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Early Ceramics from Southern California

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Archaeological investigations conducted in 1971 at the Irvine site (4-Ora-64), a coastal Orange County shell midden revealed an association between decorated, fired-clay objects and a Millingstone (Archaic Horizon) artifactual assemblage (Drover 1971, 1973; Drover and Spain 1972). This paper describes the ceramics and their chronological placement. Consideration is also given to the general and regional implications of the ceramic assemblage, the earliest in the Western Hemisphere if available dating proves correct.

The Irvine site is located on the east bluff, overlooking upper Newport Bay, within the city limits of Newport Beach, California. The site is large, approximately 100 m. wide and 500 m. long. Several Late Horizon sites, many of which surround the bay, are located within 500 m. on either side of the site. In recent times the bay provided a highly versatile economic base (consisting of both fresh and salt water environments) with subsistence oriented to its salt water, littoral environs.

The artifactual assemblage, of which the ceramics are part, corresponds to the Millingstone Archaic as described by Wallace (1955). Diagnostic indicators such as eccentric crescentics (Warren 1967), various large projectile points including stemmed, indented base forms (Lister 1953), highly mineralized flexed inhumations (Wallace 1954:118), and ubiquitous millingstones with a characteristic lack of

mortars and pestles (Wallace 1955:Table 1) suggest the early phase of this horizon.

The initially recovered ceramics were in close association with three radiocarbon samples analyzed to establish a general chronological placement of the site. Subsequent excavations were primarily concerned with obtaining radiocarbon samples in direct association with fired-clay objects. Toward this end, two three meter square units were excavated leaving a central one meter square column standing in the center of each. From these isolated columns pollen samples, shell samples for radiocarbon analysis, and artifacts (ceramics) were removed in arbitrary 10 cm. increments. This permitted close control of association in a given level. Radiocarbon analyses were obtained on a total of 13 samples by two laboratories (Table 1). Ten of the radiocarbon samples were recovered directly from the columns. The artifactual assemblage, suite of radiocarbon dates, and midden composition indicate that the site is a single component midden with no overlying later occupation. On the basis of these analyzed columns, it appears that the ceramic objects are associated with a well-dated occupation approximately 6500 years old, and with a probable duration of 1000 years.

Confidence in marine shell for yielding reliable radiocarbon determination for coastal southern California has been discussed by Berger, Taylor, and Libby (1966), who conclude that the results are generally acceptable inasmuch as the maximum upwelling effect is -2% or about 150 years. Further attempts to ascertain calendar years would require Bristlecone Pine dendrochronological correction

Table 1
RADIOCARBON DETERMINATIONS AND CERAMIC DISTRIBUTION

		RADIOCARBON AGE OF SAMPLES		
		COLUMN SAMPLES	NON-COLUMN, GENERAL SAMPLES	CERAMIC ITEMS PRESENT
SURFACE				
	10	7,075±150; 5,125 B.C. (GAK-4130)		3
	20	6,300±130; 4,350 B.C. (GAK-4131)		0
	30	7,150±150; 5,200 B.C. (GAK-4132)	5,580±80; 3,630 B.C. (UCLA 1777-A)	2
	40	6,420±150; 4,470 B.C. (GAK-4133)		1
	50	6,220±130; 4,270 B.C. (GAK-4134)		1
	60	6,560±135; 4,610 B.C. (GAK-4135)		0
	70	6,960±140; 5,010 B.C. (GAK-4136)		1
	80	6,435±130; 4,485 B.C. (GAK-4129) 6,790±140; 4,840 B.C. (GAK-4137)	4,900±80; 2,950 B.C. (UCLA 1777-C)	2
	90	6,680±130; 4,730 B.C. (GAK-4138)	6,560±80; 4,610 B.C. (UCLA 1777-B)	0

which may show terrestrial samples of this age to assay approximately 900 years too young (Ralph, Michael, and Han 1973; Michael and Ralph 1974). The implications of such corrections for dates on marine samples are not known, however. Human bone recovered from the site is too highly mineralized for dating.

