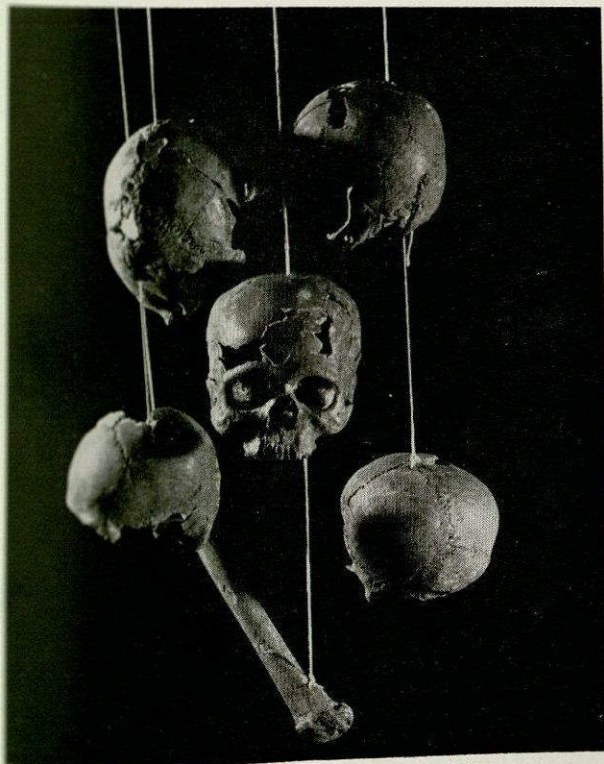


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HOUSE DECOR IN EARLY AMERICA

Reconstructed trophy skulls and long bones originally suspended from a bedroom ceiling in Casas Grandes. (See Page 20)

SOUTHWEST MUSEUM

EARLY PERUVIAN FISHHOOKS

By M. EDWARD MOSELEY

Acknowledgments

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DURING THE LAST PART of the preceramic period, between 2500 B.C. and 1800 B.C., the central Peruvian coast was inhabited by people whose subsistence economy was based primarily on the exploitation of marine resources and secondarily on the utilization of wild and cultivated plant foods. Great reliance was placed on a wide variety of sea products, and these were sufficiently bountiful to support communities of substantial size. Excavations at five early sites in the Ancon-Chillon area, just north of Lima, have provided insights as to which oceanic life zones were most actively exploited and by what techniques.

Fishing was just one subsistence activity among many, and angling just one of several fishing techniques. At most sites invertebrates were the dietary mainstay. The vast majority were collected in the rocky littoral zone. Here rock-perching mollusks abound, as do comestible echinoids and anemones. All of these, along with kelp sea weeds, were eaten. Judging from the animal remains in the refuse at the early

settlements vertebrates were also extensively exploited. At many sites fish bones are secondary in numbers only to mollusks. Also very abundant are the bones of sea birds. Gulls and pelicans were consumed in large numbers. These fowl were easily obtained at their rookeries and shoreline roosts. Other than an occasional sea lion, and rarely a porpoise or beach whale, mammals contributed little to the daily nutriments.

Although catching fish was not the primary subsistence activity it must have occupied considerable time for the techniques employed were simple and few. There is no evidence of watercraft from the preceramic period. Lacking vessels, all fishing must have been done from the shore. Only two techniques appear to have been used, netting and angling. Fragments of net were recovered from the refuse of all five sites investigated. Often made of a sturdy bast fiber, the nets were of small-sized mesh (.8 to 1.5cm.), and probably served as casting nets. Small stones, unmodified in any way except for binding, were employed as weights. The use of nets appears to have become more prevalent through time. Toward the advent of the ceramic period (c. 1800 B.C.) they largely supplant the use of hook and line.

Shell hooks are most frequently encountered in the earlier of the coastal middens. Here, to judge by their numbers in relation to the low frequency of net fragments, they were more extensively relied on than nets. Hooks are, however, never abundant. In five months of excavation only 35 were found. Fortunately these appear in all stages of manufacture. Consequently it has been possible to outline with some certainty the procedure followed in hook production.

In form the finished hook was always small, fragile and unelaborate. The shank, rectangular or oval in cross section, was long and thin. It generally exhibited slight tapering at the top. At the base the hook made a smooth, symmetrical 180° turn. The barbless point was a continuation of the turn, adding another 60° to 70° to the arc. It was tapered and the tip curved down to form a slight hook. The gap separating the point from the shank was always narrow. In size the hooks varied considerably. From the top of the shank to the base of the turn the lengths ranged from 1.3 to 3.2 cm. In width, from the back of the shank to the

