

A Grooved Abrader Stone from the Goff's Island Site (CA-ORA-08/108/110): A Multipurpose, Marine-Oriented Tool

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Abstract

A wedge-shaped stone with grooves at both ends of the long axis was surface collected by Harold Wilson several years before the 1939 Works Progress Administration excavation at the Goff's Island site (CA-ORA-08/108/110), Laguna Beach, California. The artifact is made of fossil whale bone and is probably from the site's Culture II level, now identified with the late Intermediate horizon. It may have been utilized both as a drag or gill net sinker and as a steatite abrader. This intriguing artifact is from an avocationalist's collection.

Background

Prior to Works Progress Administration (WPA) excavations at the Goff's Island site (CA-ORA-08/108/110) (Figure 1), "amateur" archaeologists had for many years collected artifacts from the site. It was not until John Romero's 1935 WPA-sponsored survey that the Goff's Island site was professionally recorded. Romero termed it "Camp Number 8," describing it as "well defined and shows an enormous deposit of shell" that extended to the edge of the coastal bluff, noting erosional cuts had revealed midden and shell up to 4 ft deep (Romero 1935:3). There was a "well-formed mound which appears to be the burial ground" that contained scrapers, white quartz projectile points, and groundstone.

The only major archaeological excavation undertaken at Goff's Island was that carried out by the WPA

under the direction of John Winterbourne in 1939–40 (Winterbourne 1967). Winterbourne's decision to conduct excavation at the site¹, located on a large off-shore rock and its adjacent mainland bluff, was based on local knowledge of its rich midden deposit and Romero's survey. Winterbourne's Site A, the bluff area with a burial mound, was the only portion excavated. The WPA excavations lasted from May 1939 to February 1940, recovering hundreds of lithic, bone and shell artifacts, and features, including burials with grave goods (Winterbourne 1967:5, 98–133).

In the 1940s minor work was conducted by the University of Southern California under the direction of Charles Rozaire (Couch and Whitney-Desautels 2003:30). Later, isolated finds, including disturbed burials, were made during trench excavation by workmen in the subsequent trailer park.

There was no testing on the island itself until Scientific Resource Surveys (SRS) testing in 1996, by which time wind and tourists had eroded the soil to approximately 60 cm below the top of the USGS bench mark (Couch and Whitney-Desautels 2002:71). In 1979 and 1996 SRS excavated test units in two areas, finding only shell fragments and several isolated artifacts in disturbed contexts. Radiocarbon samples were collected (Whitney-Desautels 1999:10–16; Couch and Whitney-Desautels 2003:41–45). Over 200 artifacts were

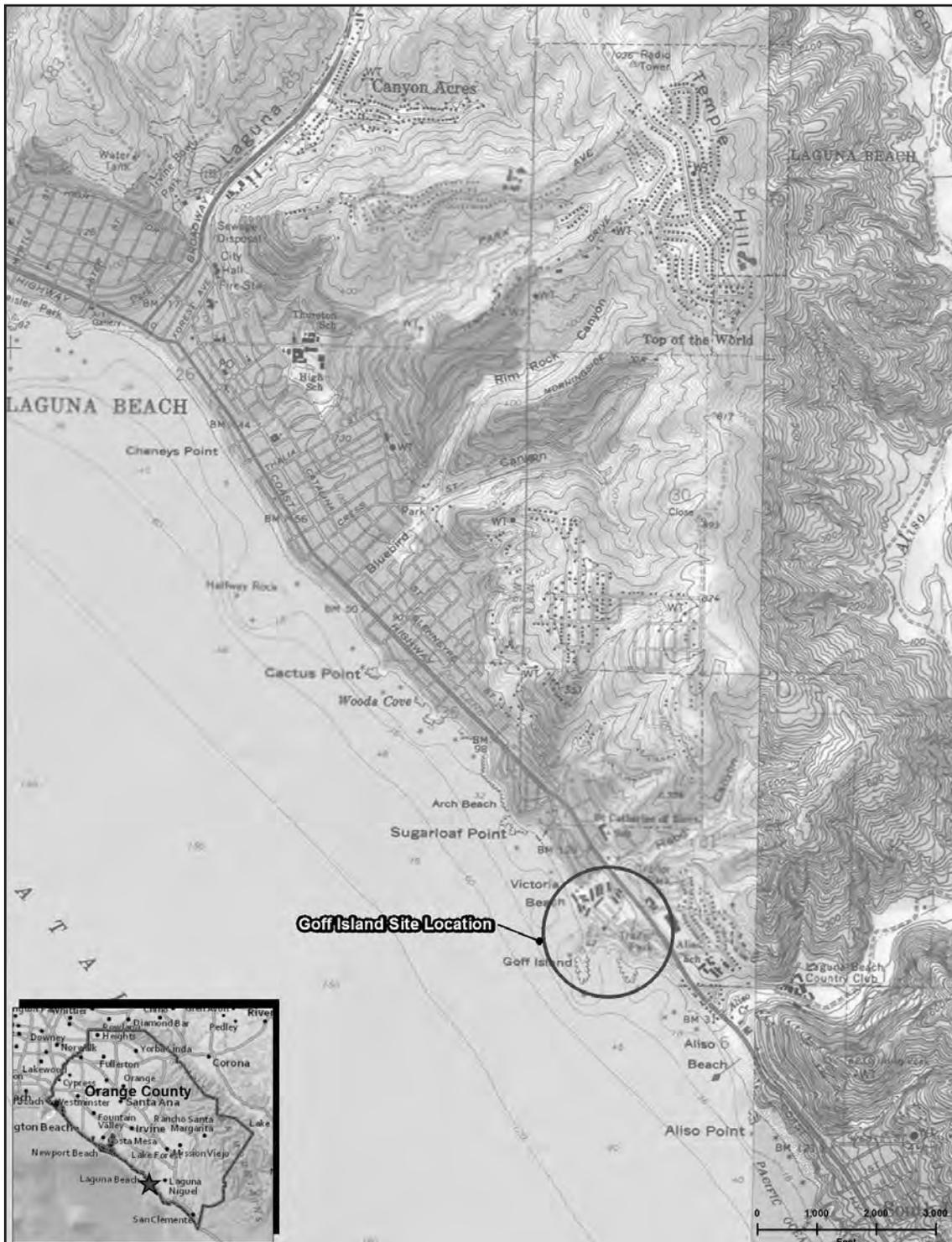


Figure 1. Goff's Island site location map. Source: NGS, 2011; National Geographic, 2012; CA DOC, 2007.

discovered during all monitoring of grading operations (Couch and Whitney-Desautels 2003:70).

