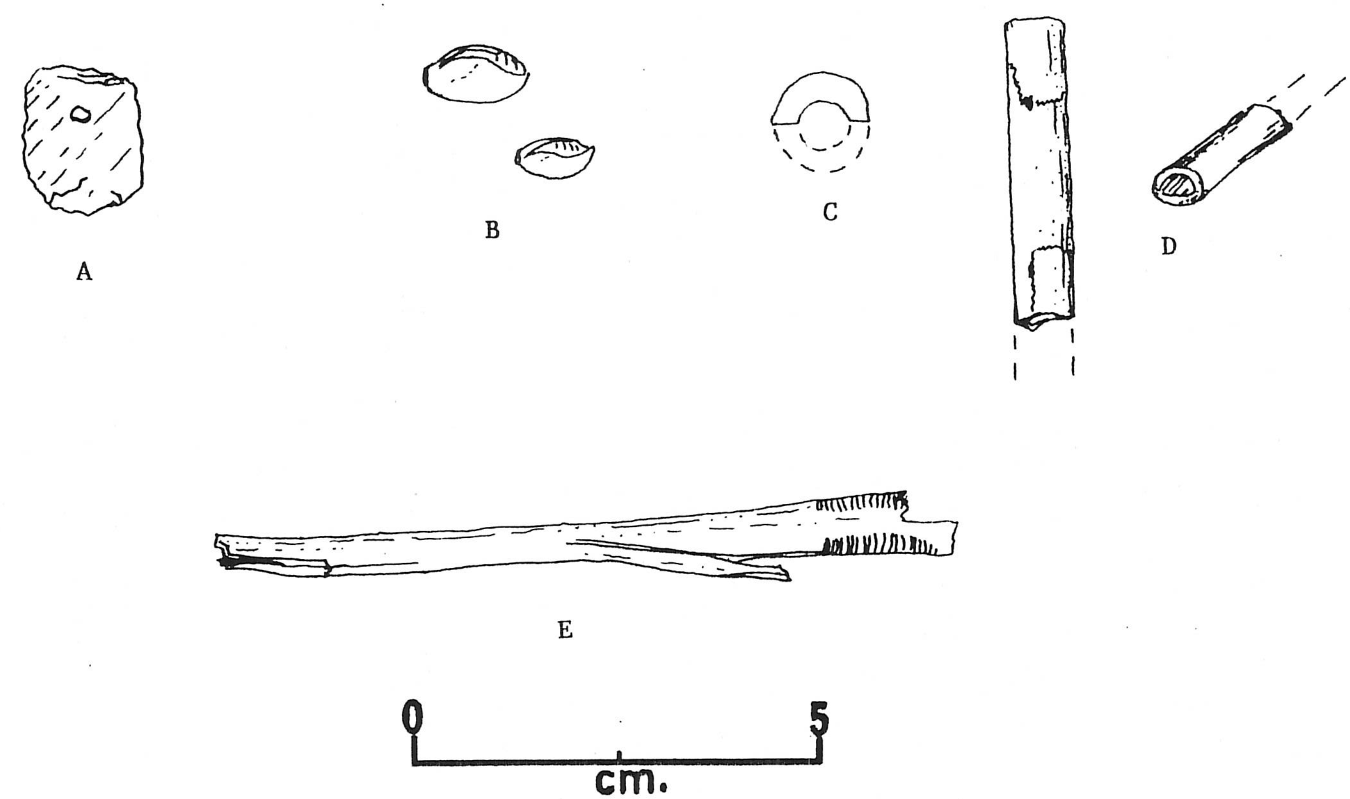


Figure 25. Miscellaneous ornamental and bone artifacts from Rancho Park North, Site A.

A. A drilled slate pendant found in Level III (RA-J15-3-20).
B. Two olivella spire-lobed beads found in the San Dieguito level (RA-I15-11-99 and RA-I15-10-93).
C. An abalone disc bead from Level XI (RA-J13-11).
D. A bone tube from Level VI (RA-I16-6-7).
E. A bird bone scoop or scraper from Level III (RA-J1-4-31).

SHELL ARTIFACTS

Although over 50,000 grams of shells were recovered from the excavation of Sites A and C, very few artifacts were recovered which had been manufactured from shell or bone (see Table 36). The predominant shells at Site A were *Chione californiensis* and *Aequipecten aequisulcatus* (*Plagioctenium circularis*), the speckled scallop (Reish 1972:60). Only one artifact each was manufactured from the pecten scallop and the *Chione* clam.

Other shells included *Polinices reclusianus*, *Haliotis* sp., *Megathura crenulta*, *Mytilus californianus*, *Pseudochama exogyra*, *Ostrea lurida*, *Tagelus subteres*, *Chione undatella*, and *Donax gouldaii*, along with the *Olivella biplicata* (a non-food source).

With the abundance of diverse shells it would seem probable that the various occupants of the site would have manufactured either utilitarian or ornamental objects from shell, yet this is the exception rather than the rule. Only seven artifacts were recovered which had been manufactured from shell, five of which are classified as ornamental artifacts. Most of the beads were recovered from the basal levels of the shell lens and seem to be associated with the San Dieguito occupation of the site.

Olivella Beads

Four beads were discovered at Site A, which had been manufactured from the *Olivella biplicata* (purple olive shell). All but one of the beads were located during screening (I15-11-94 was recovered *in situ* near a concentration of lithic implements). All four beads represent a homogeneous population of bead artifacts, having the appearance of the apex of the shell having been ground off, thus allowing an aperture to be formed at one end which could be used for the passing of a cord longitudinally through the shell.

The sizes of the beads are very similar, ranging in size from 1.1 centimeters in length and .6 centimeter in width to 1.3 centimeters in length and .7 centimeter in width (see Figure 25).

Cultural affiliation: All of the olivella beads appear to be associated with San Dieguito cultural materials. If this is the correct interpretation, then this is the first San Dieguito site which provides information that the San Dieguito people not only exploited the shoreline for food resources, but also wore body adornment much as did the later peoples who occupied the site.

Table 36

Distribution of Non-Lithic Artifacts

Type	Arbitrary Levels												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
Slate Pendant			1										1
Bone Tube						1							1
Olivella Beads					1					2	1		4
Bone Awl Tip					1								1
Bone Scoop				1									1
Ground Shell									1				1
Disc Bead									1				1
Shell Tool		1											1
Total		1	1	1	2	1			2	2	1		11

Abalone Disc Bead

One broken disc bead was located from Level IX (80-90 cm.) in Unit J-13 during the five percent sample excavation. The bead probably represents Haliotis cracherodii or the black abalone since the coloration of the bead ranges from a dark green to a purple-black lustre.

The bead has been ground down along the surfaces and edges, thus producing a rounded appearance. Through the center of the shell fragment a small hole was drilled, apparently from the dorsal side of the shell. The specimen is small, measuring 1.2 centimeters by .9 centimeter by .4 centimeter in thickness. A projected reconstruction of the bead would make it approximately 2.4 centimeters by 1.8 centimeters in size (see Figure 25).

Cultural affiliation: The bead is associated with the San Dieguito phase of the site since it was located in the same archaeological level as were the San Dieguito-style tools. Also, since the abalone is a rockshore shellfish, it appears that the San Dieguito peoples also exploited the rock shore off the coast of Southern California. Several abalone shell fragments were found which might indicate abalone was also used as a food resource.

Polished Ground Shell

One polished and ground shell fragment was located in Unit 15 during the screening of Level IX (80-90 cm.). The shell fragment appears to have been the ventral surface of Chione sp. which has been altered by considerable grinding and polishing. This fragmentary artifact has no holes or modified sides but it appears to have been fractured, thereby limiting our information concerning a fully reconstructed artifact.

The total size of the artifact is two centimeters long by 1.2 centimeters in length and .3 centimeter in thickness.

Cultural affiliation: It appears that the ground shell fragment is located within the San Dieguito cultural level, near the base of the shell lens.

Shell Tool

One retouched shell (Pecten sp.) tool was located in Level II, 10-20 centimeters below the surface. The tool was manufactured by truncating the edge opposite the hinge, then percussion flaking it. Based upon the wear striations on the shell's edge it seems that the tool was probably used for scraping.

Cultural affiliation: From stratigraphic relationships with other tools in the unit, it appears that the shell tool must be assigned to the Late Prehistoric occupants of Site A.

BONE ARTIFACTS

Implements manufactured from bone are very scarce. Only three artifacts were recovered which were produced from animal remains. It appears that the bone artifacts can be divided into two categories: manufacturing activities and aesthetic activities. While information regarding the artifacts is descriptive, nonetheless by inference we propose that the bone awl tip would be utilized for manufacturing baskets, and the birdbone tube and small bone scoop would have been utilized for aesthetic (perhaps ornamental) behavior.

Bone Tube

(Whistle base? I16-6-17)

At Level VI (50-60 cm.) a small bone tube was excavated. It has the appearance of being manufactured from the long-bone of a small mammal (Kasper 1974). One end has been cut straight across, forming a circular-elliptical lip which has been secondarily formed by further incision while the bone was fresh. The end opposite the lip has been broken, therefore it is not possible to reconstruct the size of the tube or its morphology beyond its fractured end (see Figure 25).

The bone tube was found *in situ* in proximity to the rock pavement located in Units I-11, I-12, I-15, I-16, I-17, I-21, and I-22. The object, then, was utilized concurrently with the occupational horizon of the 50-60 centimeter living surface. The lithic assemblage appears to be San Dieguito III in nature, with a predominance of scraping tools manufactured from felsitic and basaltic materials.

The bone tube is 4.1 centimeters in length and .7 centimeter in diameter. Concentrated efforts by the authors of this report located no other bone implements in San Diego County which bear any similar appearance to artifact I-16-6-17 (see Figure 25).

Bone Awl Tip

Only one bone awl tip was discovered. This came from Level V, 40-50 centimeters sub-surface. It was recovered *in situ* near a cooking hearth in Unit J-15.

Because the tip of the awl is so small it is impossible to identify the type of animal bone from which it was manufactured, other than that it appears to have been produced from a small mammal bone.

The awl tip is 2.2 centimeters in length and .4 centimeter in width and thickness. It graduates to .1 centimeter in thickness at the apex of its tip. The tip of the awl is heavily polished and smooth, indicating prolonged utilization before the tip fractured from the base.

Cultural affiliation: From the relationship between the awl tip and other cultural material, we infer that it was probably associated with the San Dieguito III occupants.

Drilled Slate Pendant

One piece of drilled slate was recovered during screening Unit J-15, Level III (20-30 cm.). A small hole had been drilled by a sharp object near the top of the pendant, evidently for the passage of a small cord for the purpose of suspending the pendant (see Figure 25).

The ornament is two centimeters long, one centimeter wide and .5 centimeter in thickness. Its corners are well rounded, giving the top edge a slightly rounded appearance.

Cultural affiliation: Late Prehistoric.

Bone Scoop

(J1-4-31)

One bone scoop was recovered in situ from Level IV (40-50 cm.) in Unit J-1. The bone scoop was manufactured from the leg bone of an aquatic fowl (Kasper 1974; personal communication). One end of the bone scoop had been cut laterally, then polished or rubbed until smooth; the other end was unaltered (see Figure 25).

The scoop appears to have been used only slightly because it shows very little evidence of wear on the altered surface. It is very probable that this object was used aesthetically rather than practically since it would have been too fragile to endure any constant or rugged use.

The total length of the scoop is 6.1 centimeters. It is .5 centimeter in width and .8 centimeter in its maximum thickness.

SUMMARY

The artifact assemblage represented at Rancho Park North, Site A, then, consists of 40 distinct and different stone tool types which comprised the artifact assemblage of the San Dieguito, La Jolla, and Late Prehistoric peoples. Twelve other classifications of artifacts, including four distinct subtypes of ceramics, supplemented the total inventory of recovered artifacts analyzed from the site. These artifacts cluster in Levels IV and V to form the La Jolla Complex tool kit, and Levels VI-XII, where they assemble to form the tool kit typical of the San Dieguito Complex in Coastal San Diego County. This clustering corresponds to the paleo-ethnicity of the archaeologically-known cultures which are discussed in Chapters 2 and 7. The various tool assemblages represent both paleo-ethnic groups and temporal differences in site occupation. As can be expected, artifacts manufactured from fine-grained felsites and basalts were the smaller and more refined in craftsmanship than those made from porphyritic materials and quartzites. The use of various materials, then, is not related to cultural groups preferring one material over another but to the function of the artifact and proximity to sources of raw lithic material which would be suitable for the manufacturing of a desired artifact type.

CHAPTER 6

EXCAVATION RESULTS

Following the test excavation, a series of trenches were excavated at the site so the geological profile could be investigated. These trenches were excavated mechanically by a backhoe. All the backdirt from them was placed off the site and later screened.

The north-south trench was placed along the western boundary of the site. Its length was 26 meters (84 feet, its width one meter (39 inches), and its average depth was also approximately one meter (39 inches). (See Figure 4).

The east-west trench transected the site on the northern boundary of quads F, G, and H. Its western limits extended approximately five meters (17 feet) west of the defineable site and its eastern termination extended approcimately two meters (six and one-half feet) east of the excavated area of the site. The total length of this trench was 27 meters (87 feet). Its width and its average depth was one meter (39 inches).

A short trench was placed along the southern boundary of quad M, engulfing units M-21, M-22, M-23, and M-25. This trench was four meters (13 feet) in length, one meter (39 inches) in width, and one meter in depth.

The total mechanically excavated area was 57 cubic meters. This represents 17.53 percent of the total surface area of the site. The controlled excavation recovered its original 15 percent total with an additional 1.30 percent represented because of the additional area excavated due to the discovery of Feature A (human remains) and Feature B (a rock pavement). An area representing 33.83 percent of the site was systematically excavated.

The north and south trenches were arbitrarily divided at the intersection of the west trench. The portion of the N-S trench on the north of the intersecting west trench became known as the north trench. The portion of the N-S trench on the south side of the west trench became known as the south trench. The west-east trench was divided arbitrarily at the datum marker; the portion of the trench west of the datum point became known as the west trench, while that portion of the trench east of the datum became known as the east trench.

SOUTH TRENCH

In artifact and information yield, this was the most productive trench. A total of 573 artifacts was recovered from this area. Among the total were 23 cores, 209 flakes, 292 debitage, and one hammerstone (Table 5), suggesting that the trench dissected an area of artifact production.

Several different tool types were also recovered in this area. The most frequently occurring were pushplanes, an implement which was probably uitlized for the processing of plant and animal foods, as well as for the working of wood, hides, and other similar raw materials (Heizer and Hester 1973:19). One San Dieguito II-style leaf-shape bipoint (Rogers 1966:191), manufactured from aphanitic, green felsite, was also recovered from this trench (Figure 17). The majority of the tools are diagnostically San Dieguito in morphology, including four ovate (double-convex, convergent) sidescrapers. It appears from this material that the major San Dieguito activity area occurred within immediate proximity to Lucus II. Also noteworthy is that very few shells were recovered from this trench, indicating that shell was primarily deposited in the units to the east of the trench (in an area which today is downwind), at a slightly lower elevation. This accumulation of shells may have been intentionally directed in this area, away from a major area of occupation.

South Trench Artifactual Inventory

Item	Number
Manos	5
Cores	23
Flakes	209
Debitage	292
Blades	1
Chopping tools	4
Gravers	1
Hammerstones	1
Naturally backed knives	1
Projectile points	1
Pushplanes	21
Sidescrapers	13
Total Lithics	573

WEST TRENCH

The artifactual material from the west trench was similar to that recovered during the screening of the south trench. One nicely worked percussion flaked blade (brown basalt) was recovered from this area (Table 5). A significant decrease in maintenance type tools such as pushplanes, choppers, chopping tools, and scrapers appears here. The most dominant artifact category is cores. Primary flakes and debitage appear much less frequently than they do in the south trench.

It seems most likely that this trench dissected a La Jolla and Late Prehistoric deposit. Only very little material was recovered from the extreme western portion of the trench, indicating that the western terminus of the site was at the approximate location of the north-south trench.

The major Late Prehistoric horizon deposit seems to lie in this vicinity since 90 percent of all ceramics recovered from the trenched materials were located here, in proximity to Locus I, where the subsurface maps indicate that the major portion of ceramic materials originated.

West Trench Artifactual Inventory

Item	Number
Ceramics	9
Manos	5
Cores	28
Primary Flakes	107
Debitage	55
Blades	1
Endscrapers	1
Hammerstones	1
Projectile points	1
Pushplanes	9
Scrapers	18
Teshoa flakes	1
Total Lithics	226

EAST TRENCH

An abbreviated list of artifacts was recovered from this segment of the trench because it dissects topsoil adjacent to and east of the site. The artifact number (255) is only understandable when one considers that of this total 18 are cores, 124 primary flakes, and 97 are pieces of debitage. These account for 239 or 93.72 percent of all the material retrieved from the east trench (Table 5). The remainder of the artifacts is composed of sidescrapers, none of which appear to be in any dominant, statistical representation.

Since this area intersects control unit one, it appears to verify the hypothesis that the area was used for the production of flakes by the late prehistoric population, and it was not used extensively by the earliest site residents. Due to the discovery of a large basin-shaped metate fragment, it appears that at least minimal food processing was conducted here in addition to artifact manufacturing.

East Trench Artifactual Inventory

Item	Number
Metate	1
Manos	4
Cores	18
Primary flakes	124
Debitage	97
Gravers	1
Hammerstones	1

East Trench Artifactual Inventory (continued)

Item	Number
Naturally backed knives	2
Pushplanes	1
Sidescrapers	4
Teshoa flakes	1
Utilized flakes	1
Total Lithics	255

MISCELLANEOUS TRENCH MATERIALS

No definitive pattern of activity can be inferred from the collection of artifacts listed under this heading in Table 5, since this material represents artifacts from the north, M-21 - M-24 trench, and miscellaneous material located during screening various sections of other trenches. This collection appears to be a mixture of the three cultures identified at Site A since it produced one blade, seven pushplanes, one ceramic fragment, and various flakes and cores. The most significant category is represented by the metate fragments which imply that food processing was a major activity at Site A.

Miscellaneous Trench Artifactual Inventory

Item	Number
Ceramics	1
Metate fragments	4
Manos	5
Cores	10
Primary flakes	53
Blades	1
Choppers	1
Endscrapers	1
Gravers	1
Hammerstones	1
Naturally backed knives	1
Pushplanes	1
Sidescrapers	9
Teshoa flakes	2
Utilized flakes	2
Total Lithics	98

BACK DIRT MATERIALS

This column from Table 5 is self-explanatory. All material located without a provenience during screening was placed in this category. This is actually a pot pourri of materials from a wide range of loci and is therefore nondiagnostic. It also includes materials located during random surveys of the downslope of the knoll to the north and to the east of Site A, and materials recovered during the backfilling of the site.

Back Dirt Artifactual Materials

Item	Number
Metates	1
Manos	1
Cores	1
Primary flakes	18
Inverse choppers	1
Sidescrapers	2
Utilized flakes	2
Total Lithics	27

EXCAVATED AREAS OF SITE A

Two distinct cultural loci were discovered at the site. These have been designated as Locus I and Locus II. The primary distinguishing features are the types of artifacts recovered, the depth of cultural deposit, and the location within the site.

Locus I is situated on the north side of the west trench, bordered on the south by the west trench and on the west by the north trench. It contains units C-23, C-24, C-25, D-21, F-3, F-4, and F-5. It averages approximately 50 centimeters in depth, although some individual units became sterile at more shallow depths. Osteological remains recorded as Feature A are also associated with this locus. Rodents introduced several fragments of human remains from this feature into F-3.

This area also contains greater evidence of rodent activity than Locus II, and the soil is much less compact, thereby being more amenable to rodent activity. The Torrey Sandstone penetrates the culture overburden in several places. This intermixture is caused by both root and rodent activity.

Locus II occupies the area south of the east-west trench and is bordered on the west by the north-south trench. Its southern border is the northern extents of quads L and M. Shell deposits here are very deep, averaging in excess of one meter of very compact, chestnut-color soil. Units I-5, I-9, I-10, I-11, I-12, I-13, I-14, I-15, I-16, I-17, I-18, I-19, I-20, I-21, I-22, J-1, J-2, J-3, J-4, J-5, J-6, J-7, J-8, J-9, J-10, J-11, J-12, J-13, J-14, J-15, J-16, J-17, J-18, J-19, J-20, K-11, K-12, K-16, and K-17 comprise the 39 square meters of this loci. Units I-11, I-16, and I-21 represent additional units which were excavated due to the discovery of Feature B during the excavation of units I-12, I-17, and I-22. Units I-5, I-22, J-13, and K-17 were excavated during the five percent test excavation.

DISCUSSION OF CONTROLLED EXCAVATION LEVELS

Excavation was conducted in controlled 10 centimeter arbitrary levels and in further controlled "cultural levels" whenever possible as discussed under Excavation Techniques.

Wherever possible living floors were identified. They are identified as areas of the site where cultural activity actually occurred, rather than simply an accumulation of plotted cultural materials. In certain cases this was not possible, particularly in Locus I, where rodent intrusions disrupted the artifacts. Because our units of control are so precise (10 centimeters or 3.9 inches), it is felt that the created maps represent an approximate reality and not an invented cultural pattern of conjecture. Only items located <u>in situ</u> were mapped, which accounts for the difference in the column totals level by level and the number of artifacts which actually appear on the subsurface maps.

Level I

(0-10 cm. controlled level; 6-9 cm. cultural level)

The primary material culture category is represented in this level by 10 cores, 279 primary flakes, and 193 pieces of waste debitage. One metate fragment and 11 manos were also located in the excavation of this level and have been approximately mapped (Figure 26).

The 36 ceramic fragments recovered from Level I represent 63.15 percent of all ceramics recovered from this site. All of the ceramics belong to the Tizon Brown Ware group, typed by May (1974a) as being represented by San Diego Brown I and Pine Valley Red, all types which were manufactured by the Kumeyaay.

The total tool category is represented by two chopping tools, two gravers, six pushplanes, 13 different sidescrapers and seven utilized flakes. Particularly high in statistical representation are the denticulated sidescrapers. These tools were used much like the modern cross-cut handsaw for severing items into several parts (Moriarty 1975). This has cultural ramifications since some form of processing of food or animal remains must have occurred during this occupation. Because no evidence of primary butchering (disarticulating an entire animal) was found, it is suggested that these saw-toothed scrapers were used for the cutting of plant or perhaps wood products. Unfortunately, it is not possible to radiocarbon date this level since no organic materials were located.

Level I Artifactual Material

Item	Number
Ceramic fragments	36
Metates	1
Manos	11
Cores	10
Primary flakes	279
Debitage	193

Level I Artifactual Material (Continued)

Item	Number
Chopping tools	2
Endscrapers	2
Gravers	2
Pushplanes	6
Sidescrapers	18
Utilized flakes	7
Flakes with a thinned base	1
Miscellaneous tools	1
Pseudo points	1
Total Lithics	534

Locus I. Only a thin scatter of material was recovered from Level I. No definitive cultural level could be discerned; therefore all recovered material was mapped and plotted in a 10 centimeter (3.9 inch) level. Viewing the distribution of materials in Figure 26, we located a concentration of thermally-fractured rock in Units C-23 and F-3. No artifacts, with the exception of one scraper, were located among these rocks. This concentration may represent the remains of an old hearth area, since a small hearth was located in the southwest corner of unit F-8.

A concentration of flakes occurred in unit F-8. Along with this concentration of flakes were two cores, suggesting that this area was a knapping station where flakes were removed from cores. No debitage was recorded from this concentration of material; therefore it appears as if primary knapping rather than secondary knapping occurred here.

In the eastern units of Locus I a scatter of approximately 16 thermally fractured rocks in a semi-elliptical pattern was encountered. A few tools and flakes were found in this area, including one pushplane, a mano, four scrapers, and one ceramic fragment. This accumulation of tools as opposed to flakes implies that this area may have been utilized as a processing area, since most of the tools are associated with the processing of animal or plant products, and ceramics are associated with the cooking of foods.

Feature 2, the elementary fire hearth located in the southwest corner of unit F-8, contained small particles of ash under several of the fire-broken rocks. The particles were so minute that they were not collected, but simply noted on a map. The hearth itself contained 10-12 thermally-fractured rocks and two flakes in the area containing the ash. It is probable that most of the ash was removed from the hearth by wind and rain, rodent activity, or by the capillary action of roots. The feature was 40 centimeters wide and 30 centimeters in length.