To date, 10 ceramic specimens have been recovered, distributed throughout the depth of the meter-deep midden (Fig. 1). The ceramics themselves are of two distinctive forms. One form is represented by three fragments, an apparent rim or lip sherd and two body sherds of a vessel of undetermined shape. The other form is cylindrical, tapering slightly

at one end. The recovery of one complete specimen of the cylindrical form indicates that it is not an appendage of a larger object.

The paste characteristics are uniform and can generally be described as homogeneous throughout any given specimen, having sub-angular or rounded inclusions of feldspar, opaque quartz and mica flecks ranging from 0.25 mm. to 2.0 mm. in diameter. Depending on the clay source, purposeful tempering may not have occurred.

Color is quite uniform except for an occasional firing cloud, ranging from 10YR 2/2 to 10YR 5.5/4 on the Munsell Soil Color Chart. In general, the color could be described as a light tannish brown. The physical charac-



Fig. 1. Ceramics from 4-Ora-64. Upper row: tapered cylindrical objects, actual size. Middle row: tapered cylindrical objects and three probable vessel sherds, actual size. Lower row: detail of decoration. Left, shell (?), punctation. Photo by Jon Bosak.

teristics of the specimens are enough alike to warrant speculation that they were either locally manufactured or traded from a homogeneous source.

Modelling appears to be the method of manufacture of both forms; however, the vessel fragments may have been thinned by paddling.

More than half of the recovered specimens have been decorated. Where it occurs, decoration is of two types, punctation and stamping. The cylindrical objects are decorated by both methods; the vessel sherds are decorated only by stamping. Stamping is suggested by a uniform impression rather than consecutive, separate imprints of a stylus on a given design element. The imprinted design on the cylindrical forms may have required rocker stamping. Due to the small sample size actual methods and instruments used in making the designs have not been determined, but stamping, single stylus, and fingernail impressions remain possibilities.

Of the decorative techniques described here, similarities can be seen in other early ceramic complexes. Similar methods of decoration are also represented at Puerto Hormiga, Colombia (Reichel-Dolmatoff 1961), the site of Valdivia on the coast of Ecuador (Meggers, Evans, and Estrada 1965), and later in time as part of the St. Johns River-Orange Complex in Florida (Ford 1966), and Stalling's Island, Georgia (Claflin 1931). However, the earliest ceramics in the southeastern United States are plainwares appearing at 2000 B.C. at Stalling's Island, and at several sites along the St. Johns River, Florida (Ford 1966), somewhat later in time than the objects from the Irvine site.

All of the specimens recovered show contact with fire, suggesting that firing was intentional rather than fortuitous. Actual firing techniques cannot be reconstructed, but certain physical characteristics suggest that it was uncontrolled. The specimens show vary-

ing degrees of firing which may indicate open fire conditions. All of the cylindrical specimens show blackening of the interior, probably a result of firing in a reducing atmosphere. The lip fragment, which is somewhat thinner, does not show discoloration other than a firing cloud on the undecorated (interior) surface.

It is hoped that through other analytical techniques, such as neutron activation and atomic absorption, definition of mineral constituents of the ceramics and of local clay deposits may clarify questions regarding origin and manufacture.

The function of the objects remains unknown, although several of them were recovered in general proximity to mortuary features. Only one of them was recovered intact, and the percentage and character of fragmentary specimens may indicate intentional breakage. If a mortuary association is borne out, they may be the visible remains of organized religious activities. Estrada and Meggers (1961), describe small cylindrical ceramic objects from the Bahia I phase on the Ecuadorian coast which are interpreted as earplugs. The similarities are not such that would warrant further speculation.

In native California there are two major ceramic influences, each of which is a separate tradition. The first is a late complex of clay objects in the lower Sacramento Valley with a presumed relationship to the Southwest (Heizer 1937:47). The three untempered forms represented are balls, tubular pipes, and figurines of birds and animals. It is thought that the spherical forms were used for stone boiling since rocks are absent in this region of the Central Valley. Other Late Horizon baked clay items are reported in ethnographic accounts of the Plains Miwok and Chulamni Yokuts; however, true pottery making groups are found southward from the Kings River among the Yokuts. The lack of incipient forms led Heizer (1937:43) and Kroeber

(1928:382) to look elsewhere for origins. A rather clear diffusionary route exists between the Southwest and the Central Valley via the southern Great Basin (see Morss 1954:45). Later, Heizer rescinded his earlier position regarding the chronology of Central California ceramic items:

In emendation of my earlier hypothesis that the baked-clay trait is more or less directly derived from the ceramic complex of the Anasazi area, it is proposed here that the practice of Late Horizon cultures of molding and baking clay objects may be an outgrowth of the small-scale practice originating in the Early Horizon [Heizer 1949:25].

