



Large, heavy steatite bowl, cracked in the making.

ISLE OF MINES

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CATALINA ISLAND today is just a vacation resort to the thousands of southern Californians who visit it each year—few of them know that Catalina was once the center of an aboriginal mining industry which shipped its products to a wide market on the mainland. The ancient mines and quarries, many of which are still clearly visible, have been recently studied in some detail by archeologists from the University of California (Los Angeles) who are engaged in a comprehensive study of the Indian remains on the island. Although the ancient mines of Catalina have long been known, the modern survey shows the mining activities to be much more extensive and varied than was previously realized.

Santa Catalina, 22 miles long, 76 square miles in area, lies just off the coast of southern California about 27 miles from Los Angeles Harbor. It is a rugged and mountainous island, inhabited in the interior mainly by wild goats, pigs, cattle and even some buffalo, all of which were introduced to the island by the early European settlers. The last of its aboriginal inhabitants were removed to the mainland in 1832, but at the time of the Spanish explorations the island was

the home of two or three thousand Indians of the Shoshonean language family.

The Catalina Indians built houses of thatch and reeds and lived in small villages, each with its own chief. Their customs interested the Spanish explorers and missionaries, some of whom recorded their observations. The Indian culture contained a rich mythology associated with a religious cult which included drinking a narcotic drug made from jimson weed. Under the influence of the drug the Indians experienced visions and dreams of religious import.

Marriage among the Catalina Indians was by purchase, and prominent men might have more than one wife. A husband's authority over his wife was absolute; however, in cases of infidelity it is reported that the husband sometimes left his wife to her seducer and himself appropriated the latter's spouse.

The Catalina Indians lived mostly on the abundant sea life which surrounded their island. They caught fish with bone and shell fishhooks, hunted deer and small game with bow and arrow. Mussels and abalone were also common to their diet, which was further supplemented by seeds and other plant foods gathered

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lazuli bunting. Yellow-billed cuckoos haunt the deep-est tangles. Saucy black-masked yellow-throats favor damper stream-sides with wild rose borders and cat-tails from the shallows.

In the Southwest the little ladder-backed wood-pecker interrupts his foraging across the cactus lands to nest in tree-willow groves along ephemeral stream-ways with desert elderberry and mesquite.

Bird watching or boating, you'll never forget these bright wings and bird songs where the willows bend!

The Author's new book:

Western Wonderlands: A Guide to Bird Habitats of the Western United States. By John L. Blackford. Vantage Press Inc., New York. 1956. 120 pp., photo section of 96 plates, some line drawings. \$5.00.

Readers of Roger Tory Peterson and James Fisher's *Wild America* will recall how the two bird-men in the course of

30,000 miles' travel in the U.S., Mexico, and Alaska "kept appointments" with certain birds in particular places. To do this they of course had to know in some detail both migration habits and habitats of the birds they "called on."

Our PD contributor John L. Blackford has supplied Western bird lovers with an "appointment book" for their bird neighbors. After an introductory discussion of Life Zones, Forest Layering (woodland birds are like people in apartment houses — some prefer the upper stories, some the middle, some the ground floor), Plant and Animal Succession (the repopulation of a fired area, the changing of pond to bog, etc. — much study remains to be done in this field), and Bird Habitats generally considered, *Western Wonderlands* goes into check-lists of the birds found in 18 different habitats — e.g., Sagebrush, Fresh-Water Marsh, Pacific Sea Beach — with a wealth of ecological detail for each and the birds listed according to breeding and non-breeding occurrence. The portfolio of some 150 photos (110 or more by the author, others by various top photographers) is exceptionally well printed and is alone worth the price of the book, which is sure to find its way into many a bird-watcher's kit bag or window shelf. D.G.K.

CATALINA'S ANCIENT INDIAN QUARRIES



Steatite boulder with scars showing where more than 80 large bowls were chiseled out.

on the island or traded for. Travel to and from the mainland was by canoes—large craft, of wooden planks held together by cords and waterproofed with asphaltum, which could hold 8 or 10 people.