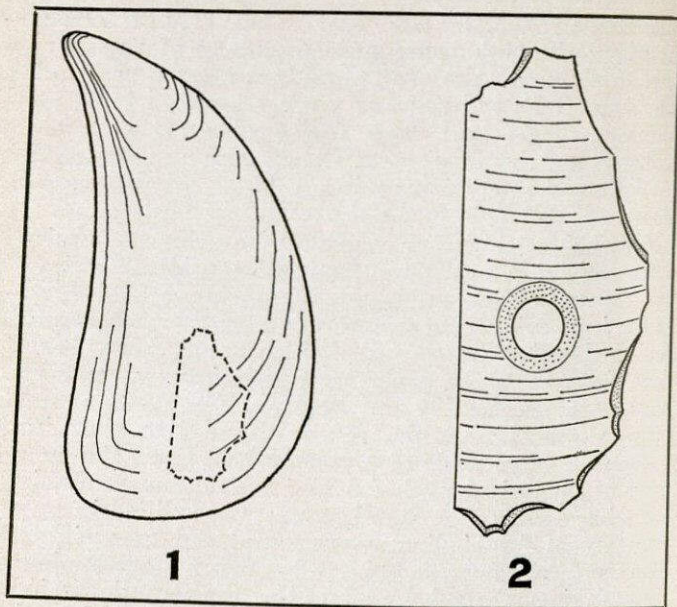


Figure 1. Area of a mussel shell removed for a shell fishhook blank.

Figure 2. Hook blank with straightened left side and central hole.

front of the turn, the range in size was from 1.2 to 2.3 cm. The shaft and turn were narrow and thin. The average width was .35 cm. and the thickness was .2 cm. Thus, considering the measurements, the finished hooks were neither large nor particularly sturdy. Their manufacture must have necessitated delicacy as well as skill.

Production of a hook began with the selection of a large shell. In all cases where the species is discernible the pelecypod chosen was *Choromytilus chorus*, a large mussel. Although no longer found along the central Peruvian coast, this species frequently attained a length of over 10 cm. and served as a common food for the early population.

From the posterior margin of the mussel a block of shell, or hook blank, was removed (Figure 1). This was extracted by fracturing, rather than by cutting,

and the edges of the blank were rough and irregular. Immediately following removal sandstone was used to file down one side of the blank to form a straight edge. The other edges were left rough.

There is great consistency as to which side was filed straight. If the hinge, or apex, of the mussel source shell were held up, and the wide posterior end of the shell held down, when viewed from the exterior convex side of the shell and hook blank, it was the left side that was straightened. The straight side was destined to become the shank side of the hook. The rough side of the blank became the right, or point, side of the hook.

Following extraction of the blank and straightening of the side the next step in hook making was drilling (Figure 2). Judging from the obtuse angle formed by the sides of the drilled hole a fairly blunt instrument, probably a sandstone reamer, was used. Thin blanks were often drilled from only one side. Thicker shells were cut from two sides. In such cases the opening appears biconical in cross section. In all cases the holes were kept small and were not enlarged at this stage. Large holes would have weakened the blank, on which considerable work remained to be done.

Drilling represents one of the two most critical points in the manufacture of hooks. The risk involved is attested to by the large number of broken specimens that appear at this stage of production. Drilling was one of two times that it was necessary to cut across the length of the shell. Because the blanks were quite thin pressure put against the width of the shell was always hazardous. Whenever possible cutting and filing was done along the length of the shell to minimize the danger of breakage.

Following drilling the blank was roughly shaped by longitudinal grinding (Figure 3). The right side of the shank was outlined, and the base of the shell was rounded and fashioned into a two-thirds circle.

To judge from the number of broken specimens the following stage of production was the most precarious in hook making. It involved cutting the gap between the point and the shank (Figure 4). As with drilling, this necessitated cutting across the shell and transverse pressure. Although the interior hole had intentionally been kept small there was at this point in production

