FISHHOOKS

INTRODUCTION

Hawaiian fishhooks (*makau*), adapted for catching various kinds of fish by different methods of fishing, have a wide range of sizes and shapes. The following text and illustrations are based on the types and variations which I found in the more than 200 perfect hooks and innumerable parts and broken fragments in the Museum collections at the time of the study. New material from recent archaeological excavations will undoubtedly add new data.[7]

Fishhooks may be divided into simple hooks, made from one piece of material, and composite hooks, made of two pieces joined by a lashing. The materials are shell, bone or ivory, turtle shell, and wood. Among the material collected from caves and fish shrines are pieces of bone which illustrate the various stages in making bone hooks.

Human long bones, particularly the thigh bone, were cut in lengths probably with sharp-edged pieces of stone flakes. The lengths were cut into rectangular pieces to correspond with the length and width of the proposed hook. The lower

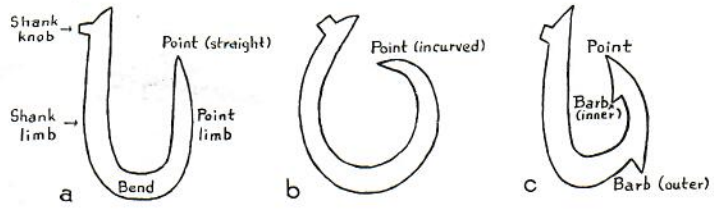

FIGURE 219.—**a,** U-shaped form of fishhook with the two limbs straight and parallel: shank limb has a shank knob on outer side of its upper end to prevent lashing of snood or line from slipping off; point limb ends in a straight point in some small hooks used with a rod and in bonito hooks, also used with a rod; the two limbs join in an even bend. **b,** the two limbs are evenly curved and result in the circular form of hook; point is incurved, which is most common form of point. **c,** illustrates subcircular form with a fairly straight shank limb and a curved point limb.

angles were rounded off to form the outer curve of the bend, and the edges were smoothed off with coral rasps. A hole was then drilled through the piece and enlarged to correspond, more or less, with the inner edge of the bend. In larger hooks a second hole was drilled above the first and enlarged to cut into the upper margin of the lower hole. The projecting points at the sides left by the two holes were cut away, as well as the part above the second hole. The inner, open part was smoothed and shaped with small coral rasps or files, and the hook took shape with a lower curved bend connecting two limbs. The upper ends of the

[7] Kenneth Emory reports that more than 1,000 hooks have now been collected. He believes that the additional material will contain new types and variations and provide data as to the origin and evolution of Hawaiian fishhooks. Also he believes that this larger collection will indicate which hooks are most truly representative of specific areas and periods.—EDITOR.

two limbs were then shaped, one for the cord attachment of the line and the other to form the functioning point. The shape of the hook depended on the treatment of the inner edges of the two limbs. If the two limbs were left fairly straight, a U-shaped form was produced (fig. 219, *a*). If the two limbs were evenly curved, a circular form resulted (fig. 219, *b*). A straight limb and a curved limb produced a subcircular form (fig. 219, *c*). The subcircular form is common in small shell hooks, bone hooks, and turtle-shell hooks.

Hawaiians believed that fishhooks made from the bones of people without hair on their bodies, who were termed *'olohe*, were more attractive to fish than hooks from normal bones. Thus the *'olohe* individuals ran the risk of being prematurely dispatched to supply the luck-bringing material.

Terminology

Different terms have been applied by various authors to the same parts of a hook. Therefore, to avoid confusion, the terminology used in this work is illustrated in figure 219. Hawaiian terms vary for the different islands not only as regards the parts of a hook but as to the different forms of hooks. In fact, both Malo (1951, pp. 79, 210) and Kamakau give so many names which cannot be correlated with actual hooks that it would serve no useful purpose to enumerate them.

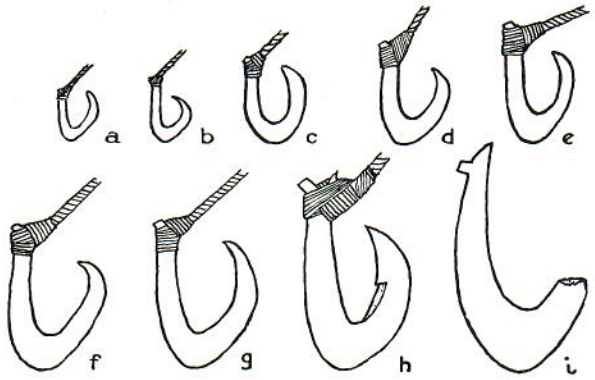

Figure 220.—**a-i**, simple shell fishhooks.

SIMPLE HOOKS

Shell

Shell hooks were usually made of pearl shell (*uhi*), in small and medium sizes. The small shell hooks were termed *makau paweo* and were used for catching *'opelu*. Perfect specimens of a larger size are scarce, as the points break off easily. An assortment of sizes is shown in figure 220.

The smallest of these hooks (fig. 220, *a-e*) range in lengths from 11 to 26 mm. and in greatest width from 8 to 15 mm. The thickness of the shell is 2 to 3 mm. All are more or less subcircular in form, with the exception of figure 220, *c*, which is U-shaped; and all have incurved points. Two hooks (fig. 220, *f*, *g*) are 31 and 32 mm. long, have 19 and 21 mm. maximum widths, and a shell thickness of 6 and 4 mm. respectively. Both have incurved points. The hook shown in figure 220, *h* is 41 mm. long and 22 mm. wide. The point has an inner barb, which is not usual with Hawaiian shell hooks. A broken hook (fig. 220, *i*) is 47 mm. long. All the hooks have a shank knob, and the way in which the ends project beyond the binding shows how they prevented it from slipping.

