

Marine Mammal Ear Bones as Charms/Curiosities

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Abstract

Edwin Walker (1951) reported that marine mammal ear bones were present in all four of his designated levels at the Malaga Cove site (CA-LAN-138), and he proposed that they may have served as “fetishes.” Data are presented here that lend credence to the speculation that marine mammal ear bones recovered from coastal southern California Indian middens possibly functioned as charms, amulets, small fetishes, and/or small oddities/curiosities (“keepers”).

Introduction

Close scrutiny of Edwin Walker’s (1951) book, wherein the Southwest Museum director discussed his CA-LAN-138 excavations, fell at one point to Plate XII’s bottom row of pen-and-ink drawings (Figure 1); there, two problems were quickly recognized. Plate XII is labeled “Bone Objects from Level 1” (Walker 1951:42), but illustrated in the plate’s row “f” are four white seabass (*Atractoscion nobilis*) otoliths, which are internal ear calcareous concretions, not internal ear “balance bones.” The more egregious mistake, also ear related, concerns the object illustrated just left of the otoliths, identified as an ear bone of a sea lion.

Walker’s (1951:40, 43) authority for such was a Curator of Zoology at the Los Angeles County Museum, but pinniped identification seemed suspect since the specimen was quite small compared to the seal and sea lion ear bones with which one of us (HCK) had some passing familiarity. Further, the specimen was absent the expected roughened or chipped margins.

To explain, pinnipeds possess ear bones that are integrated into the cranium (e.g., Gilbert 2000:204, 206, 208), and thus their removal necessitates breaking them out of the larger bony matrix. The ear bones (tympanic bullae and petrosals) of toothed whales (Odontoceti [i.e., sperm whales, beaked whales, orcas, porpoises, and dolphins]), especially dolphins, are held in place by ligaments and connective tissue and not integrated into other bony tissue. That is, they are comparatively easy to lift out, necessitating no breakage in their removal. Also, they easily become dislodged from a decomposing skull. Because of their extreme bone density, dolphin petrosals can survive high energy conditions such as waves on a shore and can thus be found among beach drift.

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. Purves (1966) is recommended to the reader desirous of greater detail regarding the petrotympanic complex of internal auditory organs of cetaceans.

Walker’s suspicion that these cranial elements had functioned as “fetishes” (c.f. amulets, charms) suggests that he may have perceived a pattern



Figure 1. Row f in Walker's (1951:42) Plate XII. Dolphin ear bone (right petrosal) and four right saccular (sagittae) fish otoliths of white seabass (*Atractoscion nobilis*). The ear bone was incorrectly identified as being from a sea lion in Walker's plate caption. The roundish eminence on the petrosal is called a promintorium; it is not a bulla. Scale added.

possibly born of a count exceeding a mere five or so specimens. Then again, perhaps his speculation was rooted at least partly in what most anthropologists know, to wit, all kinds of small curiosities, oddities, “keepers,” “pocket rocks,” “worry stones,” and the like have applications to luck, magic, medicine, etc. Some inspiration for the idea possibly arose from Walker's awareness of carved stone, marine mammal effigies collected by pothunters at LAN-138, but then again, and more obliquely, Walker's occasional use of the term “ear cone” might reflect a focus on the ovoid protuberance of the ear bone (the promintorium) seen in Figure 1, which he may have incorrectly regarded as a bulla; “bulla” is a Latin word, familiar in Classical archaeological studies, meaning a rounded pendant used to contain amulets/charms/fetishes.

As it turns out, the specimen featured in Walker (1951:Plate XII, row f, far left) is the right petrosal of a dolphin (c.f. *Delphinus delphis* [common dolphin] or *Stenella longirostris* [long-snouted spinner dolphin]). Exquisitely rendered, the actual size drawing could be easily matched when searching among illustrations of knowns and within a marine mammal bone collection belonging to the Point Vicente Interpretive Center at Rancho Palos Verdes.