The presence of ceramics in the Early Horizon has since been well documented, the earliest example of which is the Blossom Mound, SJo-68 (Ragir 1972). Clay balls, molded pots, and plummet-shaped objects are represented at the Blossom site which dates to approximately 4000 years B.P. (Ragir 1972:32, 84). This chronology suggests that early California ceramics are not a result of Southwestern ceramic influences.

The second major ceramic influence is somewhat later in time, passing from the Southwest into the deserts of southern California via the Colorado River Yuman tribes (Rogers 1936). This influence brought fully developed culinary and effigy forms.

Heretofore the earliest ceramic occurrences in North America have been fiber-tempered plain wares of the coastal regions of Georgia, South Carolina, and Florida. As noted above, the Florida and Georgia complexes date to 2000 B.C. (Ford 1966:784). Decorated types with punctation, impression, and incision appear in Georgia (Stalling's Island) and Florida (Tick Island) at 1600 B.C. (Bullen 1961:105; Ford 1966:787). Several origin hypotheses have been proposed for Southeastern ceramics ranging from Amerasian diffusion (Tolstoy 1953), to influences from the Northwestern European Mesolithic

for Woodland pottery (Kehoe 1962). Ford (1966) suggests diffusion from South America based on decoration, form, and chronological distribution. He suggests that this is not a direct contact situation in that several Southeastern features, such as fiber-tempering, are unknown in Mesoamerica or South America except at Puerto Hormiga (Reichel-Dolmatoff 1965), located in coastal Colombia (Ford 1966:796).

The early South American ceramic occurrences have been collectively called the Valdivia pottery tradition (Willey 1966:489). This tradition is comprised of ceramics from Valdivia, Ecuador (Meggers, Evans, and Estrada 1965), Monagrillo, Panama (Willey and McGimsey 1954), and from Canapote (Bischof 1966), Barlovento, San Jacinto, and Puerto Hormiga (Reichel-Dolmatoff 1955, 1965), all in Colombia. An Asian influence has been proposed for the comparatively sophisticated Valdivian ceramics (more than 30 types) from the Jomon culture of Japan (Meggers, Evans, and Estrada 1965:157-178).

It may be significant that with the absence of painting as a decorative technique, early ceramicists were left with the elementary forms of decoration such as punctation, stamping, and incision described here. The classic dilemma facing a discussion of this nature is the perennial debate concerning independent invention and diffusion. In light of the fact that American archaeology has, perhaps, overreacted to early diffusionist theories regarding the peopling of North America (Ekholm 1964:491), neither concept can be ignored. Ongoing work in coastal Ecuador and Mexico suggesting transpacific influence has led to speculation that "... diffusion of the potter's art from Asia to America is a far better explanation of its occurrence here than is the hypothesis that it was independent invention" (Ekholm 1964:496).

The presently recognized chronological and geographical isolation for the Irvine ce-

amics seem to describe a case for independent invention, a concept which future data may alter.

The subsequent development of the Irvine ceramics is unclear. Few Archaic sites have been investigated in Orange County. The occurrence of one of the cylindrical forms decorated by punctation at nearby Coyote Cave (4-Ora-236) suggests continuing use of these artifacts into later times (L. Mitchell, personal communication 1974). The cylindrical form may have developed further into a rather widespread Late Horizon anthropomorphic figurine style which occurs in coastal southern California (True 1957; True and Warren 1961; McKinney and Knight 1973). If that be the case, the distinctive southern California figurine style need not derive from the Southwest.

The present effort in this paper has been directed toward a tentative description of an early ceramic complex in southern California. Future data may lead to formal typological consideration of the proposed Irvine Complex.

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