Early Spanish visitors to Catalina didn't mention the mining industry, but it was nonetheless remarkable for an aboriginal people. The modern conception of California mining includes primarily valuable metals, particularly gold which has been so important in California history. However, the Indians of the state never used metals of any kind, so the wealth of gold which was under their feet never meant anything to them. Catalina Island, although not in the Mother Lode country, experienced its own short-lived "gold rush" in the 1860's. The island later proved to be productive of silver, lead, and zinc, which were mined

for several years until the veins were worked out. The prehistoric people did not mine and quarry these metals, however, but certain raw materials which had a widespread importance to Indian technology. These included:

1. Steatite or soapstone, a soft mineral which can be scratched with the fingernail and was easily shaped with stone implements.

2. A hard blue slate, pieces of which were used for making chisels and chopping tools. Such tools seem to have been intended almost exclusively for working steatite; they are mining tools which do not occur in Indian village sites on the mainland.

3. White quartz cobbles, for hammers and choppers. Again, these were not export products but were spread over the island for local use.



Bowl blanks shaped on a steatite boulder.

The main objective of the ancient miners was to hack out large rounded blocks which could then be hollowed out to form bowls, plates, and globular vessels. Smaller pieces of soapstone, including the waste from making bowls, were turned into such objects as effigies of whales, grooved stones for straightening and smoothing arrow shafts, pendants, and beads. The larger flat pieces were turned into *comals*, a sort of griddle on which food could be cooked. Examples of all these objects occur widely on all the other southern California islands and on the mainland from Santa Barbara County to San Diego County. Bowls turn up now and then hundreds of miles inland. Nearly all of the steatite objects in southern California archeology appear to be derived from the Catalina quarries. Also, nearly all of them must have been shipped from Catalina finished, for little waste steatite is found elsewhere and the ground is covered with reject and half-finished pieces around the Catalina quarries.

The emphasis upon bowl manufacture obviously rests on certain qualities of the steatite and on the culture the aborigines of the region possessed. The coastal Indians had no pottery and no cooking vessels which could be placed directly over a fire. Instead, they cooked much of their food by stone-boiling, dropping hot stones into water-tight baskets of food. Although this worked very effectively, the Indians

4. Red ocher, a natural red pigment, for painting some of the steatite objects to enhance their appearance; no doubt it also served widely as body paint. Since red ocher is fairly common, it is not known for sure whether Catalina's red ocher was traded to the mainland. However, the purity and brilliant red color of the Catalina pigment suggests that it was valuable enough to be sent to the mainland for trade along with the steatite found in the same location.

Most of the primitive mining of the Catalina Indians was carried on in the center of the island in the general region of the modern airport. It is only in this region that the soapstone is found, and quarrying activities of all kinds were concentrated in the same zone.

Far and away the most important resource of the Catalina Indians was the soapstone, with a quality and quantity not found elsewhere in southern California. Virtually every steatite outcrop on the island, even including almost-buried boulders only three feet or so in diameter, shows the signs of aboriginal working. An intensive search of a small area carried out by Fred Reiss, an employee of the Santa Catalina Island Company, has shown dozens of such outcrops worked by the Indians, often within only a few yards of one another.



must have seen the advantages of a pot which could be placed directly in the fire and the steatite bowls served this purpose well. Steatite as a raw material has two major advantages—it is soft and easily worked, and it does not split or break when it is placed in a fire. Here was the soapstone, there was the desire

▲ Excavating one of Catalina's oldest Indian villages. Although the source of steatite is only a couple of miles away, virtually no objects of this material turned up here.

for fireproof cooking utensils—result: a thriving soapstone bowl industry.

The larger outcrops of steatite on Catalina Island are covered with scars and shallow pits showing where bowl blanks were removed. The biggest outcrop has more than 80 large bowl scars now visible. The face of the stone seems to have been worked over its entire surface, and then a second layer of bowls was dug out. We can't be sure how much steatite has been dug away, but some of the partly worked outcrops



seem to have been originally some 3 to 5 feet thick.

The Indian quarries were active when the Spanish explorers landed, and from the finding of old-fashioned iron axe-heads near some of the quarries it looks as if the mining continued into early historic times. All such work ended abruptly with the removal of most of the Indians to the Spanish missions, and the subsequent disappearance of Indian culture. Since the quarries were abandoned suddenly, they reveal bowl manufacture in all its stages, from beginning point to finished project. This is lucky for the archeologist—he can reconstruct the primitive mining techniques in considerable detail.