The Goff's Island Site (CA-ORA-08/108/110)

Cultural Components and Chronology

Winterbourne was able to identify two cultural components at the site consisting of a lower deposit which he called "Culture I," and an upper deposit termed "Culture II" (1967:45–46). The following review, adapting Winterbourne's descriptions to modern chronology, is taken from Whitney-Desautels (1999:25) and Couch and Whitney-Desautels (2003:71–72).

The Culture I inhabitants used manos and metates for seed grinding but appeared to lack mortars and pestles. Few projectile points were present in this deeper deposit, and those present included what Winterbourne regarded as older, crudely made concave base and leaf-shaped styles. Shellfish remains are abundant, dominated by mussel, with very little animal bone to indicate any hunting. Culture I people invariably buried their dead in a flexed position, with the head oriented towards the west or southwest, and normally lacking burial goods. These traits are representative of the later Millingstone horizon (8,000–3,000 BP) as suggested by Couch and Whitney-Desautels (2003:71). SRS's 1996 work produced five radiocarbon dates within the 5050–4340 BP range (Couch and Whitney-Desautels 2003:72), consistent with the terminal Millingstone period.

The Culture II assemblage included the addition of the mortar/pestle complex for soft seed grinding. Steatite objects and raw steatite were in evidence, and side-notched projectile points (Gypsum and Elko), burials with grave goods, and house floors became abundant relative to Culture I. These are all diagnostic traits of the Intermediate horizon, approximately 3,000–1,250 BP (Couch and Whitney-Desautels 2003:72). Burial orientation was generally with the head to the north or

northeast. Interments were both flexed and extended, and several contained grave goods. While shellfish harvesting continued, now with large amounts of abalone included, fish and land animal bone are abundant. There was an increase in utilization of deep-water ocean resources and increased evidence of trade, aspects particularly relevant to the discussion to follow. SRS also obtained two more recent radiocarbon dates of 2980 and 2550 BP, which places this later occupation during the early Intermediate period (Couch and Whitney-Desautels 2003:71).

The WPA excavation did not show any clear delineation, "no definite break in the midden of the Goff's Island Site, and no sterile stratum lying between" the two cultures, leaving Winterbourne to suggest a gradual evolution of one culture to the next (1967:45). Therefore, SRS's two sets of radiocarbon dates may be taken as only generally indicative of the eras of the two cultures. They do, however, fit neatly within the descriptions of Wallace's horizons (as modified by Couch and Whitney-Desautels (1999, 2003) and Sutton's traditions (2008a, 2008b, see below).

Recent work reorganizing the southern California chronology (Sutton and Gardner 2006; Sutton 2008a, 2008b) gives these prehistoric cultures finer and more cohesive regional descriptions. The artifact types and dates from Winterbourne's Culture I fit at the transition of Sutton's Topanga I continuing into Topanga II within the Encinitas tradition, Topanga II starting at approximately 3,500 BP (Sutton 2008a:9). The Culture II material, fitting the early Intermediate period, falls into Sutton's late Topanga III pattern within the Encinitas tradition, which lasted from approximately 3,500 to 2,600 BP (Sutton 2008a:4–5). However, several of the material culture traits Winterbourne lists for Culture II fit San Luis Rey I, such as the presence of arrow points, "recognizable" middens, bone awls, and increased use of mortars and pestles. This suggests that portions of the site or its terminal occupation lasted into an early phase of Sutton's Del Rey tradition

(2,600 to 150 BP) (2008a:5), which would match Couch and Whitney-Desautels' (2003:87) suggestion of the possible presence of an early Late Prehistoric occupation (2003:87).

Historic Background

The historic period began with the use of surrounding lands as a cattle ranch, first as part of the Nigüil administrative division of Mission San Juan Capistrano lands by the late 1700s (Engelhardt 1922:132), and then in the 1840s as the Ávila family's Rancho Nigüel. There are no direct references to this coast from the Spanish and Mexican colonial era, so aside from gathering stray cattle from the edge of the cliffs and extensive use of the shoreline for fishing by the remaining Native Americans, there was little economic use of the immediate area until the 1880s. Despite the long ago abandonment of the village on the Goff's Island bluff two millennia prior, this remained a prime fishing location for the local Native Californians, evidenced in part by the numerous place names for this area provided by Acjachemen consultant José de Gracia Cruz to linguist John P. Harrington in 1917 (O'Neil 2012).

After becoming public lands when the Rancho Nigüil was reduced in size by the US Land Claims Commission, the parcel was purchased by the Goff brothers in 1878. Leon Goff filed for the lands north of Aliso Creek, which included the bluff and the shoreline rock that came to be known as Goff's Island, which contained the prehistoric site (Couch and Whitney-Desautels 2003:24). The land was leased out for farming.

In 1931 the land was sold to Florence and Blanche Dolf. They allowed seasonal use for trailers on a portion of the property, and the rest was farmed. In 1934 a Mr. Bonzer leased part of the property and used 34 acres to open a trailer park which soon became known as the Treasure Island Trailer Park for the classic movie of the same name filmed there that year. Over

the ensuing years different people leased and operated the trailer park with outlying areas used for agriculture (Couch and Whitney-Desautels 2003:25). The WPA excavation concentrated on the burial mound portion of the bluff's archaeological site in 1939. In 1954 the trailer park was sold to the Kuhn brothers who increased the park size to hold 266 spaces and dug out underground parking. The central archaeological site within the northeastern portion of the trailer park, however, remained relatively intact until the early 1960s. (Couch and Whitney-Desautels 2003:30.)

