

# Cupules as Containers: A Hypothesis

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## Abstract

At Pinwheel Cave (CA-KER-5836) in the San Emigdio Mountains of southern California, about a dozen objects interpreted as quids were discovered placed into small, natural concavities reminiscent of cupules. This suggested to us the possibility that some manufactured cupules could have been used as “containers” to hold a variety of physical or supernatural substances. This idea is proposed and discussed.

## Introduction

Cupules are rather enigmatic features commonly encountered at archaeological sites in California, portions of the Great Basin, and other places around the world. They generally consist of small and shallow (2 to 8 cm) indentations or depressions purposefully pecked or ground into boulders or other stone surfaces, such as the walls of caves or rockshelters or bedrock milling features, and they can occur on either vertical or horizontal surfaces. Cupules are usually found in groups rather than as single entities. Cupules are different from incipient mortars or anvils (used for acorn or pigment processing and generally on flat surfaces) but are sometimes difficult to distinguish from that latter category of small depressions.

Cupules have generally been classified within the broad category of rock art and have been identified throughout North America. In California and the Great Basin cupules have been attributed to several styles, often within the “pit-and-groove petroglyph” style

(e.g., Heizer and Baumhoff 1962; Heizer and Clewlow 1973). Many useful discussions of cupules are available (e.g., Hedges 1973, 1980; Fleshman 1975; Minor 1975; Smith and Lerch 1984; Parkman 1986; Jones 2004; Christensen 2005; and Hector 2009). Cupules remain undated, although Hedges (1973:21; also see Minor 1975) argued that in southern California they are associated with “late” sites and that they must have been produced during the Late Prehistoric Complex, perhaps within the last 500 years.

A variety of functions have been postulated for cupules, many of which are likely valid at different places and times. Functional explanations include their production for the following: as part of puberty rites (DuBois 1908; Chace 1964; Hedges 1976:17); as territorial markers (DuBois 1908:158); as powdered stone for consumption in order to promote pregnancy (Loeb 1926; Aginsky 1939; Barrett 1952) or to satisfy the cravings of women who were already pregnant (Callahan 2004); as markers to signify a death in the community (Ewing 1948); as trail markers (Patencio 1943:98; Heizer and Baumhoff 1962; von Werlhof 1965); to control the weather (Heizer 1953; True et al. 1974); to catch rainwater for ritual purposes (Parkman 1992, 1993); as star maps (Hedges 1980); as acorn hulling pits (True 1993); as indicators of ritual space (Jones 2004); and as managed places of power (Hector 2009). Most of these functional ideas were generated using ethnographic data, but some are based on reasonable conjecture.

We propose another possible function—at least some cupules may have been used as containers. This idea originated in 2001 during a visit by three of us (MQS, GGS, and JS, as well as Robert M. Yohe II) to the Pinwheel Cave site in southern California. A number of what appeared to be quids were observed “stuffed” into small, natural depressions in the ceiling of the cave. Quids are the remains of materials such as yucca fibers, tobacco, or other substances, that have been chewed then spit out and disposed of in some manner.

### Pinwheel Cave

The interior of the rockshelter contains surface artifacts (including at least one hopper mortar), a shallow

deposit, and several red pictographs, such as the “pinwheel” element that gives the site its name (see Bury and Reeves 2004; Robinson 2006). The shelter was tested in 2007 (Robinson and Sturt 2008), and the deposit was found to be about 40 cm deep. Cultural materials recovered from the site consisted of a number of groundstone artifacts, a few flaked stone tools, shell and glass beads, animal bone, pottery, and debitage (see Robinson and Sturt 2008: Tables 2-1, 2-2, and 2-3), leading to the interpretation that the deposit dated late in time. Located on the ceiling of the cave are perhaps a dozen fibrous bundles resembling quids that had been stuffed into small, natural cavities in the conglomerate rock (Figure 3).

