

V.

NOTICE OF A PECULIAR WEAPON OR HARPOON OF BRONZE FOUND
ON THE BANK OF THE RIVER TWEED, NEAR NORHAM. By
JOHN ALEXANDER SMITH, M.D., Sec. S.A. Scot., F.R.S.E.

The bronze weapon now exhibited is of a somewhat peculiar form ; indeed, it is the only one of the kind which has come under my observation, and I have not seen a description of any bronze exactly corresponding to it.

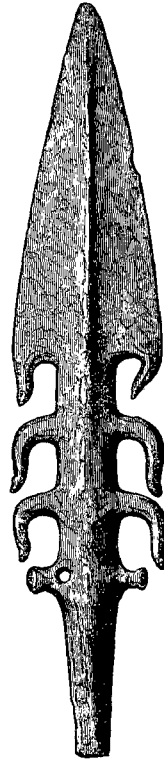
It does not resemble an ordinary spear head, but is more complicated in its character. It consists in front of a tapering blade, of dark red coloured bronze, with a projecting midrib, which terminates in a pointed extremity, and runs backwards to a pointed barb on each side, behind these barbs, two other barbs, rounded and more abrupt in character, project outwards and backwards from each side of the strong middle rib of the weapon ; behind these again there is a short, rounded, horizontal bar or stop, with blunt extremity, which also projects outwards on each side. And the weapon, instead of terminating in a hollow or tubular socket for attaching it to a handle, tapers gradually backwards, and terminates in a rather blunt point, apparently for the purpose of its being inserted in a hollow socket of corresponding size at the extremity of a wooden shaft or handle. The base of the transverse bar or stop, on one side, is pierced by a regularly cut circular perforation.

The bronze measures one foot in length, by $2\frac{1}{4}$ inches in greatest breadth across the blade ; and the blade part, from the point in front to the extremity of one of its lateral barbs, measures $6\frac{3}{8}$ inches. The middle bar is about 1 inch across at the barbs, and the two barbs project three-quarters of an inch on each side, the transverse bar half an inch ;

and the tapering terminal extremity is $2\frac{1}{2}$ inches in length. It weighs $25\frac{3}{4}$ ounces. (See the annexed woodcut.)

It was found, some time ago, by a man from Berwick when fishing on the Tweed, near Norham Castle. Turning round to arrange his tackle, he accidentally noticed part of a pointed object projecting slightly from the clay of the river's bank, at no great distance from him, and digging it out, got this curious implement. Being struck with its strange shape, he deposited it in his fishing basket, taking it home with him, and afterwards bringing it to Edinburgh when he came to reside here. He visited our Museum, and finding that we had many curious implements of bronze, brought the one he had found; I happened to be in the Library at the time, and was glad to secure it for the collection, and learned from him the particulars of its discovery.

In the number of its barbs, and its pointed extremities, it reminded me very much of some of the comparatively small spear heads formed of deer's horn, which have been found in the caves of Dordogne, in France, and are figured in the important "Reliquiæ Aquitanicæ" of Messrs Lartet and Christy. Several of these weapons have been presented, with other relics, to the Museum, by M. Lartet (and are now exhibited). Bone spear heads of a closely corresponding character, with numerous barbs and both extremities pointed, have also been found in Denmark, and are figured in Mr A. P. Madsen's beautifully illustrated work.¹



Bronze Weapon found on the Tweed near Norham,
(12 inches in length).

¹ Afbildninger af Danske Oldsager og Mindesmærker. Kiöbenhavn, 1870.

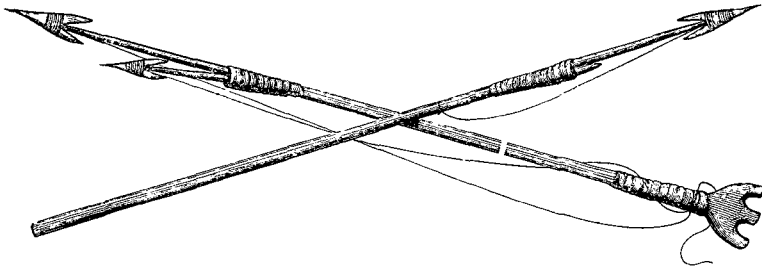
These curious weapons have generally three or more barbs projecting from each side, and many of them have both of their extremities pointed, as if for fixing into a corresponding cavity in the extremity of a separate shaft; they also show a slight projection of the bone on each side, above their tapering posterior extremity, apparently corresponding to the stop or bar on the bronze blade. These spear heads, however, are very slender in character when compared with this strong blade of bronze.

I have examined some weapons of the ruder or less civilised races of men of more modern times, to see if I could find anything corresponding in character or design to this weapon of bronze.

