THE MANIX LAKE LITHIC INDUSTRY IN HISTORICAL PERSPECTIVE

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ABSTRACT

The Lake Manix Complex is found in the Mojave Desert along ancient shorelines and represents on of the earliest human occupations of the Desert. This paper examines relevant data on the complex and discusses some of the most recent thoughts on both the temporal and cultural placement of the complex. Dee Simpson's pioneering work is referenced and placed into perspective.

Introduction

The Manix Lake Lithic Industry was recognized in the late 1950s and early 60s as a very real contender for a Pre-Clovis date by such noted archaeologists as Krieger (1962, 1964), Willey and Phillips (1958), and Meighan (1965) among others. Today, one may read about the great arguments regarding Calico, but seldom is there mention of the Manix Lake Lithic Industry. This paper addresses two questions: 1. What was it in the early 1960s that made the Manix Lake Industry attract positive interest from at least some conservative archaeologists? 2. What prevented its acceptance as a valid early assemblage? Ritner J. Sayles introduced Ruth Simpson to the Manix Lake Industry in 1942 by taking her to sites he had found in the Manix Basin. Between 1954 and 1964, Simpson conducted a survey in the area of Lake Manix to locate and evaluate the sites. In her early papers Simpson (1958, 1960, 1961) presented an enticing argument in support of an ancient date for the Manix Lake Lithic Industry. She noted that the sites of the Manix Lake Industry occur on or above the highest beach lines of Lake Manix, whereas "Playa" and later industries were found along lower beach lines. Since Manix Lake Industry sites were on higher beaches relative to the other assemblages, Simpson reasoned that the Manix Lake Industry was the oldest. Simpson (1958, 1960, 1961) also asserted that her conclusion was supported by the absence of projectile points in the Manix Lake Industry and by its typological similarity to the Paleolithic of the Old World. Furthermore, radiocarbon dates on tufa from the highest beach line of Manix Lake dated to 19,500 ± 500 (LJ-269; Hubbs, Bien and Suess 1962:227) and 19,300 ± 400 years ago (UCLA-121; Ferguson and Libby 1962:109). Similar assemblages were known, or soon would be reported, at Panamint Basin (Davis 1970) and Death Valley (Clements and Clements 1953), as elements of the Malpais Industry (Rogers 1939:6-22), at Lake Chapala in Baja California (Arnold 1957), at a site near the Valley of Fire in southern Nevada (Perkins 1974), the Baker site (CA-SBr-541, Nakamura 1991), and Bow Willow quarry (SBr-4204, Bergen and Ferraro 1987). Other sites with similar assemblages would also be found at greater distances from Manix Lake.

The Manix Lake Lithic Industry contained percussion flaked bifaces, cores, choppers, scrapers, and waste flakes. Although Simpson's claim of Paleolithic similarities probably detracted from her argument, the Lake Manix complex was more difficult to reject than the Texas Street material because everyone agreed that the items that made up the Manix Lake Industry unquestionably were artifacts. Furthermore, the location of the sites at elevations along high stands of Pleistocene Lake Manix and above suggested the Manix Lake Lithic Industry was associated with the Pleistocene lake, dating to ca. 20,000 years ago.

In order to disprove the existence of a Manix Lake Industry of Pleistocene age it was necessary either to show the tool assemblage was not a bonafide archaeological assemblage, or to demonstrate that the Manix Lake Industry sites were not old. Some criticisms of Simpson's work, such as the similarities of the Manix Lake tools to those of the Paleolithic, were not relevant to the age or the validity of the assemblage. These will not be discussed. The problem of the age and embeddedness of tools in desert pavement will also be omitted from this paper because it is now clear that the various processes which form desert pavement remain unclear, so that it is not possible to make a valid assessment of age on the basis of embeddedness of artifacts in such surfaces (McFadden et al. 1987, Wells et al. 1995, Bamforth and Dorn 1988). The focus of this discussion will be an evaluation of critics' attempts to 1) disprove the Pleistocene age of the Manix Lake Lithic Industry and 2) show that the artifact assemblages are the result of quarry and workshop activities.

"Early Lithic Tradition or Workshop Refuse?"