Proposals to further develop the property emerged in the late 1970s (Couch and Whitney-Desautels 2003:41), but it was not until the late 1990s that these plans were seriously pursued. Archaeological testing took place in 1979 and 1996 as mitigation for this intended development (Couch and Whitney-Desautels 2003:45). Eventually the entire bluff was purchased by The Athens Group which broke ground for a new resort at the site in 2000. The Montage Hotel and grounds, which opened in 2003, now encompasses 30 acres, including the beachfront (John Mansour, personal communication 2012). Its construction resulted in the final and complete destruction of ORA-8/108/110 (for simplicity, and because this is its original designation, the site will simply be referred to ORA-8 from here forward).

The Artifact

In 1922 the beach at the mouth of Los Alisos Creek, adjacent to the Goff's Island site on the south side, was established as a campground (Wilson 1975:10), drawing beachcombers and hikers. Here the parents of Harold Wilson operated the beach camp at the creek and ran a food stand on the south edge of the bluff throughout the 1920s, where he helped out as a youth. In the context of increasing foot traffic and tilled fields, around the early 1930s Harold collected a lithic artifact (Figure 2) lying on the surface of the bluff. Described in his collection as a "hammer," he told his

daughter, Karen Wilson Turnbull (Turnbull, personal communication 2001), that the artifact was one of the first artifacts he found, no. 6 in the present collection of 100 items. It had certainly been collected prior to 1935, at least four years before the WPA excavation commenced.

This artifact is generally wedge-shaped, much like a log-splitting wedge. Measuring 13.7 cm in length and 7.7 cm high at the narrow end, it tapers from 5.8 cm to about 1.8 cm (Figure 2). The wide sides are very flat and somewhat smooth, while the rest of the stone is rounded and of a rough texture. It weighs 924.5 g.

Paleontologist Carol Stadum identified the object's material as probably fossilized whale bone, possibly a

centrum or neck vertebra (Stadum, personal communication 2007). The outer cortex (compact, or diploë, tissue) had eroded away, leaving the now rough matrix (cancellous tissue) exposed. Stadum suggested it comes from the Miocene period (9 to 12 million years ago), when the southern California coast was a warm shallow sea. This material is not uncommon along the southern Orange County coast where it is present as a result of erosion of the Capistrano Formation, which contains the fossils. The nature of the material as fossilized bone is relevant to the proposed function of the artifact, as will be discussed later.

In addition to the probable natural shape of the mineralized bone as a wedge form and flatness of the sides, there are purposeful grooves wrapping around the two

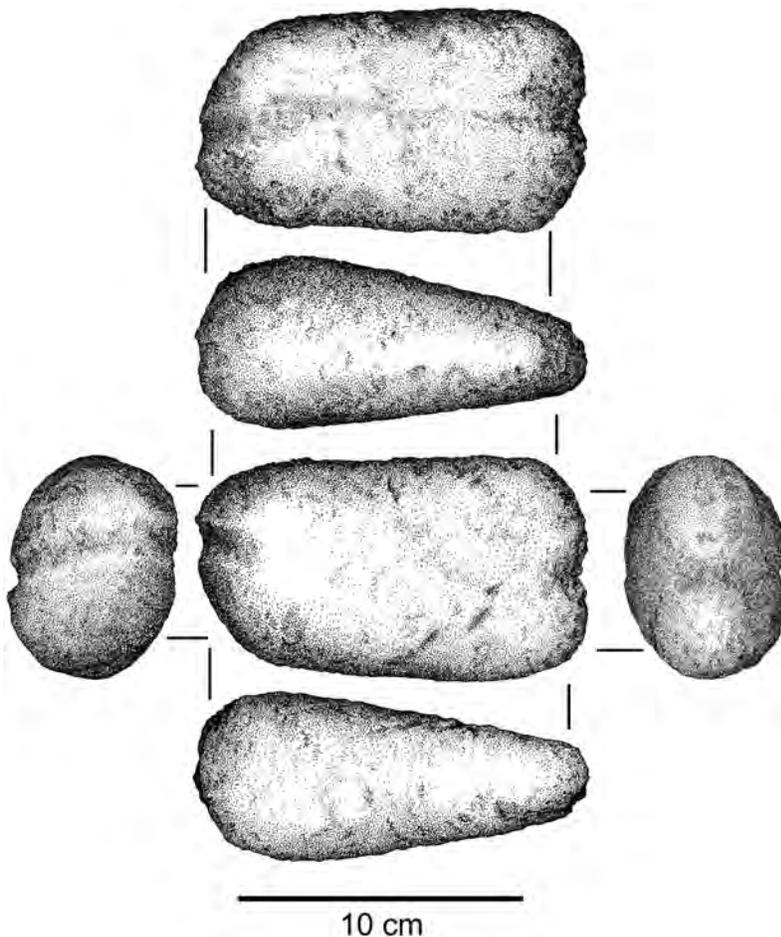


Figure 2. Artifact no. 6 of the Harold Wilson Collection. Illustration by Tricia Worman.

ends, forming clear indentations when viewed along the broad plain. From the ends, the grooves extend partway along the broad flat surfaces, but not completely into their smoothest, central portion.

A Grooved Axe?

Wilson's description of artifact no. 6 as a "hammer" suggested the notion of an axe, probably derived from its wedge-shape as well as the comfortable manner it fits into the hand with the narrow end out, lending a certain credence to the idea of an axe or chopper. Could its grooves have been used for hafting? Making inquiries into "grooved axes," studies on similarly termed artifacts came to light. Robert Heizer (1946) wrote about the spread of the grooved axe form from the Southwest into California. He had two examples from Santa Catalina Island as well as one from the Mojave Desert (Heizer 1946:189). However, Heizer's illustrations clearly showed that these tools were different from the Goff's Island example, because Heizer's specimens each had a wide groove around the width (not a narrow groove about the length) and more pointed narrow ends. Also, Heizer suggested a late, possibly even historic, introduction of this tool form into California (1946:190), whereas the Goff's Island site was apparently abandoned as a habitation prior to the Late Prehistoric horizon (Whitney-Desautels 1999:35). Dr. Keith Dixon later described a "grooved maul" found in northwest Orange County (Dixon 1960:2). Though the groove is partial in this unique artifact, as with the Goff's Island find, the groove is very wide and deep, girdling the stone's circumference, more similar to Heizer's "grooved axe" type. Dixon's Orange County item was made from sandstone, and wear marks show it was used for battering (Dixon, personal communication 2001).

