

substratum is sandstone and sand. Thus driftwood is the only wood found. Water, although scarce, is found on all of the green islands. Santa Rosa is grassy but there are no trees. Santa Cruz has willows and dwarf oaks in some places and there is a small fir forest near the landing. This is probably the southernmost point on the coast where conifers occur naturally. Santa Catalina, next to Santa Cruz, is the prettiest island in the channel. It is also richly wooded but only with willow and dwarf oak. Of the eight islands--Anacapa and Santa Barbara are rocky islands without water--Santa Cruz alone has a creek. On the other islands the water is found in springs. The climate is paradise-like, especially on Santa Catalina. The islands are not now inhabited and are used only for animal husbandry.

3. The author used the English term magnesian mica [German, Magnesia-glimmer] without having chemical proof of the identification.
4. An exact, illustrated description of the structure of the village is in the hands of the editor in manuscript form.

83. THE MANUFACTURE OF SHELL FISH-HOOKS BY THE EARLY INHABITANTS
OF THE SANTA BARBARA CHANNEL ISLANDS

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ABSTRACT

Shell and bone fishhooks, in addition to implements probably used in their manufacture, have been found in sites on the Santa Barbara Channel Islands, off the south coast of California. The reconstruction of the various stages of manufacture of these Californian fishhooks was published for the first time in Archiv für Anthropologie, Vol. 8, pp. 223-224, 1875. The article is here reprinted, in translation, in its entirety.

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During my last trip, in the first half of this year [1875], I undertook, in the interest of the Smithsonian Institution and at the inducement of Prof. Spencer F. Baird, the guiding light of the organization, to investigate the

group of islands located in the Santa Barbara Channel (between latitudes 33 and 34 degrees north, and between longitudes 118 and 120 degrees west). I discovered among the great mass of objects (from the Stone Age) all kinds of implements which found use in fishing activities and among them, especially well-worked fish-hooks. It was evidently the grave of a fishing-gear maker in which I found tools by means of which the Islanders manufactured those much-used implements as well as the raw material in all stages of working up to the finished hook. It was therefore not difficult to deduce from this the fabrication of the fish-hooks, which consist of bone or Haliotis shell.

The shells were broken with a stone into fragments, and these were rounded off with further blows so that they assumed a size about one inch in diameter, the approximate size of the [finished] hook (Fig. 5a). (The objects in the drawing are reproduced in natural size, although the size is variable in the fish-hooks as well as in the other implements.) Hereupon the shell disks were broken through in their centers as illustrated in Figure 5b, with the point of a flint [punch] (see Fig. 5h with cross-section). The next instrument which was brought into use was a spindle-shaped drill made from hard and coarse sandstone (Fig. 5i). With this the irregularly broken circular hole was worked out, as shown in Figure 5c. In grinding off the edges and sides of the broken pieces to the form shown in Figure 5d, an ordinary flat piece of sandstone (not illustrated) was used. When the production was thus far advanced, the hatched part (Fig. 5e) was sawed out to a certain extent with a piece of sandstone in the form of a double-edged knife blade (Fig. 5j). By this means and with several small retouchings was fashioned the fish-hook as it was used and as represented here in Figure 5f.

Bone hooks are distinguished by the presence of a barb placed on the outside of the hook. This is in contrast to the barb of a modern [metal] hook, and presents a shape similar to that of the end of the fluke of a modern anchor. I found only fourteen of such specimens, and indeed all of them on Santa Cruz Island, in the excavation of at least fifteen hundred skeletons, while shell fish-hooks, although mostly disintegrated, were found more frequently on San Miguel, Santa Cruz, San Nicolas and Santa Catalina Islands. Many yet showed the fishing line as it was fastened to the notch by cross-wrapping, consisting of a thin piece of cordage pasted over thickly with asphalt; the asphalt at the same time served to preserve the cordage (Fig. 5g).