The senior author's long-running curiosity regarding cetacean imagery in Native worldview coupled with the report of multiple ear bone specimens discovered at LAN-138, the Malaga Cove site, provided the motivation to investigate a thought proffered by Edwin Walker. The former director of the Southwest Museum considered whether the LAN-138 ear bones functioned as “fetishes.” Herein, the authors provide information lending credence to Walker's hypothesis.

Multiple Ear Bones at CA-LAN-138

An ear bone count of just one is not likely to pique curiosity about whether an animal body part might have folded into regional beliefs and practices. Walker, however, contemplated his observation that at least one “ear cone” had been retrieved from each of the four ORA-138 levels (Walker 1951:39-40). He may have regarded all specimens as either of the same species or of the same general category of animal.

There was but a single petrosal reported from Level 1; unfortunately no counts were published for ear bones recovered within Levels 2, 3, or 4. Only the Level 1 “ear cone” was illustrated (Figure 1, far left), and, as noted, it did not belong to a pinniped at all. This leaves us to wonder whether there had been a mix of

pinniped and cetacean ear bones excavated or whether perhaps all specimens were those of cetaceans.

The Level 1 dolphin petrosal had been recorded in Walker's (1936–1937) field catalog. (Level 1 held the earliest cultural occupation, and Level 4 held the uppermost, latest, cultural material.) The catalog sheets presently available show merely 365 entries. Sutton and Grenda (2012:140) noted that Walker's catalog curated at the Autry National Center "lists 923 object records, although their processing of the collection into their system is incomplete at this time." We refer here to the pages now available as the "short catalog."

The "short" catalog contains two Level 4 entries for "porpoise ear bones." (It is worth mentioning that especially in the past, the word "porpoise" was frequently a generic term that folded together both porpoises and dolphins.) Walker's "short catalog" shows no Level 3 or Level 2 entries for ear bones, yet Walker's (1951:39) presence-absence matrix table regarding materials recovered from each level indicates the presence of "sea-lion ear cones" for the two middle cultural levels.

Complex issues involving stratigraphy and culture at LAN-138 (see Koerper and Peterson, this *Quarterly* double-issue) counsel caution regarding temporal placement for the Level 1 and Level 2 finds. The oldest cultural manifestations in Level 1 are best assigned to around the Early Holocene-Middle Holocene interface. Level 1 geology is characterized as non-marine terrace, yellow and/or reddish-brown, cliff-fed detritus, very hard and clay laden. Level 2 is "blackened sand" (Walker 1951:32, Figure 5) or "dark loam," black and greasy. Dr. W. P. Woodring with the U. S. Geological Survey visited the Malaga Cove site (Woodring et al. 1946:107–108) and saw that "the oldest culture is contaminated with much black organic material." It is now known, for instance, that some Level 2 people penetrated Level 1 in digging mortuary features, and also recently come to light is

the observation that Level 2 housed some amount of Del Rey Tradition culture (see Koerper and Peterson, this *Quarterly* double-issue). The implications are that marine mammal ear bones in the lowest cultural level and in Level 2 could actually be of Late Holocene age. When the LAN-138 collection becomes again available, we suggest C-14 assay of any marine mammal ear bones.

More Dolphin Ear Bones

Two odontocete petrosals (Figure 2a, b) are presently displayed at the Redondo Beach Historical Museum. The larger petrosal may be that of a porpoise rather than a dolphin. The smaller petrosal appears to be that of either *Delphinus delphis* (common dolphin) or *Stenella longirostris* (long-snouted spinner dolphin). They are part of what was once a private collection of Indian relics, now referred to as the 1917 Frank Palmer Collection. It was generally presumed that this grouping of artifacts contained objects solely from the Palmer-Redondo site at Redondo Beach. Frank Palmer had pothunted and then much later excavated "scientifically" at the Malaga Cove site, and it now turns out that the 1917 collection contains Palmer's Malaga Cove finds (see Koerper and Peterson, this double-issue). Had Palmer held on to the ear bones because he supposed them possible charms, fetishes, or curious oddities/keepers?

