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REPORTS

Radiocarbon Dates for the Pauma Complex Component at the Pankey Site, Northern San Diego County, California

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Recently determined radiocarbon dates for an archaeological component believed to reflect an Early Milling Stone occupancy in southern California provide chronological support for the recognition of La Jolla-like cultural traits in interior San Diego County. The three dates were obtained on bone and shell samples recovered from a test excavation pit (No. 3) at the Pankey site (CA-SDI-682) during investigations conducted by the authors in 1960-1962 under the auspices of the University of California, Los Angeles.¹ The site is located on the San Luis Rey River between the modern towns of Bonsall and Pala (Fig. 1). Though limited, the chronological data suggest that a burial approximately 3,000 radiocarbon years old was placed in deposits containing cultural remains some 5,000 to 6,000 radiocarbon years old.

Although alternative perspectives remain to be fully explored, archaeologists working in the region have generally assumed that the lowermost cultural deposits uncovered at CA-

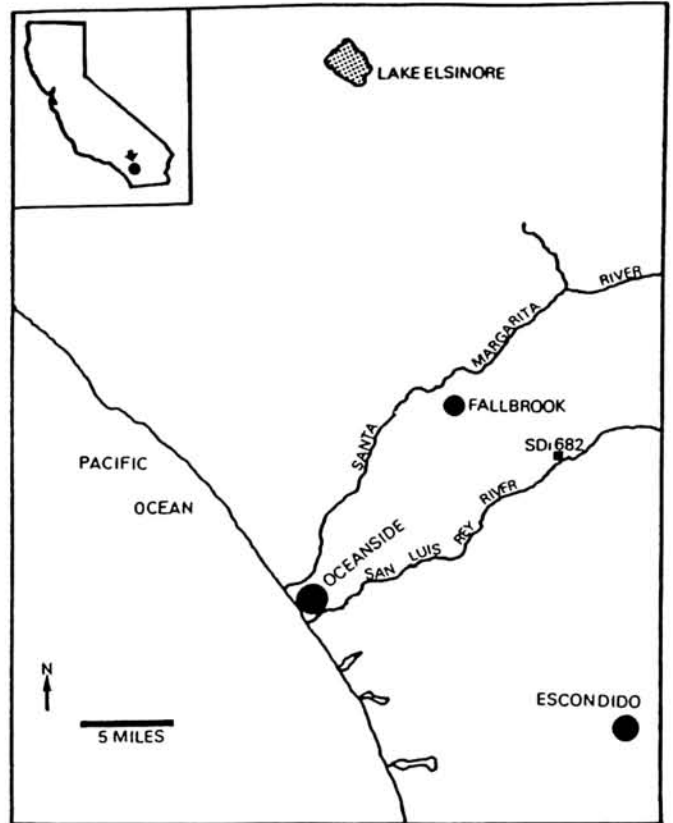


Fig. 1. Map of general study area, showing location of CA-SDI-682 (black square).

SDI-682 are representative of the Pauma Complex and that, if known, their ages would serve as a basis for estimating the overall time depth of the complex. Descriptions of Pauma Complex materials are included in True (1958, 1980); Warren, True, and Eudey (1961); Cook (1977); and True and Beemer (1982). A proposed historical relationship between the complex and succeeding regional occupational phases (subsumed under the label San Luis Rey [cf. Meighan 1954; True 1966, n.d.; True, Meighan, and Crew 1974;

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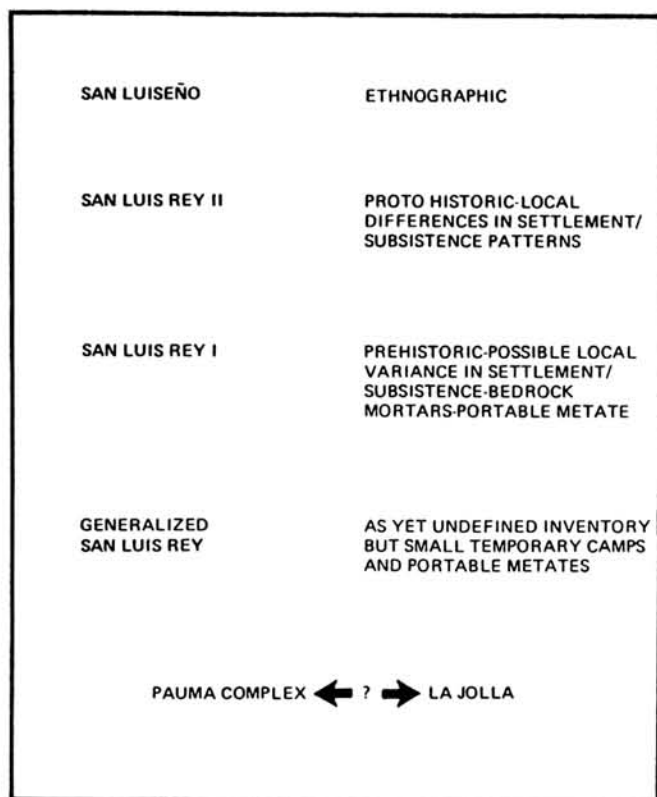