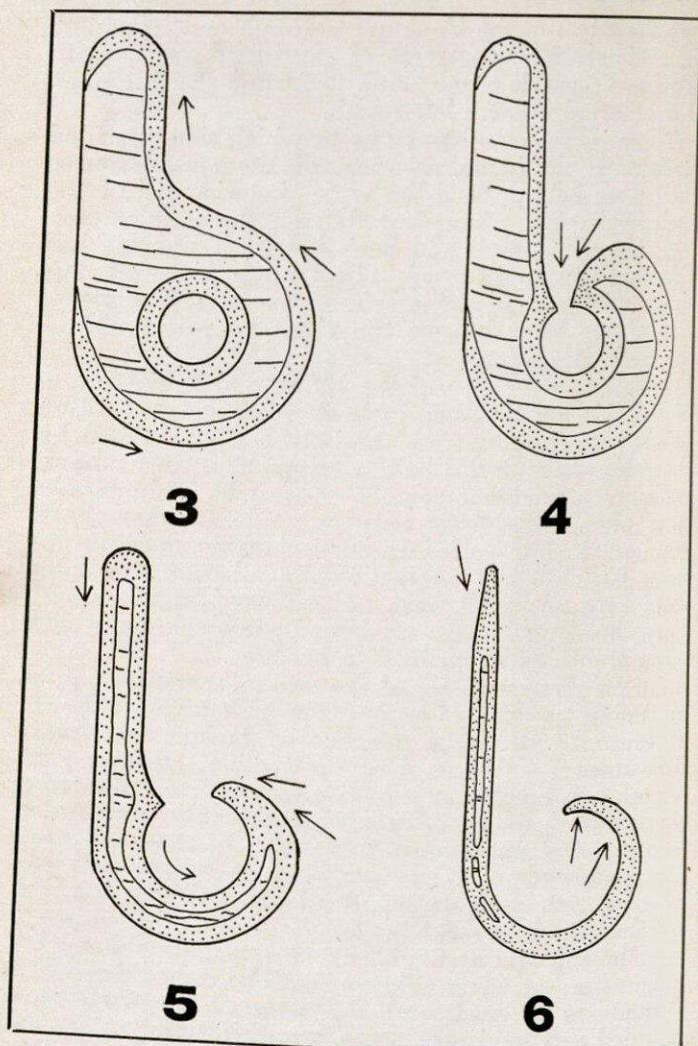


Figure 3. Initial shaping of hook blank by longitudinal grinding.

Figure 4. Opening a gap between the shank and point by cross cutting.

Figure 5. Longitudinal grinding and reaming of the unfinished hook.

Figure 6. Final tapering of the shank and undercutting of the point.

only a small amount of shell to withstand the pressures of cross cutting. The tendency was for the unfinished hooks to snap at the base just below the gap that was being cut. Fully 50 per cent of the excavated specimens broke at this stage of manufacture, whereas only about 20 per cent were broken during drilling.

After the gap had been cut a stage of grinding and thinning began. This brought the hook close to its final form (Figure 5). The interior hole was widened by longitudinal reaming. The exterior side of the point was cut down and thinned, and the side of the shank and turn were filed.

The final touches to be added involved tapering the top of the shank and cutting into the interior edge of the point (Figure 6). The latter created a slight downward hook in the tip of the point.

Upon completion the fishhook was bound with bast line. Although cotton was known and in wide use at this time it does not appear to have possessed the tensile strength demanded in fishing. The finished hook was bound by running the line down the interior, or right side, of the stem to a point near the beginning of the turn. From this point the line was wound upward around the shank and over itself (Figure 7). After multiple revolutions the line was tied off near the top of the shank.

Presumably the shell hooks were attached to a hand line since there is no record of the use of fishing poles or other contrivances. Hook and line fishing must have necessitated the use of rough stone weights similar to those used for nets. Weights would have been needed in creating momentum for casting the hand line as well as giving the hook stability once in the water.

There is no direct evidence as to what the early anglers employed for bait, or from what part of the shore line they fished. Their practices may have been similar to those of modern fisherman in the Ancon-Chillon area. Today all shore fishing is done by hand line. Easily gathered sand crabs and mussels serve as well as shallow and fishing is inevitably done from the rocky shoreline. Here the water is deep and the waves break at the foot of the rocks. It is, therefore, easy to cast the hook and line beyond the turbulent surf.

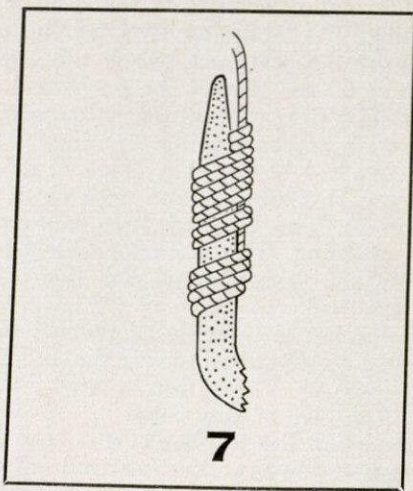


Figure 7. Binding the hook shank with revolutions of bast line.

If the ancient fishing practices paralleled those followed today the size and form of the early hooks is understandable. The specimens from the central coast are characteristically small, frangible and unelaborate. They are delicate when compared to shell hooks made by the seafaring peoples of California or the Polynesian Islands. This difference is likely a reflection of the type of fish being taken by angling. The early Peruvians were landlocked and limited to exploiting the fish immediately adjacent to the rocky shore. Although fish are, today at least, quite abundant in this zone they are not large nor comparable to deep-water fighting species necessitating massive hooks.

While shell hooks are common in the earliest of the coastal middens, they appear to have suffered a progressive decline in popularity. They are very rare, or absent, in strata dating to the end of the preceramic period. To some extent hooks were replaced by nets, which were probably a more productive fishing device. However, toward the end of the preceramic period fishing itself may have been undergoing somewhat of a decline. At this time many cultivated plants were making their first appearance on the coast and agriculture

was probably assuming a more important role in the subsistence pattern.

Metal fishhooks are known from sites dating to the Early Horizon (c. 600 B.C. to 100 A.D.), as well as from later settlements. That these should appear in some frequency after the earlier decline in angling is puzzling. It may be that whereas the earlier fishing technology was land-bound the introduction of watercraft opened new areas of the sea to exploitation. Having access to more than near-shore fish may have made fishing substantially more productive and may have ushered in a minor renaissance in fishing, as well as bringing about an elaboration of fishing technology.

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