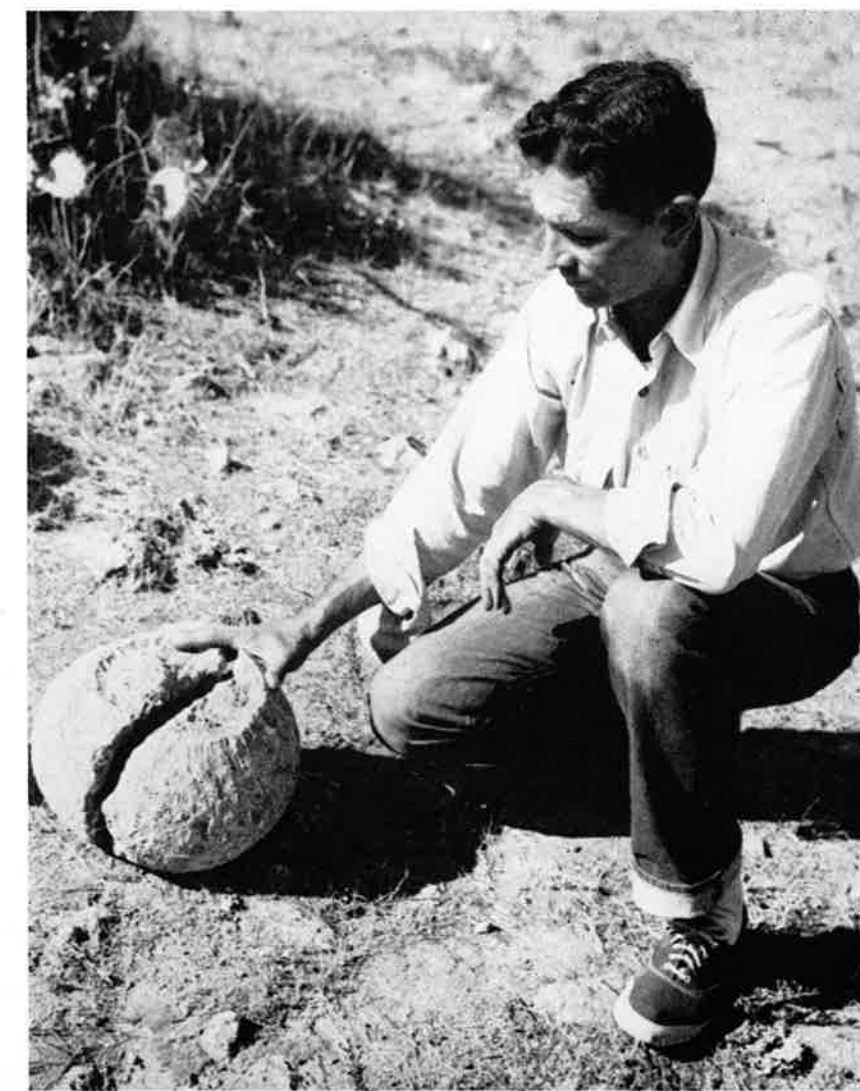
Stone bowls were quarried mainly in two ways. For ledges and outcrops with a flat surface, the Indian miner began by cutting a circle of the proper size on the rock face. Then, with stone chisels, gouges, and picks, he cut downward and inward to isolate a block of steatite. As soon as he could, he broke off the block, leaving a stem in the cavity. The blank was hollowed out with stone chisels, smoothed with abrading stones (often to a remarkable degree of thinness and symmetry)—and the finished product was ready for a trading expedition. On some outcrops natural projections were frequently shaped into a rough bowl form and then undercut by the most convenient method. The

▲ Broken steatite bowl showing inside pick and chisel marks of the shaping process.
➤ This bowl split in two at the beginning of the hollowing-out process.

bowl was not finished until the blank was detached, however, whichever way it was begun.