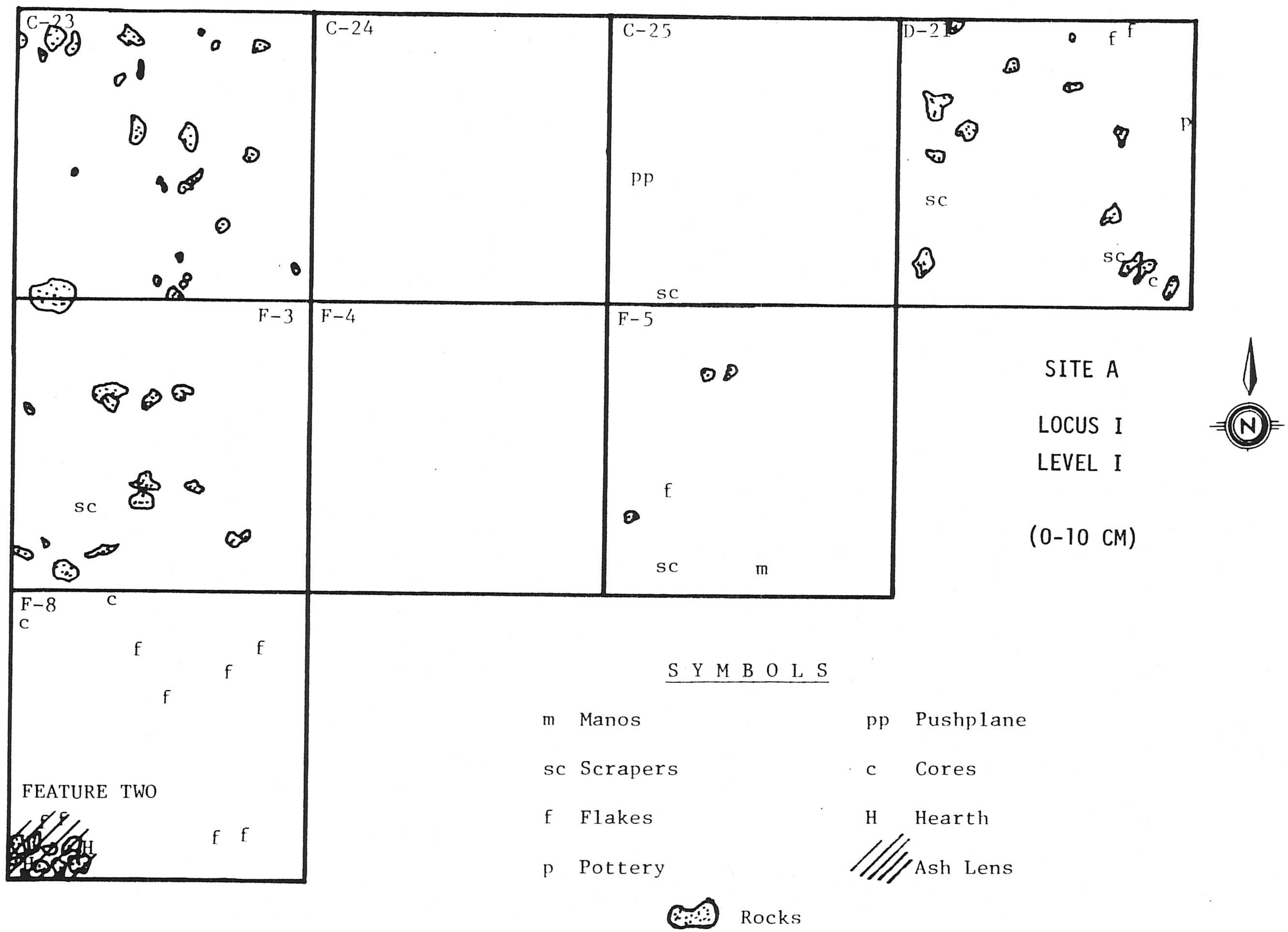


Figure 26. Artifacts recovered during the excavation of Locus I, Level I, at Rancho Park North. (Scale 5 cm. = 1 meter.)

Figure 26. Artifacts recovered during the excavation of Locus I, Level I, at Rancho Park North. (Scale 5 cm. = 1 meter.)

Rocks

The areas around units C-24 and F-4 were totally devoid of any cultural material. It may be that the thermally-fractured rocks found in units C-23 and C-24 were once a portion of a much larger hearth, or simply the remainder of Feature 2.

Locus II. A clustering of artifacts occurs within the first arbitrary (0-10 centimeters) level at the approximate location of 6-9 centimeters subsurface. For the purpose of mapping, this level was called cultural level one.

The western units are completely devoid of any cultural debris. This can be explained by examination of the stratigraphic profile (Figure 5) and the topographic map (Figure 3). In this area of the site alluvium has been deposited, forming a slightly higher elevation, thereby causing the cultural deposits to be located at a deeper subsurface level.

Several areas of cultural activity were located in this level of Locus II. In units I-9, I-10, J-6, and I-5, significant amounts of flakes and debitage were discovered, implying that this area of the site was used for the production of flakes.

Other concentrations of flakes were located in units J-5, K-11, and K-16, indicating that these areas were also utilized for implement manufacturing. Scatterings of manos were recovered in units K-11, K-16, J-19, and J-14, suggesting that in these areas of the cultural level food processing was a principal activity.

Very few maintenance type tools were located *in situ* in level 1 of Locus I. Only a few pushplanes and scrapers have been plotted. This indicates that the most probable activity during this occupation was the manufacturing of tools (or at least the production of flakes from cores), and perhaps cooking. A large hearth was located in unit J-8, surrounded by a few flakes and some ceramic fragments which display the black residue caused by exposure to a direct fire.

Feature 3 was an elementary cooking hearth located in unit J-8. This hearth also extends slightly into unit J-13 (Figure 27) and contains approximately 33 thermally-fractured rocks. The basic hearth is concentrated in an area of 60 x 75 centimeters, with thermally-fractured rocks extending over an area approximately one meter in diameter. Although the rocks constituting the feature were fire blackened and fractured by heat, no ash was recovered. This is probably due to long exposure to wind and rain, which may have dispersed the ash. In an irregular pattern surrounding the hearth we located several ash-covered ceramic fragments indicative of cooking pots, flakes, utilized flakes, and tools such as pushplane, a scraper, and a graver. These tools may have been utilized by the persons who constructed the hearth, concurrently with the age of the hearth.

The remaining rocks found in this level are primarily thermally-fractured and may represent the remains of several hearths which were dispersed by the inhabitants of the site or by the elements, since no definitive pattern of rock dispersal is evident from the reconstruction of the living floor.

It appears that the occupants of this level utilized the site as a food processing area (grinding implements) and as an implement-manufacturing area (flakes, cores, and debitage). The occupation was probably one of short seasonal duration since the hearths are very eroded and contain no ash deposits. The inhabitants during this period of occupation were probably the late prehistoric population, either the Kumeyaay or the Luiseno.

From all of the above data it also could be inferred that Level I in Loci I and II were occupied contemporaneously. The temporary campsite would have been utilized for the exploitation of plant resources and the lithic resources of the basaltic dike approximately three miles to the northeast.

The inhabitants of this stratum did not depend upon shellfish for subsistence since only a very few remains of molluscs were encountered. It can be inferred that this upper level of the site was not used by the La Jolla peoples but by members of the late prehistoric tradition.

The major reason for site occupation might have been the proximity to the basalt outcrop since the material recovered from this level can be divided into the following categories:

Flakes		Tools	
Quartz	2.77 percent	Basalt	57.14 percent
Basalt	51.38 percent	Quartzite	37.16 percent
Quartzite	33.33 percent	Felsite	None
Felsite	12.50 percent	Chalcedony	4.76 percent
		Other	0.94 percent

In both flake and tool categories basalt was the predominant material utilized, followed by quartzite (the quartzitic tools are primarily manos and choppers). Interestingly, no felsitic tools were located but several flakes were found which had been produced from a small felsite core. It may be that an expended core introduced by the San Dieguito occupants of the site was used for the production of these flakes, but the core may not have been large enough for the production of tools.

Level II

(10-20 cm. controlled level; 14-18 cm. cultural level)

The artifact inventory for Level II is very similar to Level I, although there is evidence of a significant increase in stone knapping in this level. Twenty-two cores were recovered from this level, 292 flakes, and 417 pieces of debitage, along with four hammerstones. This indicates that considerable manufacturing of flakes and tools occurred during the cultural occupation of this level of Site A.

The inventory of tools significantly increases over that of Level I (see Figures 28, 29, and 30), implying that the occupational duration was much more intense (more people) or occurred over a greater period of time than the previous occupation. The distribution of artifactual materials seems to indicate that the occupation time increased rather than the number of persons involved because only two hearths were located at this level, in comparison to 825 pieces of lithic debris.

Nearly all categories of tools located at Site A appeared in the inventory of tools in this level (with the exception of the more rare and diagnostic types).

Level II Artifactual Materials

Item	Number
Ceramic fragments	7
Metates	1
Manos	11
Cores	22
Primary flakes	292
Debitage	419
Blades	1
Choppers	3
Chopping tools	3
Endscrapers	5
Gravers	1
Hammerstones	4
Projectile points	1
Pushplanes	13
Knives (typological)	1
Knives (naturally backed)	1
Projectile points	2
Pushplanes	9
Sidescrapers	23
Teshoa flakes	1
Utilized flakes	27
Preforms	1
Shell tools	1
Total Lithics	825

Although this is not the top of the shell midden (the midden occurs at approximately 20-80 centimeters of depth), a few shells were found in and around the living surfaces of the site. During this occupation plants and stones seem to be the major exploited resources.

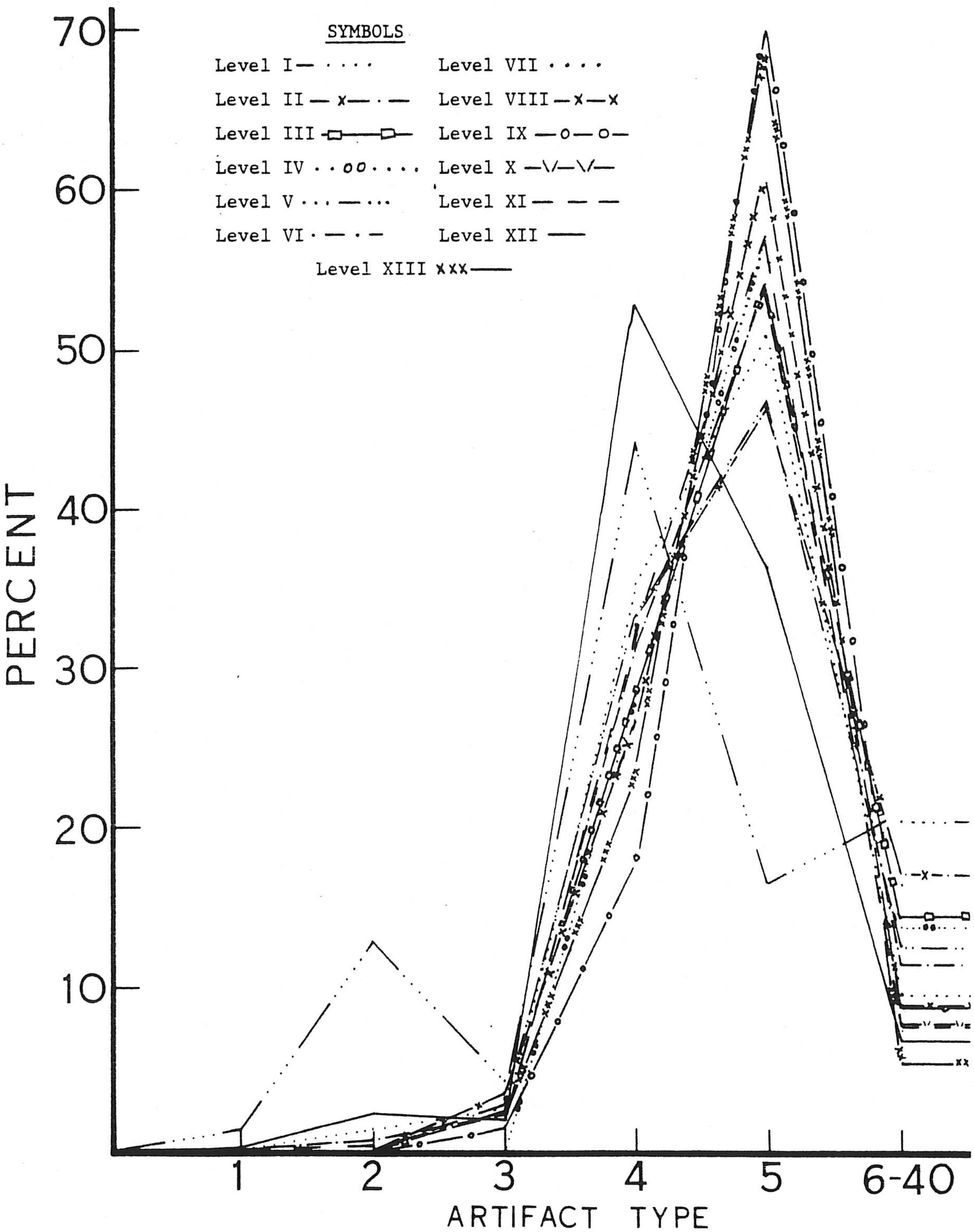


Figure 28. Superimposition of cumulative graphs showing percentages of the forty artifact classes within the thirteen levels at Rancho Park North, Site A.

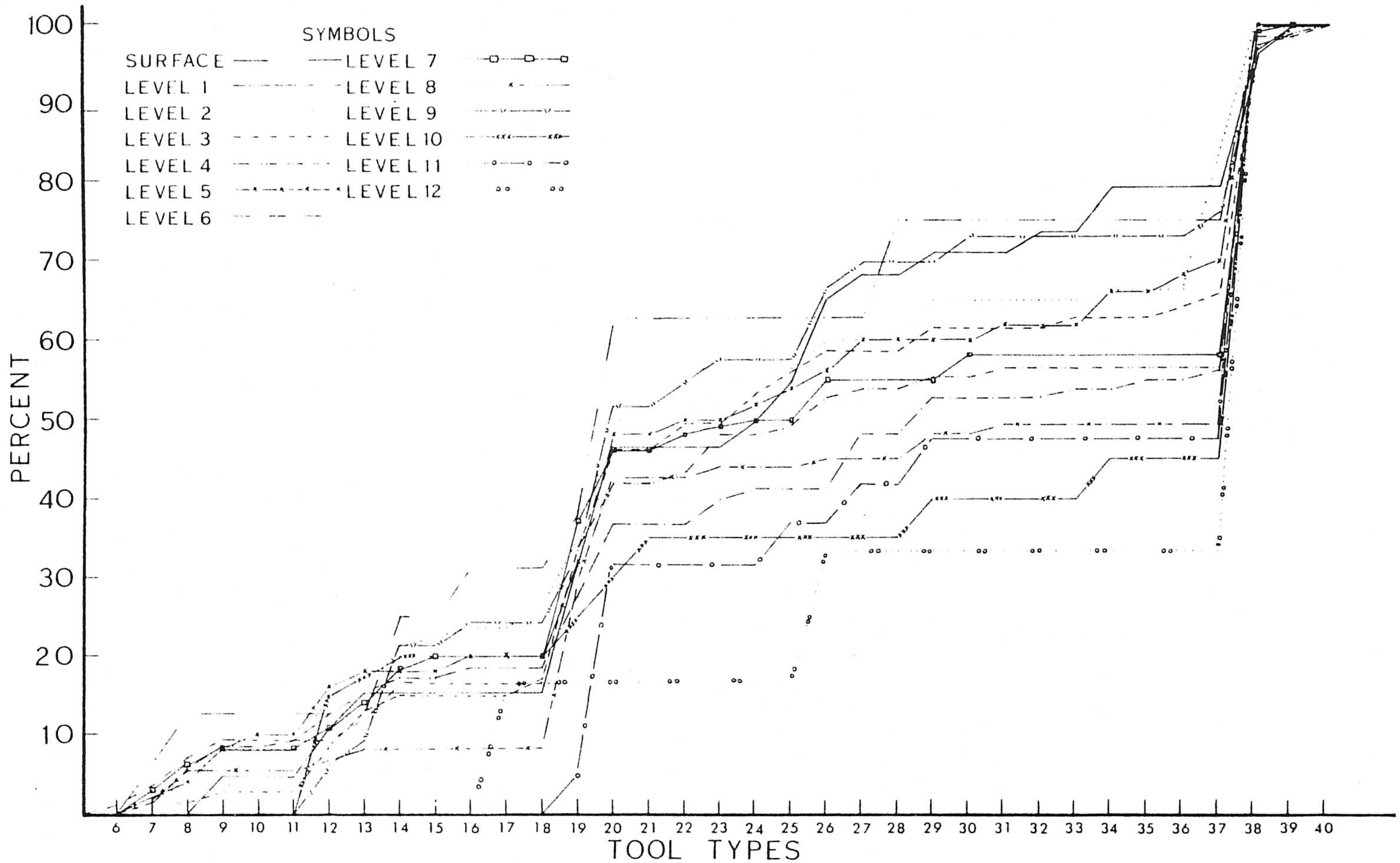


Figure 29. Cumulative percentage of tool types (Types 6-40) at Rancho Park North, Site A by level.

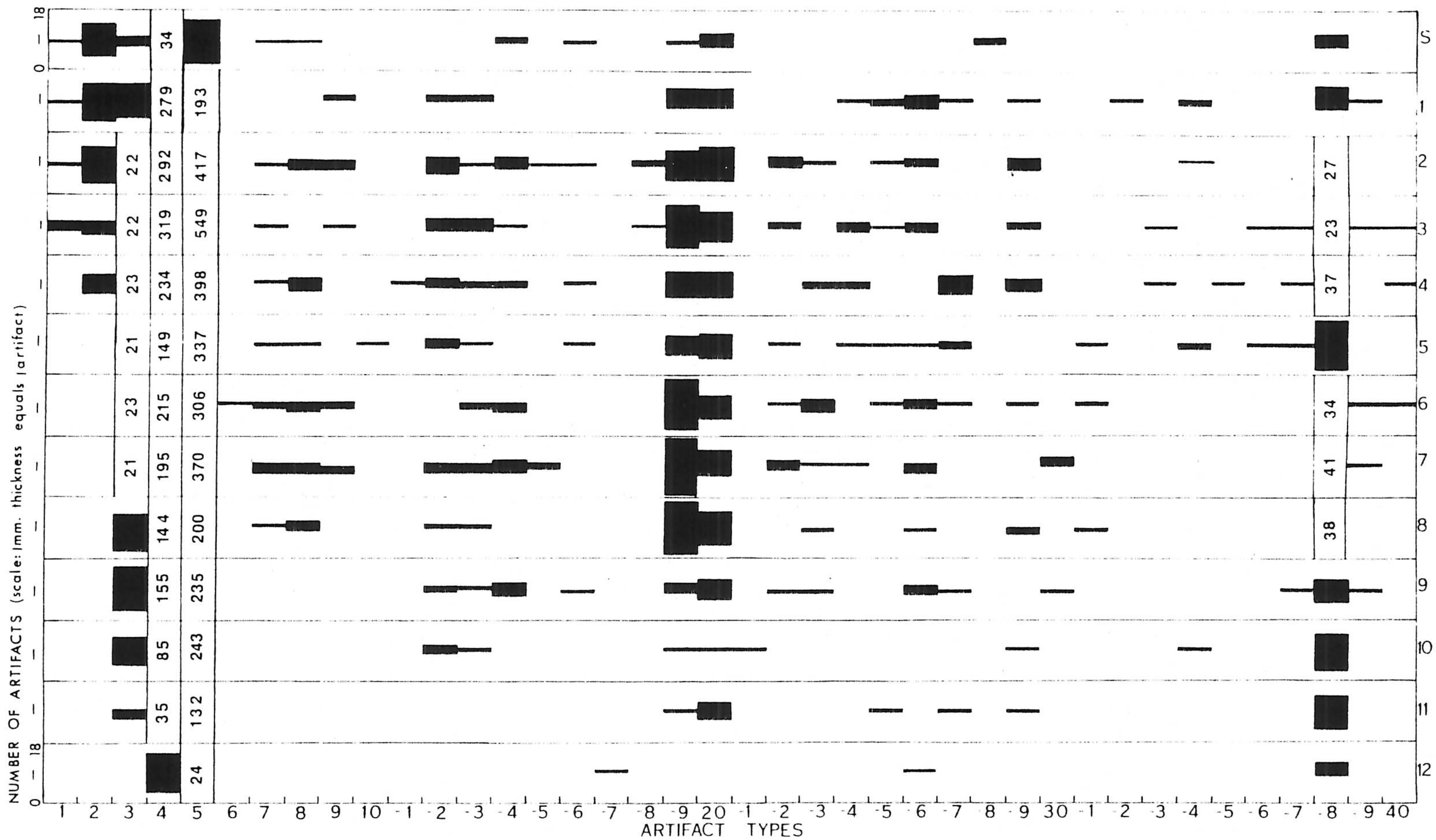


Figure 30. Horizontal bar graph of artifact distribution at Rancho Park North, Site A, by level.

Locus I. (Figure 31). The occupation at Locus I was abbreviated. Although the distribution of fire-cracked rock indicates that cooking hearths were located here, they were evidently accidentally or deliberately scattered by the former inhabitants of the site. The hearth which has been designated as Feature 2 in the previous level may belong to this accumulation of debris, but this is unlikely since the major concentration of rocks does not occur in unit F-8 but is located in F-3 and C-23.

The major activity area during this occupation was located in units C-23, C-24, C-25, and F-3, all of which contained a significate amount of tools and thermally-fractured rocks. Several choppers are located in units C-23 and C-24, indicating that a processing activity occurred in this area. With the addition of pushplanes, endscrapers, and sidescrapers, it can be inferred that the western portion of Locus I was used for the processing of plant or animal substances.

A scattering of thermally-fractured rock occurs randomly in units C-25, F-4, and D-21, but very few tools were found in this vicinity. A scattering of flakes and a few pieces of debitage indicate that some artifact manufacturing may have been conducted in this area, but it was probably only minor since no cores were recovered along with the flakes and debitage. Some osteological material was also located here, indicating that secondary butchering might have occurred, but no large portions of any animal were located, precluding the utilization of the area for primary butchering.

One ceramic sherd, San Diego Brown I in morphology, was located in unit C-24. This may have been a redeposited sherd from Level I, since the major area of ceramics appear in this vicinity of the site.

Locus II. (10-20 cm. subsurface; 14-18 cm. subsurface living floor; Figure 32). Figure 32 represents the major plotting of artifactual material which occurred throughout this area of the site at a concentrated depth of 14-18 centimeters. As can be seen in the map, this living area represents a major occupational horizon at Locus II.

This area is above the shell lens which began intensive development at 30 centimeters. Due to the proliferation of debitage, flakes, manos, and the scattering of potsherds we feel that a temporary campsite was located in this area after the year 1000 A.D. by the Northern Kumeyaay peoples. A radiocarbon date of 710 B.P. (UCLJ-3159) substantiates this.

Although most of the rocks plotted were thermally-fractured, only one discernible hearth was found in Locus II at this level. This is Feature 4, an elementary hearth (see Figure 32) which was located in the southeast corner of unit J-14, the southwest corner of unit J-15, the northern portion

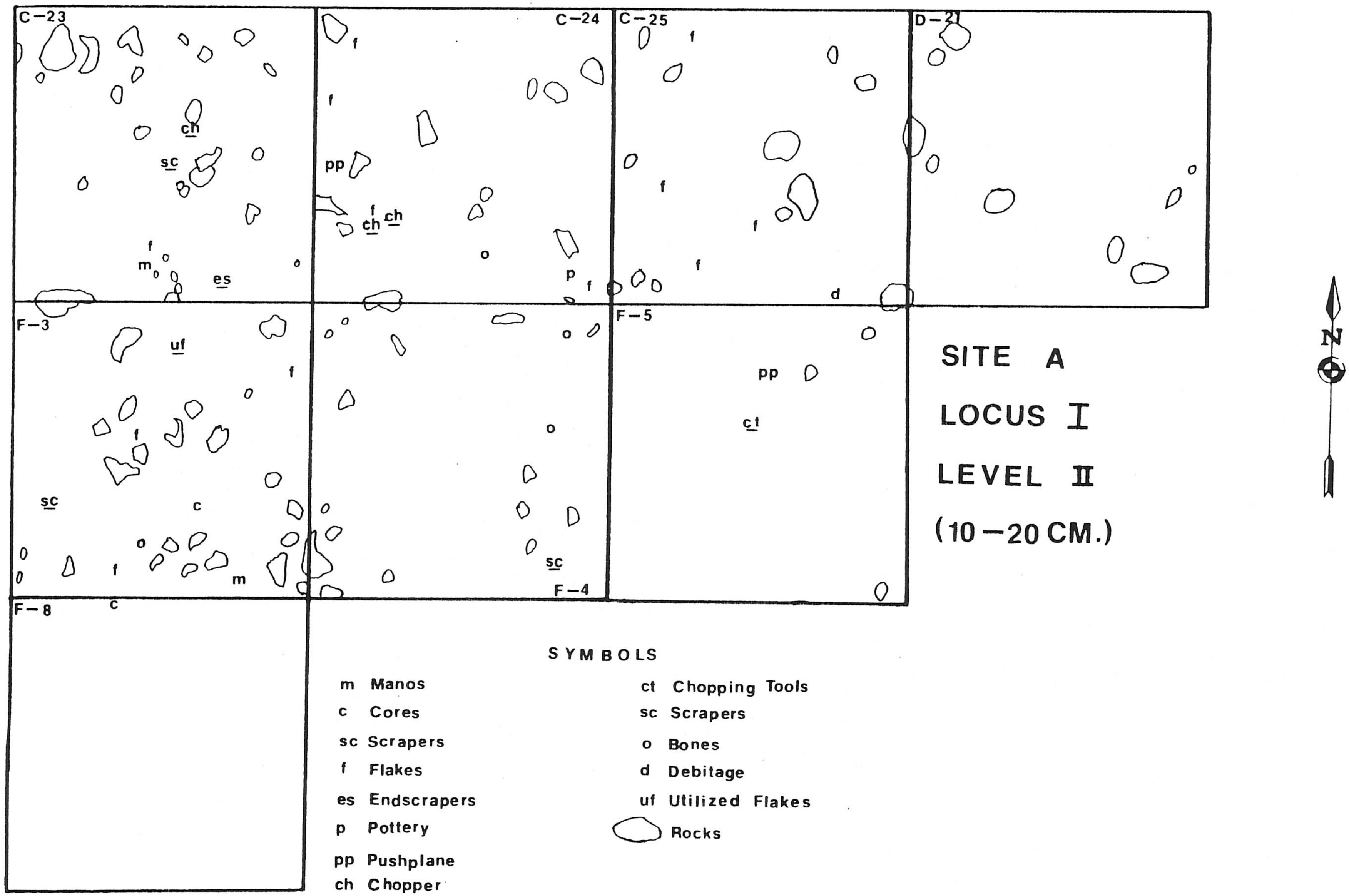


Figure 31. Artifacts recovered during the excavation of Locus I, Level II, at Rancho Park North. (Scale 5 cm. = 1 meter.)

