

Additional Evidence of Marine Mammal Middle Ear Bones as Special Objects

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Abstract

Edwin Walker (1951) speculated that marine mammal middle ear bones found at the Malaga Cove site (CA-LAN-138) were used as fetishes. A recent study (Koerper et al. 2014) supports the idea that such bones carried special meaning either as magico-religious objects or curiosities for some south central coastal California Natives. A dolphin petrosal and a pinniped tympanic bulla fragment, both recovered at site CA-ORA-291, Huntington Mesa in Huntington Beach, provide further support for that hypothesis. Analysis of the ear bones determined that they are not fossils.

Introduction

Edwin Walker (1951:39–40) reported “sea-lion ear cones [*sic*]” in all cultural levels at CA-LAN-138 (Malaga Cove site), located at the far southern end of Santa Monica Bay and adjacent to the Palos Verdes Peninsula (Figure 1). Walker, the Southwest Museum director and archaeologist, had confused at least some LAN-138 cetacean middle ear bones, all possibly petrosals, for pinniped tympanic bullae. Notwithstanding misidentifications, he had a reasonable hypothesis—marine mammal ear bones bore special status as fetishes.

Koerper et al. (2014) presented observations supporting the idea that some marine mammal ear bones found in south central coastal California middens functioned as magico-religious objects (e.g., charms, amulets, talismans, small fetishes) and/or unusual curiosities (e.g., pretty collectibles, souvenirs, keepsakes, “keepers”). The additional data included two ear bones that were found in different site collections stored at the Pacific Coast Archaeological Society (PCAS)

Curation Facility, located in Santa Ana. The specimens were encountered in 2013 during a curation day, that is, a get-together of PCAS volunteers working to maintain the integrity of the society’s archaeological holdings.

One of those two ear bones is a harbor seal’s (*Phoca vitulina*) right squamosal with integrated tympanic bulla. Apparently, the specimen had been mistaken for a mollusk part because it was recovered from a unit level bag containing shell from CA-ORA-91, the North Bay Fossil Canyon site at Upper Newport Bay (Koerper et al. 2014:16–17, Figure 3; see also Anonymous 1968a, 1968b, 1970). The second specimen is an involucrum of a right tympanic bulla, most likely that of a dolphin. It had been among other osteological remains in a level bag bearing a CA-ORA-276 (Coleman site) label (Koerper et al. 2014:15–16, Figure 2c). The Coleman site was located in what is now greater downtown Huntington Beach.

In 2014 two more middle ear bone specimens were discovered at the PCAS Curation Facility. One, a virtually complete element, belonged to a cetacean, and the other, a fragment, was from a pinniped. Both were unearthed in 1971 during excavations at CA-ORA-291, western Huntington Mesa (Figure 1).

The Site

ORA-291, an approximately 2,500 m², multicomponent site, was characterized by investigators as a