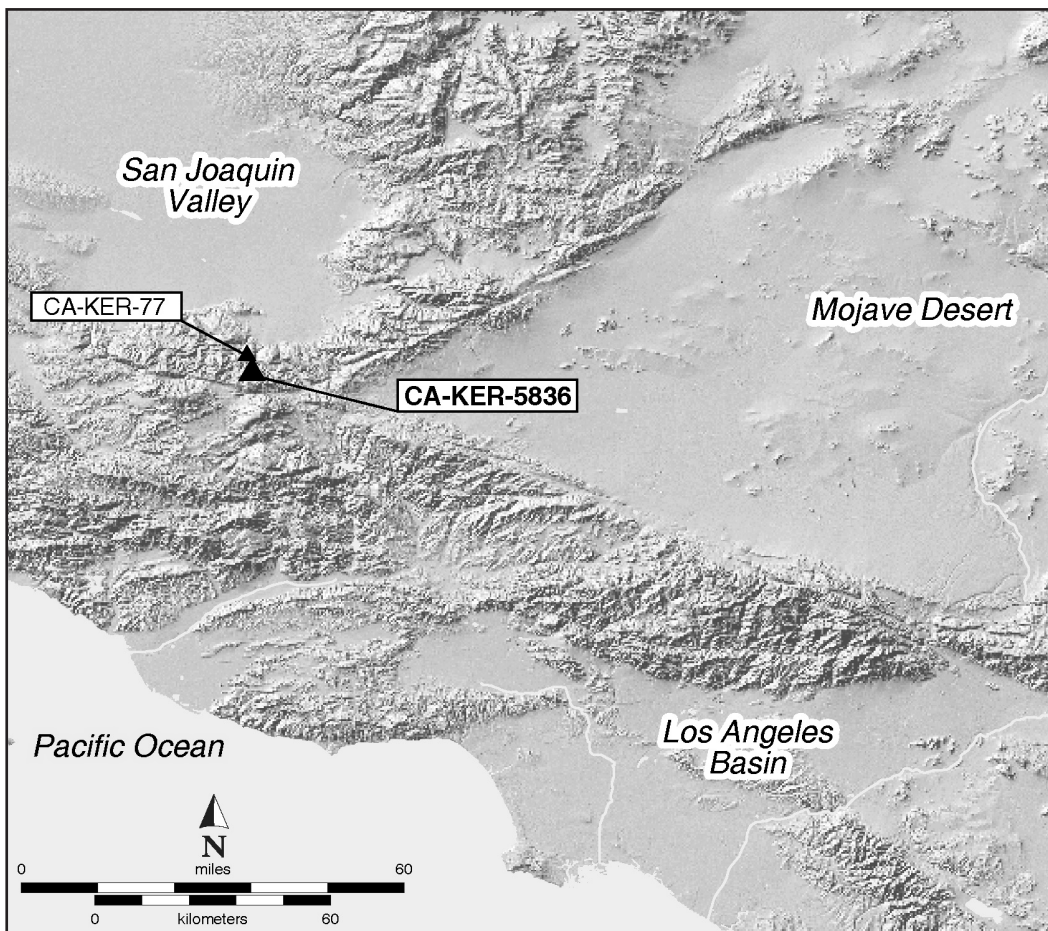


Figure 1. Location of Pinwheel Cave (CA-KER-5836) in the San Emigdio Mountains, California.

### Discussion

While the concavities at Pinwheel Cave are natural, they nevertheless were used to place or “store” items that we have interpreted as quids. Thus, it seems reasonable to assume that at least some manufactured concavities (cupules) could have served a similar function,

that is, to store something. The nature of the quids from Pinwheel Cave is still unknown, but it is possible that they were associated with some ritual activities, such as the ingestion of mind-altering substances (e.g., datura).

Most known cupule features are located in “open” contexts that are ill-suited for the preservation of any



Figure 2. General view of the Pinwheel Cave site (CA-KER-5836), looking south (photo by Jack Sprague, 2007).



Figure 3. An apparent quid in a natural concavity in the ceiling of Pinwheel Cave (CA-KER-5836) (photo by Jack Sprague, 2007).

materials that may have been placed in them, although many cupules in protected settings (e.g., caves) do not contain physical materials (e.g., quids). Intriguingly, an analysis of protein residues from several cupules at two sites in southern California (Schneider and Bruce 2009) resulted in the identification of “rat” protein from one cupule and protein from two plants (mesquite and Cappariaceae) from another, suggesting that these materials had been in contact with the cupules at some point.