Figure 31. Artifacts recovered during the excavation of Locus I, Level II, at Rancho Park North. (Scale 5 cm. = 1 meter.)

of unit J-19, and the northwestern corner of unit J-20. Surrounding the hearth to the west were significant clusters of flakes and tools. To the east several scrapers, utilized flakes and maintenance type tools were located. Several cores were found in the southeast corner of unit J-8, indicating a living area. The hearth was approximately 70 centimeters across in both directions, and was composed of a cluster of approximately 40 thermally-fractured river cobbles--primarily quartzite in composition. One scraper was found in the northwestern edge of the hearth. It may be that all of the thermally-fractured rocks were portions of the same hearth, utilized over an extended period of time, but this does not seem to be correct since there is no accumulation of ash in Feature 4.

Feature 5 is a small pile of thermally-fractured quartzitic rocks and sandstone. This feature was first encountered at 11 centimeters subsurface and it extended to 18 centimeters of depth. It was approximately 40 centimeters by 45 centimeters in diameter (Figure 32) and was located in the southern portion of unit I-15 and the northern periphery of unit I-20. Surrounding the feature to the north was a concentration of debitage, cores and flakes indicating that manufacturing of artifacts occurred in this area of the site.

Unit I-9 had a clustering of cores, flakes, one pushplane, and a single ceramic fragment, suggesting that this area also contained a concentration of activities. The two scrapers in unit I-14 and the two scrapers in unit I-13 indicate that some type of animal or plant processing occurred here.

Several manos and one metate fragment were located throughout this level. Since manos were employed in the processing of plant foods, it is suggested that plant foods (probably seeds) were processed by the occupants of this locus.

Two side-notched milky-white quartz projectile points were located in this level. One was located during screening from unit I-18, the other was located in situ in unit J-5. These side-notched projectile points suggest that this level contained material from the Late Milling Stone Horizon of Southern California (Meighan 1954).

The nine pushplanes indicate that the site was utilized during this level for the exploitation of plant resources, and not estuarine or marine resources, since only a limited amount of shell was recovered (see Figure 7) in comparison to that found in the levels of the site.

A major reason for this discrete utilization of the site was its proximity to the basalt quarry mentioned during the discussion of Level I. The lithology of the artifacts in this level is as follows:

Flakes		Tools	
Quartz	3.31 percent	Quartz	2.12 percent
Quartzite	49.72 percent	Quartzite	47.21 percent
Basalt	44.19 percent	Basalt	47.94 percent
Felsite	2.76 percent	Felsite	2.73 percent

The basaltic material was found in almost the same proportion to the quartzitic materials, suggesting that the basalt quarry and the outcrops of quartzite cobbles found along San Elijo Lagoon, and the surrounding water courses, such as Encinitas Creek, were also exploited.

The felsite may represent the re-utilization of earlier placed artifacts which were found lying upon the surface of the site at the time of this occupation, rather than the exploitation of felsitic materials from either a quarry site or a cobble bed by the Milling Archaic peoples.

From all available evidence it appears as though the Level II occupation of Site A was conducted by the same people as in Level I, at a different time period, either a few years or a few hundred years earlier. Because of the enormous concentration of rocks and tools, we suggest that this occupation was repetitive and may have taken place annually, over a long period, probably by the Kumeyaay peoples. No ceramic evidence was found to suggest that the Luiseno utilized Site A during this time period.

Level III

(20-30 cm. controlled level; 26-29 cm. cultural level)

This level seems to represent an assemblage of non-ceramic materials. Although this was not an explicitly defined La Jolla Complex level, the commencement of the shell layer and the preponderance of the La Jolla style implements suggest that the major portion of the artifacts are representative of the La Jolla Complex.

The tool inventory substantiates this hypothesis, as only one ceramic fragment was located at this depth, and it was most likely displaced by rodent activity. The sherd was not located in situ, but was recovered during the screening of backdirt.

The most numerous count of metates occur in this level, with three fragments being located in the 20-30 centimeter level (only one was located within the cultural level--Figures 33 and 34). Manos were still prevalent but not to such an extent as during the upper few levels of the site. There was also no increase in cores (but actually an increase in debitage, indicating that a significant amount of implement manufacturing was taking place during this habitational period).

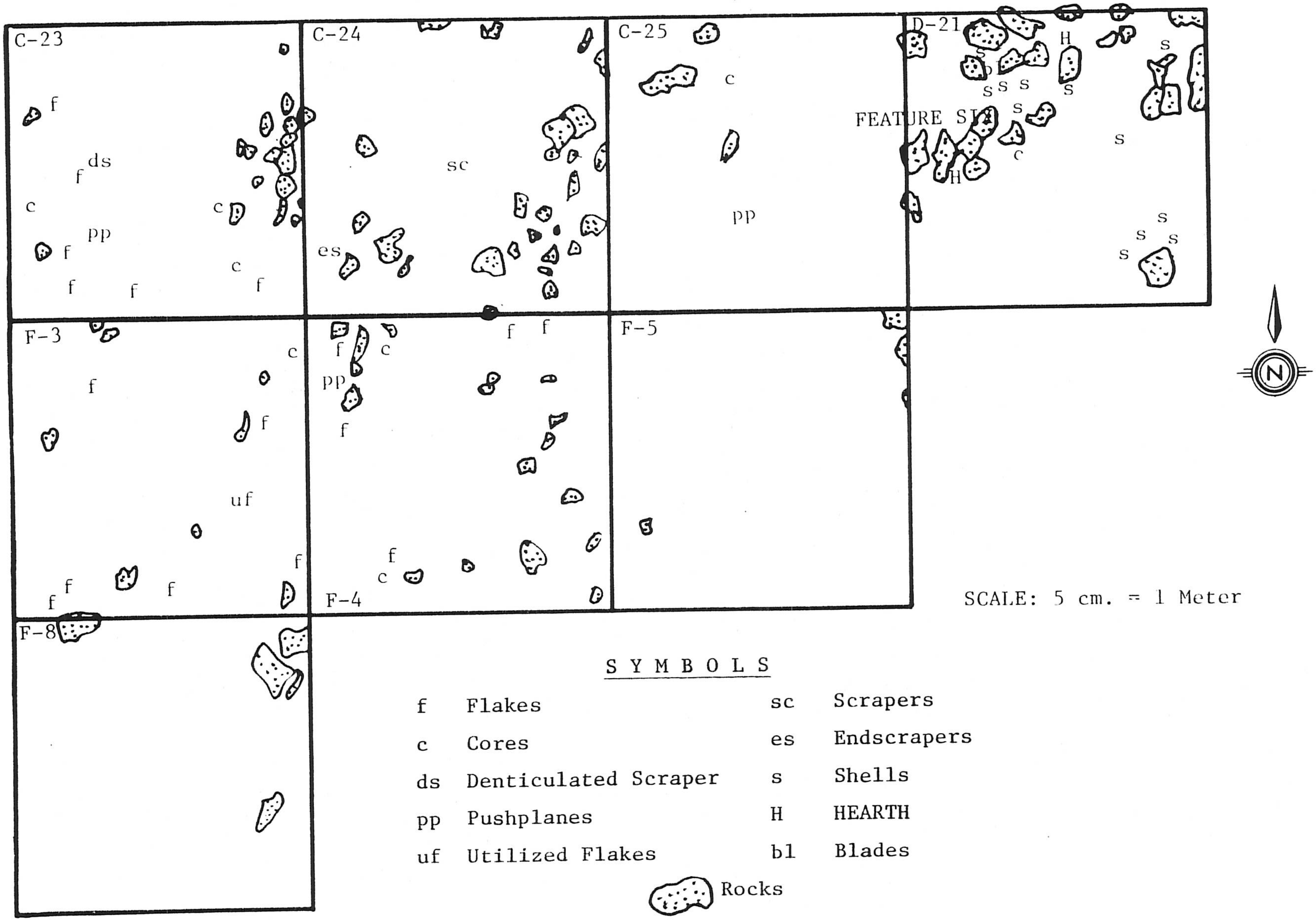


Figure 33. Plotted artifacts from Site A, Locus I, Level III at Rancho Park North.

This level contained the highest percentage of flakes, tools, and lithic implements in comparison to shell count, and therefore seems to represent a major occupational plateau (Figure 7).

The extensive scatterings of thermally-fractured rocks and quartzitic cobbles indicate that the occupation was very intense, and perhaps over a period of several weeks each year. A very well-defined hearth was located here, from which ash was preserved for a radiocarbon sample. The date will be discussed in the Interpretation section of the thesis.

Level III Artifactual Materials

Item	Number
Ceramics	1
Metates	3
Manos	4
Cores	22
Primary flakes	319
Debitage	549
Blades	1
Chopping tools	1
Endscrapers	4
Gravers	4
Hammerstones	1
Projectile points	1
Pushplanes	13
Scrapers	22
Teshoa flakes	1
Miscellaneous retouched flake	1
Utilized flakes	23
Flakes with a thinned base	1
Miscellaneous tools	2
Total Lithic Materials	971

The distribution of types of lithic material was significant at this level. A majority of the tools and flakes was manufactured from the local aphanitic basalt. This is illustrated as follows:

Flakes		Tools	
Quartzite	44.44 percent	Quartzite	38.40 percent
Basalt	41.85 percent	Basalt	57.71 percent
Felsite	0.00 percent	Felsite	1.28 percent
Other	3.70 percent	Other	2.56 percent

No felsite flakes were located in this level, but several felsite tools were recovered, indicating that the working of the tools had occurred either deeper at the same site, or elsewhere. The much higher frequencies of the flakes of basalt and quartzite indicate manufacturing occurred at this locus during occupation of this level. Although nearly equal in frequency, a higher percentage of basalt flakes became tools than did quartzite flakes; this is understandable since basalt would have been preferred over quartzite because of the predictability of its conchoidal properties.

Locus I (Figure 33). This locus of activity appeared to represent a definite La Jolla Complex occupation. The area of the most intensive utilization was concentrated in units C-23, F-3, C-24, F-4, and D-21, with the most tools being located in units C-23 and C-24.

The thermally-fractured rocks and river cobbles located through the western portion of the locus may represent portions of an eroded fire hearth, but no ash or other remains confirm this suggestion. This seems to have been an area of plant or animal food processing. The endscraper, pushplanes, and sidescraper suggest this to be more than just a possibility. A scattering of flakes and cores further suggests that tool making was concentrated in this area of Locus I.

Feature 6 was located in unit D-21 during the five percent archaeological sample. It forms a pattern with the other material from the same locus. This was an elementary fire hearth approximately 80 centimeters by 60 centimeters in dimension. This hearth contained no ash, probably due to erosion, but it did contain evidence of shellfish exploitation. Several shellfish (Chione sp.) were located within the hearth and around the periphery of the hearth, suggesting that this area was utilized for either the steaming or the cooking of clams. The hearth was further used for the heat-treating of a beautiful bifacially-worked Lake Mojave style (Warren 1975), percussion-flaked, basalt blade (Figure 17) which was located in the central area of the hearth at a depth of 28 centimeters below the surface (see Crabtree and Butler 1964 for a discussion on heat treating of artifacts). The blade may have been used for prying open the Chione sp. shell located near the hearth, since it has a considerable amount of chipping on one lateral edge. Although it was originally speculated that the blade was San Dieguito in morphology, it is not illustrated by Rogers (1966), True (1966), or Davis, Brott, and Weide (1969).

Locus II (Figure 34). The major occupation material appears in Locus II at approximately 26-29 centimeters subsurface. Many pushplanes, scrapers, heavy processing tools such as choppers and chopping tools, and utilized flakes were found in this area. The significant amount of debitage in unit I-15, and the flakes in unit K-17, seem to represent areas of stone-knapping activities.

Although the many hundreds of thermally-fractured rocks may represent several previous occupations or a major occupation of the site, only two discernible hearths were found in Locus II. In neither were there any remains of shellfish, as occurred in Feature 6 in Locus I.

Feature 7 was a well-defined elementary hearth located in the southeast section of unit J-6, the southwest corner of J-7, the northeast corner of J-11, and in the northwest corner of unit J-12. The hearth was approximately 40 centimeters in its north-south alignment and 45 centimeters in its east-west dimensions. It is possible that it was larger at one time since several other thermally-fractured rocks are located in the surrounding units. Approximately 850 grams of ash were recovered from this hearth.

Surrounding Feature 7 were found a series of tools, flakes, and pieces of debitage, indicating that work activities were probably conducted surrounding this camp fire. Two hammerstones in unit J-6 and one core in J-6 and another core in J-1 suggest that a major activity around the hearth was the knapping of flakes from cores.

To the east of Feature 7, in unit J-14, another hearth, designated as Feature 8, was located. This hearth was somewhat smaller than Feature 7 and only contained a trace of ash, suggesting either that the hearth was exposed to the elements for a longer period of time than Feature 7, or the residual buildup was not as concentrated, so the ash was quickly dissipated. The dimensions of Feature 8 were approximately 35 centimeters by 32 centimeters. Surrounding the hearth, in the adjacent units, were several flakes, and a few tools, but there was no intense concentration of material such as that which existed in the area around Feature 7. This suggests that only minimal work was conducted around Feature 8, perhaps indicating that Feature 7 was used over a prolonged period of time, while Feature 8 may have been used only once or twice.

Concentrations of tools appeared in the extreme western units of the site. Three cores, two flakes and one unidentified bone fragment were located in unit I-12, along with two scrapers and two cores discovered in unit I-13. All of this material may have been associated with the rock concentrations in units I-14 and I-9, since scrapers and cores were also located with them. Although many of the larger rocks were not thermally-fractured, but appeared to have been introduced quartzite river cobble fragments, there appeared to be no rock alignment visible to suggest a definitive placement of the rocks. These may represent eroded hearth features or perhaps they are some type of a foundation for a temporary habitational feature, as was suggested at Cardiff-Sea-Village by May (1974a).

It seems as though this level is definitively representative of the La Jolla Complex as it appeared in and around the coast of San Diego County. The dependence upon shellfish begins in this level and does not terminate until the basal levels of the deposit. The predominantly sought after mollusc was the Chione sp. which accounts for 65 percent of the total shellfish remains (see Table 2), followed by the exploitation of pecten which comprises 29 percent of the shellfish.

The rockyshore molluscs such as oysters accounted for only 1.5 percent of the total shellfish remains in this level, while mussels, limpet, and miscellaneous shell constituted the remaining 4.5 percent of the midden encountered in this arbitrary (20-30 centimeter) level.

It appears that the predominant activity which occurred during this cultural occupation of the site can be divided into two categories, artifact manufacturing and food processing (plant, animal, and shellfish foods).

Level IV

(30-40 cm.; 36-42 cm. cultural level)

This is the base of the La Jolla component at Site A. As indicated in Figure 7, the shell concentration tapers off considerable. This coincides with the decrease in the number of artifacts recovered (749). Although the weight of shells was less than that in Level III (see Table 1), Chione sp. is still the predominant mollusc represented. It appears as 49 percent of the total shell population. This is followed by pecten, which occurs in 41.25 percent of the sample, and oyster, which composes 3.49 percent of all shell recovered from this level. Miscellaneous shellfish such as the jackknife clam, mussels, limpet, the razor clam, and barnacles comprise the remainder of the 6.28 percent of shellfish.

In calculating the division of the depth of cultural deposit in this level, two distinct criteria have been used. The first is the arbitrary (10-centimeter) levels which we retained in calculating the distribution of artifact materials for Table 5. The second criterion was the cultural level, which we located at approximately 36-42 centimeters. Although the columnar totals do not agree with the cultural level, it is nonetheless felt that this transition of levels occurred prehistorically; therefore, by only plotting the major occupational stratum (which begins at 36 centimeters), a living surface has been identified. The level from 42-52 centimeters, or Level V arbitrarily, has been plotted on the Level V cultural level map and will be discussed during the next section of this monograph. Radiocarbon dating as presented in the next section verified this occurrence.

Level IV Artifactual Material

Item	Number
Manos	6
Cores	23
Primary flakes	234
Debitage	398
Blades	1
Choppers	4
Chopping tools	2
Crescentic	1
Endscraper	3
Gravers	2

Level IV Artifactual Material (Continued)

Item	Number
Hammerstones	2
Naturally backed knives	1
Pushplanes	8
Sidescrapers	24
Miscellaneous retouched	1
flakes	1
Utilized flakes	37
Miscellaneous tools	1
Bone tool	1
Total Lithics	749

This is also the terminal level for grinding implements. Six manos were present here, but no metates were excavated in situ from Level IV. Interestingly, a climatic fluctuation may have occurred during this time period since the pollen record indicates that Quercus sp. (oak) has been replaced by an equally significant amount by Pinus sp. (pine). This further indicates that an environmental readaptation occurred coterminous with the advent of the Altithermal (Moriarty 1967). The reduction in the number of tools, particularly apparent in the pushplane and ovate sidescraper categories, might be explained by differential resource exploitation. Level V further supports this contention because there is an even greater decline in the total number of tools and in the number of tool types here. Tool types may be multi-purpose but they generally indicate differential ecological adaptation, and may be functionally significant. This decrease in the utilization of the site may also serve as an explanation for the decline of the amount of shellfish used, but since this decline coincides with the decrease in tools, it is most probable that the site was not occupied as greatly during this period of time.

Locus I (Figure 35). All tools, flakes, debitage, and thermally-fractured rocks were plotted on the subsurface map for Level IV because they seem to reflect either one single occupation, or a continuation of the inhabitation reflected in Level III. Only a few units were archaeologically productive. The rodent burrow reflected in unit F-3 has caused soil disturbance and it has displaced some of the underlying yellow Torrey Sandstone into the floor of the unit.

Feature 9, a small elementary hearth, was located in the northeast corner of unit D-21. This hearth may be a continuation of Feature 6, which was located in the northwest corner of unit D-21 in Level III. If this is true, then Feature 9 represented a much larger, expanded cooking hearth because several Chione sp. clam shells were located within the hearth. It appears that the clams may have been steamed or cooked here, much as appears to have been the suggested activity in Feature 6 and Feature 7. Feature 9 is approximately 35 centimeters on an east-west axis, and 30 cemtimeters in its north-south alignment. It is composed of six large quartzite cobbles and one smaller sandstone cobble. These rocks were most likely introduced to the site from an area in the vicinity of Encinitas Creek.

The major center of activity was located in units C-23 and C-24. The predominant remains of cultural activity appear to be debitage, flakes, and cores, although several sidescrapers were also located *in situ*, suggesting that the working of animal or plant foods may also have taken place in this area, along with the manufacturing of tools.

The rodent burrow running between Feature A and unit F-3 has introduced human osteological fragments to this locus from Feature A, approximately two meters to the west (see Figure 36). One human molar (RA-F3-4-33) and one cranial fragment (RA-F3-4-32) were found near the vicinity of the rodent burrow. The burrow was traced directly to Feature A, across the trench and underneath the secondarily placed skull (see Figure 4).

Units F-5 and F-8 reached sterile soil during this level of excavation.

Locus II (Figure 36). The living floor of Locus II was located at an approximate subsurface depth of 36-42 centimeters This level was highly productive archaeologically, since subsurface patterns of cultural activity can be readily discerned. A major concentration of activity occurred throughout the locus, but intensive remains were located in units J-15, J-20, K-11, and K-16. This floor appeared to be both a living area and a workshop since evidence from debitage, cores, flakes, and tools (including pushplanes and choppers) provided us with data from which we inferred that maintenance activities occurred in this vicinity. The three well-defined hearths imply that these hearths were used for cooking, or perhaps compfires around which tool-making activities were conducted.

Feature 10 is a very well-defined elementary fire hearth located in the southwest corner of unit J-15, approximately 60 centimeters in north-south alignment, and 40 centimeters in its east-west diameter. Minute fragments of ash were located throughout the hearth, but not enough was recovered to allow for a radiometric date. The hearth was composed of approximately 35 broken quartzitic cobbles which appear to have been either eroded inward, or perhaps they were pushed inward by the occupants of the site. To the east of this hearth a series of utilized flakes, hammerstones, and cores were located (Figure 36) suggesting that this tool-making was carried on around the hearth.

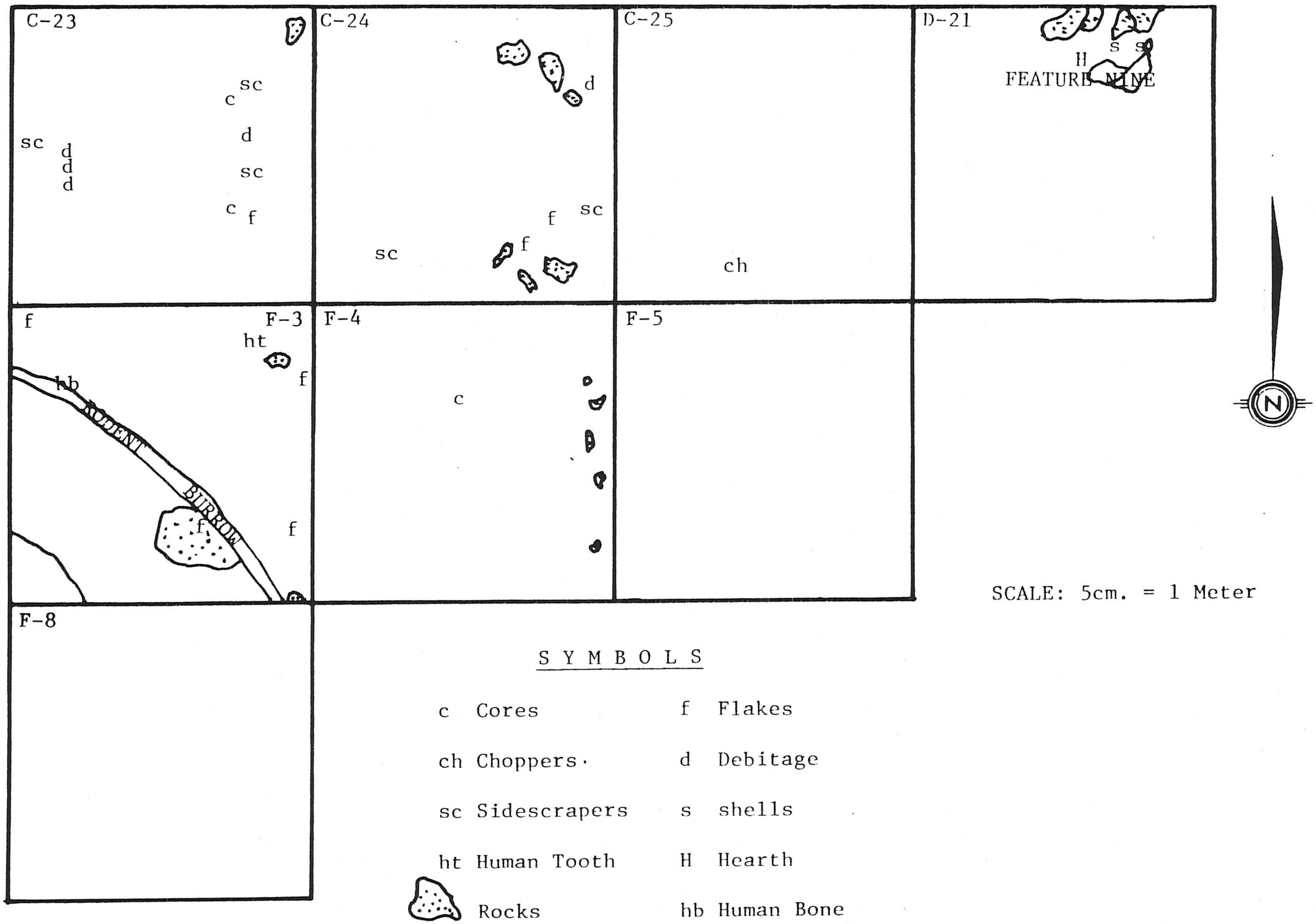


Figure 35. Plotted artifacts from Site A, Locus I, Level IV at Rancho Park North.

Figure 35. Plotted artifacts from Site A, Locus I, Level IV at Rancho Park North.

Feature 11 was another smaller, more circular elementary fire hearth, located in the northwest corner of unit K-11. Its dimensions were 40 centimeters in its north-south alignment, and approximately 39 centimeters in its east-west alignment. This hearth was composed of 11 large cobbles (all thermally-fractured). In the center of the hearth we located one mano and one fragment of debitage. To the east of this hearth we recovered two additional manos, two pushplanes, one chopper, and several cores and flakes, indicating that, in addition to maintenance activities as suggested by the pushplanes and choppers, food processing can also be implied since manos are employed for the grinding of seed and other plant foods.

The third feature is another hearth, located in unit K-16. This is Feature 12, which is also an elementary fire hearth approximately 40 centimeters in all directions. As is true with Feature 11, the hearth was surrounded by a series of manos for food processing, cores, and several sidescrapers of various typological identifications. No ash was recovered from this hearth, and no shells were recovered in the hearth itself, but shell was found in abundance throughout the units, and throughout this entire level.

Feature 13 encompassed the entire four square meter block of the units which contain Features 10, 11, and 12. This feature was not recognized during excavation but the subsurface map (Figure 36) indicates that a circular rock alignment approximately 1.7 meters in its north-south diameter and approximately two meters in its east-west alignment contained not only the three hearth features, but also within its periphery 29 tools, 29 flakes, and line pieces of recovered debitage. The major concentration of this material was located within this circular alignment of larger rocks, primarily composed of quartzitic cobbles and large pieces of sandstone.