This question was the subtitle of Glennan's 1976 article which advanced the claim that the Manix Lake Lithic Industry constituted quarry workshop material rather than a Pleistocene industry. Glennan (1974:32-33) argued that the Baker site probably represented a combination of workshop and habitation, and did not contain all the types of tools made at the time. He suggested that the people who occupied the site had "...a technology equal to the task of producing projectile

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points...," but asserted that the sample of tools from the Baker site was too small to include them.

Glennan (1974) offered no evidence why he thought the technology at the Baker site was equal to the task of producing projectile points. It is not clear what he meant by this statement, but I suspect that one might find archaeologists today who would say the same thing about Lower Paleolithic assemblages (especially if they did not know of their Lower Paleolithic origins). Glennan also does not indicate why he thinks the sample size is too small. However, if the collections from all the Manix Lake Lithic Industry sites are considered, probably now that argument would hold, especially since Simpson has been accused of a collecting bias toward acquisition of "more finished" items (Glennan 1976:56). That being the case, if projectile points were present they probably would be found, as at the basalt quarries of eastern Oregon reported by Bryan and Tuohy (1960).

Finally, Glennan (1976:44) notes that Simpson claimed completed artifacts were included in the assemblage, that well-made bifaces are found away from the workshop areas, and that such specimens are more fully completed artifacts which often exhibit edge retouch. Glennan seems to simply assert that Simpson is wrong, but he fails to provide the necessary empirical data to support his statements.

Bamforth and Dorn (1988:219) also note that Simpson (1960) repeatedly has asserted that some of the best evidence for the hypothesis that the Manix Lake artifacts indicate habitation areas rather than quarry activity is that they are not associated with nearby workshops. However, none of the participants in the Manix Lake debate have ever reported the full distribution of isolates.

After conducting data recovery at a series of quarry workshops in the vicinity of Manix Basin, Bamforth and Dorn (1988:219) observe that the data collected suggested that the significance of the distribution of isolates on desert pavement sites cannot be evaluated unless post-depositional processes are taken into account. Bamforth and Dorn then cite Bowers et al. (1983) study of dispersion of surface clusters of flakes and construct a model for the dispersion at the sites investigated. A test of this model indicated that the data support their predictions. The degree of dispersion of clusters of flakes is similar to that of cores and bifaces on all three sites, and on the only site where a difference between the two is visible (SBr-2100), the bifaces and cores are more scattered than the clusters. Furthermore on SBr-2100 and -2223 isolated flakes are noticeably more widely distributed than either bifaces or cores. On SBr-3183 all classes of material show essentially identical degrees of dispersion, indicating the more level surface of SBr-3183 has reduced the degree of artifact movement. Bamforth and Dorn (1988:222) conclude that the isolates on the sites were once part of clusters that have dispersed. However, this does not necessarily indicate a Pleistocene date for the items.

In the early 1980s the Bow Willow South sites (Bergin and Ferraro 1987; Bergin, Ferraro and Warren 1985) were recorded at Fort Irwin. One of these sites (SBr-4204) was an extensive chalcedony quarry workshop complex. This site contained a large number of bifaces, cores, modified flakes and occasional other artifacts. The material originated from a seam of chalcedony several inches thick and from weathered surface nodules of chalcedony. The artifacts are similar to, if not identical with, specimens of the Manix Lake Lithic Industry. Nearby are located four sites that contain the chalcedony in quantity and/or form, indicating the use of the quarry workshop by their occupants. One occupation site, located on the edge of the quarry area and limited to the surface of the desert pavement, contained Lake Mojave and Pinto artifact types. The local chalcedony source was well represented in the collection. Other sites include a midden up to 30 cm. deep which dated to 330±60 B.P. and two rockshelters. Shelter SAD-1 (SBr-5365) contained Desert Side-notched points and produced a radiocarbon date of 290±60 B.P. The third site is the larger rockshelter (Palmer site) from which Cottonwood triangular (11), Desert side-notched (8), Rose Springs (9), and Elko (2) points were recovered. Radiocarbon dates in stratigraphic order are 2010±70 B.P. for the Basal level, 1310±70 B.P. for midden beneath a large block of rock fall, and 1310±70 for a pit in which a large number of flakes was heat treated (Bergin et al. 1985, Cleland 1987:145-149; Bergin and Ferraro 1987, Appendix A, Radiocarbon Analysis).