The principal lance or harpoon of the Esquimaux consists of a long shaft of wood, with a large separate head of bone, which is pointed in front, and terminates in barbs behind. Some of these harpoons have the head prolonged backwards to a tapering or pointed termination, for insertion into a socket hollowed at the extremity of the wooden handle, and they have also projections corresponding to the bars or stops of the bronze now described; others have a socket cut between the barbs, into which the tapering point of the shaft is inserted, and all are pierced transversely with a hole, to which a strong line of considerable length is attached; to the other extremity of this line is fixed a float or air-bag, formed of the inflated skin of a seal. When the Esquimaux sets out in his skin-covered canoe or kayak to hunt the seal or the whale, his principal weapon is this large lance, which is strapped at his side, the line arranged on a stand in front of him, and the skin float placed on the canoe behind. When he strikes his game, the head separates from the handle of the spear, which is carefully secured, and he throws the float into the water, where it acts both as a buoy to point out where the game has gone, and as a drag to retard its progress, and exhaust the strength of the wounded animal. He is thus enabled more easily to approach and stab it again and again with his smaller lance, which has a fixed head, until the prize is finally secured. Through the kindness of Dr Robert Brown, F.R.G.S., who has more than once visited Greenland, I am enabled to exhibit a small model of this ingenious harpoon of the Greenlander, with its movable head, its line, and its float, made by the Esquimaux themselves.

Harpoons of a similar construction to those of the Esquimaux are

also in use on the coasts of North-Western America, and, in an interesting little volume, giving an account of the natives of that part of the world, entitled "Scenes and Studies of Savage Life," by Gilbert Malcolm Sproat, London, 1868, I find details given of the manner of catching salmon by the natives of the west coast of Vancouver Island. They capture the fish with the hook, and with elaborately-constructed traps in the rivers, and also with the spear; either from the canoes by torch-light at night in the deeper water off the mouths of rivers, or by standing in the river during the day, and striking the fish as they swim past, or lie in the deep pools of the river. The salmon spears have a



Salmon Spears used by the Natives of the West Coast of Vancouver Island.
(The two headed spear is about 15 feet in length; the one headed spear is considerably shorter.)

movable barbed head, to which a line is always attached. They employ a spear with a single head in the shallow water; but in deeper water, where the chances of the fish escaping are greater, from the refraction of the water, they use a very ingenious spear, which has a double or additional head springing from the upper part of the shaft, each head with its separate line attached; and so the chances of striking the fish are much increased.

Mr Sproat says—"The salmon spears are made of pine, and are rounded and smoothed by being rubbed on watered stones, and are afterwards straightened by warmth in the ashes of the fires. The spear, with two heads and two finger places in the handle, is about 15 feet long, and is

used in the deeper water off the mouths of rivers, when the two heads double the chances of hitting a fish at one stroke. The single-headed spear is used in the shallow water in rivers. The spear head is made of elk bone, glazed with resin, and becomes detached from the spear on the fish being struck, but remains fastened to the line. The fisherman lays the spear down in the canoe, and hauls in the fish with the line. If the salmon is very large and troublesome, a few small bladders are tied to the line, as near to the fish as possible, and he is left to weary himself by the effort of dragging these under the water. In the rivers and mountain streams, in which the water generally is shallow and flows rapidly, the natives place stones across the channel, and with the single-headed spear strike the fish as they pass. It is a pretty sight to see an Indian, with his blue blanket flung carelessly around him, standing on these stones in a graceful attitude, poising his long spear," &c. (P. 221.)

These salmon spears are, therefore, made to act exactly on the same principle as the harpoon of the *Esquimaux*.

Mr Sproat has been kind enough to send to me, through Dr Robert Brown, some clever sketches in water colours, by a lady (Mrs Mack), of various Vancouver Indian weapons, implements, &c. (which I exhibit), including the salmon spears (copied in the annexed woodcut).

The ancient spear heads of bone found in the caves of Dordogne, with their posterior terminations tapered like the bronze weapon, were probably used in a similar manner to those of Vancouver Island, as spears for catching fish.

Whether this large bronze spear head, found on the banks of the Tweed, was used harpoon-like for spearing salmon, or for other creatures of a much larger size and belonging to a different zoological Class, it is not easy to say; probably it was used for both. It certainly looks considerably larger than necessary for the former purpose; although it is not improbable that at an earlier time the salmon of our rivers may have been at once more abundant, and may have also lived to reach a much larger average size, than their sorely persecuted descendants in our own day.