The Goff's Island artifact was initially analyzed with the criteria of grooved axes or mauls in mind. There are no signs of battering or chopping wear anywhere on the specimen, much less at the narrow end that would have served as a blade edge. The narrow end

is rounded and not shaped to be a cutting or chopping edge. Most telling, however, are the grooves themselves; the indentation resulting from the grooves goes directly through what would have been the "cutting edge," and any cord wrapped onto it would have been cut in its use. The longitudinal placement of the grooves does not allow hafting to a handle with the cord in these grooves. If this were an axe, then the grooves would have been purely ornamental, leaving a space in the middle of the chopping edge with a large, non-functional notch.

Fishing Net Sinkers

The Presence of Net Sinkers at Goff's Island

A more common artifact found along the southern California coast characterized by the presence of grooves is the fishing net sinker. These are seen in a range of sizes and shapes, though relatively small and somewhat spherical examples predominate. A review of the literature to determine the presence and characteristics of net weight sinkers in the Juaneño (Acjachemen), Gabrielino (Tongva) and Chumash culture areas was conducted with a concentration on archaeological site reports from the coastal Orange County region.

The first excavation reviewed was the WPA work at Goff's Island itself, and indeed, four such artifacts were identified in this report. A "net sinker or grooved stone," described as a flat, ovoid-shaped stone with a longitudinal groove, was found by the excavation crew (Winterbourne 1967:106, cat. no. 155). Like the Wilson artifact, this too was found on the surface. Two more objects, one a "grooved stone" and another described as a wedge-shaped pebble that was "grooved" around the center, were found subsurface (Winterbourne 1967:100, catalogue no. 67 and no. 68) (see Figure 3). Finally, there was a fourth "grooved stone," another surface find, spherical in shape, described as a "possible net weight or sinker" (Winterbourne 1967:126, cat. no. 488).

Grooved net weights or sinkers—(67-155) most commonly of sandstone are not uncommon here and probably were used in the task for fishing rather than as Dr. David Banks Rogers suggests, “bollas” for hunting game. In the digs in Orange Co. we have found that in what we may term fishing villages these stones are not uncommon while in the hill villages where the bones of small animals outnumber the fish bones in the midden grooved balls are from very scarce to entirely missing [Winterbourne 1967:10].

Of the four weights recovered during the WPA investigation, two (no. 67 and no.155) were found on the surface (as had been Wilson's specimen). A third specimen (no. 168) was found at a depth of 8 in and the fourth (no. 488) at 23 in. This indicates that of the four specimens, three were from the later Culture II which Winterbourne reported went from the surface to about 18 in (1967:8). Thus, the deepest weight (no. 488) probably belongs to the Culture I level. The preponderance of these fish procurement



Figure 3. Net sinker from the Goff's Island site CA-ORA-08/108/110 (after Winterbourne 1967:Plate VI, cat. no. 67). Illustration by Karen Talbot.

tools being associated with Culture II agrees with Winterbourne's observation that the earlier culture relied on shellfish gathered off the adjacent shore rocks, while the presence of additional fishing equipment such as shell hooks, barbs, and harpoons indicates increased ocean animal dependence for Culture II.

Of special interest is the fact that two of the four weights were found in Plot No. 3, where six human burials were also uncovered. Specimen no. 67 was within 1.5 ft of Burial F and no. 68 was within 3.5 and 5 ft of Burials B and C respectively, possibly representing grave goods (see plot charts on pages 52, 57, and 71 and “Sequence Chart” starting on page 86 in Winterbourne [1967] for the artifact location descriptions).

In 1979 SRS investigated CA-ORA-8 because of plans to develop the entire site for a large resort (Couch and Whitney-Desautels 2003). Test excavations were conducted, and construction grading was monitored. Among the over 200 artifacts found during this work, two net weights were recorded. Artifacts no. 709 and no. 858 were nearly identical in size and weight, with “a shallow groove running the circumference of the stones along the long axis” (Couch and Whitney-Desautels 2003:85). This brings the count to six net weights found in an archaeological context at ORA-8 (seven with Wilson's artifact no. 6).

Net Sinkers at Regional Prehistoric Sites

A review of 50 articles and reports published on 73 prehistoric coastal archaeological sites excavated in Orange County, southern Los Angeles County, and on Santa Catalina Island revealed surprisingly few mentions of net weights given the initial count seen at Goff's Island. There were a mere ten sites containing a total of 23 possible weights or sinkers (Anderson 1969; Barter 1983, 1987 and 1991; Bates 1972; Butler 1974; Cameron 1989; Chace 1966a and 1966b; Chace, et al. 1967; Cleland et al. 2007; Cottrell 1983;

Cottrell, et al. 1985; Couch and Whitney-Desautels 2003; Craib 1982; Demcak 1988; Drover et al. 1983; Grenda et al. 1998; Hafner 1966; Koerper and Drover 1983; Koerper and Langenwaller 1983; Koerper et al. 1992; Lauter 1977; Long 1994; Lyneis 1981; Mason, et al. 1990, 1991a, 1991b, 1991c, 1991d, 1992a, 1992b, 1992c, 1992d, 1992e, 1992f, 1993a, 1993b, and 1993c; McKinney 1966; Rice and Cottrell 1975; Rosenthal et al. 1988; Ross 1970; Salls 1990; Schroth, et al. 1987; Whitney-Desautels 1995; and Winterbourne 1938a, 1938b, 1966, 1969). The majority of the 73 sites did have seafood remains (n = 60, 82.2 percent), and many contained fishing equipment (n = 26, 35 percent) such as net weights, shell fishing hooks, and bi-pointed bone artifacts used as gorges and harpoon barbs.)