Large bifaces, broken and complete, both roughly flaked and finely flaked, were found in all of these sites. At the Palmer site, heat treating of chalcedony flakes had occurred. There can be little doubt that the peoples of the Protohistoric, Saratoga Springs, and perhaps the late Gypsum period utilized this chalcedony quarry and workshop (Bergin and Ferraro 1987).

Unfortunately, analysis of the material never has been funded, so many questions remain unanswered. Is the Manix Lake Lithic Industry really quarry workshop refuse? There is increasing evidence that there are quarry workshop artifacts that appear indistinguishable from Lake Manix implements. However, comparative analyses of the technology and typology of Manix Lake artifacts is yet to be done. The Bow Willow Wash quarry has some special problems that point up the need for such analyses. The source is a seam of chalcedony which is so thin it limits certain technological choices. The most economical and expedient way of removing large, usable flakes from many of the pieces from the seam is by bifacial flaking of the narrower edges. This raises the possibility that the bifaces may have been made from necessity rather than choice. This creates the further possibility that these bifaces may represent the convergence of two or more independent technological trajectories (Bergin et al. 1985, Bergin and Ferraro 1987).

The Bow Willow quarry (SBr-4204) is over four kilometers long and up to a kilometer wide. It is a very large source area and apparently has been used since the Lake Mojave period or earlier. The size of the quarry and its long use has produced many bifaces and cores that were left lying about the surface. This long use raises the question, were these bifaces made by the late occupants of nearby sites, or were they produced by earlier occupants and merely picked up and used by the later peoples? There are data that suggest that the quarry workshop debris is similar to the Manix Lake Lithic Industry. However,

whether or not it is Manix Lake material remains an open question.

Nakamura (1991) attempted to deal with all of these questions in his paper on the Baker Site. Nakamura conducted salvage archaeology at this site in conjunction with the construction of the 1-15 Freeway just west of Baker, California. Nakamura submitted a mimeographed report to the California Department of Parks and Recreation in 1966, but this paper was not published until 1991. Many archaeologists were aware of Nakamura's work, but few saw a copy of his report until it was published. The long delay is unfortunate, for his work might well have directed research on the Manix Lake Industry toward different goals if it had been published or made readily available in 1966.

Nakamura recognized the fundamental problem of ascribing meaning to the technological simplicity of the Manix Lake Industry. Regarding the Manix Lake and similar artifacts, he writes (1991:27): "Although exhibiting the same form, these kinds of artifacts may actually represent three different things, for technologic simplicity has three general meanings." Nakamura (1991:27-29) characterizes tools as of primary or secondary origin, or as juvenescent artifacts. Tools of primary origin represent an early stage in the chronological development of tools in general, i.e., tools of the Lower Paleolithic. These tool forms persist in time and may occur in later assemblages. Tools of secondary origin represent a move toward simplification of more complex tools. This change may be brought about by use of poor quality materials, or by a trend from tool specialization to more generalized tools. Juvenescent artifacts are artifacts that are not yet finished into their final form. They are today called 'stages of manufacture.' Nakamura simply notes that a tool can be taken out of the trajectory of manufacture at any stage because of flaws in the material, or errors in workmanship, or taken in an early stage to use as a finished tool.

Nakamura (1991:28) also notes that artifacts may have temporal meaning and morphological meaning. However, in the case of the Manix Lake Industry, the artifacts have no temporal meaning because their crudeness does not relate to time alone. That is, they may be recent quarry blanks and rejects and date to late, middle or early periods. Morphology also supplies no specific meaning or function. Morphologies identify only the three-dimensional aspects of artifacts. The function of an artifact limits the form, but a given form may be used for many functions.

Finally, Nakamura (1991:28-29) warns against convergence and false analogy. It is possible that the Manix Lake Industry and similar artifacts from other sites are the result of convergence of forms that has taken place at vastly different times for very different reasons. If we draw an analogy between similar forms of different assemblages and they are convergent, then our analogy is false. Given the state of our knowledge regarding the technology, function, and age of the Lake Manix artifacts and similar assemblages, the analogy between the Lake Manix artifacts and quarry refuse may be a false analogy. Bamforth and Dorn's (1988) lithic analysis of the quarry workshops is a step in the right direction, but the analyses required to attack the many facets of these problems barely has begun.