There is, however, a great similarity of design between this ancient bronze, and the modern spears or harpoons which I have described, with their movable and barbed heads, and holes with lines attached to them. The bronze like them has its barbs, and a tapering posterior extremity (the

strength of the bronze blade, and probably also its facility of detachment from the shaft, being thus increased). It has also the hole pierced through it, which, if not intended simply for fixing it by a cord to a shaft, and it is certainly not a usual way of fixing a spear head to a handle, was probably for the attachment of a long line.

I am inclined, therefore, to think that the weapon was used as a harpoon rather than as a common spear.

The usual missile of the Britons—the *matarā* of Cæsar—seems clearly identical with the heavy Gaulish javelin. I quote from the important chapter on the Historical Ethnology of Britain, by Dr J. Thurnam, in the valuable “*Crania Britannica*” of Mr J. B. Davis and Dr Thurnam. Diodorus gives the name of *saunian* to the missile weapons of the Gauls, which they themselves, he says, called *lancia*. He states that there were two forms of the saunian, one straight, the other barbed, or, as he expresses it, curved and having a jagged edge, which produced a laceration of the wound in the recovery of the weapon (Diod. lib. v. c. 30). This last phrase seems to imply that one kind of saunian was thrown with a thong, and belonged to the class of *jacula amentata*. Diodorus also states that the head of the saunian was of iron, and a cubit (18 inches) in length, and that the shaft was still longer. The “*lancea*” is defined by Isidorus as “*hasta amentum habens in medio*” (Isidor. Hisp. lib. xviii. c. 7). A Gallic spear, intended for thrusting rather than hurling, is referred to by Strabo, who distinguished it from the *mataris* or javelin. He implies that it was of great length, &c. From these quotations, referring to the ancient weapons of the Gauls and Britons; it seems therefore probable that one form of the javelin was thrown with a thong to recover it, and that it had the thong attached to the middle of the handle. It was not perhaps barbed, as Dr Thurnam puts it, but had, as Diodorus himself says, a curved and jagged edge.

A weapon barbed like this bronze—a more ancient weapon, shall I say, considering the metal of which it is formed—would be unsuitable for use as a javelin or spear in warfare, the barbs preventing the withdrawal of the weapon. It rather suggests, therefore, the capture of the animal struck by it, on the principle of the ordinary harpoon,—a weapon which, in the form of that with the movable head, seems to have been used by the inhabitants of very distant parts of the world.

Since this communication was read before the Society, Mr Joseph Anderson, the Keeper of our Museum, has called my attention to a figure of an ancient weapon of a closely corresponding character, which is published in the Reports of the General Anniversary Meetings of the Royal Society of Northern Antiquaries for 1838 and 1839, Copenhagen, 1839; and I am indebted to Mr Anderson for the following translation, or rather abstract of the communication :—

“The Asiatic Society of Calcutta in Bengal, along with a letter from its Secretary, the Hon. J. Prinsep, have transmitted to the Society of Northern Antiquaries two specimens of ancient copper weapons, found at a landslip near the village of Nioräi, in the province of Etäweh, between the rivers Ganges and Jumna in the interior of Hindostan.

“The first of these is a sword blade, or broad sword (23 tommers in length), with a peculiar projecting hook on one side of the tang, or handle part of the weapon. The second weapon is a spear or javelin head (14 tommers long), very massively moulded, fashioned for insertion in a shaft, where there might be fastenings to the outstanding hooks. The points of the latter are worn off. Weapons of this form are frequently dug up in the neighbourhood of the Hindoo towns Mathura and Bindráband, and the natives consider them to be of the kind used in the Mahábhárata war celebrated in the famous Sanscrit Epos. This, however, Mr Prinsep considers somewhat doubtful, because the Mahábhárata poem expressly mentions steel weapons.

“The presumption of the high antiquity of these objects is very strong. They are well wrought, have a fitness for their purpose, and the artificer has not been sparing of the metal, of which it may be judged that the Indian race had an abundant supply. In the meantime the following circumstances point to a far distant age ;—first, the form and simplicity of the sword-like weapon ; and, second, the material of which they are both made. This material has been found (by a chemical analysis, to which it has been submitted by Professor Forchhammer) to be very good and pure copper, with nearly nothing, or very little, of an admixture of tin, or possibly of some other substance found therein. The addition of tin, whereby bronze is produced, was an improvement which was very early employed with weapons of copper, for the purpose of hardening them. Here, in the North, we have never found swords, but only celts and

palstaves made of pure copper, and these may be taken to have either belonged to a very early period, or to the less wealthy." Page 12, &c.