The manner of reporting the presence of possible net weights varied considerably from author to author. There was no discussion or review of this artifact type offered by any of the authors. From excavations at CA-SCAI-137 on Santa Catalina Island, Rosenthal et al. reported “various soapstone objects from the Bulrush Site. Included were both ritual items and possible weights or sinkers” (1988:59, Figure 24) (see Figure 4a). The San Pedro Harbor site (CA-LAN-283) contained four “net sinkers” found among other fish procurement artifacts (Butler 1974:24, Table 5). A drawing shows one of these to be round and another one irregular in shape, but the remaining two were not illustrated (Butler 1974:71, Figures 32a, 32b). A 1995 draft report on CA-ORA-85 and CA-ORA-83 at the Bolsa Chica Mesa by Nancy Whitney-Desautels reviewed past and present work at these sites, and found four miscellaneous plummet/net weights at ORA-83 (Whitney-Desautels 1995:24, Table 4), but none at ORA-85. Winterbourne had excavated at the San Joaquin Home Ranch site (CA-ORA-111) for the WPA before digging at Goff’s Island. Here he found a “problematic stone” (1938b:62, no. 2205), broken with a notch that may be the remnant of a groove to hold a cord. The Newport Coast Archaeological Project, 11 km north of Goff’s Island, recovered only three

net weights from 42 sites. These examples were from CA-ORA-340, no. 1540 (Mason et al. 1991b:84); CA-ORA-665, no. 31009 (Mason et al. 1992a:61) (see Figure 4b); and CA-ORA-667, no. 35590 (Mason et al. 1992c:76). Forty of the Newport Coast sites had marine fish remains, and 11, including two of the three sites with net weights, contained other fishing gear.

Net Sinkers in the Regional Ethnographic Literature

In *The Gabrielino*, Bruce Miller suggests that “donut stones” were used as fishing weights (Miller 1991:56). John Harrington’s premier Chumash consultant, Fernando Librado, stated that he “never saw a perforated sinker” (Hudson and Blackburn 1982:160). A supposition at the time Miller voiced it, recent deduction and circumstantial evidence indicates there may have been sinkers of this shape locally (Koerper 2017).

McCawley’s (1996:123, 127) study of the Gabrielino mentions the use of large nets, including fishing nets, and the stone weights needed to hold them in place.

Drag nets had a large, four-inch mesh and were pulled behind a canoe to catch large fish such as bonita. These nets might be six or eight feet in length and were made of milkweed or willow-fibre string ... The seine net was suspended in the water vertically by means of floats and stone sinkers and was drawn by canoes to encircle schools of fish [McCawley 1996:127].

It is not until McCawley references Hudson and Blackburn (1982) that the use of stone sinkers appears, and so his book is not an independent source of corroboration. This tool is not mentioned in his chapters on fishing equipment or mineral resources (McCawley 1996:123–128, 135–140).

The most complete information on the form and use of stone sinkers in southern California is to be found

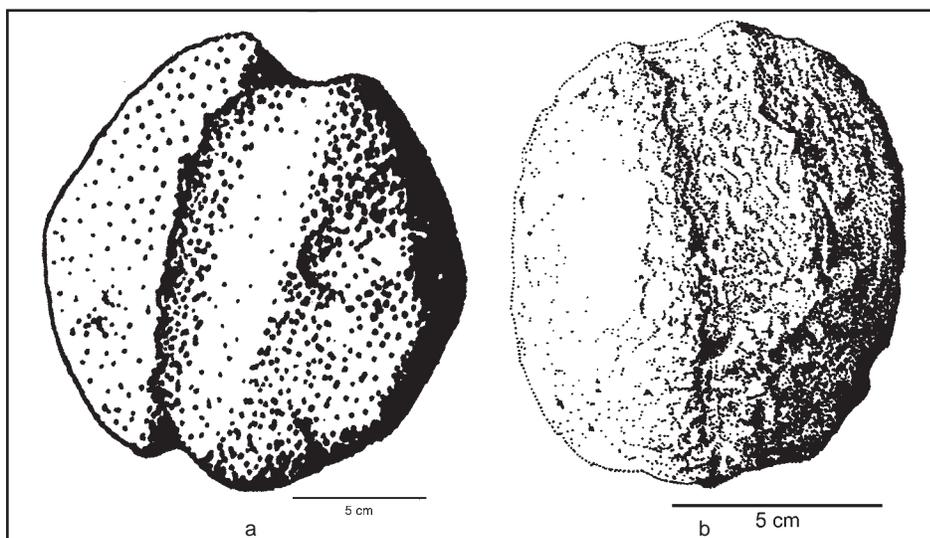


Figure 4. Net sinkers: a) from CA-SCAI-138 (after Rosenthal et al. 1988:Figure 32a), b) from CA-ORA-662 (after Mason et al 1992b:Figure 61, cat. no. 31009). Illustrations by Karen Talbot.

in Hudson and Blackburn's 1982 exposition of the John Peabody Harrington notes, *The Material Culture of the Chumash Interaction Sphere, Volume 2: Food Procurement and Transportation*. This volume covers both gill nets (item 40) and seine nets (item 41), and between these topics there appears sinkers (item 40.1). They wrote that a gill or drag net is a "large-mesh net that was suspended vertically in the water, into which fish would swim and become entangled" (Hudson and Blackburn 1982:157). As circumstantial evidence for the existence of drag or gill nets, they write:

The presence of extremely large notched stones, some of which are obviously too large to have been sinkers for surfines or were found in water too deep within the kelp forest for them to have served a canoe anchors, has lead Hudson (1976b:26–29 [sic, 1976:38]) to suggest that these objects may have been the anchoring stones for gill nets, since the seine net could not have been easily dragged along the rocky bottom found in the areas of dense kelp and ethnographic data indicate that stone anchors were not used

with the plank canoe anyway. In addition, an archaeological specimen (Fig. 40-1) with a large mesh size (8 to 10 cm) also suggests that the gill net was employed [Hudson and Blackburn 1982:157].²

Fishing net weights are termed "sinkers" by Hudson and Blackburn (1982:159), who describe them as a "grooved or notched stone weight that was attached to a fishnet or a fishline to make it sink." They gave Henshaw's (1887:19) account of inquiring after the material and workmanship of these items: a Santa Barbara Indian told Henshaw, "Why should we make stones like that [finely worked 'plummet stones'] when the beach supplies sinkers in abundance? Our sinkers are beach stones, and when one is lost we pick up another." Illustrations show several sinkers, all spherical or roundish in shape (Hudson and Blackburn 1982:Figures 40.1-2–40.1-5). The grooves for the cord to attach the sinker to the net go around the center of the stone. However, like the Wilson artifact, the grooves did not necessarily circumnavigate the stone. Fernando Librado told Harrington, "They would make a notch on either side of the rock, passing the string around

and then twisting” (Hudson and Blackburn 1982:160). Also, an illustrated sinker has a “central U-shaped groove” (Hudson and Blackburn 1982:Figure 40.1-3) and thus may also be described as a partial groove.

