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# Prehistoric Ceramic Objects from Catalina Island

C. E. DROVER

The primary objectives of this paper are to discuss the context, chronology, and significance of two fired clay objects (Fig. 1) recovered from excavations at the Little Harbor site on Catalina Island. The ceramic items described here were recovered from the 1973 excavation of the Little Harbor site conducted by Nelson Leonard, III. The Little Harbor site (Ca-SCaI-17) was initially excavated and described between 1953 and 1955 by Clement Meighan (1959).

In 1959, the Little Harbor site represented not only the first archaeological site report from Catalina Island, but also the first site report to exemplify Wallace's 1955 concept of an Intermediate Horizon (Meighan 1959:383). The lack of large, flat milling stones and the presence of mortars, pestles, and large projectile points are typical both of this period and of this site (1959:383-388).

The ecological implications of this site report, resulting mainly from faunal analysis, are most noteworthy. Meighan (1959:400-403) postulates a maritime subsistence pattern based on 81% cetacean, 16% pinniped, and only 3% land mammal bone, combined with

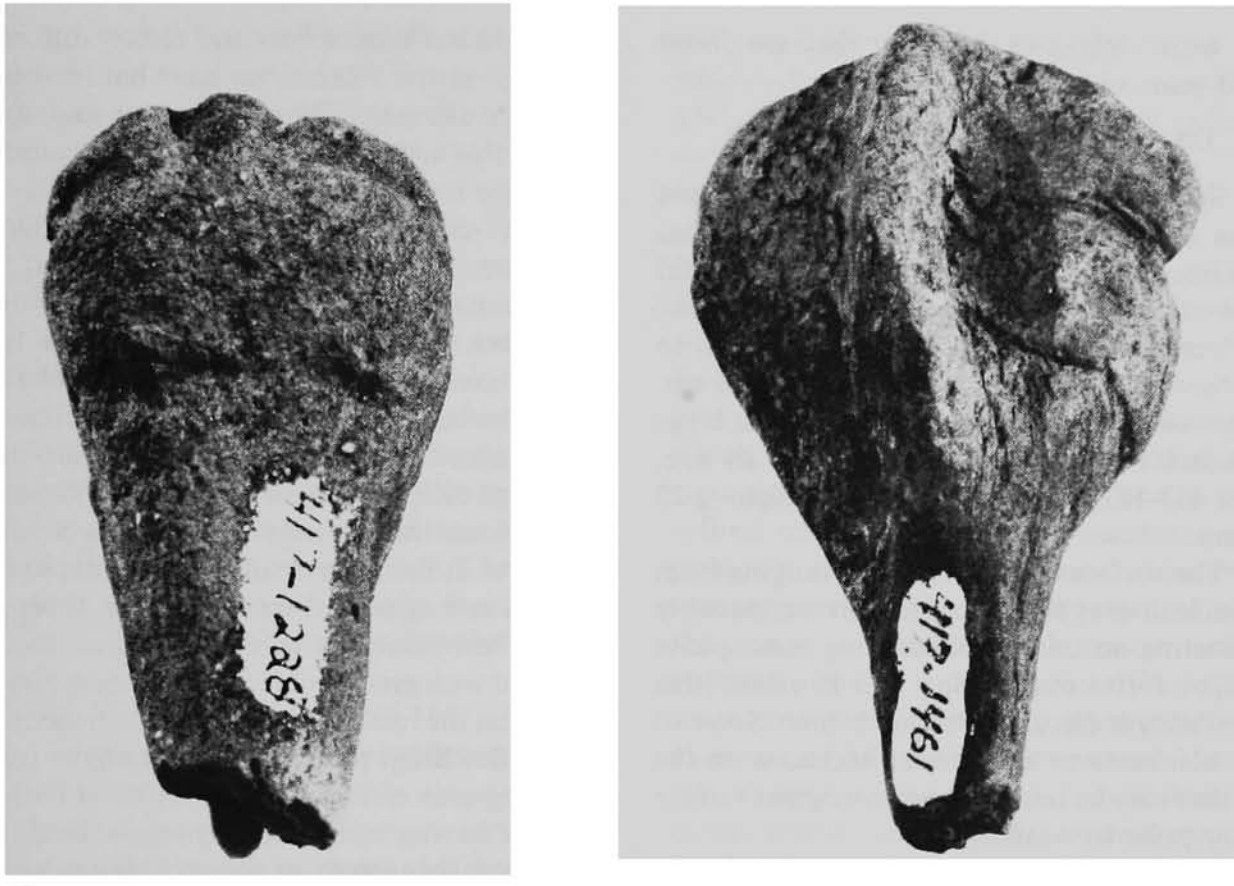

Fig. 1. Ceramic objects from the Little Harbor site, Catalina Island. Left, No. 417-1228; right, 417-1461. Each specimen has a maximum diameter of 7.5 cm.

abundant fish and shellfish (*Mytilus*, *Haliotis*). Although questions remain regarding the degree of maritime exploitation and associations of this site with the mainland, Little Harbor provides a major insight into culture change in California coastal prehistory.

The growing evidence of an early, indigenous ceramic technology in California (Ragir 1972; Drover 1975; Drover *et al.* 1978), warrants the description of individual specimens in order to ascertain their positions in time and space. Time may demonstrate that the known specimens may be examples of a complex which in southern California may extend from the Millingstone Horizon (Wallace 1955) into an anthropomorphized style of the Late Prehistoric Period.

The Little Harbor archaeological deposit is generally comprised of two artifact bearing strata, one of which is an unconsolidated level up to 30 cm. in depth overlying part of the site. The other is a more homogeneous midden, the greatest depth of which is 70 cm. Although the unconsolidated level overlies the homogeneous part of the site to a depth of 30 cm., it averages 15 cm. in depth. As the majority of chronometric