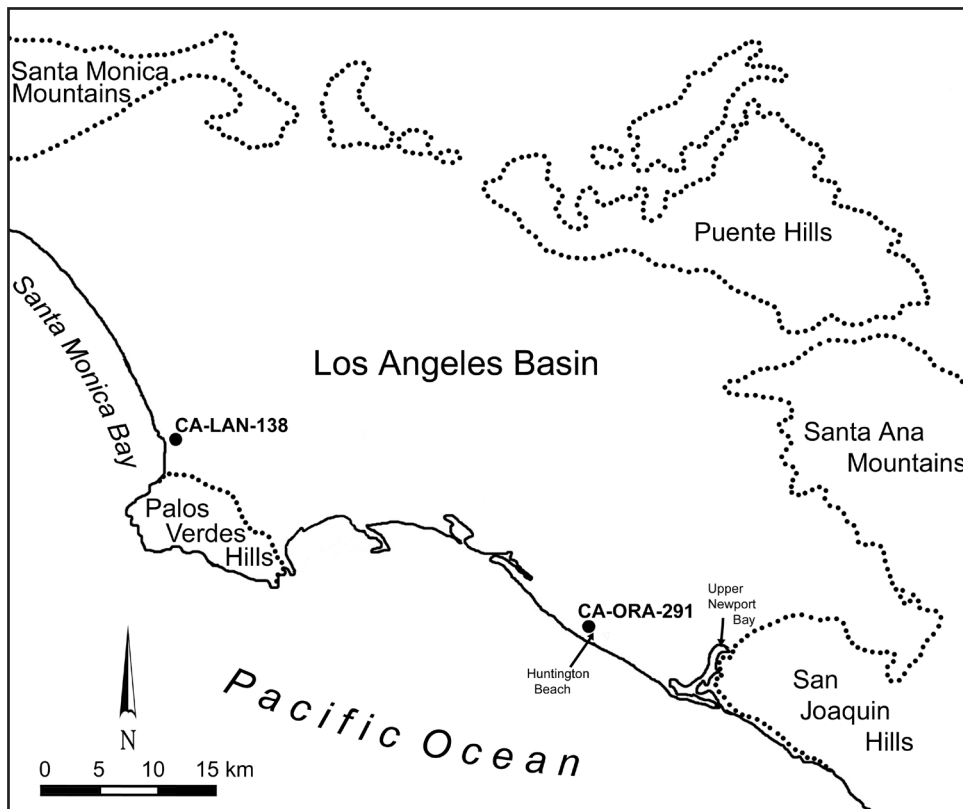


Figure 1. Location map.

“two-part” site (Ahlering et al. 1971a, 1971b; see also Mason 1987). The part located on the bluff slope was designated “291-A,” and the part on the bluff top was designated “291-B.” At no point on the surface of the shell midden did elevation exceed 11 m above current sea level.

Bluff-top excavations began under the direction of Margaret Weide, who in 1971 guided students enrolled in her California State University, Long Beach, archaeology field class; the ORA-291-B investigations were completed in 1971 by Archaeology Research Incorporated (ARI), the first CRM firm in the Western Hemisphere. Michael Ahlering directed this ARI work as well as the excavation of ORA-291-A, which held darker, deeper midden.

Materials recovered from the bluff top (ORA-291-B) were attributed mainly to Wallace’s (1955) Milling

Stone Horizon, with the exception of a pestle that was considered evidence of a later period. The larger amount of midden was screened from ORA-291-A. With reference again to Wallace’s chronological scheme, ARI researchers interpreted the ORA-291-A artifacts as ranging from Milling Stone times into the Late Prehistoric Horizon. Unfortunately, while radiocarbon dating samples were collected, no assays were ever attempted.

The two middle ear specimens are neither mentioned in the reports nor recorded in the site catalog. Curiously, unlike the previously reported marine mammal ear bones from the PCAS Curation Facility (Koerper et al. 2014), each specimen was stored alone in its own individual paper bag. Thus, we wonder whether an ARI investigator was familiar with Walker’s (1951) alert that marine mammal ear bones perhaps served regional Native peoples as fetishes. If, however, the two

specimens were regarded merely as belonging with the larger faunal sample, was either one even recognized as an element from some marine mammal?

The CA-ORA-291 Cetacean Petrosal

A quick introduction to petrosals appeared in a recent *Quarterly* double issue:

Together a petrosal and a tympanic bulla enclose the middle ear. Their functions involve not just hearing but also balance and orientation. They are held to one another by bony connectors—the posterior pedicle and the anterior accessory ossicle. The malleus is firmly attached to the bulla, while the stapes is attached to the petrosal. An incus bridges the gap between the malleus and stapes [Koerper et al. 2014].

For detailed information regarding the cetacean petrotympanic complex of internal auditory organs, we recommend Purves (1966).

Shown in Figure 2, the ORA-291 petrosal was recovered in near perfect condition, having only slight damage from an excavator's tool. Whether or not it was found by digging at the site's bluff top (291-B) or its slope area (291-A) is unknown. A catalog number, "1056," was inked onto the bag that held this middle ear element, but the site catalog lacks any such entry. Clearly, the specimen is assignable to the family Delphinidae.

Petrosals are extremely dense bones, palpably hefty when hand-held, and so it is with the Huntington Mesa specimen. Specifically, 13 g of mass are packed into an ear bone that is a mere 37 mm in length and only 24 mm at the widest. Such weightiness coupled with the eye-catching, odd shapes characteristic of petrosals might evoke immediate curiosity, if not aesthetic allure, when encountered, say, in beach drift. Had

Native persons ascribed magico-religious or other significance to cetacean middle ear bones, they might have reacted joyfully to such serendipitous and auspicious finds.

Belief in supernatural or other special properties attaching to cetaceans' petrosals and tympanic bullae would certainly motivate their removal from dispatched prey or carcasses washed ashore. These bones are also easily lifted out intact from toothed whale skulls (Odontoceti [sperm whales, beaked whales, orcas, dolphins, and porpoises]); they do not integrate with the cranium or other bony tissue, unlike pinniped ear bones whose removal requires breakage away from larger bony matrix.