The Age of the Manix Lake Lithic Industry

Simpson's (1958, 1960, 1961) reasoning for the association of the Manix Lake Lithic Industry with the high shorelines of Lake Manix is clear. However, she supplies too few data regarding this relationship. Consequently Glennan feels he must reject her interpretation of the association, and the great antiquity of the Manix Lake Industry. Glennan (1976) wrote:

> ... The limited distribution of Manix Lake specimens in that area close to the raw material source would also support the idea of a workshop. If such were not the case, it would be necessary to explain why the Manix Lake peoples failed to make use of the entire periphery of the ancient lake as did the Playa and later groups. The Manix Lake lithic industry sites are located where they are, above 1801 feet along the northwestern edge of Manix Lake, because that is where the alluvial fan with the raw stone is found.

A similar position is taken by Bamforth and Dorn (1988:220, 222). They note that Glennan's position "clearly implies that the density of artifacts should be much higher on the pavements than off them, with proximity to the 1,780-ft shoreline having no effect on this relationship. Conversely, if artifacts are associated with the shoreline, they should be evenly distributed on and off the pavement above the 1,780-ft. level. If isolates are the dispersed remnants of clusters, and the clusters are directly associated with the pavements, the relationship between pavements and cluster densities should be somewhat stronger than for the isolate densities as isolates may have washed off the pavements onto the surrounding flats." The authors report that both cluster and isolated artifacts overwhelmingly are more abundant on the pavements than off. Therefore, they reason, the artifacts are associated with the desert pavements, not with Lake Manix. This interpretation would be valid if they had considered all variables. However, if the beach lines of Lake Manix are analogous with the beach lines of Lake Mojave, their argument may not hold.

None of the participants in this argument have described the physical conditions of the beach lines at Lake Manix. However, if the desert pavements are formed on the old beach surfaces as they are at Lake Mojave, and the ground surfaces adjacent to these pavements are eroded or covered with recent alluvium or colluvium, then the argument may be made that the desert pavements are the only local surface as old as Lake Manix. That being the case, it may be argued that the artifacts and clusters are overwhelmingly associated with the desert pavements because the artifacts are as old as Lake Manix and its beaches, and other surfaces are younger than the Lake Manix artifacts.

Finally, Bamforth and Dorn (1988:214) report cation-ratio dates ranging from 400 to 32,000 years B.P. for the artifacts

and flakes from the Manix Lake Lithic Industry. These dates suggest that the assemblage persisted for a very long time, or convergence of types has caused very different kinds of artifacts to assume similar forms. Another explanation why these dates are so disparate is that the cation-ratio dating is not consistent. Cation-ratio dating is not considered by many scientists to be a valid dating system. It must be considered experimental and the dates it provides here have to be questioned.

Manix Lake Lithic Industry: Some Reflections on its History

The problem of the age of the Manix Lake Lithic Industry is not yet solved. Little has changed in its status since the 1960s. Why is it that the Manix Lake Industry has not been carefully studied by more archaeologists; why is it not now generally accepted? Several reasons come to mind: 1. L. S. B. Leakey's interest in the Calico site deflected both energy and attention from the Lake Manix Industry. 2. The Calico site was not generally accepted by the archaeological profession. The association of the Calico site with the Manix Lake Industry has detracted from the study of the Manix Lake Industry. 3. Bada's amino acid racemization dating, developed in the 1970s, supported the early dates of *Homo sapiens* in the New World and especially California. However, that dating technique crashed and the California dates for early *Homo sapiens* proved to be Holocene. Pleistocene dates for *Homo sapiens* in California were no longer supported (Taylor et al. 1985).

Studies of Pleistocene man were severely criticized in the 1980s and the Calico site was generally rejected as a valid archaeological site (Meighan 1983). With the loss of valid racemization dates and the rejection of the Calico site the Manix Lake Lithic Industry became an enigma on the archaeological landscape.

In 1983 Meighan noted that with regard to Calico, and other such early sites, the lines were well drawn between "believers," "agnostics," and "skeptics." If Meighan expressed the views of skeptics, he probably would apply the term "crackpot archaeologist" to the believers. The category of "crackpot archaeologist" is not new to the field but it is always helpful to look to the history of the discipline to put current problems in perspective.