evidence pertains to the lower stratigraphic unit, the exact chronological relationship between the two strata remains unknown (Nelson Leonard, personal communication). Both of the artifacts described herein were recovered from basal proveniences associated with the lower component. One of the objects (UCLA No. 417-1461) lay in an area of the site not overlain by the unconsolidated upper stratum. The contextual association of these artifacts with the lower component seems apparent, suggesting by compari-

son with Meighan's date that they are about 4000 years old.

## DESCRIPTION OF SPECIMENS

Specimen number 417-1228 was recovered from a depth of 30-40 cm. in Unit 20. This specimen is roughly conical in shape and broken on the tapering end. The bulbous end approaches a square, and tapers too quickly to be considered a cone. The artifact is 4.5 cm. long, with a diameter of 7.5 cm. on the large end and 4 cm. on the small end. For its size, item 417-1228 is relatively dense, weighing 20 grams.

The surface color is variable, ranging from a blackish-gray to an orangish-brown, possibly indicating an uncontrolled firing atmosphere and/or fortuitous refiring at a late date (this possibility is discussed further below). Some of the blackness in and around incisions on the surface may be remnants of an original surface color prior to washing.

The decoration of this object consists of incisions made prior to firing. It is difficult to ascertain whether the "decoration" results from artistic intent or is a product of fortuitous use. Two lines 1.5 cm. apart can be seen to extend around three-fourths of its diameter. Two other incisions 0.5 cm. apart go over the bulbous end at right angles to the two incisions just described. These "incisions" have an appearance suggesting that bindings may have caused the impressions prior to firing. One side of this artifact has a faceted area. This may be the result of its prehistoric use, since the incisions (bindings?) are missing on that side suggesting a point of contact with another object.

The object itself appears to have been manufactured by modeling. The paste of specimen number 417-1228 is extremely fine. The nonplastic inclusions are sub-angular quartz and are small enough (less than 1 mm.) to suggest that the clay may not have been purposely tempered. One exceptional quartz inclusion is 4 mm. across and clearly different from its matrix. The artifact has a hardness of 4 on the Mohs scale. The construction and small size of this artifact are such that its accidental breakage is unlikely.