Bone

Small hooks made of human and dog bone resemble the small shell hooks in form. In a private collection obtained from a cave in Hawaii the majority have the incurved point. However, some with a straight point were probably used with line and rod, a form of fishing termed *paeaea*. The preferred bait was shrimp, but any small fry was useful. According to Malo (1951, pp. 208, 212) angling with rod, line, and hook was termed *koi* (Emerson, *mokoi*).

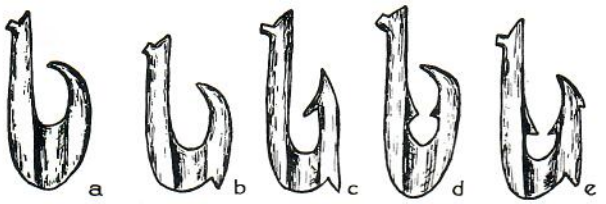

Figure 221.—**a-e,** simple human-bone hooks: *a*, incurved point with very deep bend; *b*, incurved point and low external barb; *c*, inner barbed point and low external barb, **d, e,** retaining the two side points left between holes drilled in manufacture of hooks: *d*, with incurved point; *e*, with external barbed point and low external barb.

A larger hook made from human bone (*makau iwi kanaka*) was shaped from sections of long bone, as described in the introduction to this section. Various forms of this hook, ranging from 38 to 45 mm. in length and 17 to 20 mm. in width, with a general thickness of 4 mm., are illustrated in figure 221. The simplest form has an incurved point and a very deep bend (B.1503); another has an incurved point and a low external barb (L.2478); and a third (9452) has an inner barbed point and a low external barb (fig. 221, *a-c*). Two hooks are peculiar in that they retain the two side points left between the two holes drilled in the manufacture of the hooks. One (fig. 221, *d*) has an incurved point; the other (fig. 221, *e*), an external barbed point and a low external barb. Though these two hooks look peculiar in shape, they were an established form, as proved by their discovery in caves with old material. All show the inner concave surface of the bone, and the somewhat ridged appearance on each side is apparent.

A still larger type of hook, more circular in form, was made of whale ivory (*palaoa*) and, less frequently, of human bone. The ivory hooks were termed *makau palaoa*, which is merely descriptive of the material, as is *makau iwi kanaka* for the human bone hooks. A series of these larger hooks, shown in figure 222, range in length from 38 to 59 mm., in width from 27 to 34 mm., and in thickness from 4 mm. in the smaller hooks to 9 mm. in the largest hook. All have the incurved point, but in two (fig. 222, *d*, *e*) the barbs are high enough to augment the incurved point in keeping the fish on the hook.

The term barb has been used by some ethnologists as a synonym for point, despite the fact that straight points and incurved points are usually without a barb. However, the barb is defined in Webster's Dictionary as a projection ex-

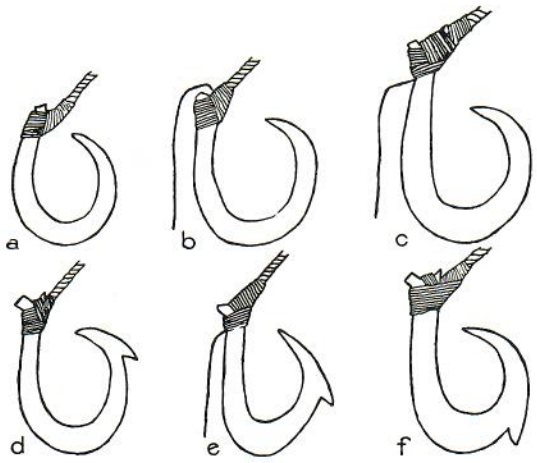

FIGURE 222.—Bone and whale-ivory (simple) hooks: **a,** circular in form; **b,** almost U-shaped; **c,** subcircular; **d-f,** showing different levels of outer barb: *d*, of human bone, high; *e*, medium; *f*, low.

tending backward from the point of a fishhook or an arrow to prevent easy extraction. To prevent easy extraction, in the first place, the barbed point of a fishhook should completely pierce the lip or throat. This is possible with inner barbs; but with outer barbs, it is only possible with the high and medium-high barbs. These then comply with the function of a barb in preventing easy extraction. The low outer barb is below the inner level of the bend; and as further penetration would be prevented by the bend, or bottom, of the hook, so to speak, it could not penetrate the lip. A recognition of this is implied by the fact that all hooks with a low outer barb are provided with an inturned point. The low outer barb probably served as a cleat for tying on the bait with a bait string (*mali*), a feature found in New Zealand hooks.

Very large hooks were made of whale bone. The larger of the two illustrated here (fig. 223, *a*) is 147 mm. long and 69 mm. wide, and the bone is 8 mm. thick.

The point has a well-formed inner barb. The other (fig. 223, *d*) is 129 mm. long and 59 mm. wide. It has a low outer barb, in addition to a functioning inner barbed point. The treatment of the upper end of the shank limbs in both hooks follows the regular pattern of a rectangular shank knob and pointed shank limb seen in all of the smaller hooks. The combination of an inner and an outer barb is also found in the smaller, ivory hook. One of the two illustrated is 48 mm. long, 26 mm. wide, and 7 mm. thick (fig. 223, *b*). The other is 67 mm. long, 39 mm. wide, and 8 mm. thick (fig. 223, *c*).