The claims of "crackpots" like Boucher de Perthes and Father John McEnery later became the accepted interpretations, establishing the great antiquity of mankind. Prior to the acceptance of their interpretations they were severely criticized and in de Perthes' case, ostracized. Closer to home, Luther Cressman and Elizabeth Campbell were both ridiculed for their interpretations of early man in the west, but both proved to be more nearly correct than their critics. These were individuals who were instrumental in pushing our understanding of the early man into the modern era.

And what of those conservative, safe and sound, practitioners of science who were the critics of these new ideas? How do they look in the history of the discipline? Although called the father of modern geology, Charles Lyell was not willing to admit man to great antiquity prior to the 1859 recognition of artifacts associated with remains of extinct animals. During the years before 1859 Lyell often took a position against the antiquity of man, as did most other leading geologists of the day (Grayson 1983). In historical perspective it is often difficult to tell which of the scientists engaged in those historic intellectual battles were the "crackpots" and which were heroes. Understanding of the context in which the arguments developed often makes the position of both believer and skeptic more believable, without doing injustice to scientific data, sound interpretation, or one's intellect. Let us examine briefly how the concept of the Manix Lake Lithic Industry stewed in the context of early man studies in California.

Ruth Simpson defined the Manix Lake Lithic Industry in 1958 and it is in the context of early man studies of the decade of the 1950s that it was first evaluated. Early in that decade Heizer (1952:3) wrote: "It is my own opinion, based upon information known to me, that within the confines of California there has not yet been discovered a single human skeleton or implement about which one can say, 'This is without doubt truly ancient,' and by the use of the word 'ancient' I mean something in the order of 10,000 or 15,000 years."

Prior to 1950 the work of the Campbells and Antevs on the Pleistocene Lakes in the Mojave Desert was rejected along with M.R. Harrington's claim for the antiquity of the Borax Lake site and Cressman's claim for early man in Oregon. By 1958 Cressman had demonstrated the antiquity of man in Oregon, but the works of Campbell and Harrington were still discredited along with George Carter's (1957) Pleistocene man at San Diego and Phil Orr's (1956, 1960a, 1960b, 1962) hunters of dwarf mammoths on Santa Rosa Island, Clements' (1953) Pleistocene man in Death Valley, the Tranquility site (Hewes 1946), and the Farmington Complex (Treganza 1952, Treganza and Heizer 1953).

As late as 1959 Meighan wrote:

> Artifacts of the fluted point traditions are generally absent in California. A few scattered points have been reported, but their cultural affiliations are not clear. Points of the Middle Central California culture are frequently concave-based and have basal thinning, suggesting but not duplicating the fluted appearance of Clovis points. The Californian examples are most often of obsidian and are sometimes shaped by very careful pressure flaking. The greatest number of such points is reported from the Borax Lake site in northern California (Harrington 1948). There is considerable divergence of opinion over the position of the Borax Lake site and its fluted points, but there now seems to be general agreement that the points are not to be equated typologically with Folsom points.... The Borax Lake problem is further complicated by the presence of a few points which could be in the Clovis-Folsom tradition (1959:290).

California archaeologists were not quite certain what to do with these fluted points but Meighan (1959:290,298) sug-

gested that they may be intrusive and that the Borax Lake complex dated to between ca. 2000 and 3000 years ago.

The argument regarding Pleistocene and interglacial man was furthered in the late 50s and early 60s by Ruth Simpson's introduction of the Manix Lake Lithic Industry (Simpson 1958, 1960, 1964, 1965). By 1964 Heizer had accepted a date of more than 7000 years for the San Dieguito component at the Harris site because of the 1959 excavations and radiocarbon dates (Warren and True 1961), but he still maintained a conservative stance, writing: "While the Santa Rosa Island, Lake Mohave, and Lake Manix materials may be ancient, they have not been adequately demonstrated to be so" (Heizer 1964:121-122).

Meighan had accepted some of the early man finds by 1965 and made some positive comments regarding the Manix Lake Complex. He noted that the Lake Manix complex consisted of surface finds, was inadequately described at that time, but had potential for helping to define a pre-projectile horizon. By the mid-1960s the pundits of California archaeology had argued themselves into an interesting position regarding early man in California. San Dieguito was accepted as more than 7000 years old, Lake Manix was considered the "best contender" for Pleistocene pre-projectile assemblages, but the fluted points at Borax Lake were not yet accepted as early. Looking back from today's perspective, it is difficult to determine who were the "believers" and who were the "skeptics" in 1964. This is not to make light of Meighan and others since Meighan was instrumental in determining the correct age of the Borax Lake fluted points (Meighan and Haynes 1968, 1970). It must be emphasized that all the answers are never known at any given moment, and a single find or a single insight can change our perception and our understanding of the past -- that is, unless we have closed our minds to ideas that upset our own private paradigms.