Fig. 2. A generalized schematic indicating proposed historical relationship between the Pauma Complex (early) and San Luis Rey (late) occupations. "Generalized" San Luis Rey is a hypothetical category referring to a period of time that *alternatively* may represent either a late development out of the Pauma Complex or evidence of an early Shoshonean (Tatic) presence.

True and Waugh 1981, 1982; Oxendine 1983]) is shown schematically in Figure 2. Chronological characterization of the CA-SDI-682 deposits would also help in addressing the issue of whether there is a direct, geographic relationship between the Pauma Complex and archaeological manifestations along the coast traditionally identified as La Jolla (cf. Rogers 1929, 1938, 1945; Harding 1951; Moriarty, Shumway, and Warren 1959; Shumway, Hubbs, and Moriarty 1961; Crabtree, Warren, and True 1963; Davis 1976; Kaldenberg 1982).

The potential temporal significance of the Pankey site deposits became evident during the fieldwork when a millingstone-dominated

artifactual inventory characterized the lower cultural strata. This suggested that some of the previously reported, exclusively surficial, Milling Stone (cf. Wallace 1955) assemblages in the region represented an earlier occupational pattern and not a specialized tool-kit of later San Luis Rey subsistence-settlement technology. Moreover, a basin metate found inverted over poorly preserved human skeletal remains in the subject test pit indicated similarities to La Jolla burial practices identified on the coast (Rogers 1945: 172; Moriarty, Shumway, and Warren 1959: 209). Consequently, the Pauma Complex (at least in part) appeared to relate to an inland expression of the La Jolla cultural pattern and, by extension, comparable millingstone-centered assemblages in the interior could have a temporal duration somewhat commensurate with that documented for the coast (cf. Crabtree, Warren, and True 1963: 327-328; Warren 1964: 264; Bright 1965: 370).

Despite the fact that Pauma Complex - La Jolla geographic (i.e., functional) ties seemed likely, the lack of absolute chronological data from inland northern San Diego County made it difficult to demonstrate convincingly such a connection. The analytical situation has since been further complicated by recent findings supporting a much later temporal placement of interior Milling Stone components. While aspects of these coastal-interior relationships will be more thoroughly examined in a paper currently in preparation (by the senior author, with M. E. Basgall), the interpretive framework developed in relation to the Crowder Canyon Complex (Basgall and True 1985: 10.1-10.3) is here considered a useful, if only preliminary, statement of the essential research issue. Basically, the issue involves the reasonable assumption that a millingstone-based subsistence technology (which survived into the historic era) was in place in several interior regions by ca. 2,500-2,000 B.P. — a reconstruction inconsistent with the previous

Table 1
RADIOCARBON DATES FROM THE PANKEY SITE (CA-SDI-682)

Laboratory Number	Sample Number	Radiocarbon Years B.P.	Material	Provenience
Beta-13038	Pankey No. 2	3,010 ± 80*	Bone	Test Pit 3, 60-66 in.
Beta-12765	Pankey No. 1	5,530 ± 100**	Chione	Test Pit 3, 60-72 in.
Beta-13717	Pankey No. 3	5,620 ± 80 / 6,050 ± 80	Pecten	Test Pit 3, 60-72 in.

*adjusted for ^{13}C

**not adjusted for ^{13}C

explanation that comparable archaeological indications in inland northern San Diego County were both temporally and functionally associated with the coastal La Jolla (or Encinitas Tradition [Warren 1968]) pattern dating as early as 7,000 B.P.

With the advent of accelerator radiocarbon dating technology, which permits the assay of samples previously considered too small for processing, the possibility of dating the human bone from CA-SDI-682 was revived. It was assumed that with this determination as an anchor point, useful comparative dates might also be obtained for marine shell recovered from the same depth as and slightly below the inverted metate. Figure 3 shows the stratigraphic positions in Test Pit 3 of the bone and shell relative to the metate and the surface of the site. The radiocarbon dates are presented in Table 1.