It is probable that Feature 13 was a major activity area within Level IV. It is certain that the processing of plant foods must have occurred here because of the concentration of manos and pushplanes and scrapers. The manufacturing of lithic implements was also a major activity within Feature 13 because of the numerous flakes and debitage. The processing and cooking of shellfish must have been a primary activity also because of the enormous amount of shell located within these units, and the very high percentage of utilized flakes which were found in the center of the circular alignment. The other rocks in Feature 13 may represent the remainders of old hearths, or perhaps the rocks were purposively placed in this arrangement to sustain a windbreak or as a foundation for a brush shelter. It seems more probable that the rocks were introduced for hearthstones rather than for shelter, in this case because of the pattern of numerous hearths already identified within this feature.

Concentrations of flakes occurred in units J-13, J-12, and J-18. It seems that the most intense knapping was conducted in these three units, since they comprise a total of 50 flakes found <u>in situ</u>.

Units I-12, I-13, and I-18 were very productive, with tools and several flakes dominating the tool assemblage in this vicinity of the site. Several fragments of bone were located in these western units also, indicating that besides plant processing, some butchering was conducted in this section of the site, including at least secondary butchering of deer. Deer fragments were located in units I-20 and J-1, indicating further that the exploitation of plants and animals occurred here, in addition to the exploitation of shellfish.

Interestingly, the bone scoop (see Figure 25, Item E) was located in this level. The function of the scoop is only speculative since it was found near a chopper, deer bone fragments, and several pieces of debitage. It was perhaps used for some type of food processing, but again it may have had only aesthetic significance.

The intensive exploitation of the lithic resources from the nearby basalt dike continued during this occupation of the site. Basalt was the preferred material for both primary flake production and the manufacturing of tools. Several felsitic implements were recovered in this level, indicating that the La Jolla peoples may have either been undergoing a cultural transition, or may have occupied a late San Dieguito campsite and reworked and reused their tools found scattered throughout the shell deposit. The lithology of the artifacts in this level was as follows:

	Flakes
Quartzite	47.05 percent
Basalt	49.41 percent
Felsite	3.52 prrcent

	Tools
Quartzite	35.71 percent
Basalt	44.89 percent
Felsite	8.16 percent
Quartz	5.10 percent
Other	6.14 percent

From all appearances, the tool assemblage suggests that the La Jolla Complex was responsible for the living floor recovered in Locus II. This individual occupation seemed to have occurred for several reasons:

1. for the exploitation of lithic resources,

2. for the exploitation of plant products,

3. the exploitation of animal resources, and

4. for the exploitation of shellfish from the lagoons and rocky shores.

Perhaps more speculative, it seems that the occupation may have also occurred because of the intermittent stream which intersected Quad L, and the constant source of water from nearby Encinitas Creek. The knoll upon which Site A rests would have provided a panorama of all sides of the valley, and it would have afforded ample protection from the wind in any season. Rather than simply a few days of occupation, it seems more probable that the La Jolla people utilized this site rather extensively, perhaps as a permanent village site.

Level V

(40-50 cm. arbitrary level; 47-52 cm. cultural level)

This level was the beginning of the San Dieguito Complex. We use this level as a break-off point from the La Jolla level because it is here that we first encountered an absence of milling stones, and the abundant presence of several convergent (ovate) scrapers, pushplanes, and San Dieguito blades. A temporary low in the shell lens and tools also occurs here. We believe that this is because a transition between the San Deiguito and La Jolla peoples is first manifest in this stratum. This is also substantiated in the radiocarbon record. Figure 7 illustrates the cumulative difference between the shells and the tools in comparison to the other arbitrary levels in Site A.

Although the total weight of shell was less than at any other place in the strata (3,324 grams), a change in dietary adaptation is manifest in the utilization of pecten over all other molluscs. Chione sp. only accounts for 30 percent of the shell, while pecten sp. comprises 67 percent of the shell and oyster, with only 2.50 percent of the total, deviates slightly from its occurrence in Level IV. All other varieties of mollusca comprise a low of only .05 percent of the shell deposit. The reason for this sudden reversal in exploitative patterns is unknown, although it may be that at this time pecten may have been more readily available. It is also possible that pecten may simply have been a preferred culinary specialty.

Locus I (Figure 37) became sterile at this level. Only one scraper was found in situ; the remainder of the lithic materials comprised 10 primary flakes, all of which may have been redeposited from the Level IV material by rodent activity, since unit F-3 bears evidence of a recent rodent intrusion. The remainder of the units in Locus I already had reached the yellow underlying Torrey Sandstone deposit. It seems that Locus I was not utilized for habitation by any earlier residents than the La Jolla Complex inhabitants, while Locus II was utilized by all three groups that occupied and exploited Site A and its environs.

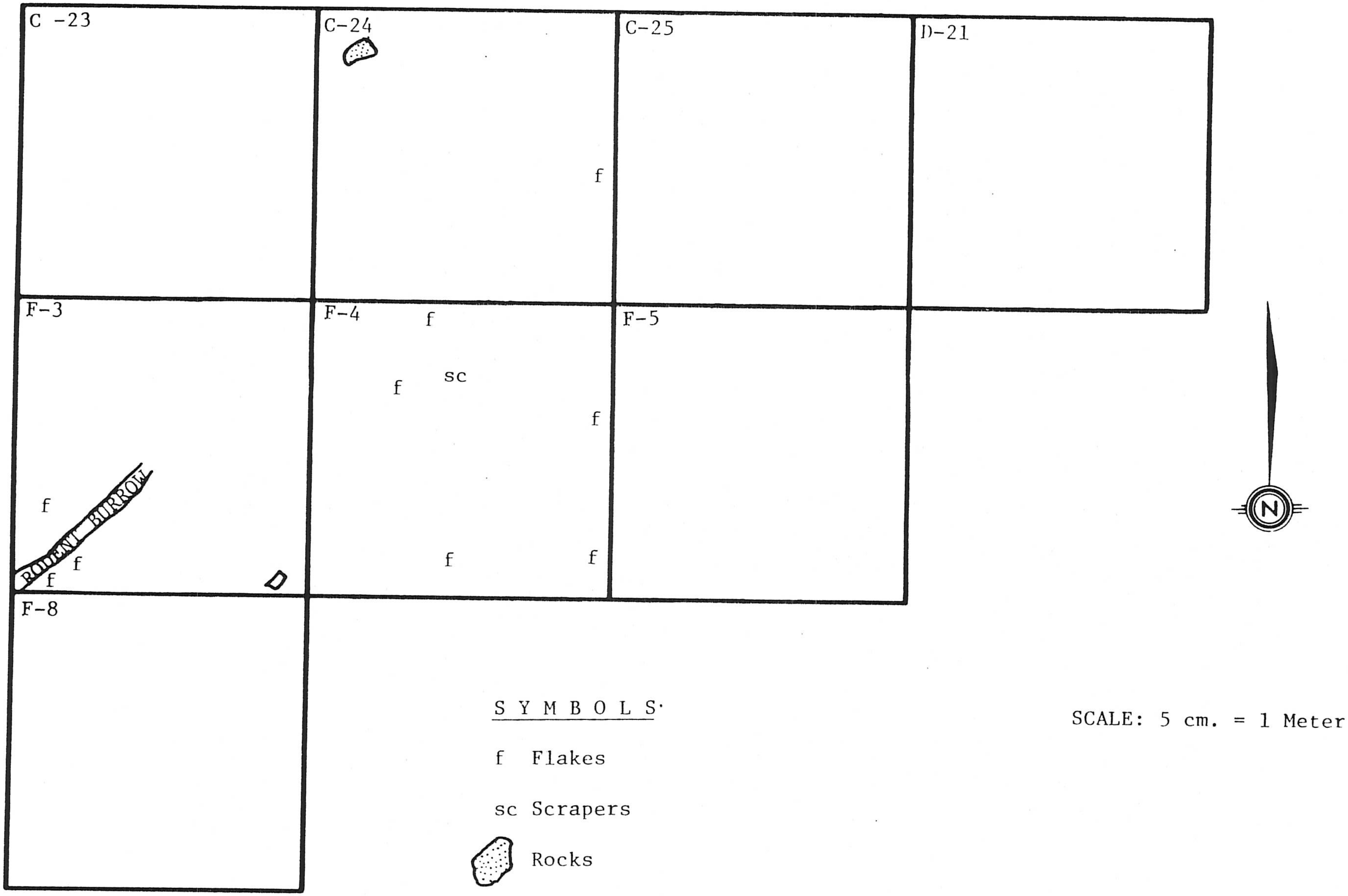


Figure 37. Plotted artifacts from Locus I, Level V at Rancho Park North, Site A.

Figure 37. Plotted artifacts from Locus I, Level V at Rancho Park North, Site A.

Level V Artifactual Material

Item	Number
Cores	21
Primary flakes	149
Debitage	337
Blades	1
Choppers	1
Chopping tools	2
Inverse choppers	1
Endscrapers	3
Gravers	1
Naturally backed knives	1
Pushplanes	6
Sidescrapers	17
Teshoa flakes	1
Utilized flakes	15
Scraper-points	1
Total lithics	558

The list presented above suggests that the manufacturing of stone implements was conducted during this occupational horizon. The study of the types of lithic material suggests that basalt was the most sought after material for the production of tools:

	Flakes	Debitage	Tools
Basalt	50.96 percent	38.06 percent	47.54 percent
Quartzite	48.07 percent	35.61 percent	36.06 percent
Chert	0.96 percent	1.17 percent	3.27 percent
Felsite	---	1.41 percent	8.19 percent
Quartz	---	0.70 percent	1.63 percent

The preference for basalt was followed by quartzite, then by felsite, which does not appear to have been knapped at the site. The debitage is probably the result of reworking the 8.19 percent of felsite tools found at this level. Too minute a percentage to appear in the illustration above, one piece of obsidian debitage was located during the screening of unit J-15. This obsidian fragment represents a small piece detached from a core rather than a flake or a tool. It probably originated in the desert region of the Imperial Valley, perhaps near the Salton Sea (Heizer and Treganza 1944:305).

Locus II (Figure 38). The major concentrations of artifactual material occur between 47 and 52 centimeters, and are located in the eastern and western segments of the locus. The central portion of this locus is generally devoid of any concentration of material. One feature was discerned during the excavation of this level; this is an elementary fire hearth located in units J-14 and J-15.

Feature 14 is a large hearth (or perhaps two smaller adjoining hearths) approximately 100 centimeters in east-west alignment and 80 centimeters in north-south alignment (see Figure 38). A large amount of pecten was located around its perimeter and concentrated in the central portion of the section of the hearth in unit J-14. Ash residue was located on the thermally-fractured rocks surrounding the hearth, but not enough was recovered for a radiocarbon date. Approximately 53 thermally-fractured rocks comprise the structure of the hearth itself. In association with Feature 14, one beautifully serrated blade (Figure 17) was located with a pushplane, two scrapers, and a core in proximity (see Rogers 1966:183 for an illustration of an identical blade.

In the eastern units, K-11, K-12, K-16, and K-17, several pushplanes, scrapers, a chopper, and another beautiful worked blade were recovered, suggesting that this was an area of wood fiber or animal processing. Units J-13, J-14, and J-19 were relatively sterile in artifactual materials but they contained a large amount of shell midden, indicating that this locus was utilized for other than manufacturing activities. These units seem to contain the bulk of the shell refuse for this level.

In the western units, the largest accumulation of material was located in units I-14, I-15, I-19 and I-20. The primary workshop area seems to have been organized in the vicinity of units I-15 and I-19 since cores predominate the assemblage, along with flakes and debitage. Most of the tools were located in Unit I-19.

Unit J-6 had a concentration of flakes and tools, but no debitage or cores were located here, implying that the flakes may have been manufactured in units I-15, I-14, I-18, or I-19 where the cores predominate, and transported to this section of the locus. No cache of flakes was found, but they seem to have been manufactured in this area of the site since it is here that the predominant number of cores was found.

In unit I-15 an olivella bead (Figures 25 and 38) was discovered. This implies that the ornament was probably manufactured during this or an earlier occupation.

Also, in unit J-15, a bone awl tip was found in association with the small cache of scrapers, a blade, and a pushplane, and also in association with the hearth described as Feature 14. If this awl tip is San Dieguito and not a redeposited La Jolla tip, then this is the first instance where it has been found that the San Dieguito utilized sewing and/or basket-making implements.

In the extreme western six units of this locus only a scattering of tools and flakes were located. Some debitage was recovered but no thermally-fractured rocks were located here; all large rocks were sandstone, which seems to have been introduced to the site for use as hearthstones or for some other unspecified reason. No shells were located in this area of the site, and the soil in these western units remained the sandy charcoal gray alluvium as described in the soil profile map.

Material from this level downward becomes more consistently San Dieguito in pattern. The San Dieguito material peaks at between Level VI and Level VII.

Level VI

(59-60 cm.; living floor 56-62 cm.; Figures 39 and 40)

This level is defined in Table 5 as being between 50 and 60 centimeters subsurface. Within this arbitrary level, the deposit of shell (8.700 grams) significantly increased. Chione sp. accounts for 33.45 percent of all shell, pecten for another 58 percent of the shell lens, and oyster accounts for a surprising 6.3 percent of the mollusc deposit. All other types of shellfish combine for a remaining four percent of the total.

The quantity of oyster shell is significant in that it might indicate either that the lagoons were open rocky foreshores or, conversely, the inhabitants of the site traveled to the coast to obtain oysters for dietary supplementation.

The positioning of the shells within Locus II was primarily confined to the southern units but shell did occur throughout the locus. A scattering of shells even appeared in the extreme western units--their first, and only appearance there.

An increase in maintenance tools such as pushplanes, sidescrapers, and utilized flakes can be seen when analyzing Table 5. This rapid increase coincides with the increase in shell deposit (Figure 7) and may indicate an increase in permanent habitation at the site. This level, dated at 8,130±90 B.P., coincides with the earliest advent of San Dieguito occupation known for San Diego County (see Warren 1967).

Level VI Artifactual Material

Item	Number
Cores	23
Primary flakes	215
Debitage	306
Bifaces	1
Blades	2

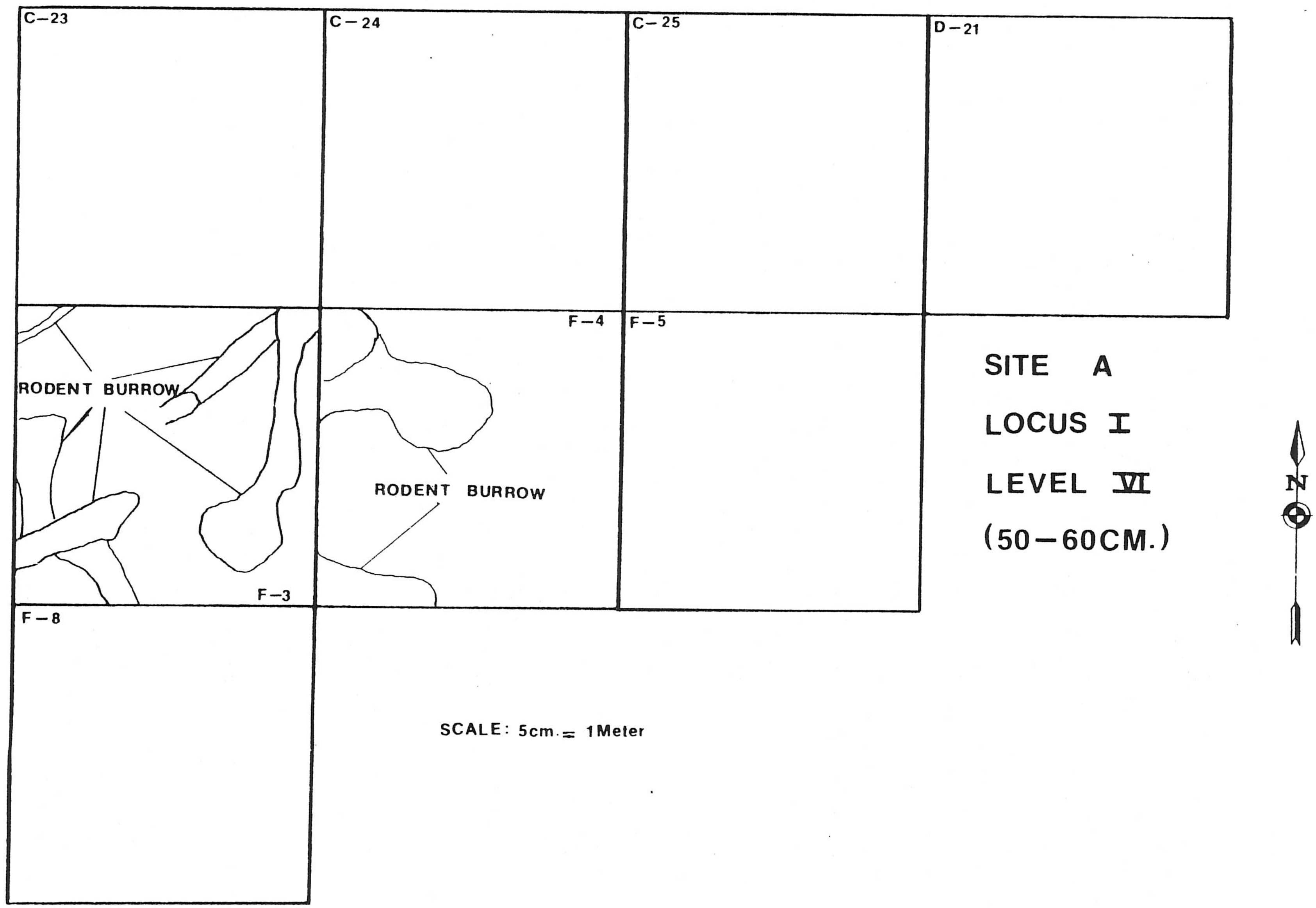


Figure 39. Excavated, sterile floor of Locus I, Level VI at Rancho Park North, Site A.

Level VI Artifactual Material (Continued)

Item	Number
Choppers	1
Chopping tools	1
Gravers	2
Hammerstones	3
Pushplanes	15
Sidescrapers	18
Utilized flakes	34
Flakes with a thinned base	1
Preforms	1
Miscellaneous tools	1
Total Lithics	625

Of the above tools, the lithic material was composed of the following:

	Flakes	Debitage	Tools
Quartzite	44.25 percent	30.83 percent	32.65 percent
Basalt	51.14 percent	66.00 percent	45.91 percent
Felsite	2.29 percent	1.97 percent	4.08 percent
Other	1.14 percent	.07 percent	2.04 percent

indicating that the locally available basalt material was extensively used in the production of tools. Quartzitic materials were secondarily favored, followed by the felsitic materials. Felsite was used for primary flaking (the production of flakes) and secondary flaking (the retouching of tools.

Locus II (Figure 40). Three features were located in the western portion of Locus II. All three were elementary fire hearths and may be the basal portions of those uncovered during the excavation of Level V.

Feature 15 occupies the central to northeast portions of unit J-14. Its dimensions are approximately 80 centimeters in its north-south alignment and 60 centimeters in its east-west alignment. In the center of the hearth several pecten shells were located along with one utilized flake and one core. The feature was composed of approximately 22 thermally-fractured quartzitic cobbles and sandstone rocks. To the east of the feature was a concentration of maintenance tools including two pushplanes, two sidescrapers, and one utilized flake (Figure 40). On the perimeter of the feature to the north and to the west, concentrated numbers of scrapers, choppers, pushplanes and flakes were used indicating that heavy-duty activities such as the processing of plant fibers occurred extensively in this area of the site.

Feature 16 was a very small elementary hearth located in the northeast corner of unit K-11. It was only approximately 40 centimeters by 30 centimeters in diameter, and was composed of about 10 thermally-fractured rocks, with ash residue on the basal portions of the rocks. No associated artifacts were located with Feature 16 other than a cache of tools which was recovered from unit K-12. These tools included five utilized flakes, one endscraper, and two cores; two flakes and one piece of debitage were also found.

Feature 17 was also a very small elementary hearth comprised of four quartzite cobbles in unit K-11 and six cobbles in the northeast corner of unit K-16. In north-south alignment the hearth was 40 centimeters, and in east-west alignment it was 30 centimeters. One *Chione* sp. was located near the central portion of the hearth, in proximity to the scraper depicted in Figure 40.

A series of large pieces of sandstone was located in the western portion of the site beginning with unit I-9 and continuing to units I-19 in the south and I-21 and I-11 in the west. These large chunks of sandstone might have been introduced to hold down the basal portions of brush huts, since none of them showed any indication of having been subjected to heat.

In unit I-19 an ovate biface (see Figures 24 and 40), typical of what Rogers described as the southeastern aspect of the San Dieguito tradition (Rogers 1966:162), was located. This biface was manufactured from a yellow-brown "metavolcanic" material typical of the desert area near Truckhaven, Riverside County, California (Ezell 1974). This one artifact indicates that the residents of Site A conducted social intercourse with the peoples of the desert retion; since no flakes or pieces of debitage which belonged to this tool were located at Site A, we must therefore infer that the artifact was manufactured elsewhere and transported to unit I-19.

The western units of the site seem to contain the greatest density of large rocks and tools. Flakes dominated the tool assemblage in the eastern portion of the site. This locus can be divided into two distinct segments:

1. the western portion, containing large sandstone rocks and water worn quartzitic cobbles in conjunction with well defined maintenance activity tools; and

2. the eastern portion of the site, which contained the hearths, waste debris, and some well defined tools used for the processing of animal and plant substances.

Level VII

(60-70 cm.)

This is probably the most significant of all the cultural levels due to its high yield of over 687 artifacts, a significant number of which are pushplanes. This indicates that processing of some substance(s) was taking place during this occupation of the site.

The greatest concentration (12,300 grams) of shell occurred in this level (see Figure 7), of which 36.56 percent were Chione, 56.71 percent were pecten, and 8.33 percent were oyster. Other varieties of mollusca comprise the remaining 2.5 percent of shells. Again, the significant increase in oysters implies ecological overtones. Either the lagoons (San Elijo or Batiquitos) were not free standing water, and therefore contained oyster beds, or the residents of the site extensively exploited the coast some 3.5 miles to the west. It seems more probable that this massive exploitation of shells must have taken place in the lagoons, rather than having been transported from such a distance to the west.

The tool kit is primarily composed of typical San Dieguito artifacts--pushplanes and various types of flake scrapers, and three bifacially worked blades. For a total inventory of tools see Figure 29, Table 5, and below:

Level VII Artifactual Material

Item	Number
Cores	21
Primary flakes	195
Debitage	370
Blades	3
Choppers	3
Chopping tools	2
Endscrapers	3
Gravers	3
Hammerstones	4
Knives (typological)	2
Pushplanes	17
Sidescrapers	21
Utilized flakes	41
Flake with a thinned base	1
Total Lithics	687

The materials utilized for artifact manufacture follow the patterns already implied, with the exception that more exotic materials are manifest in the assemblage in a more significant statistical manner:

	Flakes	Debitage	Tools
Quartzite	27.60 percent	28.83 percent	23.00 percent
Basalt	67.48 percent	64.76 percent	61.06 percent
Chert	0.61 percent	1.22 percent	3.53 percent
Chalcedony	---	0.03 percent	---
Andesite	---	---	7.11 percent
Felsite	---	4.90 percent	5.30 percent

The greatest change is in the decrease in quartzitic tools and flakes and the increase in the percentage of tools, flakes, and debitage manufactured from basalt. The exotic materials such as chert (two colors--red and green) and chalcedony make up a significant proportion of the assemblage. Felsite also increased in usage, but no felsite flakes occur in this level, indicating that the actual knapping of the felsite flakes may have occurred elsewhere, but secondary retouching as evidenced by felsite debitage occurred during this level.

Locus I is shown in Figure 38 as being completely sterile culturally, and therefore excavation of that section of the site was terminated. The rest of our efforts were directed at excavating Locus II.

Locus II is a San Dieguito living floor which began with Feature B in the extreme western units, and terminated with the concentrations of utilized flakes in the extreme eastern units of the site.

Feature B is an accumulation of thermally-fractured rocks, smooth quartzitic river cobbles, sandstone, and tools in in a large 2.5 meter by 2.5 meter concentration (Figure 41). A majority of the rocks in the center of the feature have been placed in introduced clay soil (Berryman 1974), in an attempt to produce what seems to be some type of pavement. The pavement has been interpreted by various local archaeologists, including S. R. Berryman, J. R. Cook, and J. R. Moriarty, as being anything from a burial cairn to the pavement of a hut structure.

Hypothesis I: Burial Cairn. Cairns have been located in La Jolla sites in the vicinity of Site A (Berryman 1973). All were similar in size to this rock pavement with one exception: they all contained human remains, which this did not. Burial cairns have also been located along the full extent of the coast of Southern California (Wallace 1956), but they also contained inhumations.

Feature B contained no human remains. The question then arises that perhaps the burial decomposed. This is highly unlikely since the rocks were placed in clay which had been introduced from a stream bed, placed overlying the sterile yellow sandstone, and then compacted. If a burial had ever been under the rocks at least some of the portions would have been preserved in the clay--the enamel from the teeth, if nothing else.

Instead of a burial location, it seems more probable that this pavement was a living area, and perhaps a working area.