In 1965 Meighan summed up the state of the knowledge of the Manix Lake Industry. What he wrote then seems to be equally applicable today: "This [the Manix Lake Industry] is the best contender for a tradition of great age that is not a projectile point tradition; the assemblages merit the most careful study and description" (Meighan 1965:715).

REFERENCES CITED

Arnold, Brigham A.
1957 Late Pleistocene and Recent Changes in Landform, Climate, and Archaeology in Central Baja California. *University of California Publications in Geography* 10(4).

Bamforth, Douglas B. and Ronald I. Dorn
1988 On the Nature and Antiquity of the Manix Lake Industry. *Journal of California and Great Basin Anthropology* 10(2)209-226.

Bowers, P., R. Bonnichsen, and D. Hoch
1983 Flake Dispersal Experiments: Noncultural Transformation of the Archaeological Record. *American Antiquity* 48:553-572.

Bergin, Kathleen A. and David D. Ferraro
1987 Interim Report: Data Recovery of Bow Willow Wash South. *Fort Irwin Archaeological Project Research Report 20.* Wirth Environmental Services, a Division of Dames and Moore, San Diego.

Bergin, Kathleen A., David D. Ferraro and Claude N. Warren
1985 The Data Recovery of Three Sites in Bow Willow Wash South: the Field Work Phase, Fort Irwin, San Bernardino County, California. *Rort Irwin Archaeological Project Research Report 14.* Wirth Environmental Services, a Division of Dames and Moore, San Diego.

Bryan, Alan L. and Donald R. Tuohy
1960 A Basalt Quarry in Northeastern Oregon. *Proceedings of the American Philosophocial Society* 104(5):5 55-510.

Carter, George F.
1957 *Pleistocene Man at San Diego.* Johns Hopkins Press.

Campbell, Elizabeth W.C. and William H. Campbell
1937 The Lake Mohave Site. In Elizabeth W.C. Campbell et al., The Archaeology of Pleistocene Lake Mojave; a Symposium. *Southwest Museum Papers* 11:9-44.

Clements T. and L. Clements
1953 Evidence of Pleistocene Man in Death Valley, California. *Geological Society of America Bulletin* 64:1189-1204.

Cleland, James H.
1987 Chapter 4 - Discussion and Conclusions. In K.A. Bergin and D. D. Ferraro, Interim Analysis Report: Data Recovery of Bow Willow Wash South. *Fort Irwin Archaeological Research Report 20.* Wirth Environmental Services, a Division of Dames and Moore, San Diego.

Davis, E. L.
1970 Archaeology of the North Basin of Panamint Valley, Inyo County, California. *Nevada State Museum Anthropological Papers* 15:83-141.

Ferguson, G. J., and W. F. Libby
1962 UCLA Radiocarbon Dates I. *Radiocarbon* 4:109-114.

Glennan, W. S.
1974 The Baker Site (SBr-541): An Early Lithic Assemblage from the Mojave Desert. *Pacific Coast Archaeological Society Quarterly* 10(2) :17-34.
1976 The Manix Lake Lithic Industry: Early Lithic Tradition or Workshop Refuse? *Journal of New World Archaeology* 1(7) :42-61.

Grayson, Donald K.
1983 *The Establishment of Human Antiquity*. Academic Press.

Heizer, Robert F.
1952 A Review of Problems In the Antiquity of Man in California. *University of California Archaeological Survey Reports* 16:3-17.
1964 The West Coast of North America. In J.D. Jennings and Edward Norbeck, eds., *Prehistoric Man in the New World*:149-74. University of Chicago Press.

Hewes, G.W.
1946 Early Man in California and The Tranquillity Site. *American Antquity* 7(2):123-133.

Hubbs, C., G. Bien and H. Suess
1962 La Jolla Natural Radiocarbon Measurements II. *Radiocarbon* 4:204-238.