Not infrequently the block of soapstone broke in the working, while still attached to the native bedrock, or after the bowl was partially hollowed out. Hundreds of fragmentary and unfinished bowls have been found, including several bowl blanks which split neatly in two just as the Indian artisan began to hollow them out. Sometimes the breakage was due to a natural fault in the steatite; at other times, the workman's too vigorous chopping. In either case, it's not unlikely that the air was full of Indian profanity when the piece broke, for many hours had already been spent in the laborious task of cutting out the bowl blank.

Although dozens of outcrops show the effects of Indian bowl-making, it is apparent that the surface rock was not enough to handle the mining industry, and there are many indications of open-pit mining where the Indians dug holes to get at the sub-surface ledges and veins of soapstone. The biggest of these pits today is perhaps 40 feet in diameter and 3 or 4 feet deep; however, all of the pits have had soil washing into them for at least 150 years, and they must have been somewhat larger and perhaps much deeper when they were in use. The pits are all at the base of surface outcrops and they are obviously intended to expose more rock surface for mining. Although none



of the pits are large by modern mining standards, the fact that there are dozens, perhaps hundreds, of such pits is clear evidence of intensive working of the steatite by fairly large numbers of miners. Today, the pits provide a particularly favorable spot for the growth of a native cactus common on the island, which makes exploring the old mines hard. One such pit, less overgrown than most, has been partly excavated, however. The soil was full of steatite fragments, mostly showing the marks of stone tools. Bowl scars were found beneath the present ground level, and the pit also yielded a few of the crude mining tools made of slate and quartz.

A crucial question now being attacked is, when were the Catalina Indian mines first worked? If the remains now visible represent thousands of years of quarrying, then we need not think of this as an industry of any great size. On the other hand, if all this steatite working was concentrated into a relatively short time, then we must propose a surprisingly large commercial enterprise for the aborigines. This latter explanation seems correct, for the oldest Indian sites in southern California have no steatite objects at all. Sites of an intermediate age have a few steatite objects, but it is in the late protohistoric villages that



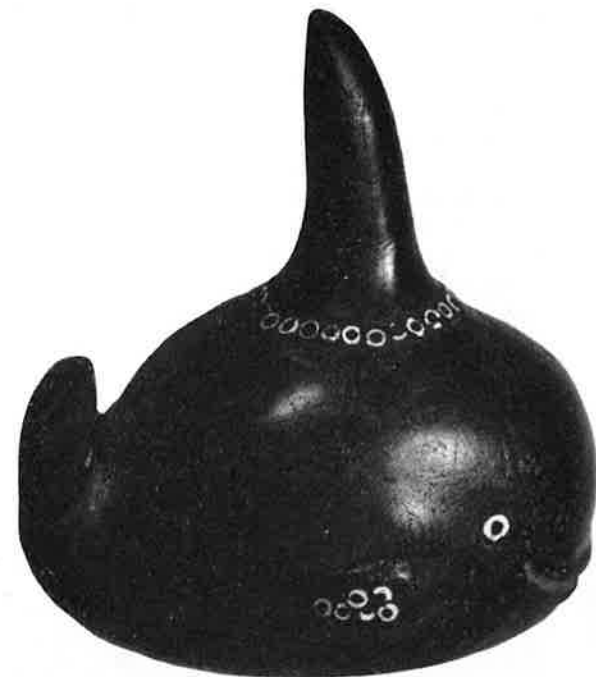
A large slate pick used to chop out steatite bowl blanks. Actual length about 11 in.



Small pieces of steatite showing the aboriginal shaping for various purposes. The grooved piece at left was used for smoothing arrow shafts.



Steatite canoe a few inches long found in a construction excavation at Avalon. Now in the Santa Catalina Island Museum.



This 4-inch steatite whale decorated with shell beads set in asphaltum was found on San Nicolas Island but the material was quarried on Santa Catalina.

these artifacts are found in real abundance. Since the dating of prehistoric villages is quite difficult, we cannot yet be sure of a precise beginning date for the steatite industry. However, it appears that its peak came in the few centuries just before the Spanish discovery. From this we conclude that the Catalina Indians were systematically exploiting their monopoly on the steatite quarries, that they must have spent much of their time in manufacturing soapstone objects, and that a fairly elaborate marketing and trading system must have existed to distribute the finished utensils. Unfortunately, we do not know what the Catalina Indians were getting in this trade. Nothing

tangible has been recovered in the current archeology project that can be surely identified as coming from the mainland. It seems likely that the steatite was being traded for some sort of perishable goods, perhaps seeds and other food supplies.