### *Cupules as Food Containers*

Cupules are often found in close, if not direct, association with bedrock mortars (BRMs). Certainly, BRMs were used as temporary containers where foods were placed in order to be pounded and pulverized with pestles. In many cases it is difficult to distinguish between what might be considered a large cupule and a small or “incipient” mortar. This problem of classification often leads to some confusion and discussion in the field during recording as to whether such a feature is a cupule or a small BRM. Of course, when cupules are found on sloping or vertical surfaces, they are easier to interpret. However, many small cup depressions are often found on horizontal surfaces and could have been used as anvil pockets for cracking acorn shells. For instance, Latta (1977:400) described the use of an “anvil rock” with small holes about an inch apart. It also appears that some people who employed pounding technology preferred very shallow “mortars” over deep ones. Ortiz (1991:63) recorded that Julie Parker, a Kashia Pomo woman who lived most of her life in Yosemite, preferred shallow bedrock mortar holes, “usually less than a half inch in depth.”

It may be that our strict dichotomy between functionality and nonfunctionality is too simple to accommodate features that could have been both functional and symbolic. Indeed, acorn processing is a key task undertaken at BRM stations, and there is some

ethnographic evidence that cupules were symbolically associated with this culturally important food. Symbolic content may well have been polysemous.

### *Cupules for Pigment Processing*

Another containment practice related to cupules was their use as mortars to prepare pigments and binding agents in preparation for rock painting. Hoffman (1883:129-130) observed pigment in cupules at the Yokuts site of Tule River:

Upon a small, rounded boulder at one end of the chamber are several cup-shaped depressions, which served as mortars for grinding and preparing the colors for use. Traces of color still remain; and a thin, glazed surface appeared, which turned the point of a [metal knife] blade, upon my attempting its removal for analysis.

Such reports are rare, perhaps because cupules were seldom used in this manner and/or because of the weathering effects of rain filling in the cupules. Nevertheless, some cupules on vertical surfaces were infilled with pigment (e.g., Grant 1965:86; also see Smith and Lerch 1984:5). Examples have been identified at Boulder Cave at the site of Pleito (CA-KER-77) (Grasse 2005).

### *Conceptual Containers*

The above discussions support the idea that some cupules had been regarded as having the properties of “containment,” and consequently, we wondered whether cupules might have been conceived as containers in expressions involving conceptual phenomenon. One such possibility involves the light dagger and shadow effects often noted at rock art sites. For instance, Hammond’s (2003) examination of inland Chumash sites noted an interesting interplay between cupules and light and shadow effects. At the

House of the Two Suns site, Hammond (2003:26, Figure 5) recorded how a dagger of light interacted with a set of cupules before reducing down to a “dot” of light focused on a single cupule before disappearing. Similarly, the oft-referenced idea that cupules are “rain rocks” (Heizer 1953) is based in part upon the idea that water was “caught” in the small depressions (also see Parkman 1992, 1993).

Thus, cupules might facilitate the capture of certain phenomenon, such as light and water, that are at the same time both conceptual and ephemeral. While we do not argue that the concept of cupules as containers should be viewed as universal, the strength of the interpretation is that it explains the reason for the form. Cupules are cup-shaped because they are meant to contain something, even if that something is not physical.

### Conclusion

In this article we have proposed the possibility that at least some cupules were containers, both literally and in a figurative, or symbolic, sense. In some instances, they may have been used to store or dispose of items such as chewed quids. The discovery of numerous quids stuffed in natural concavities at Pinwheel Cave suggests that a similar function of storage or disposal could have been fulfilled by cupules at other sites. Excavations of deposits below such cupules have the potential to address this possibility.

The more substantive use of some cupules is implied by their close association with BRMs. We suggest that cupules for food processing/containment and for symbol/metaphor blend into each other. Likewise, the possible use of cupules for the mixing of pigments and on some vertical surfaces for the application of pigment in the form of rock art reiterates the polysemous nature of cupules as something both practical and conceptual at the same time. The conceptual attribute

of cupules as containers is further supposed in cases in which sun “daggers” and light “dots” touch and fill the cupules themselves. Clearly, such food for thought begs further research.

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