Krieger, A. L.
1962 The Earliest Cultures in the Western United States. *American Antiquity* 28(2):138-144.
1964 Early Man in the New World. In J. D. Jennings and E. Norbeck, eds., *Prehistoric Man in the New World* 23-81. University of Chicago Press.

McFadden, Leslie D., Stephen G. Wells and M. J. Jercenovich
1987 Influence of Eolian and Pedogenic Processes on the Origin and Evolution of Desert Pavement. *Geology* 15:504-508.

Meighan, Clement W.
1959 California Cultures and the Concept of the Archaic Stage. *American Antiquity* 24(3):289-305.
1965 Pacific Coast Archaeology. In H. E. Wright and D.C. Frey, eds., *The Quaternary of the United States* :709-720. Princeton University Press.
1983 Early Man in the New World. In P. M. Masters and N. C. Flemening, eds., *Quaternary Coastlines and Marine Archaeology* 441-461. Academic Press.

Meighan, Clement W. and C. Vance Haynes
1968 New Studies on the Age of the Borax Lake Site. *Masterkey* 42(1)4-9.
1970 The Borax Lake Site Revisited. *Science* 167(3922):1213-1221.

Nakamura, N. Nobora
1991 The Baker Site, A Non-projectile Point Assemblage at Pleistocene Lake Mohave. In Mark Q. Sutton, ed., Papers on the Archaeology of the Mojave Desert 2, *Archives of California Prehistory* 32:11-42. Coyote Press.

Orr, Phil C.
1956 Dwarf Mammoths and Man on Santa Rosa Island. *University of Utah Anthropological Papers* 26:74-81.
1960a Late Pleistocene Marine Terraces on Santa Rosa Island. *Bulletin of the Geological Society of America* 78:1113-1119.
1960b Radiocarbon Dates from Santa Rosa Island, II. *Department of Anthropology Bulletin 3*. Santa Barbara Museum of Natural History.

Perkins, Chic
1974 Personal communications.

Rogers, Malcolm J.
1939 Early Lithic Industries of the Lower Basin of the Colorado and Adjacent Desert Areas. *San Diego Museum of Man Papers 3*.

Simpson, Ruth D.
1958 The Manix Lake Archaeological Survey. *Masterkey* 32(1):4-10.
1960 Archaeological Survey of the Eastern Calico Mountains. *Masterkey* 34(1):25-35.
1961 Coyote Gulch: Archaeological Investigations of an Early Lithic Locality in the Mohave Desert of San Bernardino County. *Archaeological Survey Association of Southern California Paper* 5.
1964 The Archaeological Survey of Pleistocene Manix Lake (an Early Lithic Horizon). *Proceedings of the 31st International Congress of Americanists* 35:5-9.
1965 An Archaeological Survey of Troy Lake, San Bernardino County: A Preliminary Report. *San Bernardino County Museum Association Quarterly* 12(3).

Taylor, R.E., L.A. Payen, C.A. Prior, P.J. Slota, Jr., R. Gillespie, J.A.J. Gowlett, R.E.M. Hedges, A.J.T.Jull, T.H. Zabel, D. Donahue, and R.Berger
1985 Major revision in the Pleistocene age assignment for North American human skeletons by C-14 accelerator mass spectrometry: None older than 11,000 C-14 years B.P. *American Antiquity* 50:136-140.

Treganza, A. E.
1952 Archaeological Investigations In the Farmington Reservoir Area, Stanislaus County, California. *University of California Archaeological Survey Reports* 14:1-37.

Treganza, A.E. and R.F. Heizer
1953 Additional Data on the Farmington Complex, a Stone Implement Assemblage of Probable Early Postglacial Date from Central California. *University of California Archaeological Survey Reports* 22:28-41.

Warren, C. N. and D. L. True
1961 The San Dieguito Complex and Its Place in California Prehistory. In *University of California Archaeological Survey Annual Report 1960-1961.* University of California, Los Angeles.

Wells, Stephen C., Leslie D. McFadden, Jane Poths, Chad T. Olinger
1995 Cosmogenic ^{3}He Surface-Exposure Dating of Stone Pavements: Implications for Landscape Evolution in Deserts. *Geology* 23(4):613-616.

Willey, Gordon R. and Philip Phillips
1958 *Method and Theory in American Archaeology.* The University of Chicago Press.