The second specimen, number 417-1461, was found at a depth of 60-70 cm. in Unit 55, approximately 30 m. distant from the first specimen. Although the depths of the two specimens differ, they apparently originated in the same stratigraphic level (Nelson Leonard, personal communication). The second artifact, although differing slightly from the first, bears indications that it may have had a similar function. It has an overall shape similar to the first. It is fragmented on its smaller, tapering end. The bulbar end of the second artifact is finished with greater care and is more symmetrical than the first. Three flanges (positioned like arrow fletching) protrude at right angles from the long axis of the artifact with clear indications of having been bound by vegetal bindings that were impressed in the wet clay prior to firing. In the case of both objects, the incisions in the clay do not extend around their complete diameters, which, combined with a facet in this area, suggest their attachment to another object in a manner parallel to their own axis. The object is 5 cm. long, with a diameter of 7.5 cm. on the large end and 3.2 cm. on the small end. Considering its protruding flanges and overall size, this specimen is also relatively dense, weighing 18.5 grams.

The predominant exterior color is orangish-brown, although blackening, due to a fire cloud or proximity to a later fire, is apparent. The one smooth side of the largest end of this specimen has clear indications of red pigment. The pigment (red ochre?) appears to have been applied purposefully and is on the surface which may have been bound to another object. The pigment appears to have been applied prior to firing. The widespread decoration of ceramics by painting is unknown in the western United States until approximately 300 B.C.-

A.D. 1 in the Pioneer Phase of the Hohokam culture of southern Arizona (Haury 1975:221). There is a possibility that the striations on the same surface may indicate that the color was transferred from the object to which this specimen was presumably bound. However, the pigment is not fugitive and was applied prior to firing.

Besides the pigmentation the only other "decorations" consist of two separate incisions 1 mm. in width and 10 mm. apart which extend three-fourths of the way around the specimen at the large end. The incisions do not cross the painted surface and give clear indications of being wrought with vegetal fiber. These bindings appear to have held the specimen to another object, probably against the painted surface.

The second artifact (417-1461) also appears to have been made by modeling, having an extremely fine paste with no non-plastic inclusions larger than 1 mm. A scratch test indicates that it has a hardness of 4 (flourite) on the Mohs scale. The object is broken on the small end as is the first. Whether the breakage is purposeful and related to use or whether it is fortuitous is difficult to ascertain.

## CHRONOLOGY

Initial investigation of the site yielded a single radiocarbon determination of 3880 ± 250 (M-434) (Crane and Griffin 1958:1121). The material dated was charcoal recovered from the basal levels of the midden at a depth of approximately 24 inches (Meighan 1959:184). At the time, Meighan (1959:184-185) felt that the likelihood of contamination by surface organics was small and that the data agreed with other chronological indicators, both geological and cultural. More recent radiocarbon data seem to support this interpretation (R. E. Taylor, personal communication).

In an effort to substantiate the chronological association of the ceramics with the midden deposit at Little Harbor, thermoluminescence determinations were obtained on both specimens. Ceramic objects will, through the years, be subject to the effects of radiation damage from such elements as uranium and thorium in the surrounding soils and from cosmic (gamma) radiation. If a ceramic object has been fired to a temperature of 400-500° C., it will lose its geological radiation dose (that which the clay acquired since its geological formation) and begin to acquire an annual amount of radiation from the environment which, when measured, will reflect the elapsed time since firing. Analytically, the ceramic is refired and the radiation is measured by a photon count or as a glow curve. After measuring this natural thermoluminescence (NTL), the sample is dosed with a known amount of radiation from a source such as $^{90}Sr$, which, when measured, provides a known, artificial glow curve (ATL). When the annual dose rate is calculated, comparison of the ATL and NTL curves allows the calculation of dose responsible for the NTL curve. Dividing the annual dose rate into the total dose produced on the NTL curve reveals the age.

Although the present annual dose rate of cosmic radiation can be assumed to be in equilibrium with past rates, the local uranium and thorium content of the soil must be calculated by atomic absorption techniques. Local dose rates have not been established for Catalina Island; however, enough is known of surrounding soil conditions (Drover *et al.* 1978) to warrant safe estimation. A possible range of local, natural dose rates is suggested in Table 1 ranging between 0.600-0.150 rads./year with resulting age calculations. An annual dose rate of 0.500 rads./year has been chosen by the laboratory as most representative of local conditions. Specimen 417-1461 suggests 2849 years ago or 874 B.C., while specimen 417-1228 suggests an age of 2002 years or 27 B.C. The discrepancy between the two dates could relate to factors such as cultural deposition or to common sources of error such as

