

146.—NOTES ON THE HISTORY OF THE FISH-HOOK.

By R. CHRISTENSEN.*

The fact that prehistoric hooks are but seldom noticed in museums is not owing to their rare occurrence or rare discovery, but to their small size and to their appearance, which is not apt to strike the eye; possibly, also, because they closely resemble other implements and are therefore easily confounded with them. The number of undoubted fish-hooks, however, is large enough to show that angling is one of the most ancient occupations.

The oldest fishing implements, however, correspond very little to the newer idea which we connect with the word "fish-hook." As long as no metal was employed there was no material from which a real hook, answering to our ideas of the same, could have been made; there was moreover no type of such an implement. On the other hand, the idea was readily suggested that, if fish could be caught by means of a harpoon fastened to a line, without inflicting a mortal wound, the same object might be reached in a still more satisfactory manner if the fish could be caused to swallow a harpoon or arrow-head fastened to a line. Angling is therefore of more ancient origin than net-fishing. The oldest hooks which have been found are shaped like an arrow-head, having one and sometimes two, three, or more smaller or larger well-pointed beards. The museum of the Antiquarian Society of Prussia, in Königsberg, possesses a number of such hooks. All these hooks show very careful workmanship, and are of such slender form, so well adapted to the nature of the material (bone or horn), as to favor the supposition that this article has been in general use for some time, and has gradually undergone various improvements. These implements date from the Neolithic Age (second period of the Stone Age), and their enormous size will convey an idea of the size of fish caught in those times. A similar implement from the same period is preserved in the Royal Museum at Dresden, but its shape so closely resembles that of an arrow-head that it is impossible to distinguish it from this.

Hooks made of flint are very rare. Two which have been found in the Swedish province of Skåne furnish ample proof that the Scandinavians were likewise acquainted with angling at a very early period. Frequently small flint splinters having a bent point are found, showing evidences of workmanship which in some cases were evidently meant to be tied to a handle at their thick end, and which probably in this way have served as hooks. An implement made of horn and preserved in the Königsberg Museum, above referred to, also favors this expla-

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nation. It will not seem strange that implements of so unassuming a character but rarely find their way into our museums. The fact, however, that angling has, till within a comparatively recent period, been the favorite mode of fishing, much more so than net-fishing, finds further proof in the circumstance that in the houses of the lake-dwellers at Schussenried numerous remnants of pike and of *Silurus glanis* have been found, but none of any other fish.

A second and entirely different form of hooks, shaped like a weaver's shuttle, was known in very ancient times; the central portion was connected with the line, and thereupon entirely enveloped in the bait, so the fish might swallow it whole. This method has still been preserved in some parts, where eels are caught by means of a darning-needle fastened to the line and almost hid in the bait.

There has been a steady development from the arrow-head to the real, bent hook, as is shown by an implement which is preserved in the museum of the "Society for Pomeranian History and Antiquity" at Stettin. This rare piece was found imbedded 14 feet deep in marl near Reddies, district of Rummelsburg, in Pomerania. Its material is bone, and at its inner bend the marrow-side of the bone is laid bare, showing that the bone was not sawed lengthwise but crosswise. This gave to the implement a much greater degree of durability, and produced the outlines of its form at the very beginning of the work.

Even the double hook was employed before metals came into use. Such a double hook was made from the antlers of a stag, and found in one of the habitations of the lake-dwellers in Switzerland. At first sight it presents the appearance of grotesque clumsiness, but on closer observation it is seen that the hollows (especially the one on the right side) are a pretty exact facsimile of a modern hook. It will, therefore, not seem improbable that the eccentric position of the center of gravity was not accidental but intentional. Only the right hook is pointed, its form being better adapted to its purpose, and having a tendency to turn upward; that is, it is better calculated for catching fish; while the left hook was probably intended for fastening the bait.

We have more hooks from the Bronze Age, which in Eastern Germany extended to the fourth and fifth centuries. Their material being more pliable, they assume lighter and more slender forms; they have as yet no beard; but artificial bait, though in its simplest form, seems to have been employed at that early time. The Historical Museum at Lübeck possesses some hooks which are made of thin bronze leaves with very sharp points. They have probably served as small metal fish. I am in doubt, however, as to the use of the holes found in pairs in some of them. It seems all the more probable that these implements are artificial bait shaped like fish, as some of the South Sea Islanders were in the habit of employing artificial bait even before they knew the use of metal. In the collection above referred to there is an implement of this kind consisting of a long and narrow piece of mother-of-pearl, to which a hook made of horn is tied firmly.

The oldest iron hooks known are those found in the ramparts of Old Lübeck. As Old Lübeck was surprised and entirely destroyed by Roco, Prince of Rügen, in 1138, and as the new city was not built in the same place, the period from which these hooks date is well defined. The smaller of the two is evidently much older than the larger, and the properties of the metal have been so little utilized as to justify the supposition that this hook dates from the beginning of the Iron Age, while the larger is clearly of much more recent date. Here we find well-known forms reminding us of the hooks which we used in our boyhood's days. There is, of course, as yet, a great difference between these hooks and those found in the ramparts of Old Lübeck, for even the most inexperienced boy would hardly use such gigantic hooks, and even in those days so clumsy a beard would have been laughed at; but as to its general plan this hook does not differ much from the well-known hooks formerly used in Germany.

I will mention an old darre which was found near Alt-Bliesdorf, district of Ober-Barnim, and now in the collection of Mr. Wallbaum in Sucow. It has the size and shape of a tablespoon without a handle, but is quite flat, and made of copper. At the broad end there is a hole for the line, while the pointed end is inclosed by a shuttle-shaped double copper cover (resembling a shell), from which protrudes a medium-sized iron hook of good shape. Spoon and hook are, therefore, firmly connected by this cover by means of three pegs. This implement very closely resembles the spoon-shaped darres which are still in common use.

