SOME SOUTHERN CALIFORNIA SOAPSTONE SOURCES

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ABSTRACT

Los Angeles County has two major soapstone-producing geologic units, the Santa Catalina Schist on Santa Catalina Island and the Sierra Pelona Schist near Palmdale. Each was extensively used prehistorically; however, recent research at Ritter Ranch in the Anaverde Valley suggests these sources can be distinguished by their mineralogy, texture, and the artifacts produced. By understanding these characteristics, soapstone artifact origins can be suggested and regional trading networks delineated.

INTRODUCTION

Los Angeles County has two major talcose rock-producing units, the Santa Catalina Schist on Santa Catalina Island and the Pelona Schist near Palmdale, in the western Mojave Desert. The Santa Catalina talcose rock deposit has been recognized as having major aboriginal soapstone/steatite quarries since Schumacher's 1870s research. For a century scholars have commented on the Late Prehistoric and Historic soapstone/steatite trade from Santa Catalina Island to both other islands and the mainland.

The Pelona Schist, on the other hand, though familiar to many southern California researchers, is not widely known or physically recognized as a raw material source. This soapstone/steatite source is not mentioned in Heizer and Treganza's synthesis on aboriginal California quarries though other small mainland soapstone and steatite quarries, particularly in southern Kern and Santa Barbara counties, are described (Heizer and Treganza 1944:307-308). A complete description of the Sierra Pelona Schist quarries was not undertaken until Landberg reviewed manuscript and ethnohistoric information in 1980.

We were recently involved in western Mojave Desert research which raised talcose material sourcing issues. In particular,

because the western Mojave Desert has steatite sources, the question has to be asked: "Is soapstone and steatite really being imported, or is it actually being locally used or even exported?" Answering this question is important. Studies of southern California exchange, while focusing our attention on shell bead, obsidian, fused shale, ceramic, soapstone, and steatite exchange, have mostly assumed coastal, Sierran and Southwestern sources were linked by trade routes through the western Mojave Desert. Since steatite was locally available it is possible the region was a source area itself.

We analyzed several steatite artifacts and visited steatite outcrops while working on the 6,000 acre Ritter Ranch, near Palmdale in 1990. Ritter Ranch is in the Anaverde Valley along the San Andres Rift, at the margin of the western Mojave Desert. Our Ritter Ranch research prompted a review of Santa Catalina Island data we had collected while working in Bulrush Canyon and Upper Buffalo Springs during 1980 and 1981 (Rosenthal et al. 1988). Here we summarize ideas about these 2 major soapstone/steatite sources, their materials, quarries, and artifacts. We present a sourcing hypothesis that we hope can be tested by other researchers who are interested in southern California trade routes and exchange systems.

LOS ANGELES COUNTY STEATITE AND SOAPSTONE SOURCES

Numerous "soapstone" and "steatite" quarries have been identified on Santa Catalina Island (Heizer and Treganza 1944; site record files housed at the Institute of Archaeology, University of California, Los Angeles). Most known sites are concentrated near the "Airport-in-the-Sky", in the Island's north-central region. Here at least 5 major quarries are recorded: SCaI-90, SCaI-112, SCaI-113, SCaI-116 and SCaI-122. Two have been carefully described, Miner's Camp and Jane Russell (Meighan and Rootenberg 1959; Rosen 1980; Wlodarski et al. 1984). In 1981, we recorded another quarry just 1/4 mile away, near Upper Buffalo Springs Reservoir. Because this locality was downslope it was not disturbed by the Airport construction which had so damaged other Santa Catalina aboriginal quarries. At Upper Buffalo Springs quarry we noted the general size and nature of soapstone outcrops, and recorded quarry use traces, blanks, and quarrying tools.

Santa Catalina's interior region is underlain by large, poorly exposed serpentinite bodies altered to a mixture of massive and schistose rocks containing talc, chlorite, actinolite, and other minerals. Within the serpentinite bodies the talcose rocks occur as isolated outcrops a few meters in diameter. These talcose rocks can be either very soft and easily quarried or very hard and unworkable depending upon the outcrop's relative proportions of talc and chlorite versus other minerals. Therefore, while some outcrops could be easily worked, others could not be worked at all. As a result quarrying was a dispersed activity

occurring wherever a suitable outcrop was present. Quarries exist as isolates within many valleys criss-crossing the island.

The Pelona Schist is exposed in the eastern San Gabriel Mountains and Sierra Pelona, not far from the city of Palmdale and the San Andres fault. It is primarily composed of gray schist with lesser amounts of green schist, marble, and quartzite (Dibblee 1967:7; Gay and Hoffman 1954). Talcose rocks occur as lenticular bodies within the schist or along fault zones. The talc characteristically replaces serpentine and often is associated with pale green actinolite and green chlorite. Individual bodies are small and widely dispersed within the gray schist unit. Landberg (1980:13) has verified recorded mines and potential quarries and briefly described their mineralogy. Local researchers have identified several outcrops and potential sources within the Santa Fe Hills (Bissell 1989:11) and at least one quarry area, LAn-1279, was recorded at Ritter Ranch.