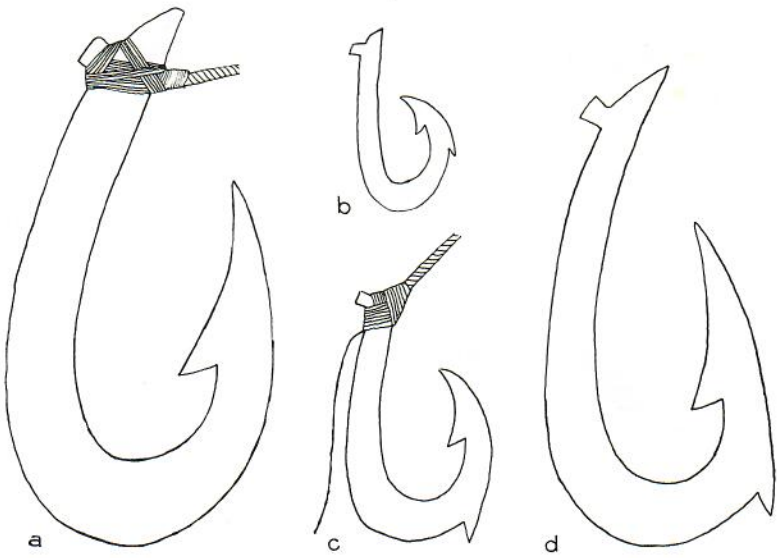

FIGURE 223.—**a-d, single- and double-barbed bone hooks: *a, d,* very large.**

Two even longer simple bone hooks, for catching sharks, are described with the composite shark hooks (p. 342) because of the shark-hook treatment of the snood attachment.

TURTLE-SHELL

Turtle-shell hooks (*makau 'ea*) are the most numerous in the Museum collection, and the question arises as to whether some of them were not made for sale and barter in the early days of white contact. They occur in practically all forms used for the bone and ivory hooks except the human-bone type (fig. 221).

Several small turtle-shell hooks are illustrated. Their lengths range from 21 to 28 mm. and their widths, from 14 to 17 mm. The thickness, 3 mm., is common to all. Three hooks are subcircular in form (fig. 224, *a-c*); another is practically U-shaped (fig. 224, *d*); and one is subcircular with a low outer barb (fig. 224, *e*). All have incurved points.

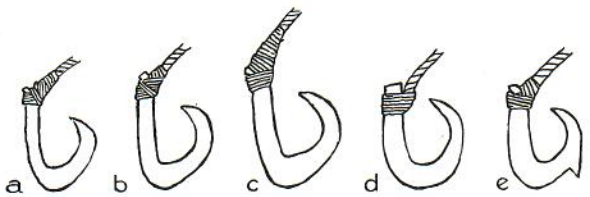

FIGURE 224.—Small turtle-shell hooks: **a-c,** subcircular in form; **d,** almost U-shaped; **e,** subcircular with low outer barb.

The larger turtle-shell hooks follow the forms of ivory hooks shown in figure 222. Each of the series shown in the accompanying figure has an incurved point. One illustrates the circular form and one, the U-shaped form (fig. 225, *a, b*). The three positions of the barb are shown in figure 225, *c-f*. The largest of these hooks (fig. 225, *f*) has a straight shank limb and so illustrates the subcircular form. The lengths of the hooks range from 40 to 55 mm. and the widths, from

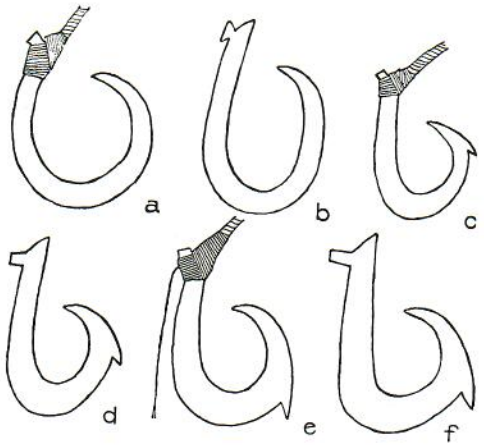

FIGURE 225.—Large turtle-shell hooks: **a,** circular form; **b,** U-shaped form; **c-f,** positions of barb (high, medium, and low); *f*, with straight shank limb.

24 to 34 mm. The thickness of the turtle shell in the smaller hooks is 3 and 4 mm., which makes the limbs and bends rather flat. Hooks with a thickness of 6 mm. give the limbs a more rounded form.

A very large turtle-shell hook in the Museum collection (3670) is made on the same pattern as the large bone hook with an inner and an outer barb (fig. 223, *d*) except that the shank knob is double. The hook is 130 mm. long and 74 mm. wide, and the thickness of the turtle shell at the bend is 10 mm.

HORNS?

Wood

Wood could not compete with shell, bone, and turtle shell as material for small one-piece hooks; but extremely large hooks, such as composite shark hooks, were made of wood. On the other hand, only one specimen of a wooden one-piece hook (B.6716) is found in the Museum collection. It is distinguished from the shark hooks by the fact that it is made of one piece and has an incurved point and an outer shank knob (fig. 226). Its length is 7.5 inches, and its greatest outer width is between the shank and point limbs. Its cross thicknesses at the bend are 28 and 23 mm. This hook thus conforms in shape and size to those of some shark hooks. However, the doubts raised by the point and the shank knob are justified by J. S. Emerson's label of *pakau ulua*, a hook for *ulua*.

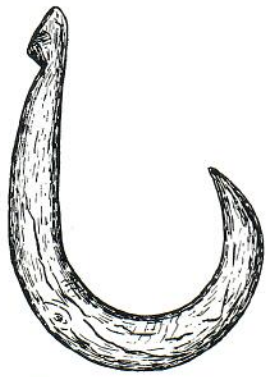

Figure 226.—One-piece wooden hook.

COMPOSITE HOOKS

Composite hooks, which combined two pieces of material, fall into three general types. The first type consists of two pieces of bone combined in small, medium, and large hooks. The second type consists of the well-known bonito hook, with a pearl-shell shank and a bone point. The third type includes the large shark hooks made of wood and a bone point.

Bone

In the two-piece bone hooks, it is better to allude to the shank limb simply as the shank. Points may be simply termed points, as they are so short there is no real point limb. The three sizes made—small, medium, and large—are all similarly constructed. The shanks are fairly straight, with but little curve. The upper end has an outer shank knob similar to that in the simple hooks; and above the shank knob, the shank slopes upward and inward to meet the inner edge at a point, a constant feature in the simple hooks. The lower end, which

increases somewhat in width as it curves inward to end in a straight vertical edge, is expanded laterally and has a notch or an outward projection to prevent slippage of the binding at the point. The points have an inner concave curve from below upward, but the actual points (*maka*), with few exceptions, do not curve inward like the incurved points of the simple hooks. When lashed to the shanks, the points are of the straight variety. The lower ends have the deep vertical edge and the notched expansion found in the shanks.