**Table 1**
**THERMOLUMINESCENCE DATA**

| **Description of Object** | **417-1228** | | **417-1461** | |
|---|---|---|---|---|
| Log number | 76.129C | | 76.129C | |
| Owner | Cat. Is. Museum | | Cat. Is. Museum | |
| Remarks | 329A | | 329B | |
| NTL response | 3258 | | 32345 | |
| Background count | 313 | | 219 | |
| 500 rad. response | 1717 | | 11503 | |
| Background count | 246 | | 227 | |
| Archaeological dose | 1001 | | 1424 | |
| **Annual Dose** | **Age (yrs.)** | **Date** | **Age (yrs.)** | **Date** |
| 0.600 | 1668 | A.D. 306 | 2374 | 399 B.C. |
| 0.550 | 1820 | A.D. 154 | 2590 | 615 B.C. |
| 0.500 | 2002 | 27 B.C. | 2849 | 874 B.C. |
| 0.450 | 2224 | 249 B.C. | 3165 | 1190 B.C. |
| 0.400 | 2502 | 527 B.C. | 3561 | 1586 B.C. |
| 0.350 | 2860 | 885 B.C. | 4070 | 2095 B.C. |
| 0.300 | 3336 | 1361 B.C. | 4748 | 2773 B.C. |
| 0.250 | 4004 | 2029 B.C. | 5698 | 3723 B.C. |
| 0.200 | 5005 | 3030 B.C. | 7122 | 5147 B.C. |
| 0.150 | 6673 | 4698 B.C. | 9496 | 7521 B.C. |

secondary firing or differential depth resulting in variability in uptake of gamma radiation. The discrepancy here between the thermoluminescence and $^{14}C$ results is on the same order of magnitude as the discrepancy of the determinations from the Irvine site (Ca-Ora-64) (cf. Drover *et al.* 1978). In both instances, the comparison of $^{14}C$ to thermoluminescence dating shows similar quantitative differences. In both cases, however, thermoluminescence is useful in demonstrating that the specimens are not the result of recent intrusion and are probably of the same age as the $^{14}C$ dated specimens.

## INTERPRETATION

Due to the absence of a local ethnographic analogy, these figurine-like artifacts lack any obvious functional interpretation. Certain contextual situations could suggest functions such as burial grave goods etc., but as these specimens were found isolated in the midden, a discussion of function must await data derived from empirical evidence.

The physical characteristics of the Little Harbor specimens, when compared, seem to suggest similarity in form and function. Although similarity in form between two artifacts is far from establishing a "type," it may be significant in ruling out fortuitous manufacture. The size and construction of these items argues against their accidental breakage and may suggest a transitory or expendable function. The "decorative" elements such as paint, and the incisions of vegetal bindings may further suggest that many of the physical characteristics may be functionally related to their destruction.

These finds contribute to our understandings of local and regional cultural history. The variety, distribution, and chronology of ceramic technology in California clearly indicates knowledge and use of its principles prior to later diffusion from the Southwest. Further-

more, while the function of ceramics within a hunting and gathering system may differ from that of a horticultural system, it is in no way less important. The growing data regarding ceramic use among native Californian hunters and collectors may begin to identify the adaptive value of these artifacts to different human systems. The subsequent hesitancy of groups to shift to ceramic manufacture of culinary vessels may relate to initial importance of the earlier items in the system.

The term "ceramic" has been used here to refer to two artifacts, both of which appear to be related in function and manufacture. "Ceramic" refers to the techniques of manufacture and subsequent chemical changes in the vitrification of the clay. Unfortunately, the term "ceramic" too often conjures up the concept of culinary pottery and its associated functions. The fact that these Catalina ceramics may not be fragments of pottery vessels should not lessen their importance to the particular human system which produced and used them.

In summary, several points should be emphasized: (1) Ceramics occur much earlier in California and are more widespread than previously thought. (2) The first occurrence of ceramics in California is probably not a product of diffusion from the Southwest. (3) The ceramics were probably not used in day-to-day culinary activity but had other functions.

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