Based on the chronological data arrayed in Table 1, it is proposed that the burial was intrusive into a cultural deposit ca. 5,000 to 6,000 years old. Although not common, unmodified shell was found in a quantity sufficient to indicate use of marine resources as a minor aspect of the subsistence adaptation. This would appear to support the notion of at least some sort of coastal affiliation for the inland millingstone-based occupancy, and reinforces the *possibility* that early expressions of the Pauma Complex represent seasonal use of interior areas by coastal (La Jolla) populations. Obviously, a single, dated test-

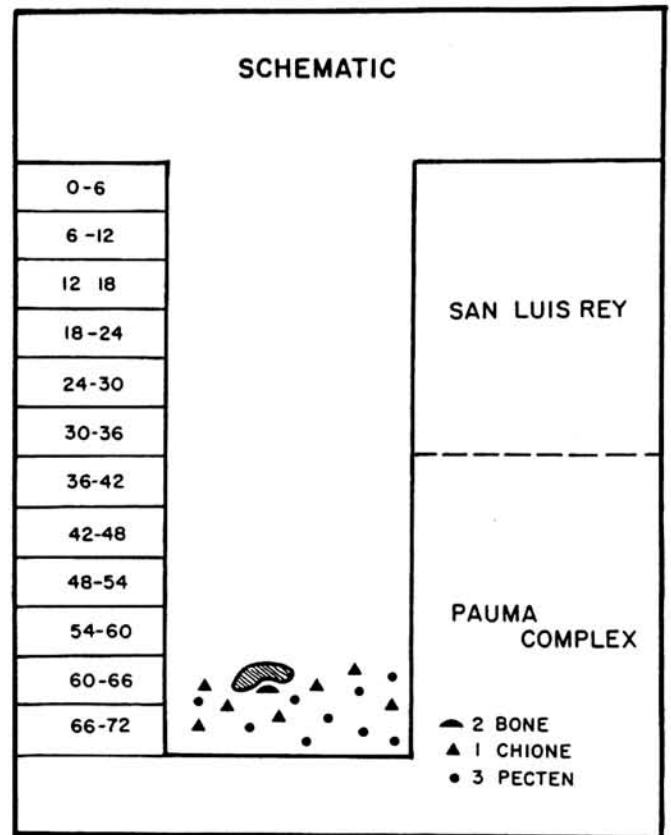


Fig. 3. Generalized stratigraphic relationship between Pauma Complex and San Luis Rey components at the Pankey site (CA-SDI-682) and relative locations of materials used to obtain radiocarbon dates (Table 1). Numbers in column on left indicate six-inch excavation levels. Enclosed area of diagonal lines represents position of inverted basin metate mentioned in text.

excavation unit does not make a settlement pattern, but the age of the lower cultural deposit at CA-SDI-682 certainly overlaps with the La Jolla sequence and the presence of

marine shell is suggestive of *some kind* of coastal-interior relationship. Additional details relating to the artifacts and faunal remains found in the test unit will be included in a pending monograph (by the authors, with C. N. Warren) on the 1960-1962 investigations.

NOTE

1. The development of this brief note was supported in part by a Faculty Research Grant, University of California, Davis. This assistance is greatly appreciated. C. N. Warren assisted in the excavation of the test unit in 1960, and we thank him for picking a good place to dig. We are also grateful for the thoughtful comments of the not very anonymous *Journal* reviewers.

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Fremont Irrigation: Evidence from Gooseberry Valley, Central Utah

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 LISA V. LARRABEE

Most Great Basin archaeologists appear to agree that the Fremont horticulturalists probably practiced some form of irrigation to raise their crops. In the past, when explicitly discussed, the argument has been based on three lines of indirect or unsubstantiated evidence. First, most areas where the Fremont are known to have grown crops presently receive insufficient rainfall for dry farming, and the same was probably true during Fremont times (e.g., Aikens 1967; Berry 1972; Lohse 1980). Second, the Fremont appear to have selectively settled in locations where natural runoff was available for providing additional moisture for their fields (e.g., Jennings and Sammons-Lohse 1981; Lohse 1980). Third, a number of authors have been told by local residents that, at the time of white settlement, the remains of prehistoric ditches were visible (Reagan 1930; Morss 1931; Gunnerson 1957; Lohse 1980). To date, however, no substantiating archaeological evidence for Fremont irrigation has been presented.

This paper reports the discovery and subsequent investigation of a buried channel in the alluvial flood plain of Gooseberry Valley in central Utah. The channel is located immediately east of Nawthis Village, a large Fremont habitation site which has been the focus of the University of Utah Archaeological Field School since 1978 (Jennings 1978; Metcalfe and O'Connell 1979; Jones and