The small hooks were evidently made in fairly large numbers, to judge by the pieces collected from fish shrines and other sources. In the Museum collection, these pieces are mostly of points, the small shanks being comparatively few. As the Museum has no complete specimen, a number of small shanks and points are figured. The three shanks illustrated (fig. 227, *a-c*) range in length from 23 to 36 mm. All have the shank knob and the lower expanded end for lashing. The first two are notched and the third is unnotched. The points (fig. 227, *d-k*) range in length from 12 to 26 mm., and all have the lower notched

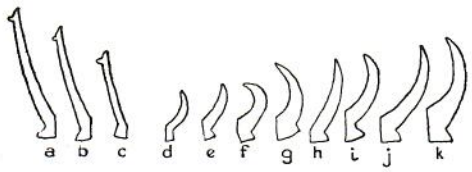

FIGURE 227.—Small composite hooks: **a-c,** shanks; **d-k,** points.

expansion. In complete hooks the vertical lower edge of the points were fitted against the similar edge on the shanks and lashed with transverse turns of a fine thread above the notches. Of the points illustrated, figure 227, *f* is the only one with an incurved point.

The medium-sized hooks are represented by the four shanks and four points figured, as there is no complete hook in the collection. The four shanks illustrated (fig. 228, *a-d*) range from 41 to 53 mm. in length; the width above the lower expansion, from 6 to 8 mm.; and the thickness, from 3 to 4 mm. All have an inner concave curve and the shank knob at the upper end. The lower vertical edge is fairly deep (13 and 14 mm.) with the exception of that shown in figure 228, *a*, which is only 9 mm. Two hooks have a notch at the lower end for the binding (fig. 228, *a, d*), and two have projecting knobs (fig. 228, *b, c*). The four points range in length from 39 to 60 mm. The point shown in figure 228, *e* is somewhat incurved, but the others have less curve on the inner side. The lower vertical edge is much deeper in figure 228, *e-g* than those of the shanks, none of which they would fit. One point (fig. 228, *h*) has a low vertical edge of 7 mm. The points shown in figure 228, *e, f, h* have the lower notched base for lashing, but that shown in figure 228, *g* is abnormal, with three notches, one quite high.

In some of the shanks and points, the vertical edge for joining is perfectly flat; others have a tongue-and-groove arrangement. A marked median ridge is present in the shank shown in figure 228, *c*; but usually the vertical surface is convex in one and concave in the other, so that they fit neatly together before lashing. The tongue may be on either the shank or the point. Skinner (1942) noticed this neat tongue-and-groove technique in some Maori composite hooks.

The large composite hooks, while sharing the general principles of construction with smaller hooks, form a unique type in that all the points have an inner barb. Three points and a complete hook are shown in figure 229, *a-d*.

The three barbed points range in length from 62 to 75 mm., and they have the common inner barb and an outer projecting knob at the lower end as a stopper for the lashing. (The outer knob was not noted on the points of the smaller hooks.) The lower vertical edge is deep, ranging from 24 to 26 mm. in the three points. This downward projection of both shank and point allows ample room for lashing the two parts together.

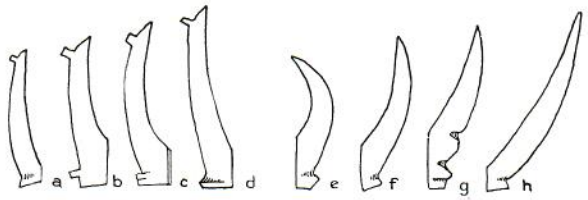

FIGURE 228.—Medium composite hooks: **a-d,** shanks; **e-h,** points.

The complete hook (fig. 229, *d*) clearly demonstrates how the two parts were lashed together by transverse turns with a thread above the lower stopper knobs on each side. A constant feature of the complete hooks was the use of small wooden wedges, driven in between the lashing and the hook to tighten up the lashing, which were used on both sides of the hook. The joining of the two parts completes the bend of the hook. In the hook illustrated the shank is 104 mm. long, and the point 73 mm. long. The greatest width of the hook is 38 mm., and the width at the bottom edge is 20 mm.

The large composite bone hook with an inner barb is by no means rare. Bishop Museum has three; the Oldman collection, which was sold to New Zealand, contains six perfect specimens; and there are others in various museums. However, the presence of a functioning inner barb as a constant feature of one type of hook has raised the question of whether the inner barb was original or derived from copying the barb of introduced trade hooks made of metal, particularly as the points of the smaller composite hooks lack the barb. Fortunately, the answer is supplied by a barbed hook of this type in the British Museum which was collected in Hawaii during the Vancouver Expedition in 1792. Thus the

presence of a recognized native technique could also account for the occasional use of the inner barbed point in other forms of hook.

Composite Bonito Hook

The Hawaiian bonito hook was termed *pa uhi*, after the pearl shell (*uhi*) of which the shank was made or *pa hi aku* after its use in trolling (*hi*) for bonito (*aku*). The term *pa* is used for pearl-shell bonito hooks throughout Polynesia. The New Zealand trolling hook with a wooden shank inlaid with *Haliotis* shell was named *pa* in memory of the pearl-shell trolling hooks of a former Polynesian home. The Hawaiian *pa* is thus a local form of a general Polynesian type

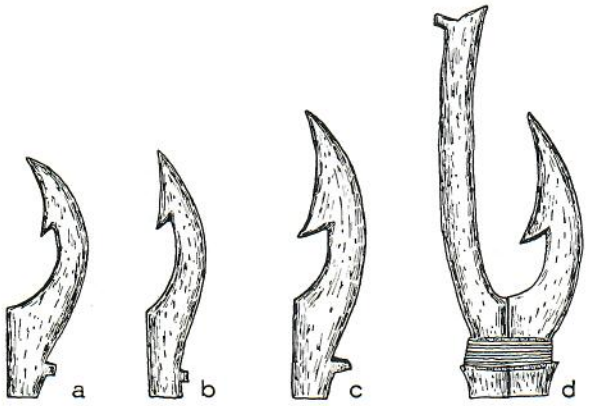

Figure 229.—Large composite hooks: **a-c**, points; **d**, complete hook.

which is uniform as regards the pearl-shell shank but varies in the point material and its attachment to the shank. The Hawaiian hook consists of a pearl-shell shank and a point, usually of bone but rarely of pearl shell or turtle shell. The complete hook includes the lashings, the hackle, and the snood.