Dark coloration of the bone is restricted to surfaces. Chips and scratches reveal white, fresh-appearing bone underneath. White quartz sand and dark organic bits and pieces were recovered from cavities in the specimens, these materials consistent with the general composition of the ORA-291 midden. In other words, there is no support for the idea that the petrosal was retrieved out of a fossil deposit.

Use-wear was not apparent on the specimen. No other cetacean bones were recognized in the ORA-291 collection, suggesting the delphinid petrosal was not merely incidental to on-site butchering. It was possibly selected to be a magico-religious object, or maybe it became a curiosity only for its unusual look or feel.

The CA-ORA-291 Pinniped Bone

Recent attention to archaeologically recovered marine mammal ear bones (Koerper et al. 2014) included discussion of a harbor seal's (*Phoca vitulina*) right squamosal with tympanic bulla. Excavated at CA-ORA-91, the specimen was not accompanied by other phocid bones. The article explained that because pinniped tympanic bullae integrate into cranial bone, acquisition of one for, say, its "magic," "medicine," or



Figure 2. Dolphin petrosal from CA-ORA-291. Drawings by Joe Cramer; photographs by Bruce Rubin.

appear as an unusual-looking “keeper,” would necessitate forceful removal away from other bone, leaving telltale signs of breakage. Such damage is visible on the squamosal portion of the ORA-91 specimen (see Koerper et al. 2014:Figure 3). Again, unlike a dolphin petrosal, the pinniped bulla will not lift out intact and unscathed.

A fragment of either a phocid (earless seal) or an otarid (eared seal) tympanic bulla from the bluff area of ORA-291 (Figure 3) supports the hypothesis that pinniped bullae were saved by at least some coastal

Gabrielino, or more broadly, that certain marine mammal ear bones were attractive to some regional Native persons perhaps for magico-religious, aesthetic, or other reasons. The specimen was broken out from a larger mass of tympanic bulla and is not embedded with any squamosal tissue. The fragment is broken at one end, an area of no more than ca. 15 percent of the object’s total surface area. The original surface topography of the specimen shows a generally gnarled look similar to the surfaces of cetacean petrosals. Another parallel is that this bulla fragment is relatively dense.



Figure 3. Fragment of a pinniped tympanic bulla from CA-ORA-291, subunit X1C4, 70–90cm. Drawings by Joe Cramer; photographs by Bruce Rubin.



Figure 4. Right femur, possibly from a female fur seal, from CA-ORA-291, subunit X1C4, 70–90 cm. Drawings by Joe Cramer; photographs by Bruce Rubin.

The ear bone fragment measures 31 mm in maximum length, is 19 mm wide, and is about 14 mm thick measured at the midsection. Weight is 7 g. As with the petrosal, small cavities in the specimen yielded constituents of the Indian midden rather than constituents expected of local fossil deposits.

As noted above, the container with the bulla fragment held nothing else, prompting the question of whether an ARI employee set the piece aside because he speculated that it had served as a charm/amulet or something comparable. The object has no catalog number, and it is not referred to in the preliminary site report or in the final report.

The bag holding the specimen was labeled with provenience information. The ear bone was recovered from the 70–90 cm level of a 5 m x 5 m subunit (X1C4) of Unit 1, itself a 20 m x 20 m layout strategically placed where the principal investigator had anticipated the most productive midden. Subunit X1C4 also yielded an unusual phallic pestle and a set of 11 fishnet weights, artifacts of sufficient interest to merit treatment in a separate study (see Koerper and Cramer, this *PCAS Quarterly* issue).

Only one other pinniped skeletal element came from the ORA-291 collection (Figure 4). It is a complete, ca. 80 mm long, right femur of an otarid, also found in subunit X1C4 at the 70–90 cm level. Tom Deméré, Director of the Department of Paleo Services, San Diego Natural History Museum, thought that it probably belonged to a female fur seal (personal communication 2015), but because Dr. Deméré had only photographs to work from and not the actual bone, he expressed some uncertainty. Hudson and Blackburn (1986:403, Figure 378-4) suggest that some seal femurs were used as dice.

Summary and Concluding Remarks

A delphinid petrosal and a small part of a pinniped tympanic bulla, both from ORA-291, further support

the hypothesis that marine mammal ear bones held a special allure for at least some indigenous groups occupying south central coastal California. Whether such bones were regarded as magico-religious objects or merely curiosities remains unknown.

This article emphasizes once again the necessity for field and laboratory archaeologists to acquaint themselves with marine mammal middle ear bones to prevent their placement among faunal samples (see Koerper et al. 2014) when they should be held out as possible “animal component talismans” (see Hudson and Blackburn 1986:142–148) or curiosities. Our article also points up the value of revisiting old archaeological collections.

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