An Involucral Portion of a Tympanic Bulla

At the PCAS Curation Facility, Santa Ana, recent processing/cataloging of materials excavated from CA-ORA-276 (Coleman site) turned up an involucral portion of a right tympanic bulla, probably that of a dolphin (Figure 2c). Positive identification was made by Dr. Tom Deméré, Curator of the Department of Paleontology, San Diego Natural History Museum.

This specimen exhibits polish on some high spots, suggesting that it could have been kept in a soft

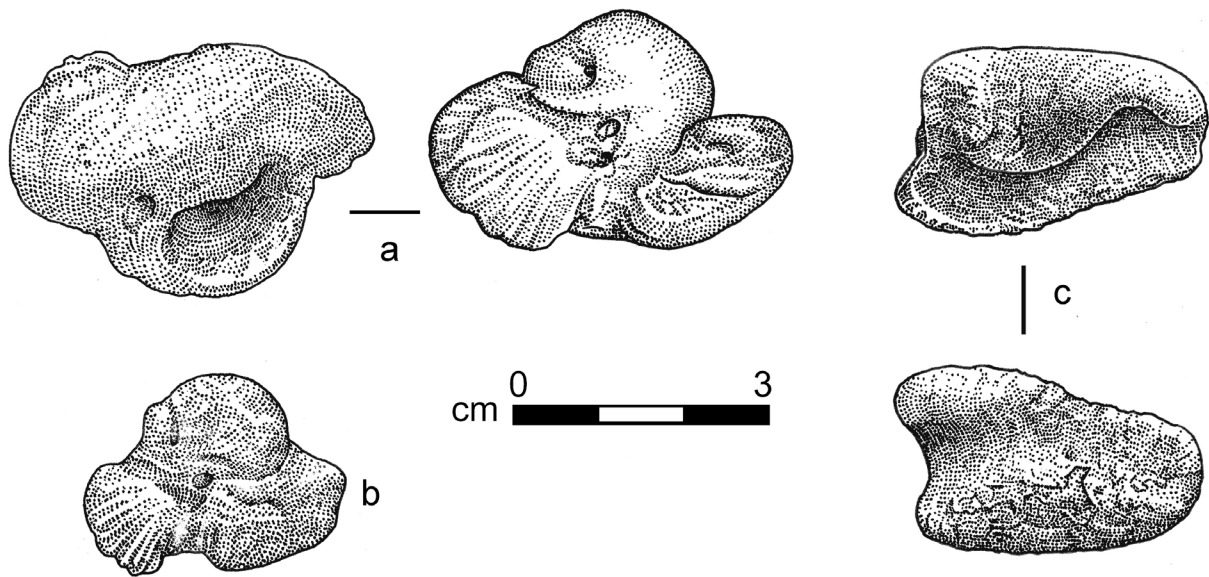


Figure 2. (a) Left petrosal of a porpoise or dolphin. 1917 Frank Palmer Collection, Redondo Beach Historical Museum. (b) Left petrosal of either a common dolphin (*Delphinus delphis*) or long-snouted spinner dolphin (*Stenella longirostris*). 1917 Frank Palmer Collection, Redondo Beach Historical Museum. (c) Involucral portion of a right tympanic bulla, or auditory bulla; probably Delphinidae. From CA-ORA-276. PCAS Curation Facility.

container, such as a leather bag that was transported about. Perhaps it had been hand manipulated, cast maybe as a gaming piece or as a divination piece, thus functioning much like some astragalus bones (see Koerper and Whitney-Desautels 1999; Koerper 2007, 2008). Possibly it had been retrieved off a beach where it had been impacted by wave action.

The Pacific Coast Archaeological Society recorded the Coleman site in 1969. ORA-276 was excavated by the society in 1973 when this involucrum was discovered and placed among other bones regarded as part of the faunal sample. There were no other cetacean bones within that faunal sample. There is no site report for ORA-276.

A Seal Right Squamosal with the Integrated Tympanic Bulla

Walker would certainly have considered whether the LAN-138 ear bones were merely inconsequential

byproducts, the residuum attendant to butchering a carcass, or whether they had been valued and actively sought. His frame of reference was pinnipeds owing to the incorrect species identification. Recent reemergence of a right squamosal with integrated tympanic bulla (Figure 3) from among the PCAS Curation Facility holdings has implications for Walker's question regarding whether "sea-lion" ear bones served as fetishes.