SHANKS

Bonito hook shanks, also termed *pa* or *uhi*, were formed of segments cut through the thick hinge (*pu'u*) and shell of the pearl oyster (fig. 230 *a*, *b*). Some local shell was small, so the lengths of the shanks varied considerably. In the 83 shanks examined, the lengths range from 50 to 120 mm. The average length of the shanks of larger hooks is about 80 mm.; of smaller ones, between 50 and 60 mm. The segment of shell is shaped to a point at the thick hinge end, and the sides slope upward to meet in a median edge, below which is a transverse hole, drilled from side to side. From the pointed hinge end, the shank widens out to a greatest width of 11 to 19 mm., with the average 14 mm. The edges of the shank

then narrow gradually to reach a minimum width at the end of 4 to 8 mm., with the greatest number of shanks 6 mm. wide. The narrow end of the shank is characteristic of the Hawaiian hooks.

The projection of the hinge part is on the inner surface of the shell; and as this surface is uppermost during trolling, it is convenient to term it the upper surface or front of the shank. The under surface, which is the outer surface of the shell, may be termed the back. The back of the shank in the natural state of the shell is covered with a thick, dull layer which is ground off to expose the iridescent color of the shell beneath. Shell colors are variations of yellow, red, black, and white; and these various hues were selected for trolling under differing light conditions. Kalokuokamaile of Kona, Hawaii, referred to the various shank colors under the general term of *muhe'e* and paid particular attention to streaks (*no'a*) in the color. He gave me the names of 14 different *muhe'e* which, with the exception of two general colors, were named after fancied resemblances to some color feature of fish (five), plants (four), and a bird, a crab, and a coral. Some of them are given in the following list.

muhe'e kikakapu: spotted like the kikakapu fish
muhe'e pua hau: reddish like the fading flower of the hau
muhe'e 'ohiki: whitish streaks (no'a) like the legs of the 'ohiki sand crab
muhe'e koa'e: white with three streaks like the tail of the brown petrel (koa'e)
muhe'e 'ako'ako'a: worm eaten below red like the ko'a branching coral [?]
muhe'e laenihi: white (ke'oke'o) shank with two curves like the head of a *laenihi* fish (according to Kaloku, the best form of shank)

The thick end of the shank was termed *ihu* (nose) by Kaloku, the hole, *puka ihu* (nose hole), and the other end, the *muli*. This follows the canoe terminology in which the bow is the *ihu* and the stern, the *muli*. For descriptive purposes, I will term the thick end the head; and the hole, the head hole in preference to the "eye" recommended by some ethnologists. For consistency, the other end will be termed the tail, particularly as it carries the hackle which is usually meant for the tail of the small fish which the lure represents.

POINTS

The bone point (*lala*) curves upward and forward from a fairly long base (*kapuahi*) above which one hole (*humu*) is drilled. The length and curve of the points vary a good deal. The normal curve is shown in figure 230, *a*. A few points are incurved (fig. 230, *c*), and a fair number are obtuse-angled (fig. 230, *d*). However, when shown assorted specimens of the Museum hooks, Maunupau, an experienced fisherman of Kona, Hawaii, declared that the incurved point and the obtuse-angled point were both *hewa* (wrong). When the point was lashed to the shank, the inner end of the snood stretched tautly between the point hole and the head hole a little above the front surface of the shank. The gape (*hamama*) of the point was thus the vertical distance between the sharp end of the

point and the taut inner snood and, according to Maunupau, this should be the height of the thumb nail. Thus before the point was finally fixed, the gape had to be measured so that it could be altered if necessary. The point was placed in position on the shank and a fiber or thread loop stretched taut between the two holes. Holding the point in position with one hand, the workman measured the gape with the vertical thumb nail of the other hand. If the point was too high, the front part of the point base was ground down to lower the point; if too low, the back part of the base was ground down to elevate the point. Differences in the height of individual thumb nails led some fishermen to make their standard a little higher than the nail, whereas others made it a little lower. The base having been satisfactorily adjusted, the next step was to lash the point to the shank.

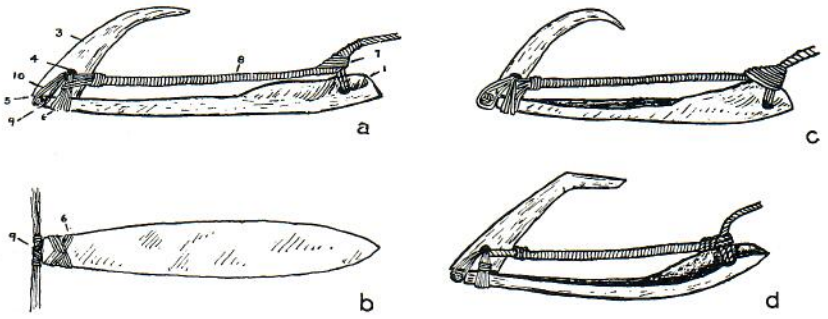

FIGURE 230.—Bonito hooks: **a,** with normally curved point and showing technique of point and snood lashings (1-10); **b,** shank, showing point lashing (6) and hackle lashing (9); **c,** with incurved point; **d,** obtuse-angled point.