The figure of the spear-head accompanying this communication shows a weapon very much resembling the one I have figured and described. It has a blade part in front which terminates in barbs, behind which are three small and much worn projecting points springing from each side of the prolonged mid-rib of the weapon, which also terminates in a tapering posterior extremity. The blade part of this spear head is a little longer in proportion to the rest of the weapon than in the one I have described, but the projecting points, although they are much worn away, apparently correspond exactly both in number and character to the barbs and stop of the one found on the banks of the Tweed at Norham. The only difference being that there is no circular perforation through it as in the Scottish bronze—at least none is figured or described.

This Indian weapon is, therefore, of much interest, and it is curious to observe that no similar specimen has apparently been found in the north of Europe, at least none appears to be known to the Northern Antiquaries. The Indian weapons are stated, in the communication I have quoted, to be both formed of nearly pure copper, and this Indian spear-head from Bengal, being the only one I have been able to discover at all corresponding to that found on the banks of the Tweed; it occurred to me that it was possible I might have been mistaken in considering the latter to be formed of a reddish-coloured bronze. Accordingly I requested Dr Stevenson Macadam, who is always most obliging in making an analysis of any object of interest, and indeed has already analysed various ancient bronzes for the benefit of the Society, to make a careful examination of this bronze; and Dr Macadam has favoured me with the subjoined note, which shows that the Scottish weapon is really a true bronze, and not like its Indian representative, formed of nearly pure copper.

On comparing Dr Macadam's analysis given below, with those of other ancient bronzes, it would appear that this Scots bronze agrees more nearly in its chemical constitution with the class of bronze compounds found in Great Britain and Ireland, than with those found on the Continent of Europe, and this may so far be taken as a proof of its being of British manufacture. The proportion of copper in the British bronzes being generally large, and of tin and lead very small, whereas many of those

found on the Continent, contrary to what might have been expected, appear to have a larger relative proportion of tin and of lead. (See a learned communication by J. E. Wogel, "Kelternes, Germanernes, og Slavernes Bronzer, En Archæologisk Parallel," published in the Antiquarisk Tidsskrift of the Royal Northern Society of Antiquaries, Copenhagen, 1854.

"ANALYTICAL LABORATORY, SURGEONS' HALL.

"The bronze implement found near Norham, which you sent me ten days ago, has the following chemical composition:—

Copper,	.	.	.	91.12
Tin,	.	.	.	7.97
Lead,	.	.	.	0.77
Loss,	.	.	.	0.14
————				100.00

"These proportions indicate a hard bronze capable of taking and retaining a somewhat fine edge, which would be specially serviceable in a defensive arm or cutting instrument. If the barbs were not so far turned in, the implement would form the head of a very formidable instrument for spearing salmon."

My friend Dr John Anderson, Curator of the Imperial Museum, and Professor of Comparative Anatomy, Calcutta, who is at present in this country, has been good enough to furnish me with the following notes of another and similar barbed weapon in the great Indian Museum:—

"I have carefully examined the spear-head from the banks of the Tweed at Norham, and find that it agrees in size and in the number of its barbs with a weapon in the Indian Museum, Calcutta, found, as far as I can remember, speaking without my notes, in the North-West Provinces of India, with this difference, however, that the two pairs of barbs beyond the circular perforation are not reflected, but are shorter than in the Norham specimen, and bear the appearance as if their points had been broken off, which Prinsep also remarks of the specimen transmitted to the Society of Northern Antiquaries. The only difference between the Calcutta weapon and the spear-head in the Copenhagen Museum is the

presence in the former of a circular perforation corresponding in position to the one in the Norham specimen. Mr Anderson, of your Museum, mentioned to me that this perforation was completely obscured in the latter when it was received, but was detected and cleared out by him. It is probable that a careful examination will discover a similar perforation in the Copenhagen weapon. My distinct impression is that an analysis of the Calcutta weapon yielded a result similar to that of Professor Forchhammer's. The weapon in the Calcutta Museum is, as far as I am aware, the only one in India.

It may prove interesting to mention that the fishermen of the Ganges use a long lance or harpoon with a barbed head of hardened wood or bone, which is let into a socket at the end of the shaft, to which it is attached by a cord, which becomes disentangled when the animal is struck. These harpoons are used for spearing *Trionyx gangeticus*. In a walk along the banks of the Hooghley, below Calcutta, one may see, on the deep and sluggish parts of the river, *domes* intently watching, spear in hand, from their small boats the uprising of a tortoise. No sooner does the head of one of these reptiles appear above the murky water than the javelin is thrown with great dexterity, seldom missing its mark. I have myself, with one of these spears, harpooned a large specimen of the cetacean, *Platanista gangetica*.

If this bronze is really a harpoon head, it would appear to be more suitable for spearing such large reptiles as *Crocodylus palustris* or *Gavialis gangeticus* than for spearing fish."