The specimen is not from a sea lion, but rather from a different kind of pinniped, a Pacific harbor seal (*Phoca vitulina*). Its detachment from the animal produced the sort of marginal damage previously mentioned. We cannot be certain that this squamosal/bulla was not beach drift, the result of survival of a rather durable part when the rest of the skull had broken up and largely disappeared. However, the broken edges do not suggest the specimen rolled about in the surf.

This pinniped ear bone was excavated from CA-ORA-91 (North Bay Fossil Canyon site) (see

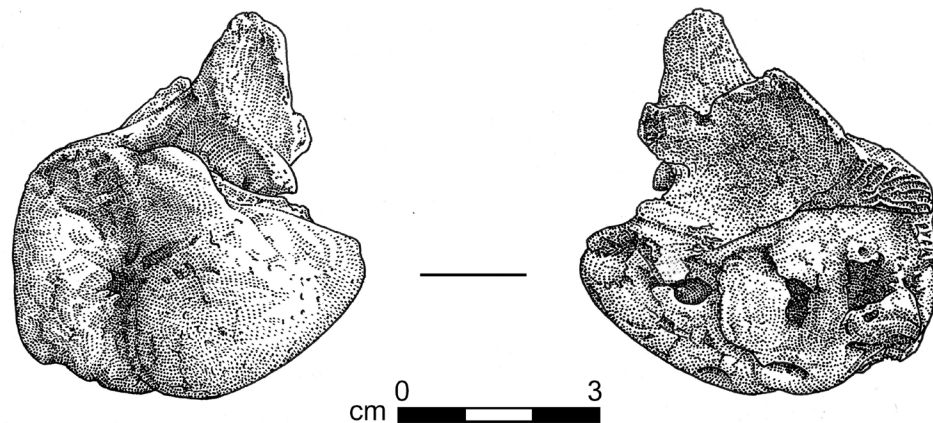


Figure 3. Right squamosal with tympanic bulla; from a harbor seal (*Phoca vitulina*). Note broken edges. PCAS Curation Facility.

Anonymous 1968a, 1968b, 1970), where we suspect at least one Native person wanted a marine mammal bulla, perhaps for its “magic” or “medicine.” Our suspicion follows from the fact that apparently no other phocid bones were recovered. Positive identification was provided by Dr. Lawrence Barnes, Curator Emeritus with the Department of Vertebrate Paleontology, Natural History Museum of Los Angeles County, and by Dr. Richard Evans, D.V.M., with the Pacific Marine Mammal Center, Laguna Beach.

Concluding Thoughts

Testimony to the importance of cetacean and pinniped imagery/symbology in regional magico-religious practice occurs with documentation of crafted stone, whole body effigies (e.g., Anonymous 1879:218–221; Hudson and Blackburn 1986:185–199; Koerper and Desautels-Wiley 2012) as well as representations of body parts likewise crafted in stone (e.g., Koerper 2011, 2012; Koerper and Evans 2011; Koerper and Desautels-Wiley 2012). There are certain lithic manuports (e.g., Koerper and Cramer 2012) that also attest to cetacean-related communications in Native peoples’ supernatural landscapes. This study submits that the cetacean petrosals and the involucral portion of a dolphin tympanic bulla reported herein could very well have been ideational artifacts, rather than mere ecofacts. The curiously shaped cetacean ear bones may

have carried meanings akin to those once attaching to the cetacean effigies and to cetacean-like manuports. A similar kind of argument might be posited for the harbor seal bulla since there are both whole body and body part pinniped effigies (e.g., Koerper 2011; see also Koerper and Evans 2011).