Hypothesis II: Structural Pavement. The concentration of tools in the surrounding area implies that the major

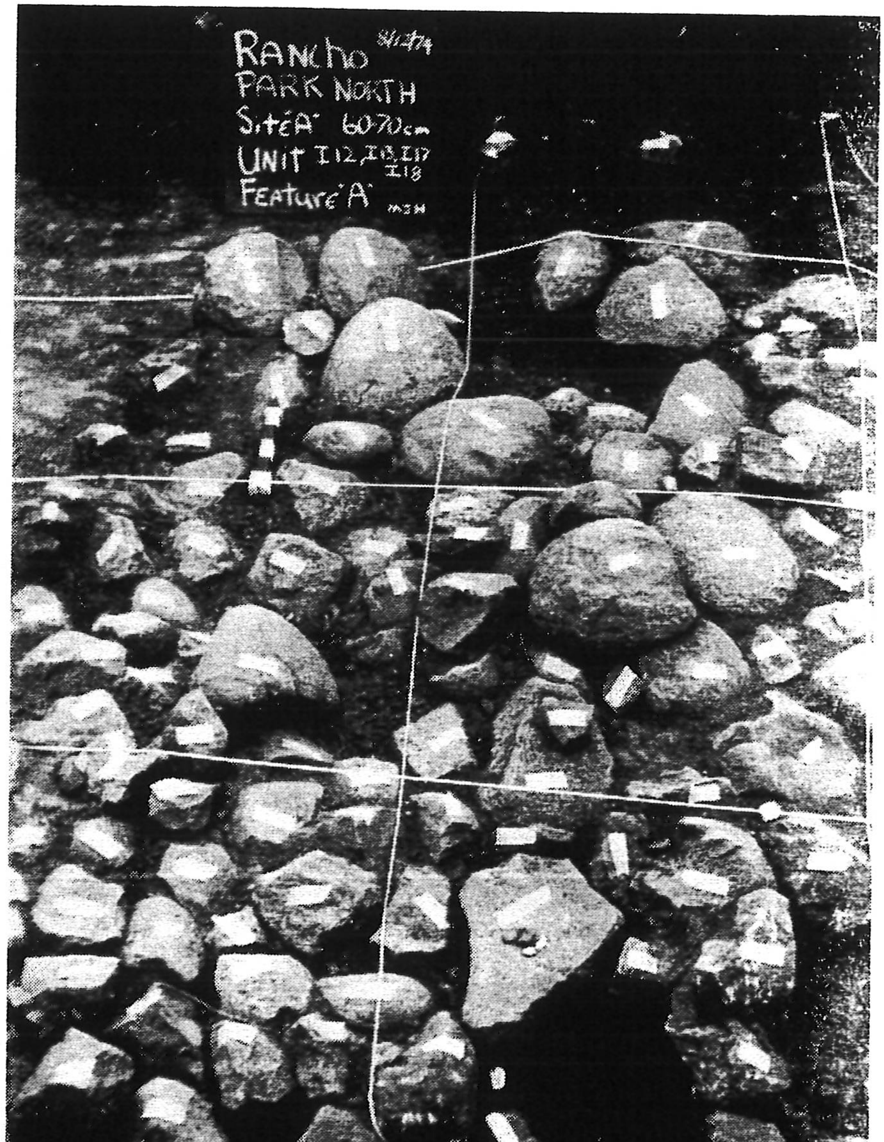


Figure 41. Feature B, a pavement consisting of quartzitic cobbles, thermally-fractured rocks and set into introduced clay. (Note: The radiocarbon date for this pavement is approximately 8,000 years ago.)

cultural activity was the processing of paint or animal foods and the production of tools. Seven cores were located in unit I-22, along with a cache of tools, primarily felsitic scrapers. To the west of the major concentration were located several more scraping tools and a few flakes, but no cores. Two additional cores and several utilized flakes were recovered from the eastern area surrounding the rock pavement.

Further, a bird bone tube (Figure 25) was recovered in unit I-17, in direct association with the rock pavement. Only a few tools and flakes were recovered from the area within the major concentration of rocks. Also noteworthy is that a majority of the rocks were flattish and smoothed by stream action. Furthermore, almost all of these stones lay flattened side up. It is therefore more probable that the stones would have been so highly selected for the comfort of persons who were using the pavement, rather than for the comfort of an individual who may have been buried beneath the structure.

Small fragments of ash were found on the upper surface of and around the perimeter of the feature, indicating that perhaps a brush structure had at one time been placed surrounding the rock pavement. This brush may have been accidentally or intentionally set afire. If this were to have happened, then the ash would have been dispersed by the wind, therefore leaving an insufficient amount for us to collect.

Interestingly, a large piece of intensely burned sandstone was located in the pavement. This may have been placed there after that burning had taken place rather than having been burned near the pavement. This is more probable, since the surrounding pieces of sandstone do not reflect such an action.

It is probable that the pavement served some useful function such as being the floor for a hut structure rather than having served as a burial cairn. Although there are currently no analogues in local ethnology or archaeology to support this hypothesis, we nonetheless feel that it will withstand archaeological tests. Warren and True (1961) indicated a similar structure was located at the Harris site but they offer no explanation for its presence.

Throughout the central portions of the site we located several areas of lithic knapping and probable tool production. The major concentration of shell debris was found in units J-11, J-12, J-13, J-14, J-15, J-16, J-17, J-18, J-19, and J-20. This indicates that the individuals who constructed <u>Feature B</u> probably discarded their waste in the J units. Furthermore, the concentration of utilized flakes in these units indicates that the shellfish might have been processed in this area and cooked or steamed in one of the dispersed firehearths in the northeastern portion of the locus. It is also probable that the hearth described in Level VI is associated with Feature B, and may have been extensively used by the same individual.

Therefore, this level indicates that the San Dieguito inhabitants used the site as a living area, perhaps seasonally, but to expend such concentrated energy as to produce a cemented pavement, they would have probably used the site on a very regular basis. Both primary knapping and the secondary knapping of lithic material occurred during this occupation. A third activity would have been food processing, as is indicated by the huge deposit of shellfish remains. The processing of other animal and plant foods is also suggested by the abundant concentration of pushplanes, scrapers, and utilized flakes (Figure 42).

The inhabitants must have conducted social intercourse with individuals from the desert region of Southern California, since a number of the tools are manufactured from chalcedony and chert, materials which are more readily available to the east.

Level VIII

(70-80 cm. subsurface; 73-79 cm. cultural level; Figure 43)

This level indicates that a decline in occupation had occurred, as can be seen in Table 5 in actual numbers of artifacts present. The comparison between the amount of sehll and the number of artifacts recovered (Figure 7) further indicates that the maximum occupational horizon occurred in Level VII.

The most preferred shellfish was the pecten, represented in 61.44 percent of all total shell, followed by Chione sp. with 29.71 percent, and then by oyster with 6.42 percent of all mollusca (all shell totaled 3,300 grams).

Level VIII Artifactual Material

Item	Number
Cores	11
Primary flakes	144
Debitage	200
Blades	1
Choppers	3
Endscrapers	1
Gravers	1
Pushplanes	16
Sidescrapers	15
Utilized flakes	38
Total Lithics	430

The artifact inventory indicates that only a few types of tools are represented, but in no great numbers as compared to previous levels. The largest number of tools were utilized flakes, followed by pushplanes, then scrapers. These tools follow the same lithic pattern presented in the preceding level:

	Flakes	Debitage	Tools
Quartzite	29.00 percent	29.11 percent	16.21 percent
Basalt	62.00 percent	60.75 percent	70.27 percent
Felsite	2.77 percent	3.16 percent	5.40 percent
Quartz	1.85 percent	1.26 percent	1.35 percent
Chert	---	---	1.35 percent
Andesite	---	---	5.49 percent

Basalt was the most frequently employed material, followed by quartzite, felsite, andesite, chert, and quartz. From the distribution of felsite it seems that several felsite cores may have been knapped during this occupation (2.77 percent of all flakes are felsite compared to 5.40 percent of all tools). Chert appears to have been primarily knapped elsewhere and retouched at Site A, since no chert flakes or debitage were recorded in this level.

No features were encountered during this occupational level, although minor concentrations of tools and flakes were recovered in units J-7 and J-12. The large quartzitic cobbles and pieces of sandstone so apparent in Levels VI and VII have thinned out. This level is near the bottom of the shell lens, containing only 6.58 percent of all shell collected at Site A. It is probable that this material is associated with the Level VII features and may represent earlier habitational remains.

The major occupation (Figure 43) occurred in units J-18, J-19, J-20, K-16, K-12, K-11, and J-14. The northern units begin reaching yellow sandstone of the Torrey Sandstone deposit at shallower depths than in the case of the southern units. This indicates that the paleotopography sloped to the south, eventually contacting the intermittent stream in Quad L. A paleotopographic ground slope would have also provided the gravitational impetus for the occurrence of more depositional artifacts in the southern than in the northern units. This would account for the accumulation of artifacts in units J-18, J-19, J-20, and K-16.

The persistently high numbers of pushplanes (16) and the very high number of convex sidescrapers (10) indicates that plant or animal processing occurred during this occupational level of the site. Flakes were utilized, but remained unretouched, probably for cutting or prying, but only a microscopic examination of the wear patterns on the cutting edge could validate the use/function of the utilized flakes.

Level VIII was utilized for:

1. the production of lithic implements, both primary and secondary in nature;

2. the processing of animal and plant foods; and

3. the collecting and processing of shellfish from the lagoons and rockyshores.

No additional artifacts were recovered from the western units of the site. These units had reached culturally sterile sandstone.

Level IX

(80-90 cm. subsurface; 83-90 cm. cultural level; Figure 44)

The major quantity of cultural material was concentrated in the subsurface level of 83-90 centimeters below the surface of the site. The major occupational areas in this living surface were located in the southern and eastern units of Locus II. No features were recovered in this concentration of artifactual materials, but a center of cultural activities occurred in the most southerly units, J-11, J-12, J-17, and J-18. The eastern units are represented by a concentration of thermally-fractured rocks and flakes. Only a few thermally-fractured rocks exist elsewhere in the level. Due to the presence of numerous artifacts, it seems as though the major concentration of cultural activity occurred in the K quad units. The northern units are sterile, with the underlying Torrey Sandstone protruding into the units.

Debris of shellfish were confined to the central portion of the locus. Although 3,786 grams of shell (486 more than from Level VII) were collected from this area, the quantity is still markedly less than for Level VIII. Thirty-five percent of the shellfish remains was Chione sp., 55 percent was pecten, and 6.60 percent was the rockyshore dwelling oyster.

Food processing must have been concentrated on the consumption of shellfish, since only three pushplanes were located in this level, along with six convex sidescrapers, three denticulated sidescrapers, and four other ovate scraper-types, none of which were ethnographically used for shellfish processing. Although food processing must have occurred, it was severely restricted--or only a small band of individuals occupied the site for a short duration of time. The cumulative distribution of tools as compared to shell is presented in Figure 7, while the comparison of total lithic categories is presented in Table 5 and in Figure 29. The illustration below presents the major categories of artifacts located in this level.

Level IX Artifactual Material

Item	Number
Cores	13
Primary flakes	155
Debitage	235
Endscrapers	2
Gravers	1
Hammerstones	4
Naturally backed	1
Pushplanes	3
Sidescrapers	13
Teshoa flakes	1
Utilized flakes	7
Flakes with a thinned base	1
Total Lithics	436

This illustration indicates that the primary industrial activity was the production of flakes and tools, rather than food exploitation as had previously been the major activity at the site.

	Flakes	Debitage	Tools
Basalt	66.92 percent	74.71 percent	69.32 percent
Quartzite	26.92 percent	12.35 percent	7.69 percent
Felsite	3.84 percent	7.83 percent	7.69 percent
Chert	0.76 percent	2.24 percent	---
Chalcedony	0.76 percent	1.68 percent	3.84 percent
Quartz	0.76 percent	1.12 percent	---

Most of the lithic resources were obtained from the local basalt dike, although felsite was also knapped at the site. A large felsite core (RA-I-19-9-53) was recovered from unit I-19, but only a few flakes were found in the adjacent unit (i-18). They may have been produced from the previously mentioned core. Chalcedony and chert were used for tool manufacture during the occupation of this locus. They must have been introduced to the site from either the desert region to the east or from Baja California (Bowersox 1974).

At this level the site was used for the exploitation of lithic resources, and for the exploitation of aquatic foods, rather than plant products. One abalone disc bead was located in unit J-13, which may indicate that this level was used for permanent occupation rather than as a temporary campsite.

Level X

(90-100 cm. arbitrary level; 93-99 cm. cultural level; Figure 45)

All of the units to the north and to the west are either culturally sterile or contain sparse cultural debris. The remains of a fire hearth, indicated by a circular concentration of thermally-fractured rocks and fragments of ash and charcoal, were found in unit J-14.

Only 2,298 grams of shell were located in this 10-centimeter arbitrary level, which represents a very significant decrease in the exploitation of molluscs. <u>Chione</u> sp. accounts for 36.73 percent of the shell, while pecten accounts for the majority (56.73 percent) of all exploited shellfish. Oyster is not represented as much as previously, accounting for only 3.26 percent of the recovered shell.

Only one pushplane and four sidescrapers were recovered from this level, indicating that the processing of food and plant substances may not have been a major activity of the residents at that time. A grand total of 356 artifacts were located here.

The tools and flakes are represented in Table 5, and they are compared in the cumulative graphs in Figures 28 and 29.

<u>Level X Artifactual Material</u>

Item	Number
Cores	8
Primary flakes	85
Debitage	243
Endscrapers	3
Hammerstones	1
Pushplanes	1
Sidescaapers	5
Utilized flakes	11
Total Lithics	356

A primary activity during this level was the manufacturing of the above flakes and tools from basalt. The percentage composition of the flakes, tools, and debitage appears in the following illustration:

	Flakes	Debitage	Tools
Basalt	68.05 percent	85.65 percent	60.00 percent
Quartzite	25.00 percent	8.90 percent	10.00 percent
Felsite	6.94 percent	4.48 percent	12.00 percent
Chert	---	---	6.00 percent
Quartz	---	---	6.00 percent

Three types of material were worked at this level, the most preferred of which was basalt, followed by the readily available quartzite, then by the introduced felsitic rocks. Chert and quartz were introduced to the site as already completed tools, since neither flakes nor debitage appear to be representative of this category.

Feature 18 (see Figure 45) was an elementary fire hearth, composed of approximately 10 thermally-fractured quartz cobbles in an elliptical alignment. The total dimensions of the hearth were approximately 50 centimeters in its north-south alignment and 45 centimeters in its east-west dimension. It occupies the northeastern portions of unit J-14 beginning at approximately 92 centimeters subsurface. Ash was located in a small deposit near the central section of the hearth, with several specimens of *Mytilus californicus*, California mussel. It appears that this hearth was use used for cooking or steaming of shellfish, and it may have served a secondary function as a campfire where the production of flakes occurred, as is suggested by the intense concentration of flakes in the surrounding units. The major sehll concentration occurs in the most southerly of the units, probably due to the gravitational groundslope near the paleostream bed. One olivella bead was located *in situ* in unit J-13. This lends further credence to my hypothesis that the San Dieguito peoples wore ornaments just as did the Late Milling Stone Horizon peoples.

The primary activities during this level can then be divided into the following categories:

1. the exploitation of lithic resources, and the production of flakes, tools, and debitage;

2. the exploitation of shellfish from the lagoons;

3. the exploitation of animal and plant foods as indicated by pushplanes and sidescrapers;

4. cooking of food as indicated in Feature 18, and perhaps the utilization of the site as a temporary campsite, as indicated by the spatial relationships between the concentration of tools, flakes, and Feature 18.

Level XI

(100-110 cm. subsurface; 103-108 cm. cultural level; Figure 46)

The major concentration of cultural material was located between 103 and 108 centimeters below the surface. All of this material has been placed on the subsurface map (Figure 46). All of the northern and western units had reached the yellow sterile sandstone prior to this level, as is apparent when viewing the map. In the remaining productive areas, unit I-15 produced two additional olivella beads *in situ*, and unit J-13 produced one abalone disc bead, further validating the hypothesis that the San Dieguito peoples possessed and manufactured body adornment. In the remaining units of the locus, several utilized flakes and cores were recovered, but only one tool was located in this area. In the southern units, an accumulation of scrapers, flakes, and utilized flakes comprise the tool assemblage located in units J-18, J-15, K-11, and K-12.

No concentration of rocks were located in this level. This implies that perhaps no hearths were constructed during this occupational level of the site. The paucity of the shell remains seems to indicate that the site may have been used by only a few individuals at this time. Only 321 grams of shell were recovered. Approximately 25 percent of the shellfish were <u>Chione</u> sp., another 65.42 percent were pecten, and 5.60 percent were represented by oysters from the local rockyshores habitat. It is more likely that the site was utilized for the production of flakes and tools, since they appear in fairly abundant numbers, but are marked by a steady decline in maintenance tools. The major tools are side-scrapers, but only eight sidescrapers were recovered in this level (and no pushplanes), indicating that it is more probable that animals were processed here in lieu of the patterns of plant processing indicated in the upper levels of the site. Several animal bones were present in this level (see Figure 8), but most of them were so fragmentary that they were unidentifiable.

The major tool categories appear in the following table:

Level XI Artifactual Material

Item	Number
Cores	3
Primary flakes	35
Debitage	132
Sidescrapers	9
Utilized flakes	10
Total Lithics	189

The smaller quantity of implements and cultural debris is a further indication that a reduction in utilization of the site occurred at this level.

The major categories of artifacts are significantly represented by the locally available basalt and quartzitic cobbles. Other introduced material comprises the remaining tools, flakes, and fragments of debitage:

	Flakes	Debitage	Tools
Basalt	72.72 percent	72.09 percent	61.90 percent
Quartzite	24.24 percent	11.62 percent	9.52 percent
Felsite	3.03 percent	13.92 percent	4.76 percent
Chert	---	2.39 percent	9.52 percent
Chalcedony	---	---	4.76 percent

The most outstanding difference in the types of raw materials utilized for tools is shown in the category of chert, where 9.52 percent of the total tool inventory is composed of this material. It would also seem that the felsite tools were retouched and some of them possibly knapped during this occupation.

During this time period the site was evidently utilized for the following purposes:

1. the exploitation of locally available lithic materials;

2. the exploitation of the lagoons for shellfish;

3. the exploitation of animal foods as suggested by the limited osteological remains of food animals;

4. and perhaps for use as a temporary habitational campsite as suggested by the two olivella beads recovered from this level.

Levels XII and XIII

(110-120 cm. and 120-132 cm. respectively; Figure 47)

Only one map was compiled for these two remaining levels excavated at Site A. These do not represent true living areas, but simply a plotting of the distribution of all artifactual material. All of the tools were found several centimeters sub-shelf, and may represent tools which were used during the cultural occupations of Levels X and XI, although they do exist a considerable distance below those levels. The artifacts were plotted beginning with 113 centimeters subsurface, since that was the depth of the first artifact located following the previously mapped level 108 centimeters below the ground surface of the site.

The artifacts appeared as presented in the following tabular formats:

Level XII Artifactual Materials

Item	Number
Primary flakes	12
Debitage	24
Pick	1
Sidescraper (denticulated)	1
Utilized flakes	4
Total Lithics	42

Level XIII Artifactual Materials

Item	Number
Sidescraper	1
Utilized flakes	1
Total Lithics	2

The above tools are composed primarily of the locally available material such as basalt and quartzite. The chalcedony was probably introduced to the site from the desert and secondarily retouched at Site A. Chert was also introduced from outside the area, and utilized at the site, but it was not either secondarily or primarily flaked.

	Flakes	Debitage	Tools
Basalt	66.66 percent	72.72 percent	66.66 percent
Quartzite	33.33 percent	18.18 percent	---
Chalcedony	---	9.09 percent	16.66 percent
Chert	---	---	16.66 percent

The most interesting artifact in this assemblage is the pick (Figure 20), depicted in Figure 47, located in unit J-13 at the depth of 118 centimeters subsurface. This pick resembles what Rogers (1966:187) has described as a bifacial chopping tool, one of which was recovered from site SDM-W-188 near the northern rim of La Zanja Canyon approximately 10 miles southeast of the site. I consider this to be so different (see Chapter 5) from a chopping tool that I call it a pick. This particular implement is not illustrated in any report other than that of Rogers (1966).

In unit J-18 only a fragmentary amount of charcoal was recovered. This ash may have been the result of an old hearth, but equally probable it may have been introduced into the unit through the geological process of percolation or through rodent activity at some distant time in the past.

CHAPTER 7

INTERPRETATION AND CONCLUSION

Based upon the analysis of the archaeological and radiometric data, Rancho Park North, Site A is a triple component archaeological site which represents occupations by members of the San Dieguito, La Jolla, and Yuman Complexes (Table 37). Radiocarbon dates which would represent the La Jolla Complex occupation were obtained, along with typological comparisons and stratigraphic positioning within arbitrary levels III (30-40 centimeters subsurface), IV (40-50 centimeters subsurface), which suggest temporal and cultural affinities with site UCLJ-M-15 (Figure 48), a transitional San Dieguito and La Jolla Complex site situated at Agua Hedionda Lagoon, approximately ten miles north of Rancho Park North (Moriarty 1966).

Manifestations of the San Dieguito culture are found in the basal levels of the site beginning in arbitrary level XIII (130 centimeters subsurface) and continuing to at least level VI (60-70 centimeters subsurface). Either a slow degradation in levels III and IV while they were the site's surface, or the mixing of those levels, make the exact demarcation between the San Dieguito and La Jolla Complexes difficult to discern. Radiocarbon dates in conjunction with the initial appearance of the milling stone assemblage indicate that a late prehistoric occupation occurred at the site 710 radiocarbon years ago: 1240 A.D. (LJ-3159), concomitant with the earliest stratified occurrence of aboriginal ceramics.

The maximum shell deposit occurred in level VIII (80-90 centimeters subsurface). This deposit of shell corresponds to the maximum cultural utilization of the site by the San Dieguito Complex (Figure 7). Radiocarbon dates suggest that this occupation occurred at 8030$\pm$80 years ago (LJ-3160). A definitive decline in the concentration of shell and tools occurs between levels V and VI, while a secondary peak of mollusca remains and artifacts was found in level IV, where unifacial manos, a hallmark of the La Jolla I Complex (Moriarty 1966:21-23), were initially encountered. Based upon radiocarbon data, this technological change is coordinated with a change in pollen frequency, from a coastal-sage scrub dominated community with extensive Southern Oak Woodlands, to an environment distinguished by the presence of pine pollen. Pollen at the site may indicate a slight floral shift which would correspond to a change from the climate of the Anathermal to the Altithermal, a climatic shift which occurred at approximately 7,500 years ago, according to Baumhoff and Heizer (1965). The data from Rancho Park North indicate that this change had occurred at least by 7,000 years ago. With this environmental shift shellfish remains

Sample Number	Years Before the Present	A/I Ratio	Date	Level
		Carbon Fourteen Dates		
1. LJ-3159[a]	710±40		1240 A.D.	III
2. UGa-3572[c]	1065±170		885 A.D.	III
3. LJ-3243[a]	8040±80		6090 B.C.	IV
4. UCR-432[b]	6900±280		4950 B.C.	IV
5. UGa-3571[c]	7075±110		5125 B.C.	IV
6. LJ-3244[a]	8010±90		6060 B.C.	V
7. LJ-3245[a]	8060±90		6110 B.C.	VI
8. LJ-3160[a]	8030±80		6080 B.C.	VIII
9. LJ-3161[a]	8280±80		6330 B.C.	XI
10. LJ-3246[a]	8110±80		6160 B.C.	XII
		Amino Acid Racemization[a]		
1. 1974-10-280	9,700			X
2. RA-J6-8-73	49,000			VIII
3. RA-J15-6-71	44,000			VI
		Alloisoleucine/Isoleucine Ratios on Shell Protein[a]		
1. RA-J15-6	8,000	0.076		VI
2. RA-J6-8	8,000	0.150		VIII

[a]Data compiled from Scripps Institute of Oceanography (1976)
[b]Data from the University of California, Riverside (1976)
[c]Date from the University of Georgia, Athens, GA (1980)

Table 37. Radiometric Dates from Rancho Park North, Site A.