Size Distribution of Net Sinkers

Dimension and weight play a role in the specific use of sinkers. Some were used on simple fish lines (Hudson and Blackburn 1982:160), and these would not need to have been very heavy to function properly. Two Chumash Indians, José Venadero and José Sudón, are reported to have “used a stone the size of your fist on the very tip of their surflines.” A fist is about 8.5 cm in length,³ and the Wilson artifact is 13.17 cm long. Hudson and Blackburn (1982:157) also did not think seine nets required very large sinkers. Therefore the largest of sinkers may have been used with the largest of fishing nets, the offshore drag nets, which required the use of plank canoes—the Chumash *tomol* or the Tongva *ti'at*. The sinkers in Hudson and Blackburn's (1982:157) Figure 40.1-3 are 10.5 cm in diameter, while that in Figure 40.1-4 is 23.0 cm in diameter (1982:161). An illustrated notched “net weight” found at Goff's Island is only 6.8 cm in length (Winterbourne 1967:Pl. VI). The Wilson artifact, at 13.7 cm, appears to fall into the middle range.

The author initiated an informal study of regional net weight dimensions in order to determine the relative placement of the Wilson artifact among known examples. The manner of describing the dimensions of reported sinkers varied from author to author. Therefore, the lowest common denominator of length and width that was commonly available was used to provide simple relative dimensions, which is adequate for the purposes of this paper. The length and width, as provided in either the text or derived from measuring the illustration with accompanying scale, were multiplied to provide a gross two-dimensional area of the net weight. This dimension, in square centimeters, was then plotted on a scale.⁴

The local excavation studies cited above provided 23 examples of sinkers exhibiting a range of sizes from 1.26 to 483 cm². There was a middle clustering of 15 examples in the 13.6 to 56 cm² range, which may represent the medium seine net weights. A second small but definite grouping of three diminutive specimens ranged from 1.26 to 2.64 cm² and may represent sinkers for fishing lines. The Wilson artifact, at 105.5 cm², falls within the largest size group, with four excavated examples ranging from 81 to 110 cm², possibly specimens used for drag nets. One grooved stone is an outlier, four times the size of the next largest example and may represent an anchor. In a satisfying display of synchronicity, the two net weights that were collected during monitoring at the Goff's Island site in 1996 (Couch and Whitney-Desautels 2003:85, Table 18), fall into the same size category as Wilson's artifact.

Implied Regional Prehistoric Use of Net Sinkers

Chace's review of marine resources found at 17 Orange County coastal sites dating to the Milling Stone and Intermediate Horizons (1998:64) (not including Goff's Island), indicates 12 of the middens contained fish species common to kelp beds and that seven of these 12 also had species present during the summer, with a further three sites possibly containing other seasonal fish. Therefore, the presence of drag nets can be supposed because this fishing implement would have been useful in procuring large numbers of these fish from an open ocean environment.

Describing local coastal midden, Whitney-Desautels writes:

Indeed, the major subsistence pursuit at these sites was not shellfish collecting, although this was clearly a secondary pattern, but rather focused on ocean fishing, primarily in nearby off-shore kelp beds. The remnants of sea mammal remains within the deposits validate the interpretation of an ocean fishing

emphasis. At least one site, ORA-1429, emphasized the collection of sardines [Whitney-Desautels 1999:35].

Archaeological methods of the WPA era did not take pains to locate and record individual bone or much other ecofactual material, but a listing of fish species observed at Goff's Island consists of mackerel, California halibut, rock bass, black sea bass, sheepshead, and stingray; the sea mammals included sea otter, seal, and whale (Winterbourne 1967:137). The presence of these fish and mammals indicates the inhabitants of Goff's Island conducted open ocean fishing and possibly sea mammal hunting (though the sea otter can be found close to shore, and beached whales could have been scavenged). A probable bone harpoon and compound fishing barbs were found at Goff's Island, along with *Haliotis* shell fish hooks (Winterbourne 1967:33–34, 36–37), further supporting this idea.

Identification of the Wilson Artifact

Comparison of the characteristics of sinkers in local ethnographic descriptions with the features of Wilson's artifact no. 6 strongly suggests the conclusion that it does represent a fishing net sinker, probably used with offshore drag nets. Due to the rough texture, round surfaces, and generally unmodified surface (except for the grooves), there is no indication it was modified for any other specific use. The grooves at both ends indicate that a cord was attached; the grooves on the stone are not in the position to allow hafting as an axe or maul. Its dimensions and weight are consistent with known sinkers along the southern California coast. Six other sinkers were later found at the Goff's Island site both on the surface and subsurface. Furthermore, when the stone was observed by Paul Langenwaller and Dr. Henry Koerper, archaeologists with extensive experience and intimately familiar with Southern California coastal prehistoric sites, both agreed with the author's suggestion that the item may have been a

fishing weight (Langenwaller and Koerper, personal communication 2001).

Abrader

The Presence of Steatite

A physical feature of this artifact is that along one of the longitudinal sides, the planar view is flatter and smoother than what is seen on the other flat side. Also, the grooves do not extend into this one smooth area to the degree they do on the other longitudinal plane. This flat surface is 10 cm². To the naked eye, it also looks paler in color than the remainder of the artifact's surface. When Paul Langenwaller inspected this area with a hand lens, he noticed a fine light gray substance imbedded within the pits of this surface (Langenwaller, personal communication 2001), which was initially considered to be steatite.