POINT LASHING

The point was placed in position with the back part of the base projecting slightly beyond the end of the shank. The projecting part was termed the *'auwae* (chin). A thread 3 or 4 feet long was tied at one end to the head hole with an overhand knot. With the point to the right, the thread was stretched back and passed through the point hole from the near side. It was passed forward to go through the head hole from the far side. Two or more long loops were made between the two holes, and the thread was then carried in a number of turns around the shank and through the point hole. The turns were made obliquely on the back of the shank, with alternate turns crossing the others so that a neat chevron pattern was formed on the back of the shank (fig. 230, *b*, 6). Maunupau stated that there was no set number of turns but that they were continued until the fisherman was satisfied that the point was firm. In the lashings examined there were usually four turns each way. The remaining length of the binding thread was left free for future use.

SNOOD LASHING

One end of the line forming the true snood was passed through the head hole and an open overhand knot was made at a point where the short end would be long enough to reach the point and return. The short end was then stretched to the point, passed through the point hole under the previous long loops of the binding thread, and passed back through the open overhand knot at the head hole for an inch or so. The knot was adjusted so that the two lengths to the point hole were drawn taut and the knot tightened. The short end and the main line were pulled upward from the knot to form what was termed the *pou*. The short end was frayed out.

The long end of the binding thread, which had been left free, was wound around the snood and passed back through the point hole and a number of diagonal turns made between the point hole and under the projecting chin (*'auwae*) of the point base. The thread was brought forward from the last turn through the point hole to the snood, where it was fixed with a half-hitch. The binding thread then made close seizing turns (*'uo*) around the snood line and its previous long loops as far as the shank head (fig. 230, *a*, 8), where some figure-of-eight turns were made around the *pou* (fig. 230, *a*, 7) to make it stand up. A figure-of-eight turn was made through the head hole and around the *pou* and the thread fixed with some turns and half-hitches around the snood beyond the head hole. Any extra length of frayed fibers of the short end were cut off, completing the snood lashing to the head hole. The *pou*, which consisted of the long and short parts of the snood line combined, is a characteristic feature of the Hawaiian snood lashing. It was made to prevent the hook from wobbling when trolled.

HACKLE LASHING

The Hawaiian hackle (*hulu*) was made of white or black pig bristles. It was peculiar in that it was lashed crosswise to the long axis of the shank, instead of trailing directly behind, as in the bonito hooks of other Polynesian islands. The small bunch of stiff pig bristles, about 2 inches long, was held with its midpoint under the projecting chin of the point base and against the end of the shank (fig. 230, *a*, *b*, 9). A thread was tied with an overhand knot around the snood in front of the point, passed through the point hole from the near side, carried obliquely down from the far side to cross over the hackle, then under it to return to the point hole on the near side. The next turn from the far side passed under, then over, the hackle to cross the first turn diagonally over the middle of the hackle. Two more similar turns were made, followed by two single turns around the hackle to the outer side of the diagonal turns on the far side. The thread was crossed directly to make two similar turns around the hackle on the near side, and the thread was either passed directly to the snood or indirectly through the point hole, if there was room for it. Some half-hitches were made around the

snood in front of the point to complete the lashing (fig. 230, *a*, 10). In some hooks a couple of turns were made around the oblique turns between the hackle and the base chin before the thread was brought up to the snood. Maunupau said that the transverse position of the hackle made the lure ride on its back with the point uppermost when trolled, and he held that more than two turns around the hackle on each side of the middle turns would bend the sides of the hackle backward in V-form, which was wrong.

The snood, which in other forms of hook was short for tying to the fishing line, was a continuous line about 27 feet long and was folded in lengths of about 5 inches which were kept together by a couple of half-hitches. In use, the line was unfolded and tied to the end of the fishing rod. Thus each hook had its own line, and the various colored shanks could be speedily changed to suit light conditions.

The factors which distinguish Hawaiian hooks from other Polynesian hooks are the bone point with one hole and a slight projection of the base over the tail end of the shank, the transverse straight hackle of pig bristles tied under the projecting chin of the point base, the close seizing of the inner end of the snood, and the short upward direction of the snood above the shank head to form the *pou*.

HYBRID BONITO HOOKS

When some Marshall Islanders were brought to the Hawaiian Islands years ago to work on sugar-cane plantations, they naturally made their own type of bonito hook. These differed materially from the Hawaiian hooks in that there was no extension of the snood from the head hole to the point hole to prevent the point from being pulled over the tail end of the shank. The Marshallese method of preventing this was to cut notches and leave protuberances on the side edges of the shank so that the point lashing could not slip. Other differences were the use of large shell points instead of bone and fiber for the hackle, which trailed behind in line with the long axis of the shaft.

A number of hooks in the Museum collection show that, while the Marshallese retained their more massive pearl-shell shanks with knobs and notches and the large shell points, they adopted the Hawaiian technique of extending the inner end of the snood to the point hole and also the use of pig bristles for the hackle.

BONITO FISHING

I went bonito fishing with Maunupau off the Kona coast in a motor-driven sampan, which has replaced the more arduous paddled canoe. Maunupau knew the likely places for bonito, but his selection was determined by a flock of seabirds darting down on a shoal of small fish which, in turn, was followed by a school of bonito. We joined the seabirds, and the sampan ran with the fish. When Maunupau and a Japanese fisherman stood on either side of the stern

and cast their hooks into the wake behind, the fish bit immediately. Maunupau lifted his catch out of the water with the bamboo rod and swung it toward himself, breast high. He dexterously caught the fish under his left arm, extracted the hook quickly with his right hand, and swung the hook back into the sea. It was astonishing how quickly the bonito took the lure. The size of catch depended on how rapidly the hook was dropped back, hence the barb, which prevents easy extraction, has no place on the points of bonito hooks. The fish came in rapidly for as long as we could keep up with the school. When suddenly the school disappeared, the spasm of excitement was over. We cruised around and picked up other schools until prospects faded, then returned to shore with a good catch. The fishermen were satisfied with what they had caught, and I was satisfied with what I had seen.