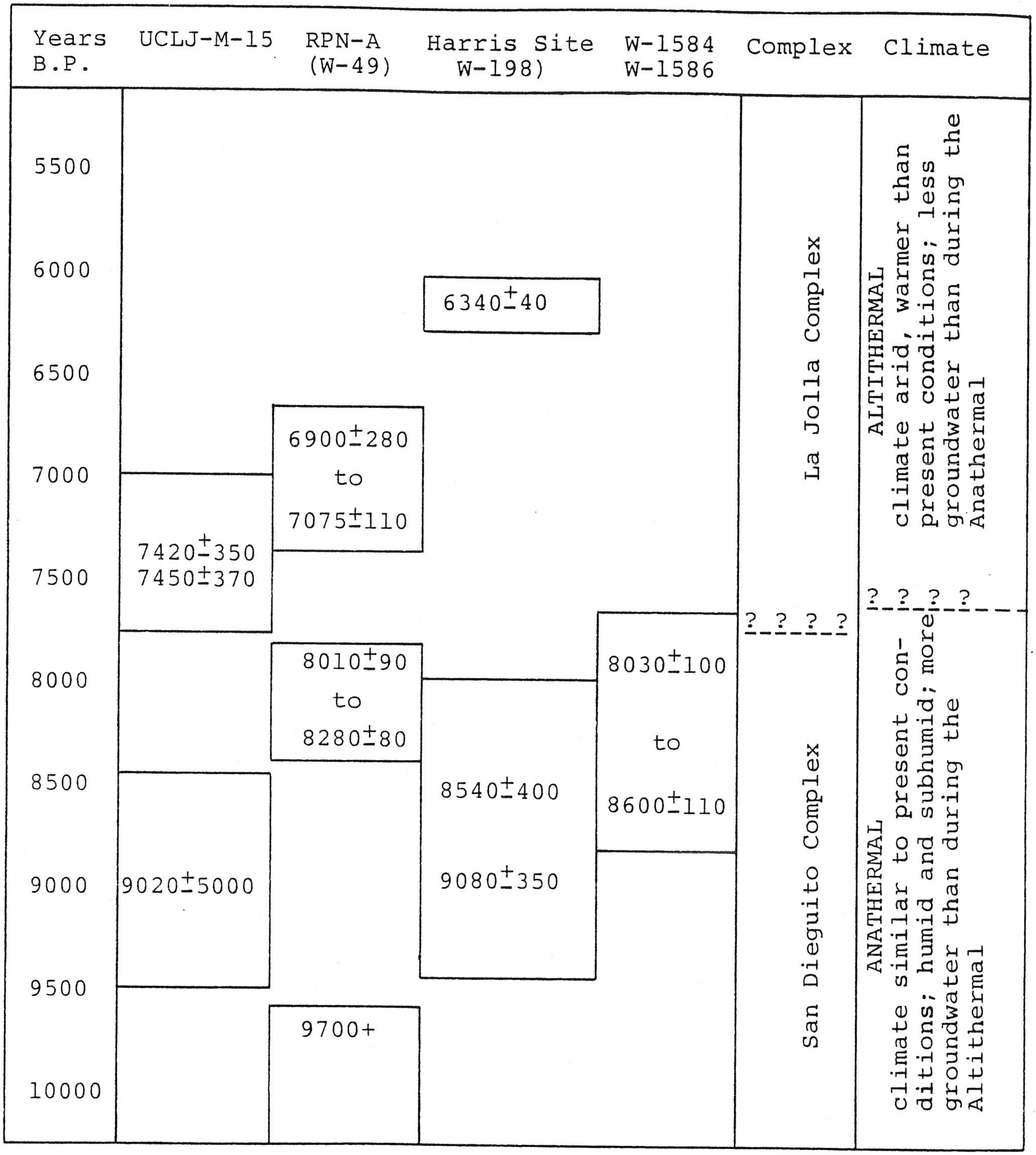


Figure 48. Temporal relationships between Rancho Park North, Site A, UCLJ-M-15 (Moriarty 1967), the Harris Site (Warren 1967), and San Dieguito Estates (Norwood and Walker 1980).

become more rare. By the time level III is encountered, the dependency upon shellfish has shifted to a dependency upon seed-grinding economies. This is indicated by the pronounced presence of a milling stone assemblage.

The typical San Dieguito pattern of the employment of heavy pushplanes, as reported by Davis (1969), Warren and True (1961), Rogers (1966), and Warren (1967), is also found at W-49. Of all pushplanes located at the site, 63 percent were recovered from levels V-XIII. Other evidence indicating that the phase of San Dieguito culture represented at the site is San Dieguito III includes endscrapers, of which 46.15 percent were found in the San Dieguito strata. Ovate scrapers are "type artifacts" for the San Dieguito Complex, according to Warren (1967). Forty-eight percent of the ovate scrapers (Types 23, 24, and 25) were located in the basal cultural levels of the site. It is probable that these scrapers were manufactured by the San Dieguito peoples, but additional retouch and differential patterns of artifact patination indicate that many of these scrapers were reworked and found secondary utilization by the later people who occupied the site.

Additional indications that the base culture is represented by the San Dieguito III phase are provided by the following data: 60.86 percent of all choppers (Type 9) and chopping tools (Type 10) were located in this stratum; 70 percent of all blades (Type 7), all of which were percussion flaked, were located in the San Dieguito stratum; and 66 percent of all knives (Type 15) located at Site A appeared in the San Dieguito cultural stratum.

Although Warren and True (1961:262) characterize the San Dieguito component at the Harris site as containing relatively few hammerstones, 11, or 68.75 percent, of all subsurface hammerstones (Type 14) were located in the San Dieguito stratum. The cultural implication of this large percentage of hammerstones indicates that extensive manufacturing of tools occurred during this occupation. Unlike the Harris site, which had been used as a factory site (Warren 1966), and Rancho Del Dios, which can be typified as a stone tool assembly line (Kaldenberg and Bull 1975), Rancho Park North was used for the production of tools from cores. Most of the lithic material was obtained from a local exposure of fine grained basalt which has been identified as site SDM-W-613, near Questhaven, approximately three miles northeast of Rancho Park North. It can be projected that over a lengthy period of time, the utilization of the site for tool manufacturing would have allowed the introduction of numerous additional hammerstones for that purpose.

At the Harris site (Warren and True 1961), local felsites, fine-grained volcanics, and other imported materials were used in the manufacturing of lithic products. The inhabitants of Rancho Park North, during the time period represented by the San Dieguito stratum, employed various lithic materials for tool production. These are represented in the following relationships:

Basalt	60.14 percent
Quartzite	19.68 percent
Felsite	7.02 percent
Chert	5.60 percent
Chalcedony	5.14 percent
Andesite	0.77 percent
Quartz	0.20 percent

Since only 20.65 percent represent coarse porphyritic and crystaline material (quartzites, andesites, and basalts), and 79.35 percent of the tools were manufactured from fine-grained material, the preference or selectivity for specific materials seems to be in the same generalized pattern as that suggested by data from the Harris site. The proximity of Rancho Park North to a basaltic quarry was probably the foremost reason for the intensive utilization of that material for stone tools.

Davis, Brott and Weide (1969:xi) indicate that notched scrapers are important in the San Dieguito tool assemblage, and were probably being employed for woodworking. Only five notched scrapers were located in the San Dieguito stratum at Rancho Park North. These accounted for 33 percent of those located at the site. This type of tool was probably augmented by the sawtoothed (denticulated) scrapers (Type 26), of which 14 or 63.36 percent were found in situ in the San Dieguito level at the site. The denticulate scrapers are characterized by two or more noncontiguous notches which could have been used for the same generalized purpose as a single-notched tool-woodworking or plant food processing (Kowta 1969).

The recovery of very few blades at Rancho Park North suggests that the members of this complex may not have manufactured projectile implements at the site. It may be assumed that the tool-kit could have included a substantial number of fire-hardened and sharpened wooden projectile points.

Pollen samples indicate that the climate during the San Dieguito phase was more steppe-like than during the La Jolla phase. The presence of pine, sea blithe, deer grass, and lace-pod indicates an environment with more precipitation and more groundwater in the form of marshes, ponds, and seasonal creeks than presently exists. Where Encinitas Creek flows from the eastern foothills, it empties into a relatively flat basin-shaped depression less than 700 meters from the site. This low-lying basin still exists, but now is occupied by grasses and scattered oak and sycamore trees. It is probable that a marsh or pond once existed in a semi-permanent condition in this flat area, either of which would have been conducive to wetlands vegetation.

Based upon excavations at the Harris Site, Rogers felt that by 9,080±400 years before the present the San Dieguito "were compelled to overcome their traditional avoidance of shellfish in order to supplement their normal diet" (Warren 1966:18). By the time of the occupation of Rancho Park North the pattern of molluscan exploitation seems to have been already firmly established. The radiometric dates from the site indicate that by 8,500 years ago shellfish were being exploited as an economic strategy. Therefore, the San Dieguito Complex peoples were engaged in an exploitive economy which had been practiced for at least 500 years, since some shell is reported at the Harris site by Warren (1967).

There is only minimal evidence to suggest that the hunting of animals occurred during the San Dieguito phase of Rancho Park North. It seems likely, though, that these people utilized whatever resources they could obtain, although their major dependency seemed to be on molluscan and seed resources. There is no evidence to suggest that any primary butchering was conducted at the site. It may be, as Warren concludes (1967:183), that hunting was conducted in the hinterlands and only the desired portions of the animals were returned to the base camp. There is no evidence to refute such a statement, yet the portion returned to the site includes individual astragali, metapodials, and mandibular fragments of deer. These do not seem to be portions of the animal which would have been selected for their explicit culinary appeal, but rather parts of the animal which would have been returned to the site with a more or less complete animal. The disappearance of the larger portions might be explained by animals such as domesticated dogs or coyotes carrying the butcheredm unused portions away from the campsite for their own consumption. From excavations at the Lomas Santa Fe Site, it is known that domesticated dogs were present during the La Jolla times (May 1974a:39-42). Unfortunately, no material from this site has been radiocarbon dated so it is not known if the date of the appearance of the Plains-Indian dog in coastal San Diego County is early or late La Jolla in temporal placement.

It is possible that the astragali do not represent culinary portions of animal but are the material remains of gaming bones used in a variety of gambling games by American Indians (Warren 1975:personal communication).

Warren and True (1961:262) state that a majority of San Dieguito sites are situated on mesas and ridges generally lacking middens and disrupted by erosional agencies. This is true of Rancho Park North, Site A, which has a deep erosional cut to the west which, upon first examination, reveals only a shallow midden. However, the midden is both deeper and artifactually much richer than first observations would have suggested. The color of the midden is not, however, typically black, but a weathered light brown to a pale white. It is probable that many San Dieguito era sites previously thought to be surface in nature and to contain no midden deposition may have been leached and eroded, while the midden may not be readily noticeable. Efforts should be made to determine criteria in addition to color for the identification of midden soil. Meanwhile, no site should be dismissed as a surface site on surface indications alone. Some subsurface testing should always be performed on San Dieguito sites. Based upon midden indicators alone, coastal San Diego County appears to contain many more San Dieguito Complex sites than has been previously suggested in the archaeological literature.

Typical of most San Dieguito sites, Site A is situated near a stable source of water (Encinitas Creek; Intermittent Quad L stream; Escondido Creek; San Marcos Creek). Davis (1974:11) states that the San Dieguito smashed bones for the extraction of marrow beside such streams, and used pounding and grinding rocks for food processing. We have evidence of limited bone smashing at the site in the form of numerous crushed and splitered unidentified long bones, but the pounding and grinding implements suggested by Davis (1974) have not been identified. This absence of identification might be attributed to minute alteration which has been caused to the raw stone, an alteration which is not readily visible to the unaided eye. Even today, the Kiliwa, a hunting-gathering culture living in northern Baja California, utilize fortuitously discovered cobbles for the processing of small rodents (Michelsen 1970). It is possible that the large numbers of battered cores and hammerstones were also used for the production of lithic implements. The concept of hammerstones indicates a functional rather than a morphological artifact type. The function of numerous cores and hammers, in addition to lithic manufacture, may have been to pound and to crush bone, shellfish, and various seed resources.

A flat boulder was found cemented within the floor of the pavement. This boulder appeared to have been ground upon and some pecking had occurred. The evidence of polish indicates that perhaps hard seed stuffs had been ground for domestic use. While the pattern of groundstone does not become overwhelming in the Late San Dieguito, its formation is represented here at W-49. The evolution of the ground stone is well represented in the San Dieguito, La Jolla and Late Prehistoric strata.

Site A adds further evidence to the archaeological record suggesting that the San Dieguito peoples were transhumance exploiters. Based upon the relatively shallow nature of the archaeological deposits, it can be suggested that a small group of people occupied the site intermittently and for a long period of time (Leonard 1966). From the existing data, it can be hypothesized that the occupation of the site was for:

1. The exploitation of plant resources such as _Yucca whipplei aguacrea_ which is present in the pollen record from the base of the archaeological deposit to its surface. Kowta

(1969) suggests that scraper planes (Type 17) were used to remove the pulp in preparing agave fibers for cordage and also may have been used for the preparation and resharpening of the chisel-ended sticks that were used in severing the plant from its roots. The sharpened sticks were also used in the excavation of large pits in which the Yucca was subsequently roasted (Kowta 1969:55).

2. The exploitation and processing of such aquatic foodstuffs as Chione sp., pecten, Ostrea sp., Mytilus sp., various fishes, and aquatic birds. It can be seen that the economic strategy of the San Dieguito at Rancho Park North was one which exploited various eco-zones along the estuaries and Peninsular Ranges of the La Costa area.

3. The exploitation and manufacturing of stone artifacts from sites W-587, W-613, and W-916, all of which are metavolcanic quarry sites situated within three miles of Rancho Park North. Cobbles were also obtained from the various exposures of Stadia Conglomerate which are found throughout the Batquitos Lagoon, Green Valley, and San Elijo Lagoon area.

4. The utilization of the site as a semipermanent campsite or as a small village over at least a 350-year period due to its proximity to a variety of eco-zones and its proximity to a stable source of potable water. The preponderance of pushplanes suggests that wood, animal, or plant food processing was a primary activity during this occupation. Kowta feels that "it is assumed that agave exploitation was not a part of the San Dieguito Complex" (Kowta 1969:57), but he states that the presence of the yucca cannot be eliminated, although mortars, an item he considers essential for agave processing, are absent in the strata of SDi-603, a site approximately two miles west of Rancho Park North.

I feel that the evidence is overwhelming that the San Dieguito were exploiting yucca at Rancho Park North, and that the essentiality of mortars for their processing cannot be verified. Yucca could be processed both for cordage (Michelsen 1974) and food production without the presence of the mortar, although sharpened items such as pushplanes and digging sticks are essential.

Engraving tools (Gravers--Type 13) are represented eight times in this stratum. This accounts for 46.05 percent of this category at the site. This indicates that refined woodworking or the cutting of sinew or fibrous matter most probably constituted an activity during site occupation.

Beginning with level XI (110 centimeters subsurface) and continuing upward into level VI (70-80 centimeters subsurface), a pattern of habitation is presented consisting of the following: the hearths, all of which are simple elementary hearths, are concentrated in the eastern area of the San Dieguito Horizon--Feature 14 to and including Feature 18. All of the hearths were used for either cooking or heat radiation. Shell was located in several of these features suggesting that the San Dieguito people used the hearths for cooking or steaming clams and other molluscs. The south-central portion of the site was used for the deposition of shells from molluscan processing and other organic debris which may not have survived.

Feature B, the structural pavement situated at 70 centimeters subsurface, seems to have been associated with a series of hearths located in arbitrary levels seven and eight. It seems to represent the base structure of a San Dieguito living structure such as a hut. No ethnographic or archaeological analogies exist to substantiate this suggestion, but the firmness with which the rocks were found imbedded into the introduced clay (which may have been obtained from Encinitas Creek), the distribution of the tools and flakes to the south of the pavement, and the patterns of hearths regularly distributed to the east of the pavement, seem to lend credence to the theory that Feabure B was a structural pavement. If this pavement does represent the floor of a hut, the settlement pattern of the San Dieguito would have been much more permanent than has been suggested by other authors writing about this archaeological tradition. Contrary to the often suggested lack of permanence on the coast of Southern California, it is quite probable that semipermanent campsites and villages were well established by the San Dieguito peoples. At least at W-49 there seems to have been a very settled group of hunting-gathering-fishing people. Based upon information gleaned from the Museum of Man records, the San Dieguito Complex represents a widespread temporal complex which occupied the coast for at least 1,200 years, dating from 9,200 to 8,000 years ago. It can, then, be suggested that the cultural activities which occurred at W-49 represented seasonal exploitive activities of this above mentioned archaeological complex.

The La Jolla Complex as represented at the site is based upon typological comparisons with other La Jolla Complex sites, radiocarbon dates, and a review of the archaeological literature. According to Warren, True, and Eudey (1961:28), this complex differs from the San Dieguito by its dependence upon shellfish and the gathering of vegetable foods. We are unable to employ this as a criterion for distinguishing the La Jolla from the San Dieguito occupation, since the San Dieguito people also extensively exploited marine resources. What we can use, though, is the developed advent of the milling-grinding stone technological phase to suggest a characteristic cultural change at level IV, approximately 40 centimeters subsurface.

Occurring temporarily after the San Dieguito and before the Late Prehistoric population, the La Jolla Complex is represented at this site by the advent of the milling implements, namely metates and manos. Additionally, the composition of the lithic assemblage of San Dieguito III changes from basaltic materials to ryodactites and metaquartzites (Moriarty 1966:21-23). At Site A, the La Jolla Complex is represented in levels III and IV. It represents a second major peak of site habitation (Figure 7).

The lithic composition of tools in the La Jolla levels can be segregated in the following manner:

	Level IV	Level III
Basalt	44.85 percent	57.71 percent
Quartzite	35.71 percent	38.40 percent
Felsite	8.16 percent	1.20 percent
Quartz	5.10 percent	---
Other	6.14 percent	2.56 percent

These combine for a total of 51.30 percent basalt, 37.05 percent quartzite, 4.72 percent felsite, and 6.90 percent other lithic material in the two distinct La Jolla levels which were dated at 6,900 years ago. The relatively high frequency of basalts, in comparison to the distribution reported by Moriarty, is undoubtedly due to the proximity of the site to the basalt dike previously discussed (W-613). Several cobble choppers and chopping tools (Types 8 and 9) were located in this level, suggesting that the processing of animal or plant products was again conducted during the represented phase. The tool assemblage from a dated level at Locus II of the Harris Site seems to be similar to that found at Site A in the La Jolla level (Warren 1966:18).

The human remains located at the site may have been associated with the La Jolla Complex. According to Moriarty (1966), the later La Jolla peoples buried their dead in cemeteries. At Site A fragmentary remains of three individuals were recovered, all of which had been disturbed, evidently by rodent activities. Amino acid dates suggest that these specimens represent individuals who lived between 9,700 and 49,000 years ago (Helfman 1976b). I am not currently willing to accept such a disparate or an ancient date without additional verification.

According to Warren, True, and Eudey (1961:22-23), the La Jolla Complex in the San Marcos-Escondido-Valley Center area exhibits types of the Pauma Complex assemblage, with wedge-shaped manos, comales, and doughnut stones. All of the manos which were recovered from Rancho Park North were round to ovoid in shape, and all were unifacially modified. The La Jolla component at Rancho Park North appears to bear more similarity to the La Jolla Complex which is represented at the Scripps Estate Site I (Shumway, Hubbs, and Moriarty 1961), where cortex-based scrapers, cobble choppers, push-planes, and unshaped unifacial manos were found. Logically, the La Jolla artifact assemblage at Rancho Park North should bear an affinity to those assemblages from the Pauma Complex areas of north San Diego County due to geographic proximity. But instead they bear a striking resemblance to a shell-exploitation La Jolla Complex site in southern San Diego County. This may indicate that artifact differentiation found in La Jolla sites representes sets of activity modes and not geographic dissimilarities.

The first appearance of manos and metates was in the matrix of level IV at Site A. Within this level, 30-40 centimeters subsurface, pine pollen, which had appeared in each previous 10 centimeter level, abruptly disappears. Only a trace of pine pollen appears in levels I, II, and III of the site. With this sudden disappearance of pine pollen, we have the introduction of a different implenent at the site--the mano. The absence of pine and the dominance of oak in the environment represented in levels I, II, and III of Site A could correspond to a period of warmth and dryness, the altithermal, as proposed by Baumhoff and Heizer (1965:697-707).

Quantities of the mussel Mytilus californianus and the rock oyster Pseudochama exogyra, both of which are adapted to a rocky shore environment, were found. Although most of these molluscs were located in the basal levels of the site where more stillwater was found, a number of them were located in the La Jolla Complex levels. The proximity to the upper levels of the site indicates that the rocky shore environment may have been a feature of the mouth of the lagoon at one time.

The change in the quantity of shell also suggests that the final silting of the lagoons took place between 3,000 and 4,000 years ago, at which time the coastal population decreased and reliance upon seed-gathering and hunting became more important (Warren, True, and Eudey 1961:25). Radiometric dates from SDM-W-106, a shellfish processing site (Kaldenberg and Hatler 1976), indicate that between 5,250±50 (LJ-3484 and 3,640± (LJ-3485) radiocarbon years ago the shellfish population changed from one where pecten were the dominant species to one where Chione species dominates the midden. As the site graduates into the more recent time frame, the individual shellfish become smaller in size, indicating perhaps a reduction of viable shellfish populations within Batiquitos Lagoon. It is possible that open estuaries were still present until about 1,000 years ago (Shumway, Hubbs, and Moriarty 1961:113) but there is no evidence to support this other than the relative absence of shell after the introduction of pottery. Some shell appeared in the temper of pottery from Rancho Park North, Site C (May 1974a), indicating that pottery may have been made on the coast, or it may have been made elsewhere from the remains of shellfish which were exploited in coastal environs. Today, according to Ford (1973:1-9), no gastropod molluscs other than the assimineid snail and the California bubble, both of which inhabit the outer lagoon area, can be found in Batiquitos Lagoon.

In summation, the site is a triple component site, representing past use and occupancy by peoples of three different and distinct cultural traditions. As the cultural stratigraphy found at Rancho Park North repeats that found at the Harris site, for example, where the middle component, the La Jolla, has been radio-metrically dated to 6,000 years ago, we can provisionally state that the La Jolla occupation at W-49 began at least that long ago. Based upon one radiocarbon date from level IV of Rancho Park North, it can be stated that the La Jolla occupation here began 7,000 years ago. The terminal component, marked by ceramics identifiable with the still existing Kumeyaay culture of San Diego County and northern Baja California, appears to have been of short duration, or of low intensity, or both.

The most important discovery at the site was that, in contrast to other sites of the San Dieguito Complex studied thus far, this one yielded evidence that those people lived there for some considerable time; radiocarbon dating suggests for at least 350 years. This site has provided evidence that they constructed and used hearths, may have constructed a shelter there, and exploited seafood resources to the same extent, apparently, as did the later La Jolla people. The discovery of shell beads in that horizon adds to our small store of information about the San Dieguito people. The site has provided us evidence of an environmental change in the past and the possibility of fixing a date on that change, a change which was reflected in the artifact inventory and which in turn reflects adaptation on the part of the people to that environmental change. Perhaps the most important scientific discovery as a result of this research has been that the San Dieguito, a people of the PaleoIndian Tradition, must now be construed as generalized hunters and gatherers much the same as were their more recent successors, the Kumeyaay. It is also strongly suggested that the San Dieguito people became the La Jolla people through the addition of a developed milling tool kit which enabled them to forage with greater efficiency. It is also suggested that the La Jolla peoples did not push their San Dieguito predecessors out of the littoral zone but were the same people simply changing their mode of adaptative interaction to include a reliance upon a new technology to augment that of the old. With this understanding I feel that it will now be possible to examine coastal sites in San Diego County without negating the hypothesis that the "manufacturers" of these middens were the La Jolla people and not the San Dieguito. Further research should show us that the San Dieguito and La Jolla people were one and the same, simply exploiting different eco-zones at various seasons and leaving behind a technology at a site corresponding not to temporality, but to spatial reality. Rather than being construed as a Paleo-Indian mode, the coastal San Dieguito manifestation probably should be conceived as a behavioral aspect of the more generalized hunting-gathering-fishing pattern of human behavior which dominated the Far South West for approximately 10,000 years.

While the method of site morphology and ethnic identification in this study has been the result of morphological typologies and fixed radiocarbon dating, other authors have offered critical reviews but without replacing a typological approach with any substantive challenge Bull (Hanna 1980) Norwood (1980), and Norwood and Walker (1980) all indicate that the San Dieguito-La Jolla dichotomy cannot be typologically made, yet they offer no proposal which will assist in solving the problem other than to state that a problem is recognized and a solution is elusive. It is my opinion, substantiated by the research at W-49, that the San Dieguito and La Jolla complexes warrant more attention and that as archaeological cultures they are identifiable and tangible. I have only taken a first step in attempting to organize the data so that traditional approaches can be tested and evaluated.

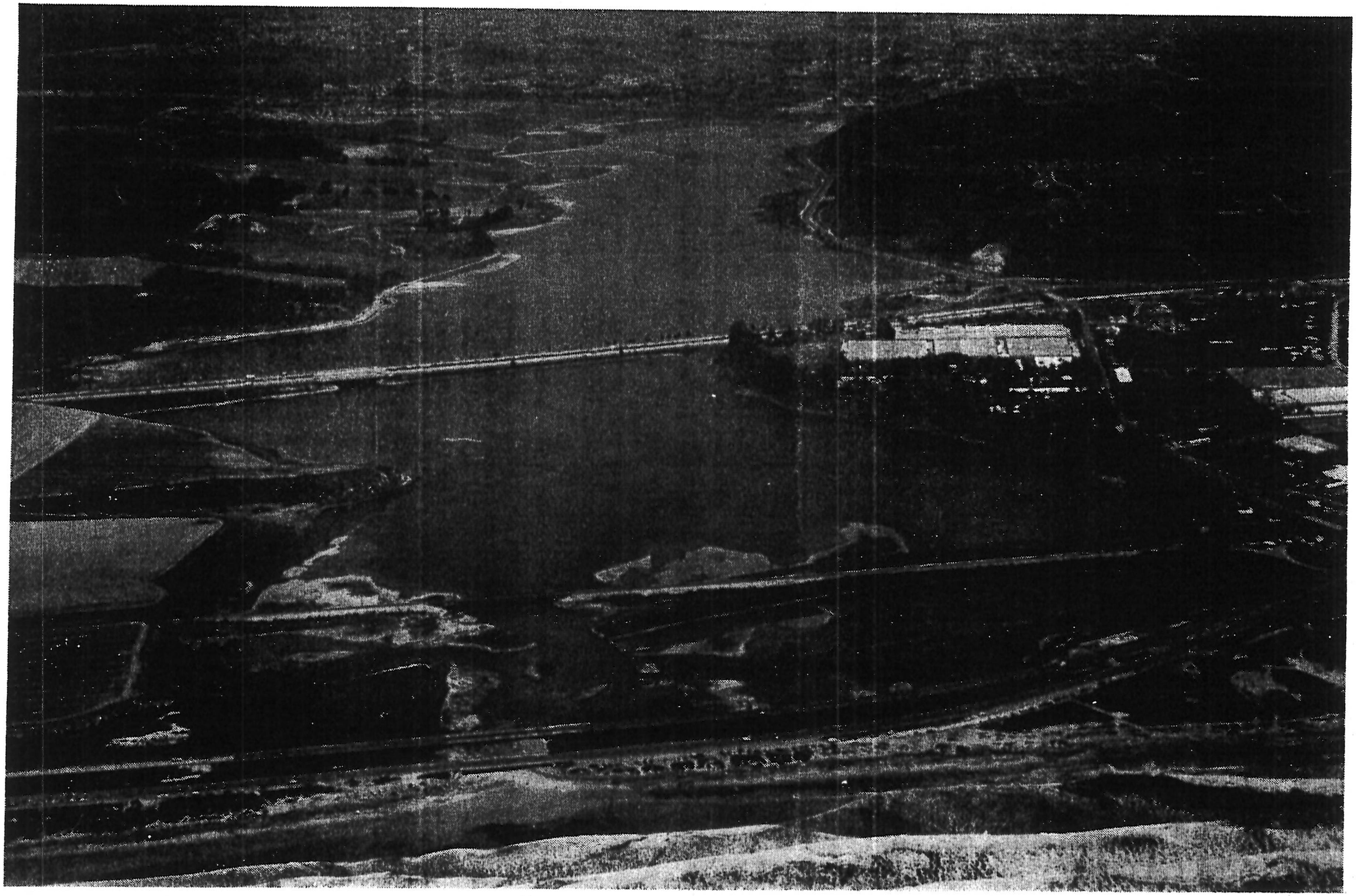


Figure 49. Batiguitos Lagoon. Rancho Park North is in the far upper corner. Photo courtesy of M. Jay Hatley, Cornerstone Research.