This essay also offers cautionary advice; field and laboratory archaeologists would be prudent to acquaint themselves with the distinctive morphologies of certain marine mammal ear bones to be able to recognize and then flag them for set-asides as possible artifacts of, for instance, a category that Hudson and Blackburn (1986:142–148) called “animal component talisman.” Treated as mere ecofacts, they could become so immersed within a site’s faunal sample as to never receive a second look. Only through serendipity did the ORA-91 harbor seal bulla (Figure 3) reemerge from a “shell” level bag that contained mostly molluscan remains. When serendipity struck a second time at the PCAS Curation Facility, the ORA-276 partial auditory bulla (Figure 2c) was lifted out of a container of ecofactual bone.

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References Cited

Anonymous

1879 Sculptures. In *Report Upon United States Geographical Surveys West of the One Hundredth Meridian VII*, edited by F. W. Putnam, pp. 218–221. Government Printing Office, Washington, D.C.

Anonymous

1968a North Bay Fossil Canyon Site. *Smoke Signals* 7(9):4.

Anonymous

1968b Fossil Canyon Site. *Smoke Signals* 9(5):6.

Anonymous

1970 Sites Destroyed. *Smoke Signals* 9(5):6.

Gilbert, B. Miles

2000 *Mammalian Osteology*. Missouri Archaeology Society Publication No. 3. Columbia, Missouri.

PCAS Quarterly 49(1&2)

Hudson, Travis, and Thomas C. Blackburn

1986 *The Material Culture of the Chumash Interaction Sphere, Vol. IV: Ceremonial Paraphernalia, Games and Amusements*. Ballena Press Anthropological Papers No. 30. Ballena Press/Santa Barbara Museum of Natural History Cooperative Publication, Menlo Park and Santa Barbara, California.

Koerper, Henry C.

2007 Astragali and the Games People Played. *Heritage Keepers* 4(2):4–5. Dorothy Ramon Learning Center, Banning, California.

2008 Additional Notes on Astragalus Bones. *Pacific Coast Archaeological Society Quarterly* 40(2):11–13.

2011 Two Sea Otter Effigies and Three Pinniped Effigies: Illustrations, Descriptions, and Discussions. *Pacific Coast Archaeological Society Quarterly* 45(1 and 2):101–122.

2012 A Dorsal Fin Effigy from the Bonita IV Site (CA-ORA-134). *Pacific Coast Archaeological Society Quarterly* 46(3):41–45.

Koerper, Henry C., and Joe Cramer

2012 A Cetacean-Like Manuport from the Bonita Mesa Site (CA-ORA-106/219). *Pacific Coast Archaeological Society Quarterly* 46(4):61–68.

Koerper, Henry C., and Nancy Anastasia Desautels-Wiley

2012 A Proposed New Genre for the Portable Cosmos of South Central Coastal California: The Dorsal Fin Effigy. *Pacific Coast Archaeological Society Quarterly* 46(1 and 2):39–112.

Koerper, Henry C., and Richard H. Evans

2011 A Unique Baculum-shaped Pestle from Southern Coastal Los Angeles County. *Pacific Coast Archaeological Society Quarterly* 45(3 and 4):99–117.

- Koerper, Henry C., and Nancy A. Whitney-Desautels
1999 Astragalus Bones: Artifacts or Ecofacts? *Pacific Coast Archaeological Society Quarterly* 35(2 and 3):69–80.
- Purves, Peter E.
1966 Anatomy and Physiology of the Outer and Middle Ear in Cetaceans. In *Whales, Dolphins, and Porpoises*, edited by Kenneth S. Norris, pp. 320–380. University of California Press, Berkeley and Los Angeles.
- Sutton, Mark Q., and Donn R. Grenda
2012 Defining Level 1 at Malaga Cove (CA-LAN-138), California. *California Archaeology* 4(1):123–144.
- Walker, Edwin
1951 *Five Prehistoric Archaeological Sites in Los Angeles County, California*. Publications of the Frederick Webb Hodge Anniversary Publication Fund Vol. 6. Southwest Museum, Los Angeles.
- Woodring, W. P., M. N. Bramlette, and W. S. W. Kew
1946 *Geology and Paleontology of the Palos Verdes Hills, California*. U. S. Geological Survey Professional Paper 207. United States Department of the Interior, Government Printing Office, Washington, D.C.