Shark Hooks

Hawaiian shark hooks (*makau mano*) are the largest of the local fishhooks. Those examined in the Museum collection were five composite hooks of wood with bone points and two simple hooks of bone with inner barbs on the points. The five wooden hooks are of a dark wood with a reddish polish. According to Kamakau, shark hooks were made of hard wood such as *uhiuhi, walahe'e, koai'e,* and *'aweoweo.* The wood is well shaped with two limbs connected by a U-shaped bend. The hooks range in length from 7 to 11 inches, in greatest width from 3 to 5.5 inches. The smallest hook of the series, which is the best made, is shown in figure 234, *a.*

BONE POINTS

The bone points of shark hooks are shaped to an upper true point, triangular in section, and a lower tang which fits into a deep groove cut into the outer side of the upper end of the point limb. The point of a Museum specimen (6925) which is 10.5 inches long is illustrated. A side view shows that the left concave edge of the point faces inward toward the opposite shank limb and a marked shoulder divides the point from the tang (fig. 231, *a,* 1, 2). The length of the point is 42 mm. and the length of the tang 45 mm., making a total length of 87 mm. The width of the point at the tang junction is 17 mm. The inner view shows the median edge of the point and of the tang and the shoulder between them. The width of the point at the junction is 17 mm. and of the tang, 12 mm. The outer view is smoothed throughout with the shoulder showing on the side edges. (See figure 231, *b, c.*) The upper end of the point limb corresponds to the point surface above it, and the wood below the upper rim has been trimmed down slightly to form a bed for the point lashing (fig. 231, *d-f,* 3). In the detached point, the shoulder appears to form a barb; but when fitted into its groove, the shoulder fits over the wood and there is no barb. This is shown in the lashed point (fig. 231, *g*), which has a raised transverse flange

on the outer side of the tang below the lashing which prevents the tang from slipping up under the lashing. With this exception, all the bone points follow the pattern shown in figure 231, *a-c*.

SNOOD LASHING

The snood lashing was complicated and was peculiar to shark hooks. The outer shank knob so characteristic of all other hooks, except the bonito hook, was not used. Though one of the Museum hooks (B.6882) has no snood, the bare upper end of the shank limb is notched with a number of transverse grooves,

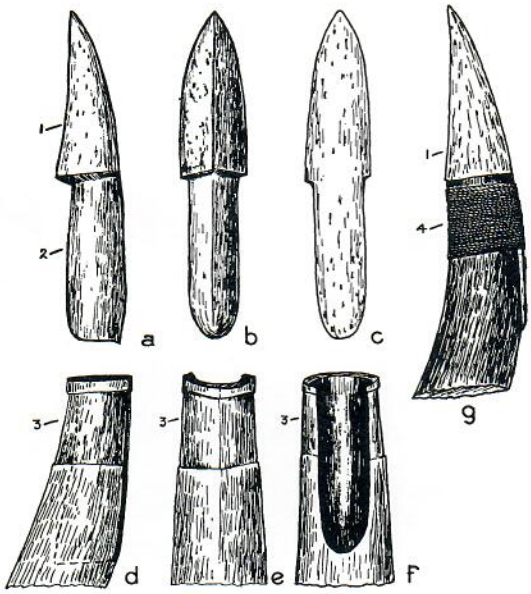

FIGURE 231.—Shark hook point, point limb, and lashing: **a-c,** side, inner, and outer views of point (1 point, 2 tang); **d-f,** three views of point limb, showing bed (3) for lashing; **g,** side view of lashed point, showing point (1) with tang fitted into groove and lashed into position with transverse rounds of fine cord (4).

making obvious the general principle for fixing the snood fibers to the shank. Details of the lashing in the complete hooks of the collection are covered by an outer sheath of close weaving, so I was forced to unravel the sheath of one of the hooks (6925) in order to solve the problem of a hitherto undescribed technique. The quite unexpected results, which are shown in figure 232, are described below.

With the sheath and two layers of *olona* strips carefully removed, the bare shank end (*a*) is exposed, showing three rather wide and deep grooves (1-3) cut transversely across it. The first stage of lashing (*b*) is started by laying long strips of *olona* bast over the grooves with the middle of the strips resting on the lowest groove (3). As each strip is applied, a

narrow strip of *olona* used as a binding thread fastens it down tightly into the groove below. The next strip of *olona* is laid beside the first and the binding thread passes over it to tie it down into the groove. Successive strips are added and bound down in turn until the entire grooved shank is covered. Binding threads are then used over the parts resting over the other two grooves (2, 1), and finally the strips are bound firmly together around the top and above the shank limb, as illustrated.

In the second-stage commencement (*c*), the lower halves of the *olona* strips are doubled up over the lowest binding (3). Three strips are raised on the left while the others on the right are still down. When all are raised the first layer is completely covered. In *d* the second layer is also bound tightly and the hollows, apparent after the binding of the first layer (*b*), are now filled with more numerous turns of the bindings. The upper ends of the strips are also bound tightly with those of the first layer, and the ends of the two layers provide the fiber for the plies of the snood line.

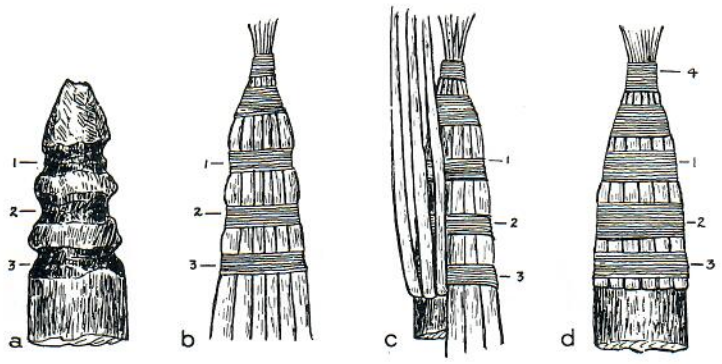

FIGURE 232.—Snood lashing: **a,** bare shank with deep grooves (1-3); **b,** first stage of lashing, showing binding threads (1-3); **c,** second stage; **d,** finished lashing.