The merit of having fashioned hooks from steel, according to rational principles, and answering manifold purposes, belongs undoubtedly to the English. Max von dem Borne has described these hooks in his well-known work "*Angelfischerei*" (Line fishing) in the most exhaustive manner. During the year 1880 many different forms of hooks have been brought to our notice through the Berlin Exposition. Some of these hooks have been developed in certain localities independent of other forms, while some are the artificial products of industry, and have been thrown into the market to await the verdict of the fishing public.

Among the hooks peculiar to certain localities I first mention the Japanese hooks. These have very small beards, and are made of thin wire, which is more pliable than elastic; this is all the more surprising, as the Japanese are unexcelled in the manufacture of steel. If, therefore, they give their hooks a certain degree of pliability, this is probably intentional, and may perhaps be explained by the circumstance that their entire fishing apparatus is exceedingly fine. In Berlin they exhibited rods measuring 6 meters in length, with a very thin point, and a line which throughout its entire length has only the thickness of a thin horsehair. At the first glance it will be seen that these hooks are entirely original, and considering the very high degree of development to which line-fishing has attained in Japan it cannot be doubted that these various forms

are carefully adapted to certain definite purposes. If we only knew these purposes we would undoubtedly learn much from the Japanese. Many of these forms have been adopted by English manufacturers.

The artificial fly also has gone through a course of development in Japan entirely peculiar to that country. Those which were on exhibition in Berlin consisted of hooks of the smallest kind given in our illustration; the head is of brass, perfectly round, with a diameter half that of the width of the hook, the body is either red, black, or gold colored, or has all three colors. From the head six to eight brown hairs run along the body, extending twice its length, and surrounding it on all sides; everything about it displays an elegance and accuracy of workmanship which need not fear comparison with the finest English flies.

In Switzerland, in the canton of Tessin, a peculiar form of hooks has been employed from time immemorial. They have no beard, and an exceedingly fine and long point, and are used for catching *Salmo thymallus*, trout, and "may-fish."

The Chinese produce clumsy imitations of English hooks, but their own hooks are peculiar, having exceptionally small beards, not on the back of the point, but on the side. This is of great importance, for the beard which is commonly used, and which is on the inner side or back of the point, has two disadvantages; in the first place, it is as unfavorably located as possible for the rapid entering of the hook, which therefore frequently does not catch; and in the second place, it is inclined to come out of itself, for when it enters, a hollow space is created between the beard and the lower bend of the hook, which is prevented from closing up by the portions of the hook which surround it on three sides. Whenever the person holding the line momentarily ceases to pull, the hook gets a chance to slip back, and the beard but too readily finds the necessary space to glide out of the wound without catching anywhere, especially when the parts where the hook has entered are lean and possess but little elasticity, as is the case with the pike. But if the beard is placed more or less on the side of the point, this offers the important advantage that the beard does not hinder the entering of the point; the hollow space referred to above will also be created, but it is not, as in the common hooks, between the beard and the bend of the hook, but on the side of the latter, and is consequently less inclined to close up immediately. The point of the beard, moreover, does not lie right over the center of the hollow space, but close to its edge. Even if the hook should slip back, the beard will always keep close to the edge of the wound, and will, in most cases, fasten itself somewhere, thus preventing the hook from slipping out entirely. Placing the beard at the side of the point, therefore, offers two decided advantages, without having a single disadvantage; and it is really surprising that manufacturers have not given more attention to this matter.

Of new forms which have recently been brought into the market, the following deserve special mention:

1. Longshanks, or hooks whose handle is twice as long as is com-

monly the case. This secures a steadier aim, the injurious angle is decreased, and makes a much longer extent of gut line possible. The place where the gut line touches the point of the shank is much less exposed to any motion, and the frequent breaking of the gut at this point is avoided. These hooks, however, are as a general rule only suited to such bait as will cover the entire shank. It certainly speaks well for these hooks that they were almost simultaneously adopted both in England and America.

2. Warner's needle-eye hooks. The new catalogue of J. Warner & Sons, Redditch, shows a whole series of differently constructed spring double hooks (eight in number). Other hooks of this kind have been known in Germany for some time; a hook of a particularly practical construction was exhibited at Berlin by the firm of Bradford & Anthony, of Boston, Mass.

The same firm has introduced a hook which substitutes an entirely new principle for the beard. As the tongue which takes the place of the beard acts like a spring, the mouth of the fish will, in biting, slip past the point of the tongue, almost without meeting with any resistance, and from that moment any loosening of the hook by accident becomes impossible. Unless something tears or breaks, the fish is hopelessly caught. The considerable angle of this hook will give no trouble, considering the ease with which the slender point enters; in fact, it proves an advantage, because the catching capacity of the hook is thereby considerably increased. The principle underlying this hook is doubtless very ingenious, and unless unforeseen difficulties hinder its practical application, we probably stand at the threshold of a new epoch in the history of the fish-hook.

147.—CALIFORNIA TROUT PLANTED IN ROANOKE RIVER IN JULY, 1883, RETAKEN IN JUNE, 1884.

By MARSHALL McDONALD.

There was received to-day, by express, from Capt. J. W. Sumpter, Big Spring, Roanoke County, Virginia, a California trout weighing, when fresh, about 10 ounces. This was taken in Roanoke River in the vicinity of Big Spring, and is one of 50 planted therein in July, 1883, having been hatched at Wytheville, Va., in March, 1882, from eggs taken at Baird Station, California, and forwarded by express to Wytheville.

Captain Sumpter states that this is the third trout taken, the others having been returned to the river. He says there are a great many small ones, about an inch long, in the branch and the pond, running in schools of 10 or 15 each.

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