In contrast to the production of steatite artifacts, the lesser mining and quarrying activities of the Catalina people were intended mostly to satisfy local demands. A great many stone tools were necessary to supply the workmen quarrying steatite. The preferred material was a hard blue slate, obtained from outcropping ledges which overlook some of the steatite quarries. Smaller pieces of slate could be simply picked up from the surface of the ground. A crudely sharpened edge was made by chipping the slate with another stone, and the tool was ready to use. Larger tools, such as the big pick illustrated, probably had to be made of slate fragments which were themselves mined by being split out of the ledges. The breakage on slate mining tools was evidently very high, since pieces of such choppers and scrapers are quite numerous near the soapstone workings.

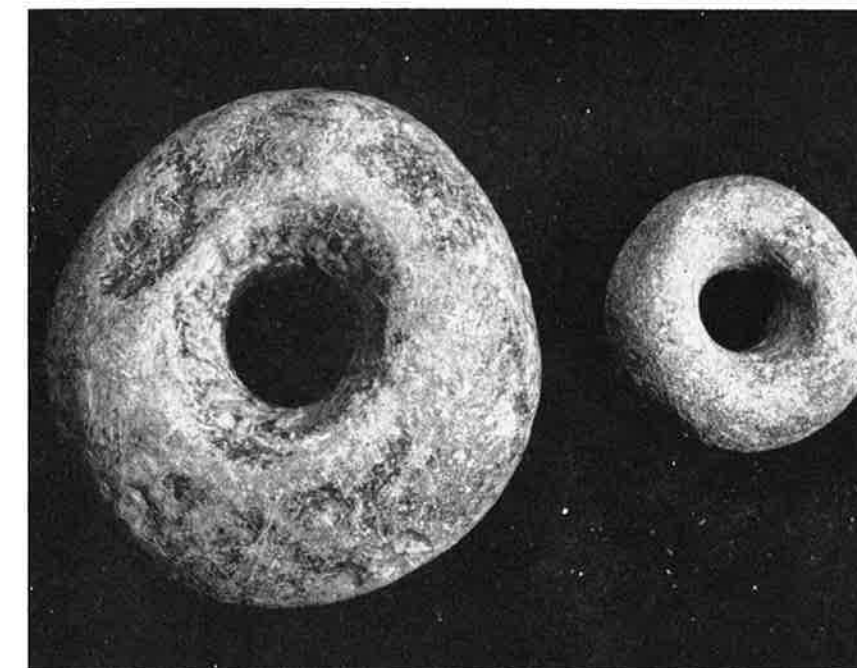
Quartz was also a raw material the Catalina aborigines used. Because of its hardness and resistance to breakage, the stone was good for making hammers, some of which were used in the steatite mines. Since quartz is too hard a material to be readily quarried with tools the Indians had, they relied upon fist-sized pieces found on the surface of the ground. There are



Steatite object, possibly a stylized pelican. Length 6 in. In the Santa Catalina Island Museum, Avalon.

two small areas of Catalina where such pieces are abundant, weathering from larger quartz boulders. Artifacts found at these spots show that the Indians were familiar with the quartz locations and visited them specifically to gather stones of the proper sort for tool use.

Finally, the mining of red ocher as a mineral paint is worth mention. In one place a bright red pigment can be found at the surface; the presence of sea-shells and stone tools attests the visits of the Indians to this location. The red ore is soft and could be easily scraped into baskets or other containers. At least some of the red paint was used for coloring the outside of small steatite bowls, for such decorated examples of Catalina steatite are found throughout southern California.



Perforated pieces of steatite used for weights on digging sticks. The largest one is 4 inches in diameter.

It is apparent that the former Indians of southern California were well aware of the natural resources of their environment. Those raw materials which fit the needs of the people were systematically sought and exploited, and one can hardly fail to be impressed by the ingenuity and industry of these ancient miners.