Dr. Hector Neff, Professor of Anthropology and Research Scientist, Institute for Integrative Research in Materials, Environments, and Societies (IIRMES), at California State University, Long Beach, was contacted by the author to analyze the powder imbedded in the artifact. Neff was visited September 23, 2015, to show him the artifact and discuss the research project. He performed the analysis and provided the results on October 2, 2015, based on a sample the author provided following instructions and using equipment provided by Neff.

Dr. Neff had the provided specimen scrapings as well as scrapings from a control sample of known steatite from a Virginia quarry. He ran a Fourier Transform Infrared (FT-IR) spectrum reading first on the control sample of steatite and then on the Goff's Island artifact's powder. The resulting spectrograph showed the IR absorption lines were very close, with very similar absorbance at all the same wavelengths (Neff, personal communication 2015), confirming that the artifact's material is steatite. Neff did qualify his

statement noting that the sample was very small, and that under ideal circumstances he would like to have run a second test of the two samples in reverse order. However there was no further powder remaining with which to perform a second test. Nevertheless, the perfect match of the IR absorbance lines, with an equivalent presence at every point, without peaks or absences outside the control's peaks and absences, demonstrates that no non-steatite contamination was present. This imbedded powder strongly suggests that the artifact was used to abrade steatite.

Ethnographically Known Uses for Abraders

Sanding stones used to shape manufactured items are a well-documented part of the Native California tool kit. Termed "abrading stones," Hudson and Blackburn (1987:71–73 [Item no. 408]) cite their use by both the Gabrielino (via Merriam 1955) and the Chumash (via J. P. Harrington [n.d.]). Hudson and Blackburn (1987:71) describe this tool type as a "piece of lithic material with an abrasive surface that is used to smooth a wooden object by grinding and polishing," suggesting such artifacts were primarily a component of woodworking tool kits. Sandstone, pumice, and other similar stones were used to smooth rough-cut surfaces. Fine-grained stones would then be used to polish wooden surfaces; shark skin was also used for wood sanding (Hudson and Blackburn 1987:74). The Goff's Island artifact, which is petrified whale bone matrix, has a rough texture similarly suitable for abrading. An interesting point is that, while Hudson and Blackburn's definition only mentions wood being abraded, their ethnographic examples (Hudson and Blackburn 1987:71) twice describe bone also being worked with this tool.

One of the uses of abraders was for plank canoe construction, to finish the close fitting planks. The canoes were used for deep-sea fishing as well as for transportation of people and goods between the mainland and the islands. At Goff's Island, fragments of bone harpoons were found (Winterbourne 1967:33; McCawley

1996:126), which infer large deep-sea fish and sea mammal hunting from canoes. Drag nets used offshore are also suggested by the presence of heavy sinkers at Goff's Island. The elements of tool kits needed to construct such canoes are known for the Chumash (Hudson et al. 1978; Gamble 2002), and descriptions of this tool kit have allowed their presence to be recognized in excavations on San Clemente Island (Raab 2000), further testament to the possibility that plank canoes had been in use and even possibly manufactured at the Goff's Island site. A review of the artifact collection from the Goff's Island site with the canoe tool kit in mind might be enlightening; the artifact assemblage here is known to contain drills, reamers, caulking stones, numerous bone and shell fishhooks, and other tools (Winterbourne 1967). There is no archaeological evidence of plank canoes among the Late Prehistoric and Contact periods Acjachemen and Luiseño, but there is ethnographic record of dugout canoes. The dugout was one of the First People born of Mother Earth in Salvador Cuevas' creation myth: "*Pauhut Abahut*. Pauhut, canoe (also a box hollowed out of a log to keep things in); abahut, cottonwood tree out of which it is made. Sent West [i.e., toward the ocean from its birthplace in Temeku]" (DuBois 1908:131).

Potential Uses for Abraders at Goff's Island

The Wilson artifact contains no wood dust, but rather steatite or soapstone, in its pores. Given the softness of soapstone (Mohs hardness 1), there is no reason why pumice (Mohs hardness 6), sandstone (hardness variable), and other lithics used as abraders could not have been used to work it into a powder.

Termed '*urúushat* in Luiseño (Harrington 1978:Reel 151, Frame 133/L), of which Juaneño is a dialect, soapstone was a material used in a variety of ingenious ways, including manufacture of bowls, comals, arrow shaft straighteners, and other useful items. Its soft and yielding texture allowed fine shaping and incising to create effigies, beads and other ornaments, and works of

art. That soft nature also allowed it to be easily abraded into a powder under the action of almost any other stone. J. P. Harrington recorded from Luisa Ygnacio, a Barbareño Chumash consultant, that Indians “scraped it from soapstone” (Hudson and Blackburn 1985:335) to be used like talcum in the swaddling of babies. It seems unlikely that it would have been shaved off with a knife, as this would produce noticeable small chunks (though these could have later been ground into a powder). Scraping a piece of steatite with an abrader would have produced the desired powdered form with a single step of production. The Diegueño neighbors to the south powdered steatite (*yruu'at*) and used it as body paint: “His body was painted . . . in broad stripes of white paint. This is made of powdered soapstone mixed with water” (Waterman 1910:309). Taylor (1861:36, cited in Hudson and Blackburn [1985:179]) recorded the use of steatite “ground into a powder and used for painting warriors” among the Chumash to the north. White paint was used by the Chumash as body paint, for petroglyphs, feathered poles, and other ritual objects (Hudson and Blackburn 1985:179).

Steatite pot fragments were found at the Goff's Island site (Winterbourne 1967:143, Pl. VIII), as well as a steatite pipe and tube. Though steatite cooking and toloache ceremonial bowls (used exclusively for *manet*, a drink made of the *Datura* plant for religious initiation) are generally considered to have been traded to the mainland from Santa Catalina Island (Meighan and Rootenberg 1957), it has been suggested more recently that bowls were merely roughed out by the islanders:

Because the designs on bowls that were studied can be divided into types, the soapstone was likely exported from Catalina in an unfinished state and artisans in each area undertook their own [regional] finish work and decoration [Lee 1998:54].