Mineralogy

The Los Angeles County talcose rocks are highly variable. We have summarized their characteristics on Table 1 where we plot grain size and the percentage of talc. There is a contrast between "Steatite", the fine grained rocks that are composed primarily of talc, and "Soapstone", the impure talcose rocks with noticeable amounts of micaceous green chlorite, prismatic green actinolite, and prismatic white anthophyllite or tremolite. These mineralogical distinctions are important to researchers who wish to distinguish sources using macroscopic or hand-lens identification.

Table 1. Classification scheme.

Grain Size				
Coarse > 1 mm	Talc Rock		Soapstone	Chlorite Rock Chrome Mica Rock
Medium 0.1 - 1 mm				
Fine < 0.1 mm	Steatite			
% Talc	100	95	50	0
% Chlorite, Actinolite, Anthophyllite, Chrome Mica, etc.	0	5	50	100

Most Santa Catalina Island talcose rocks are soapstones. They contain abundant chlorite and actinolite. Because these non-platy minerals are present, schistosity, the "plately" appearance, is poorly developed in these rocks. Santa Catalina soapstones tend to be homogeneous in texture. True steatites are rare and have isolated occurrences.

The rocks from LAn-1279 and other Pelona Schist outcrops which have been described are finer grained and richer in talc than most of the talcose rocks on Santa Catalina Island. They are classified as steatite or talc rock. The talc rocks have a preferred orientation of platy grains and thus are highly schistose. Published geological descriptions do indicate that there are soapstones similar to those found on Santa Catalina Island at various historic quarries in the Sierra Pelona. We have not sampled these localities and none have been visited or described by colleagues.

Quarrying

The Santa Catalina soapstones are bounded by fractures which are several tens of centimeters apart. This means that coherent blocks more than a meter in diameter can be quarried as one piece. Some classic examples of aboriginal quarry activity can be seen near the Airport-in-the-Sky. Here large soapstone bowls, 50-60 cms in diameter, were removed from the soapstone outcrops.

Meighan and Johnson (1957) were the first to thoroughly analyze the Santa Catalina Airport-in-the-Sky quarries. They noted two manufacturing systems: sometimes a natural projection was shaped to a roughly spherical form, then severed from the rock outcrop; alternatively, a spherical shaped block was quarried by undercutting, leaving behind a depression documenting the vessels's removal. They used severing scars and "blank" depressions to identify aboriginal quarries.

Rosen's (1980) study of Miner's Camp presents much additional information concerning not only quarrying but also vessel production techniques and tools. Rosen describes discovering vessel fragments and other "steatite" objects associated with elongated picks, saws, core tools (scrapers, scraper planes, and choppers), and abraders. He suggests these tools were probably employed for quarrying blanks and producing vessels. Several "blades", tarring pebbles, hammerstones, and 2 incomplete mortars, along with light shell and bone scatters, indicated that a temporary campsite adjacent to the quarry area may have housed a family of miners. Rosen also found several Venetian glass beads and, therefore, dated the campsite and by association the quarry to California's Mission Period (A.D. 1769 to 1834).

In contrast to Santa Catalina, quarrying is not an obvious activity at the Santa Fe Hills' Sierra Pelona talcose rock outcrops (Bissell 1989) or at historic mining claims reviewed by Landberg. No tools or traces of tools were seen on the outcrops or where the steatite has been exposed by historic mining or recent clearing. We also observed no aboriginal tools or scarring at the Ritter Ranch locale, described as a quarry on site records. We did note, however, small hand-sized blocks of steatite occurring in the quarry and within several drainages below the Sierra Pelona.

The Ritter Ranch schistose talc rock outcrops are bounded by

close fractures. Thus individual blocks tend to be lenticular in shape and only a few tens of centimeters long and thick. No massive meter-across homogeneous outcrops like those on Santa Catalina can be seen. Fractured blocks and drainage float (washed downstream) could have been easily collected and made into tools and ornaments without resort to the undercutting and carving employed on Santa Catalina. However, the resulting raw material is much smaller and is often lenticular-shaped, lending itself to the production of certain artifacts and not others.

THE ARTIFACTS

Santa Catalina

Archaeological researchers since the 1860s have commented extensively on Santa Catalina Island's soapstone industry. The soapstone was manufactured into large vessels, smaller bowls, and comals. Effigies and other items such as sucking tubes, smoking pipes, beads, and pendants were made from steatite (Wlodarski et al. 1984:35). Even the chlorite schist was worked. It is found as both decorated and undecorated "donut" stones.

Santa Catalina soapstone and steatite artifacts have been identified throughout the Channel Islands and along coastal southern California (Heizer and Treganza 1944:306-307). Researchers such as Arnold (1987), Davis (1961), Finnerty et al. (1970), and Landberg (1965) have suggested that the Channel Islanders traded this quarried stone, both finished and unfinished objects, as well as shell objects, to their mainland neighbors for products such as acorns, seeds, and deer meat.