The material for the snood was thus fixed by the grooved method and fixed so securely that it was impossible for any shark to pull the snood off the shank. For all practical purposes, the work could have ended here; but for purely aesthetic reasons, the craftsman invented the textile cover to hide the coarse appearance of the lashings and add finish to an original piece of work.

Textile Cover

The textile cover was formed of longitudinal warps and a weft of a two-ply coarse thread. All the warps required for the cover were first attached near one end of the weft. They were lengths of single-ply twisted *olona* fiber which were doubled in the middle, the loop passed over the weft, and the two ends drawn through to form pairs (fig. 233, *a*). The loop was drawn taut and the pair twisted into a loose two-ply to form single warps, and the warps were attached closely, there being 26 warps to the inch (fig. 233, *b*, *c*). A length of 3.2 inches was required to encircle the shank below the lower ends of the fixed *olona* strips (fig. 233, *d*). By drawing the ends of the weft taut, the two ends of the warp

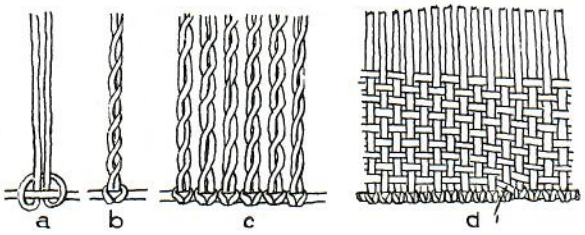

FIGURE 233.—Textile snood cover: **a,** lengths of *olona* fiber for warps; **b, c,** warps; **d,** wefts, showing (1) short weft end interwoven with warps.

attachments met with the warps extending upward to cover the fixed *olona* strips. The short weft end was interwoven with the warps on the right to dispose of it, and the long end was worked from right to left (fig. 233, *d*, 1) in close spiral turns of a check weave. When the weft grew short, another length was laid over it; and the two continued as a double weft until the old one petered

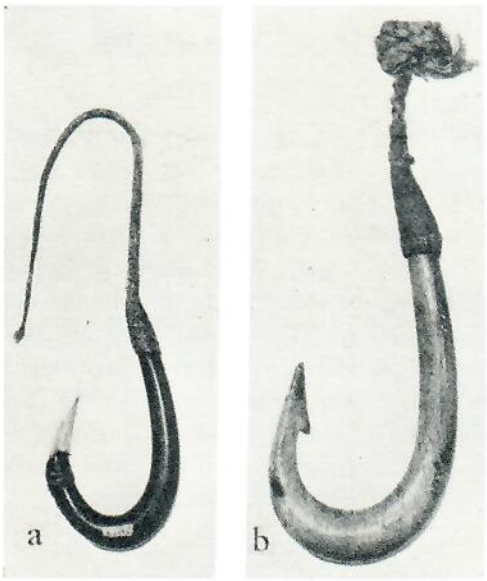

FIGURE 234.—Shark hooks, showing textile snood cover: **a,** of wood; **b,** of bone.

out. As the weaving proceeded upward and grew narrower, some warps were dropped out of the weaving and were covered by the others. At the top end, the weft was carried around in close turns over the warps and tied to end the weaving. The free ends of the warps were included with the *olona* strips, which were divided into plies and braided into three-ply or eight-ply to form the snood shown in the completed covers in figure 234, *a, b*.

The well-made wooden shark hooks of the Cook Islands (Buck, 1944a, pp. 239-241) resemble the Hawaiian hooks in the form of shank and point limbs and the U-bend, but they are one-piece hooks with an inturned point and a shank knob for the snood attachment. Hawaiian shark hooks in other museums follow the pattern described and are illustrated by figure 234, *a*. The grooved snood attachment with its textile cover is peculiar to Hawaii and forms an infallible means of identifying the Hawaiian composite shark hooks.

Simple Bone Shark Hooks

Bishop Museum has two large bone hooks with inner barbed points. The larger hook (fig. 234, *b*) is 11 inches long and 5 inches wide. The bend is 37 mm. deep and 23 mm. thick. A smaller hook (6923) is 8 inches long and 3.9 inches wide. Both hooks have the grooved snood attachment with the textile covers exactly the same as in the wooden composite hooks, and these features confirm their identification as shark hooks.

FISHING ACCESSORIES

STONE SINKERS

Stone sinkers were used with nets, fishing lines, squid lures, and ground bait; but the introduction of lead speedily led to their abandonment. However, large numbers have been picked up by collectors and the Bishop Museum collection, omitting the specialized squid sinkers, contains more than 200 specimens of various shapes and sizes. Apart from shape, a distinguishing feature of classification is the method of securing the line to the sinker. The common, widely spread methods were by grooves and perforations. However, two specialized forms were made in addition, and these have been termed in Museum parlance, bread-loaf sinkers and plummet sinkers. The bread-loaf sinker is a special form of grooved sinker, and the plummet is original in having a terminal knob with a constricted neck for the line. Thus Hawaiian sinkers fall into four groups: grooved, perforated, bread-loaf, and plummet.

Grooved Sinkers

The grooved sinkers examined number 109 and, though a large number consist of rough pieces of unshaped stone, a good many have been chipped into some definite form. The commonest are elliptical with fairly rounded ends, and those with longitudinal grooves are about equal in number (16) to those with transverse grooves (17). It is probable that those with transverse grooves were used with nets and that the others were sinkers for fishing lines. Many of the longitudinally grooved sinkers are slightly wider and thicker at one end, which was probably the lower end in fishing line sinkers. A well-shaped basalt sinker

ARTS AND CRAFTS OF HAWAII

BY TE RANGI HIROA
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VII
Fishing