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Figure 49. Batiguitos Lagoon. Rancho Park North is in the far upper corner. Photo courtesy of M. Jay Hatley, Cornerstone Research.

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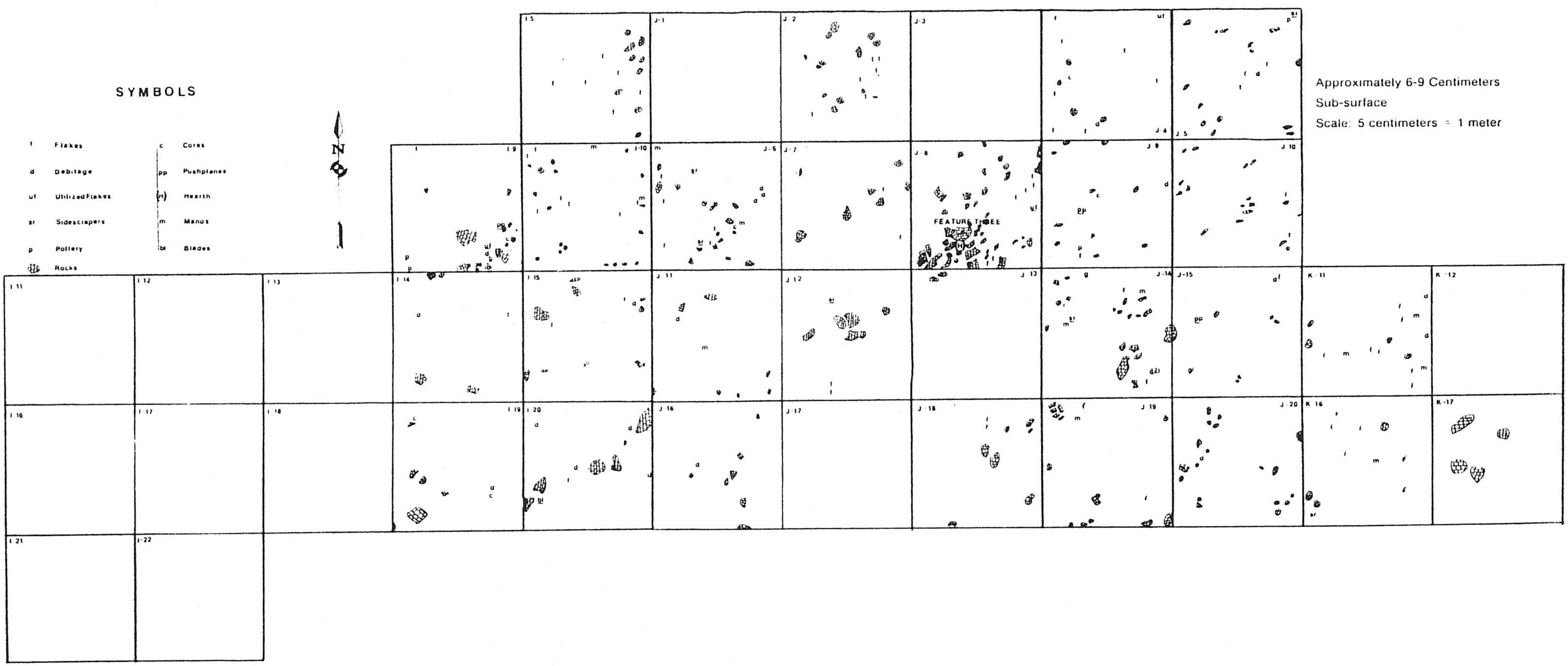


Figure 27. Rancho Park North, Site A, Locus II, Cultural Level I, plotting of *in situ* material.

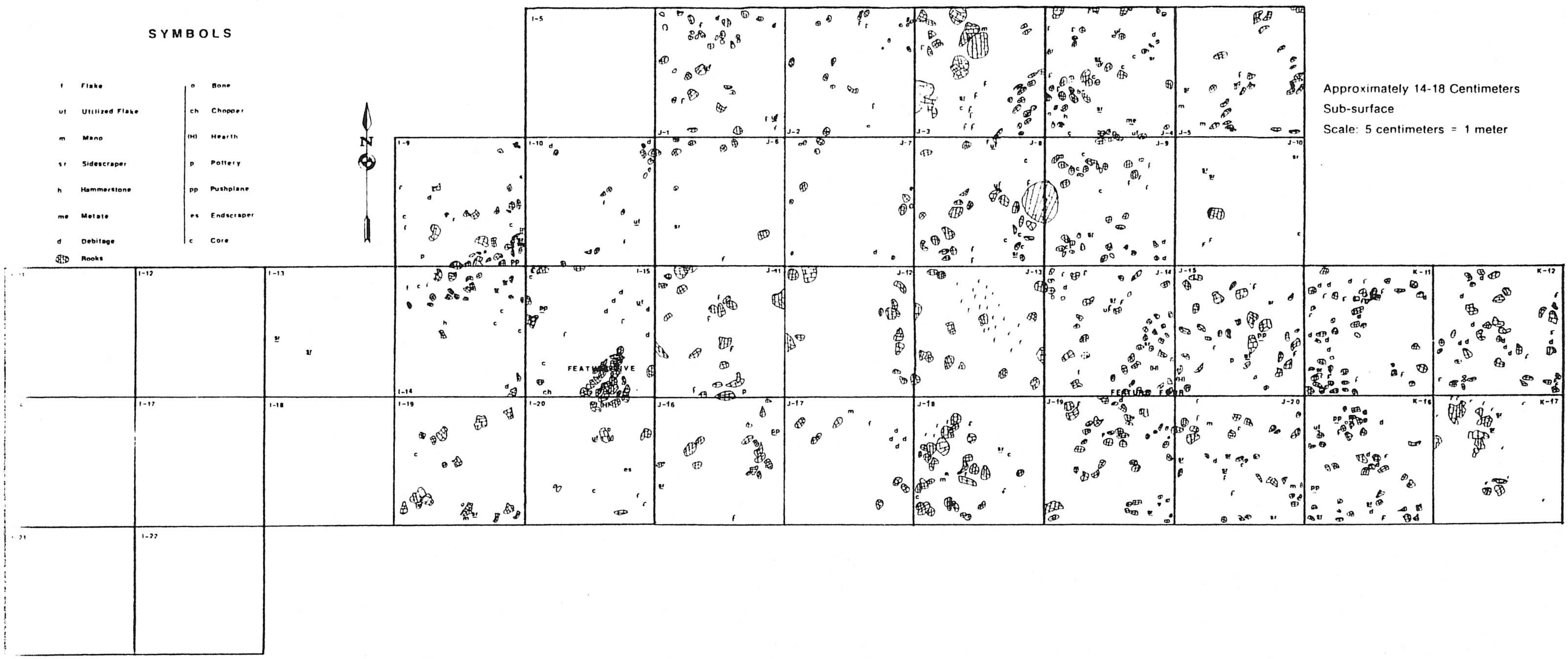


Figure 32. Rancho Park North, Site A, Locus II, Cultural Level II, plotting of *in situ* material.

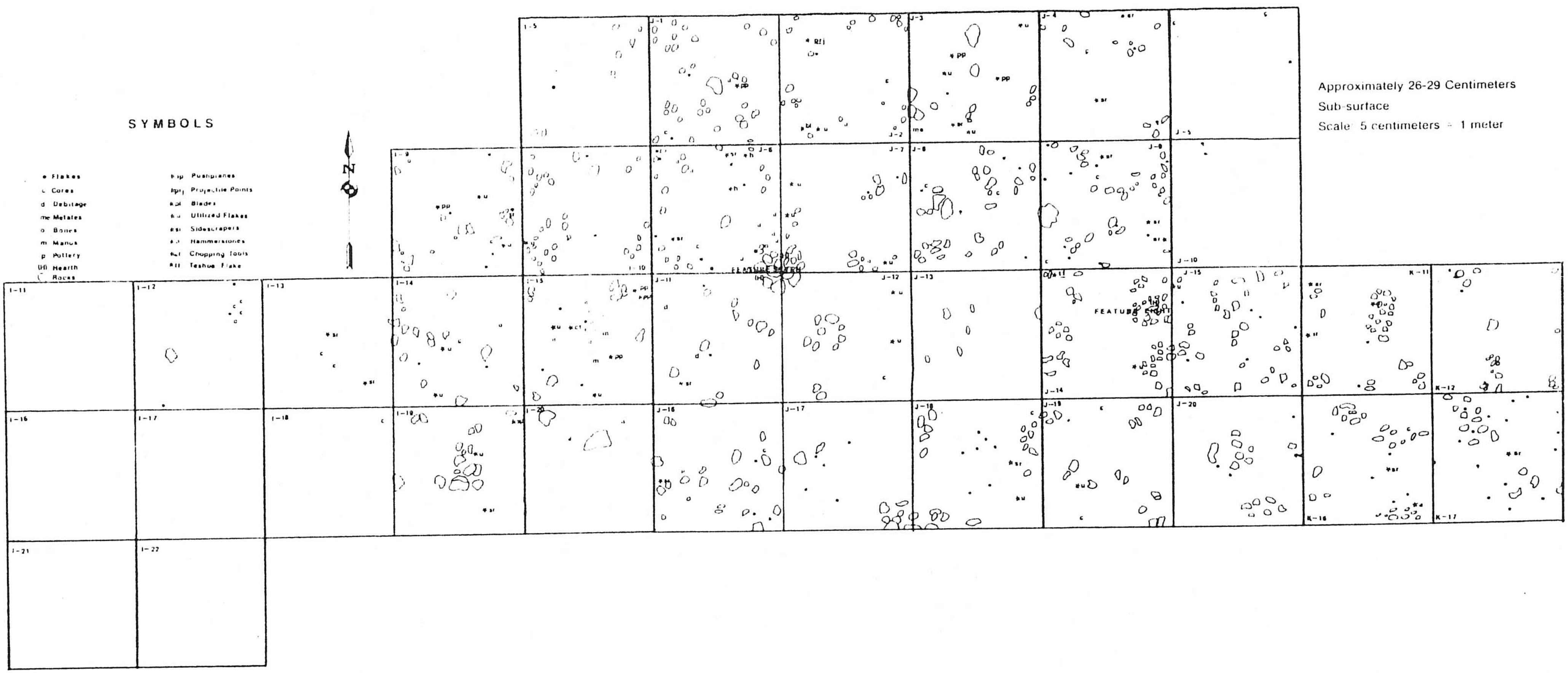


Figure 34. Rancho Park North, Site A, Locus II, Cultural Level III, plotting of <u>in situ</u> material.

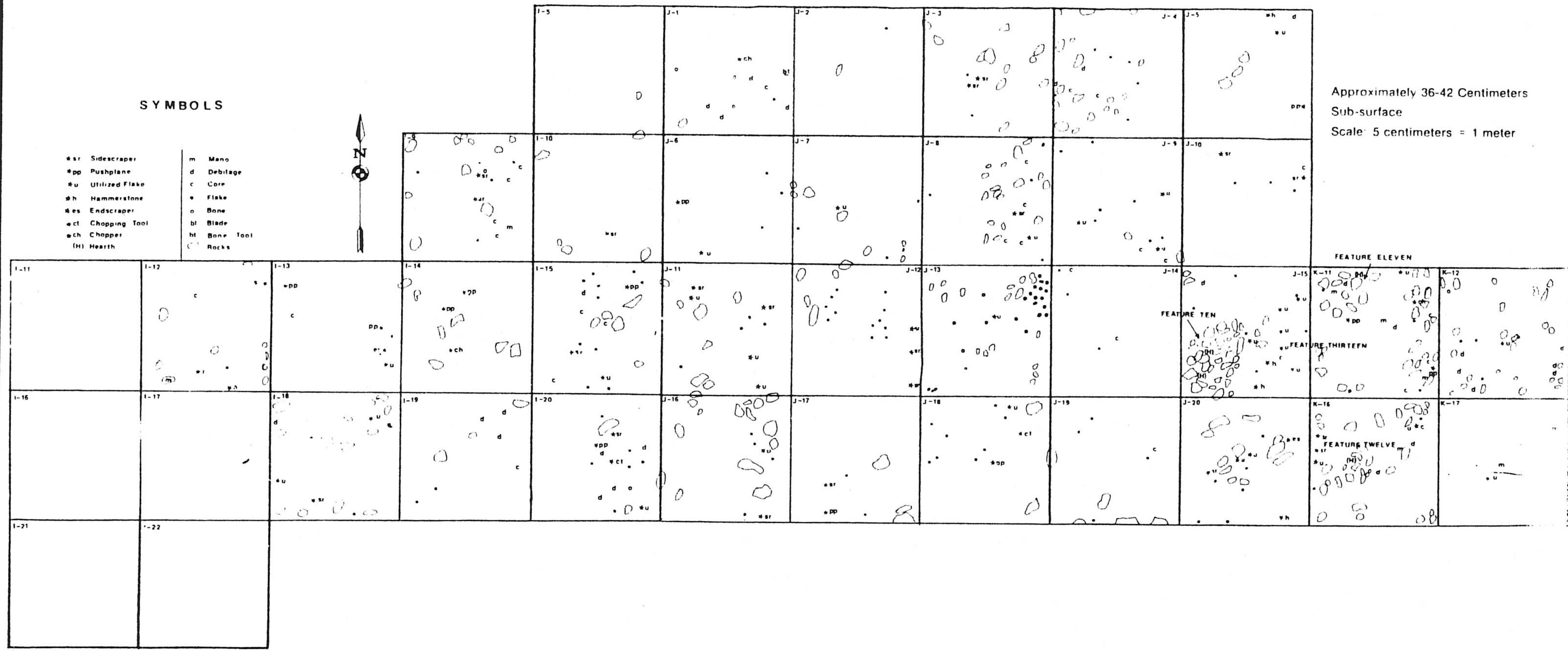


Figure 36. Rancho Park North, Site A, Locus II, Cultural Level IV, plotting of *in situ* material.

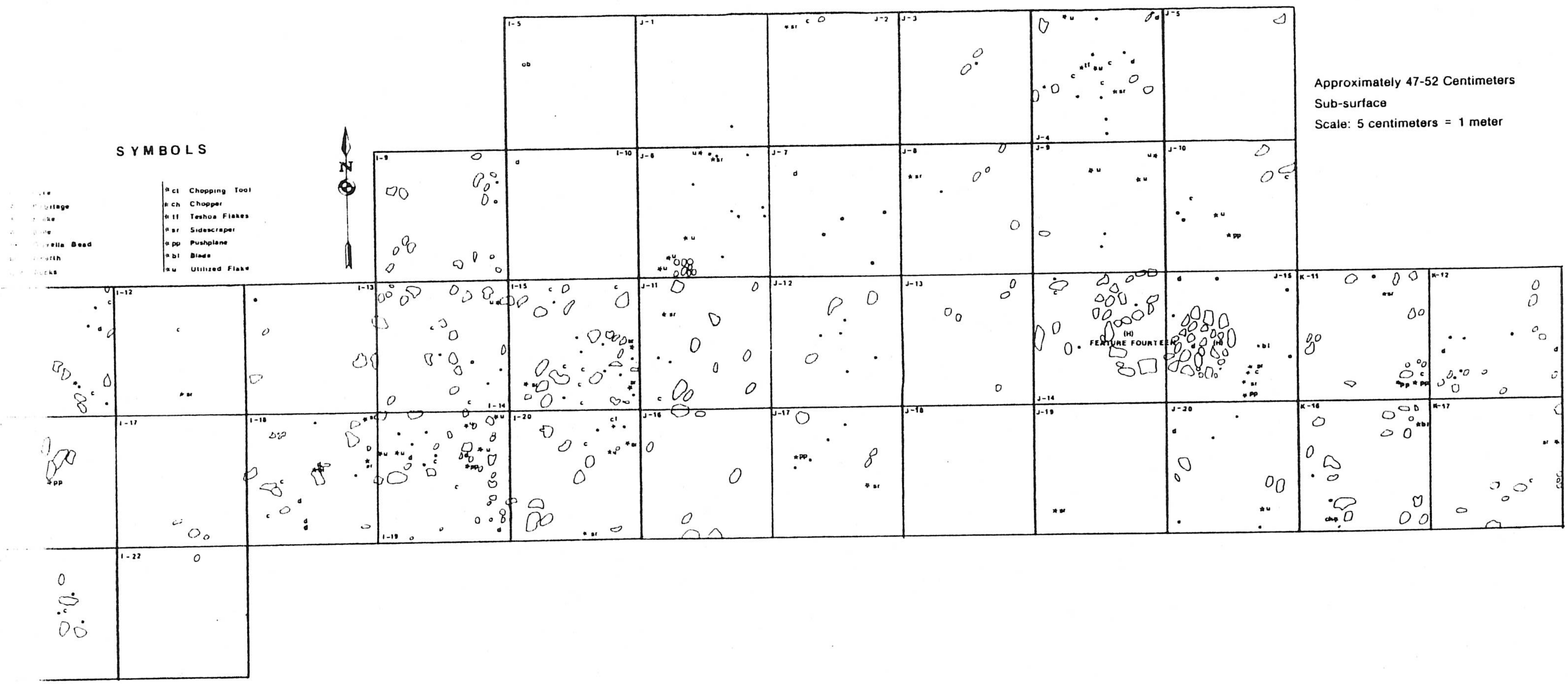


Figure 38. Rancho Park North, Site A, Locus II, Cultural Level V, plotting of *in situ* material.

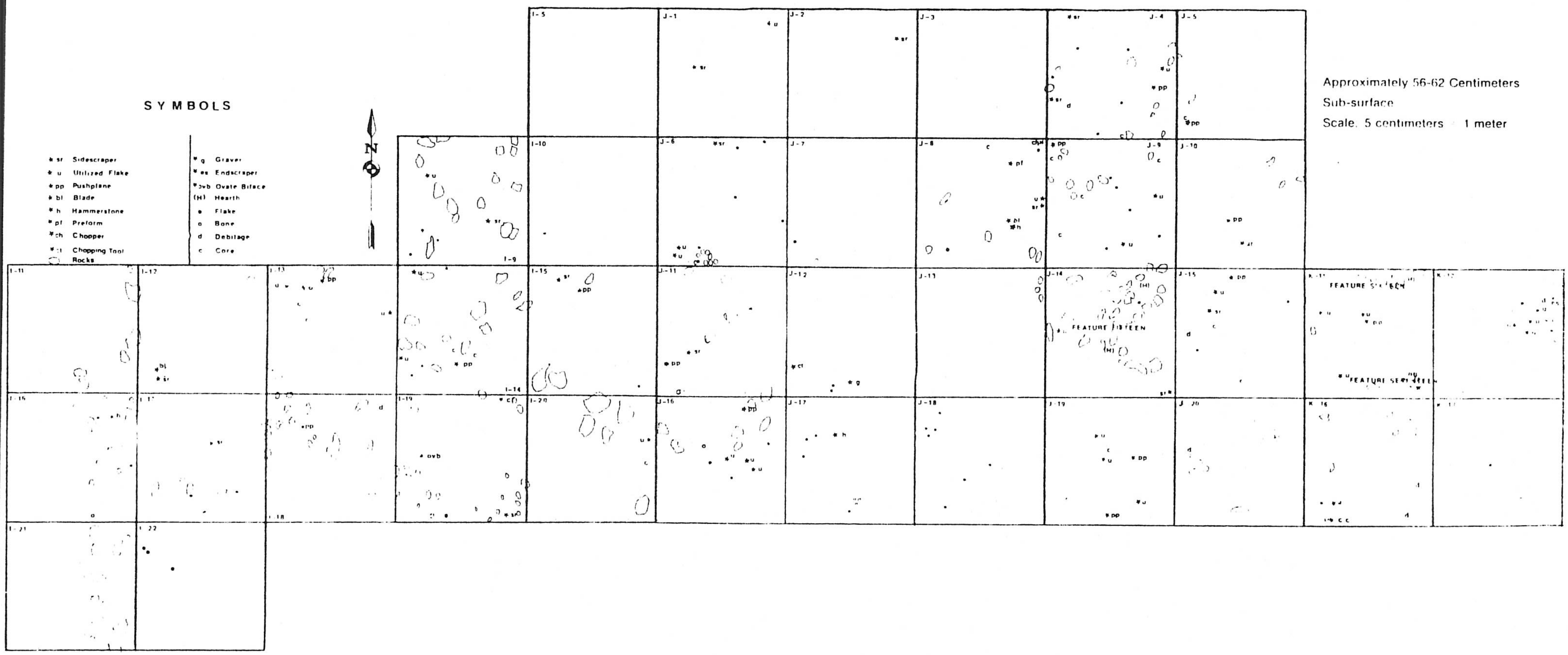


Figure 40. Rancho Park North, Site A, Locus II, Cultural Level VI, plotting of *in situ* material.

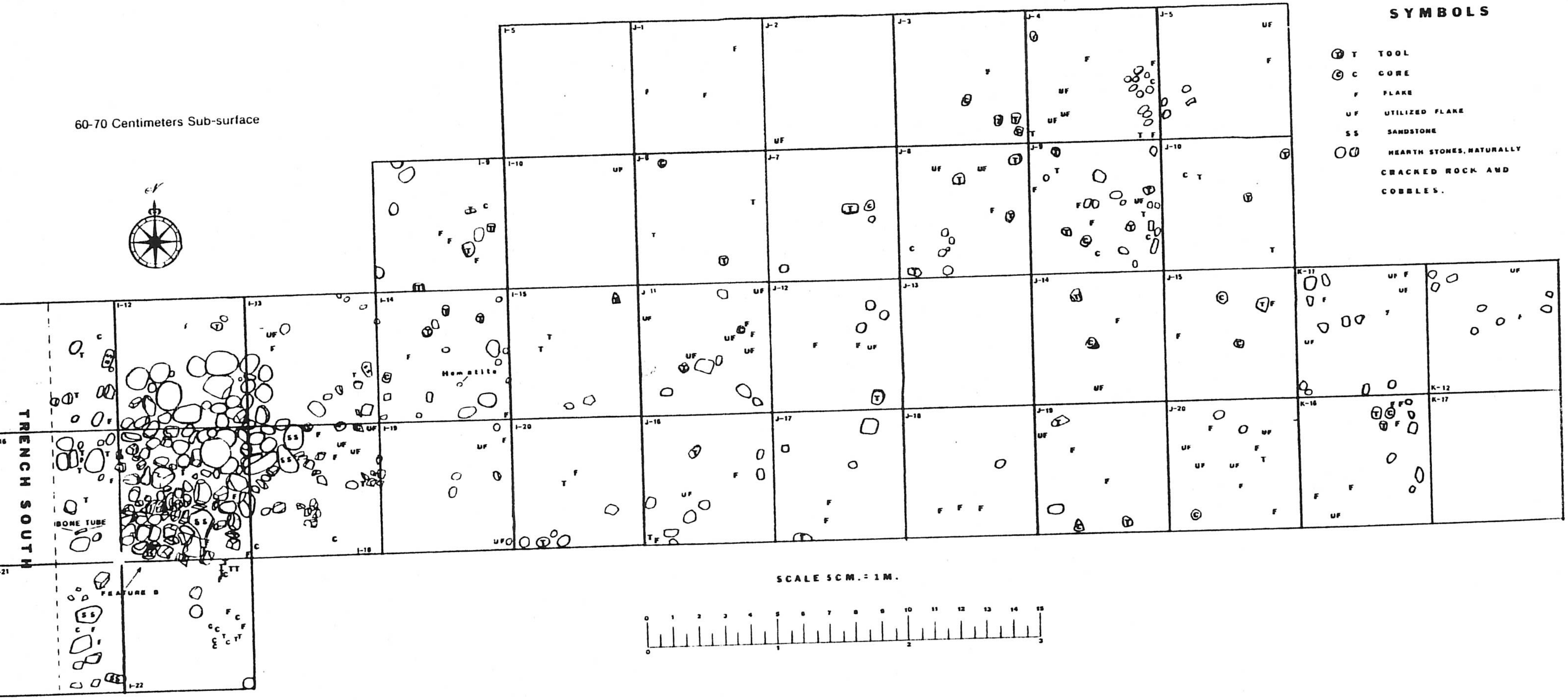


Figure 42. Rancho Park North, Site A, Locus II, Cultural Level VII, plotting of <u>in situ</u> material.