Coastal villages such as Ripper's Cove and the West End Site have already produced evidence of large finished and unfinished bowls (Reinman and Eberhart 1980; Wlodarski 1974). Other villages like Isthmus Cove (Finnerty et al. 1970) have been proposed as "on-loading" sites were soapstone products were shipped to the mainland. Along the mainland coast near Santa Barbara, villages such as Mikiw (SBa-76) and Arroyo Sequit (LAn-52) apparently received, maintained, and used the vessels (Curtis 1959; Harrison 1965).

The Santa Catalina soapstone also had local utilitarian uses. Small campsites, such as SCaI-137, Bulrush Canyon, and Camp Cactus Road, contained small bowls, comals, fishing gear, and effigies made from the local soapstone within their midden deposits.

Sierra Pelona

Although recent articles have focused on desert trade routes and "way stations" where coastal trade goods appear, these discussions seldom mention soapstone or steatite (Warren 1988:46). Brief mention of artifacts is found in regional environmental reports, but summary descriptions of artifacts are uncommon (Bissell 1989; Sutton 1986, 1988a:15, 1988b:25; Van Horn et al. 1989). Sutton described an inlaid steatite ornament from

Koehn Lake and assumed that its source was Santa Catalina because it was similar to coastal specimens; he may be correct. Site records from San Andres Rift sites submitted by Jay Tremblay mention steatite ornaments and pendants, but provide little substantive data. Recent research on properties near Ritter Ranch made little mention of steatite artifacts. We, therefore, were somewhat surprised to find several finished and unfinished steatite ornaments and tools during our preliminary research at Ritter Ranch.

The Ritter Ranch fieldwork, including surface collecting, mapping, and testing (1-4 1x1 m units) for subsurface deposits, identified four sites with steatite artifacts and evaluated a previously recorded "quarry" site, LAn-1279. The artifacts from 2 camp or village sites, LAn-953 and LAn-959, included smoothed and drilled flat pendant-like pieces, smoothed palettes, and a flywheel. Most of these artifacts were either unfinished or broken. The quarry site was even less distinctive than the campsites. If several bedrock mortars had not been found near the steatite outcrop, it is unlikely that site would have been recorded. Certainly, strong quarrying evidence, such as tools and work traces, was not present at LAn-1279 or elsewhere at steatite outcrops within the 6,000 acre Ranch.

CONCLUSIONS

Los Angeles County has two major talc producing schist units. These are the Santa Catalina Schist and the Sierra Pelona Schist. Because Santa Catalina's source is better known, researchers often assume that steatite beads and pendants, as well as the occasional soapstone bowl or sherd, were artifacts from the island rather than a local source. Our Ritter Ranch data suggests that the western Mojave Desert did have readily available and accessible steatite sources. These sources present no access or workability problems. Material is readily available as stream float and can be easily worked. Why have these sources been primarily unmentioned, and why have artifacts not been traced to Sierra Pelona Schist quarries?

One reason why artifacts have not been sourced to Pelona Schist quarries is, of course, that neutron activation tests which highlight trace elements and finger print material sources are expensive, not to mention destructive. Therefore, researchers have hesitated to use these techniques to characterize sources. Second, western Mojave Desert sites, when researched, have often not been widely reported. With the exception of Landberg's presentation and several scattered inland Chumash reports, information about steatite quarries and artifacts is anecdotal. Artifact descriptions, in particular, infrequently occur in the published literature. Archival data must be relied on to learn about potential steatite quarries.

A final reason why the Pelona steatite is not recognized, we

would argue, is inherent in the source itself. Pelona Schist talcose rocks are highly schistose and as a result commonly appear as smaller, lenticular pieces in contrast to Santa Catalina's massive outcrops. The Pelona material requires little effort to quarry. Mining activities, with all but modern tools, would leave no obvious traces. Pelona Schist is also very similar to Santa Catalina's steatite, though it may be different in mineralogical content. A hand specimen would look different from a Santa Catalina artifact only if a particularly coarse-grained, fibrous or schistose rock had be chosen for artifact manufacture.

What are the implications of this study, preliminary though it is? First, because of the schistose nature of the Sierra Pelona talc rock it is highly unlikely that this source could have been used to manufacture objects like the large soapstone vessels. On the other hand, its small, readily available float could be rapidly collected and worked into portable items such as pendants, beads, and the like. These portable items are easily traded and can travel long distances.

We have documented small ornament manufacture at Ritter Ranch sites. The artifacts are made from the Pelona steatite. We suggest, based on this work, that the Pelona Schist may be considered a potential source for many small steatite artifacts traded throughout southern California. We would recommend reviewing steatite (i.e., fine-grained pure talc rock) pendants, beads, palettes, and disks and evaluating their attributes. If they appear schistose rather than massive and are thin and lenticular it is likely they are coming from Pelona Schist rather than Santa Catalina Island or other soapstone or steatite sources.

We hope, in the future, to undertake additional research, particularly petrographic analysis and source variability studies. Our goal is to better characterize this source so that we can be more explicit about its role within the southern California exchange system.

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