Large pieces of soapstone could possibly have been worked at the Goff's Island site, requiring large

abrading tools for the early stages of finish work. Also, abrading chunks of steatite for powder could have been a common practice.

An abrader, as part of an artisan's tool kit, would likely have been a prized possession and not performed double duty as a common net weight, something that could easily be lost at sea. But the casual use of a stone with conveniently flat sides with textured surfaces that would allow rough but controlled abrading of soft material could have been used to produce steatite powder, following which the tool could have been used again in its primary function as a sinker. Alternatively, the fossil stone could have been found at the beach and initially used as a net weight, and later retired from high-hazard duty when its facility with steatite was recognized.

Summary and Conclusion

Wilson's artifact no. 6 was certainly used as a drag or gill net sinker, as indicated by its partial grooving, its lack of further modification, its match within the size range of gill net weights, and its fossil bone material being convenient and local, the usual case for these “casual” artifacts. This identification is reinforced by the presence at the Goff's Island site of six other net sinkers as well as fish procurement tools indicative of open ocean fishing where a drag net would have been used. Beyond this, however, the artifact also appears to have been put to double duty as a steatite abrader. This conclusion is based on the presence of steatite powder within its surface matrix and its suitability as an abrader. The stone's fitness as an abrader would have been secondary, as a hand tool probably would not be later modified for use as a sinker that might be lost at sea. That the steatite powder was still present within the matrix of the artifact's surface implies it had probably not been used as a net weight for some time, because repeated dragging through the ocean would likely have washed out the powder. It also implies that its last use was as an abrader before being discarded or lost. This further suggests that over time

its use as an abrader came to predominate and that it may have been retired from a food-procurement purpose and switched over to become part of an artisan's manufacturing tool kit.

The opportunity to study such an intriguing multipurpose artifact was made possible through its collection by Harold Wilson. Keeping to surface finds and recording their provenance, Wilson has provided as much information as exists for many of the items collected five or more years later through the WPA excavation. The artifact itself is an exemplar of the multiple activities conducted at the Goff's Island site—food procurement by a maritime culture and manufacturing techniques used in the construction of items to maintain that society. This multipurpose tool demonstrates the pragmatic thinking of a people concerned with getting on with the needs of daily life.

Endnotes

1. Winterbourne termed this the "Goff's Island Site" and his diagram shows the midden extending from the bluff out to the island/rock. He strongly suggested that in the past the island had been part of the mainland, the bluff extending out during early Native American occupation (Winterbourne 1967:7–8). With the intervening millennia of wave action, eventually the island was cut off from the mainland. But neither Winterbourne nor later researchers mention actually including the island in their direct investigations until SRS in 1996. This topographical feature is so striking, however, that it has always lent its name to the site as a whole.

2. Hudson's study of prehistoric artifacts found offshore of Santa Barbara County makes the important observation that this set of items, described as a "cobble with one or more encircling grooves or pecked notches located midway between both poles" (1976:26), had been suggested to be bola stones by David Banks Rogers in 1929 based on his observation that they were found in sets of two as grave offerings; Hudson,

having noted three such artifact's locations in 15.3 m or more of water, was able to confirm their use as fish net weights (1976:38). Interestingly, Winterbourne also noted Rogers' bola-stone hypothesis back in 1939 when the Rogers' writing was still fresh. Winterbourne independently reached a similar conclusion to Hudson that these were sinkers based on the many WPA excavations throughout Orange County, where at "fishing villages these [grooved] stones were not uncommon while in the hill villages where the bones of small animals outnumber the fish bones ... grooved balls are from very scarce to entirely missing" (Winterbourne 1967:19).

Another link between Hudson's interpretation of Rogers' observations in Santa Barbara sites and what Winterbourne found at Goff's Island is that the fishing net weights were grave goods in both locations and, likely, at the same time period. It might be enlightening to see if this is a manifestation of the Intermediate horizon throughout coastal southern California.

3. The author made limited survey of fist size among 11 adult men and women of Western European and Persian ancestry and found a range of fist lengths from 66.7 to 98.4 mm, with an average of 84.6 mm, and a range of fist circumferences from 251 to 298.4 mm, with an average of 273.6 mm.

4. No prior study of fishing net weights as an artifact category in prehistoric southern California was found during the course of this research. Investigating the local range of sinker sizes became a fascinating quest in and of itself and suggested another direction of inquiry. Therefore, a separate article is planned that will explore the distribution of net weights, their numbers, dimensions, and functions.

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passed away in 1981. His daughter cares for his artifact collection, which had been accumulated in large part during his teenage years. Among various other interesting items, the collection contains a Trabuco Mesa coggled stone. Separate from the artifact collection, the family maintains the famous Laguna Woman skull originally found by Mr. Wilson, which has been studied and dated by Dr. Louis Leaky (Berger and Libby 1969:194).

The excellent illustration of Wilson's artifact no. 6 is by Tricia Worman. Figure 2 was originally intended for a report on the excavation and monitoring of the Goff's Island site by SRS; time spent by the author conducting initial inquiries into the Wilson Collection was also for this project. SRS has kindly allowed its reproduction for this article. The accurate and attractive illustrations of other local net weights, Figures 3, 4a, and 4b, are by Karen Talbot. The map of the Goff's Island site location, Figure 1, was produced by Mina Rouhi.

Identification of the artifact's material was secured through the kind efforts of Carol Stadum, a paleontologist with an encyclopedic knowledge of Orange County fossil materials and sites, who is affiliated with the San Diego Natural History Museum. Identification of the powder imbedded in the side of the artifact as steatite was provided by Dr. Hector Neff, Professor of Anthropology and Research Scientist, IIRMES, at California State University, Long Beach, and a specialist in Instrumental Chemical Analysis. Dr. Neff took an interest in the project and graciously tested the powder via the IIRMES laboratory's FT-IR spectroscopy device gratis. Appreciation is also extended to William "Tony" Sawyer for access to his extensive archaeological library of publications and "grey" literature covering southern California. I also thank Paul E. Langenwalter II and Dr. Henry C. Koerper for their comments on the artifact early in the author's research, as well as Dr. Keith Dixon for his encouragement and help in securing references

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