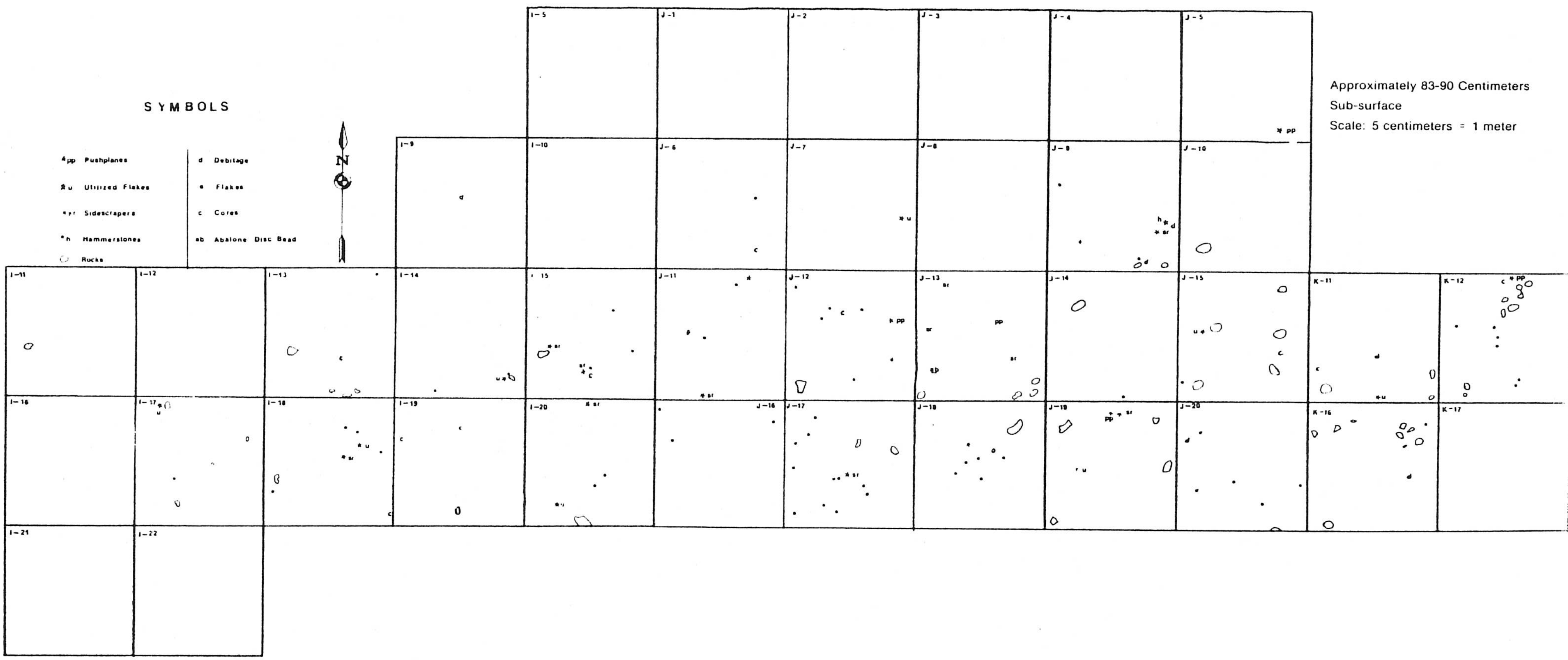


Figure 44. Rancho Park North, Site A, Locus II, Cultural Level IX, plotting of in situ material.

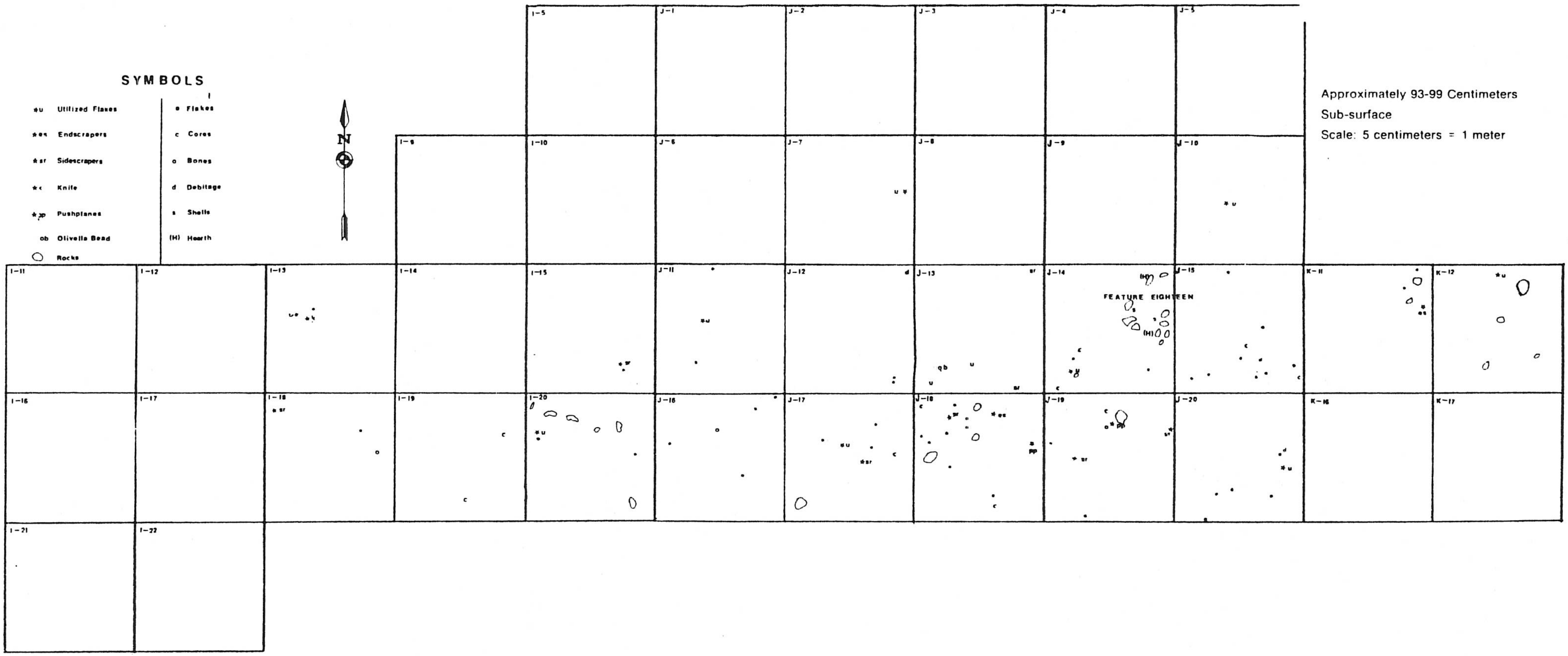


Figure 45. Rancho Park North, Site A, Locus II, Cultural Level X, plotting of *in situ* material.

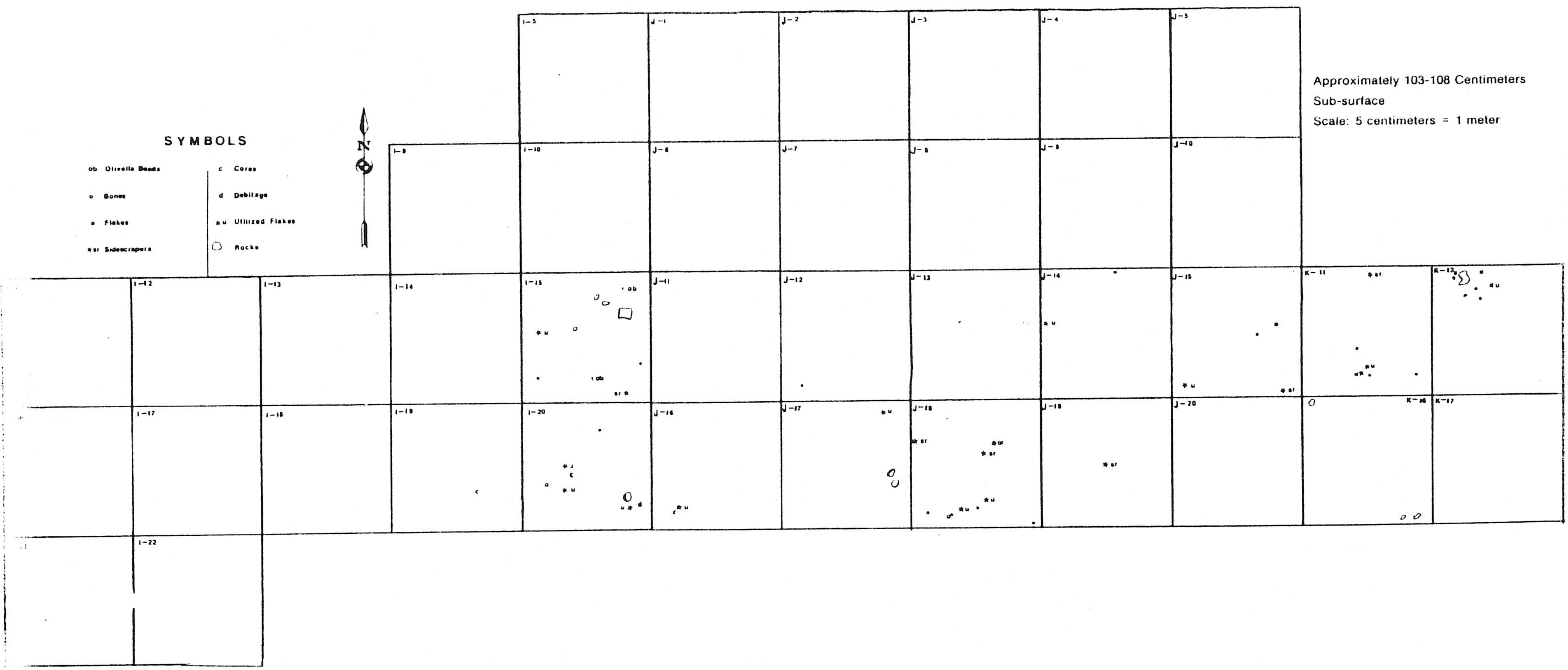


Figure 46. Rancho Park North, Site A, Locus II, Cultural Level XI, plotting of in situ material.

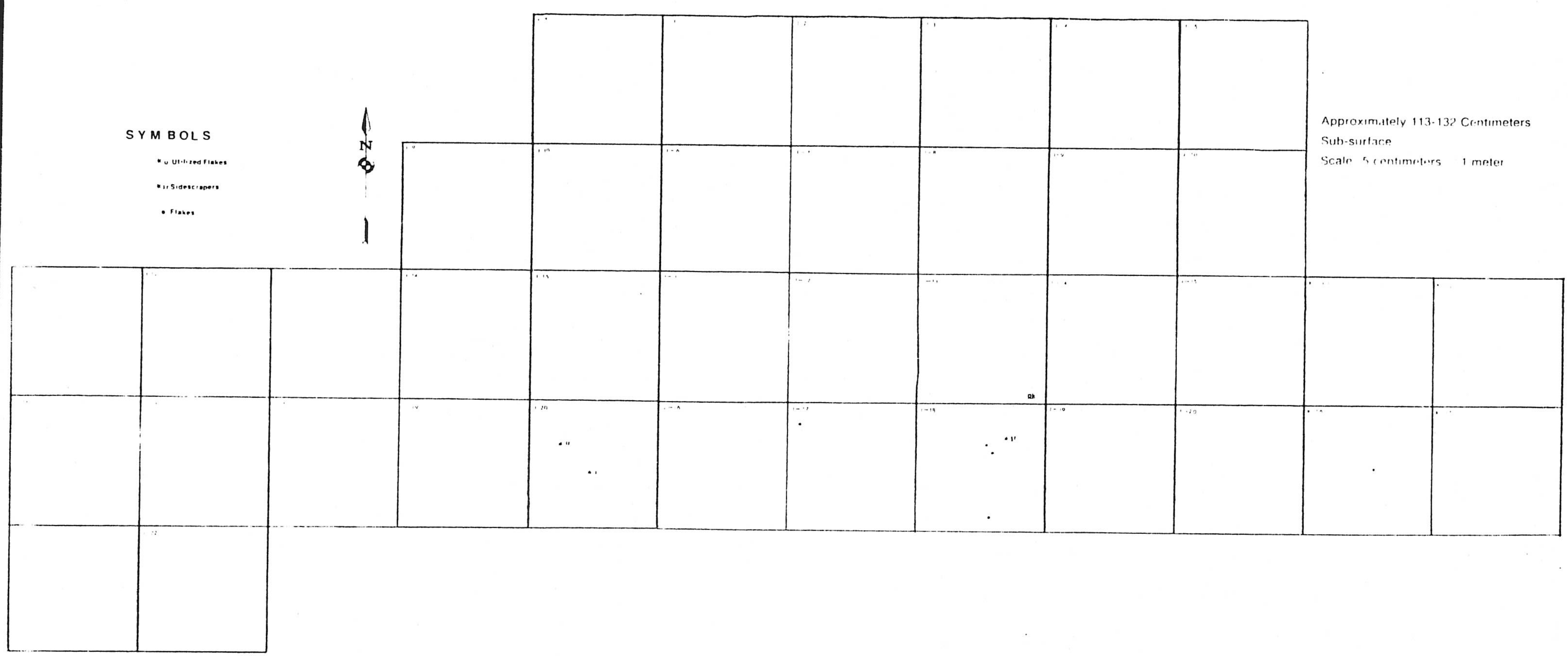
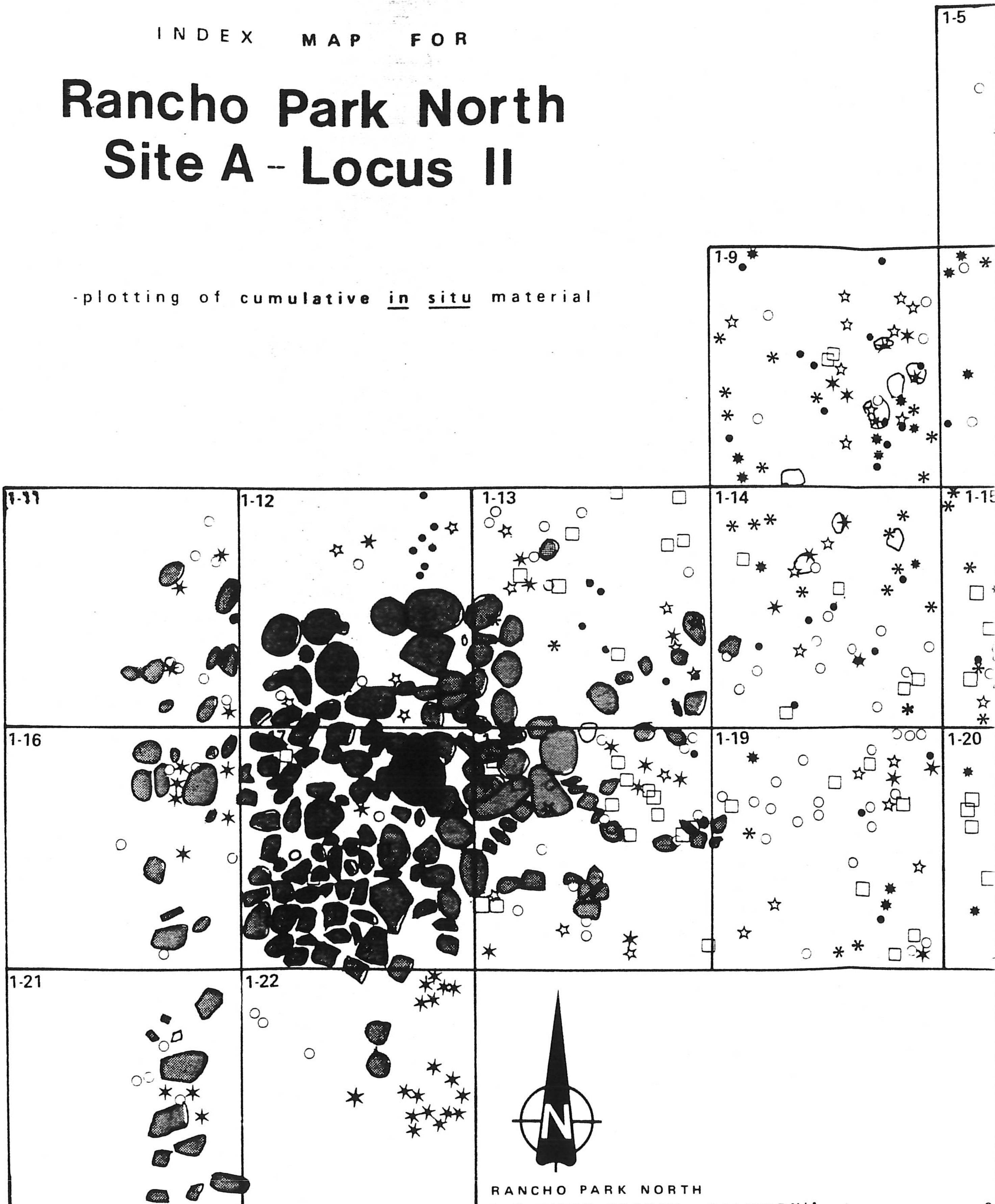


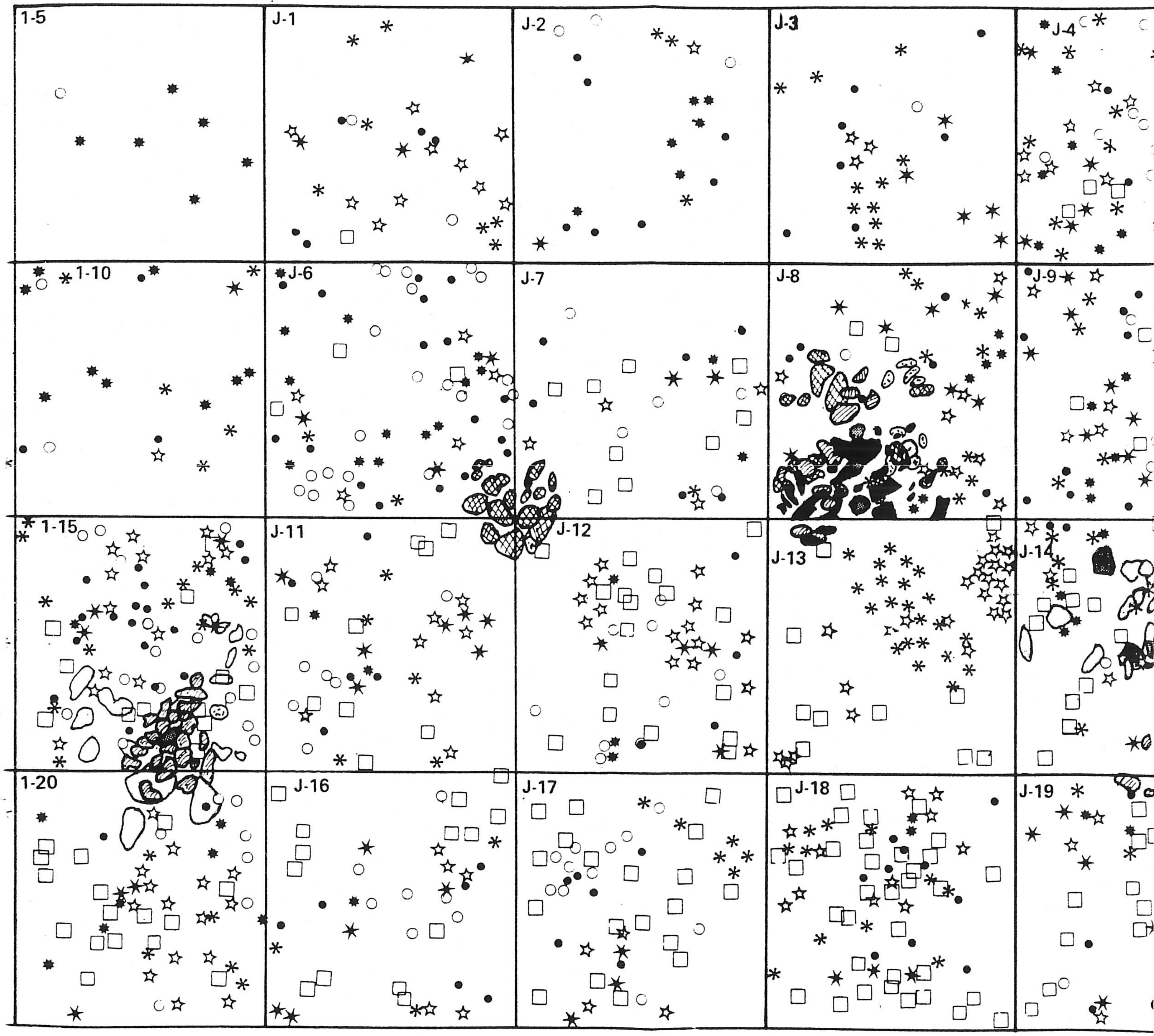
Figure 47. Rancho Park North, Site A, Locus II, Cultural Levels XII and XIII, plotting of <u>in situ</u> material.

INDEX MAP FOR

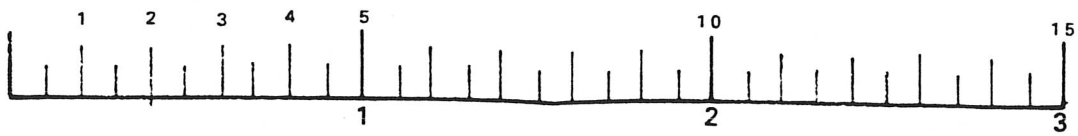
Rancho Park North
Site A - Locus II

-plotting of cumulative <u>in</u> <u>situ</u> material





SCALE: 5 centimeters = 1 meter



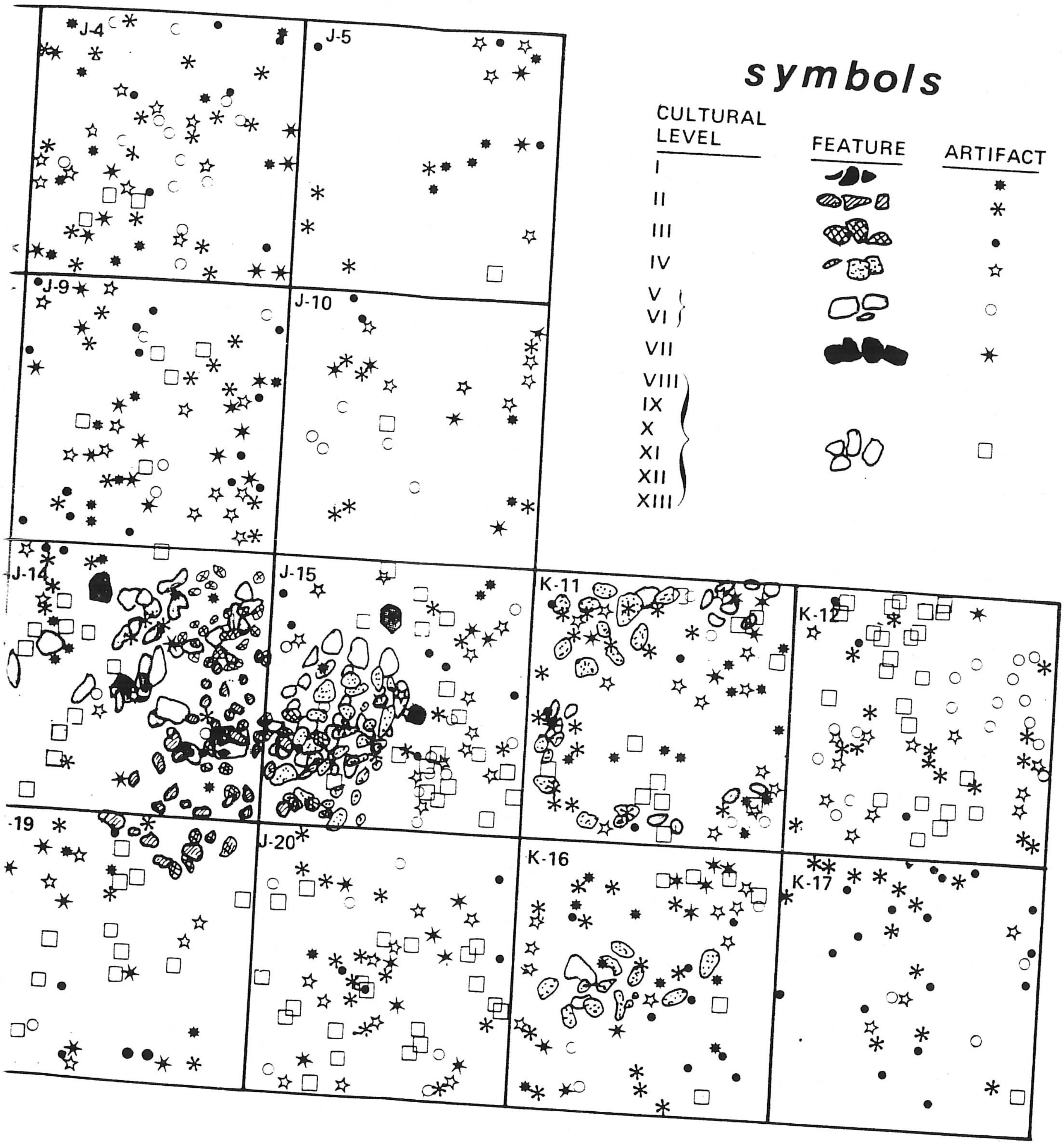


Figure 50. Index map for Rancho Park North, Site A, Locus II. (Plotting of cumulative *in situ* material).