SOCKETED AND LOOPED IRON AXES FROM THE BRITISH ISLES

By HERBERT N. RAINBOW

The discovery, on the low-tide beach of the Thames near Isleworth, of a socketed and looped axe made of iron instead of the usual bronze, has prompted the writer to make enquiries for records of other iron axes of the same age for the sake of comparison and study.

It was found that the British Museum possessed three specimens and the London Museum another three, four of these coming likewise from the Thames, but enquiries of the various archaeological societies and museums throughout the British Isles elicited information of but four others, a total of only eleven. Possibly other specimens exist in private collections, and the writer would be very grateful for information of such, in order that a complete record may be compiled.

The axes are inevitably very much corroded, the one found by the writer having a specific gravity exactly that of iron oxide, proving that the condition of the original metal has been completely changed to the corroded condition. Illustrations of each of the eleven specimens are here reproduced to a common scale (Pl. i).

The axe from Traprain Law, no. 9, illustrates best the characteristic features common to all, which may be described thus :—the axe consists of a hollow iron body of oval section at the open mouth-end, which is strengthened with a narrow bead, the body tapering to the closed end, where a cutting edge is hammered down, slightly broader than the maximum width of oval. It also has a loop formed or attached at a distance from the open end of about one quarter of the total length, the length being about three times the maximum width.

These features distinguish the British axes quite definitely from the types familiar on the Continent, which

are comparatively long in proportion to their breadth and are usually better finished. The type known as 'Hallstatt D' is long and slender and frequently has a loop in the form of a small eyelet on the bead at the mouth (Fig. 1).[1]

One's first impression on seeing these eleven specimens all together is probably that of their general similarity. This is the more remarkable when one considers any collection of bronze axes, where it will be found that perhaps not two in twelve will be even similar and not two in fifty cast from the same mould. But in the case of forged iron,

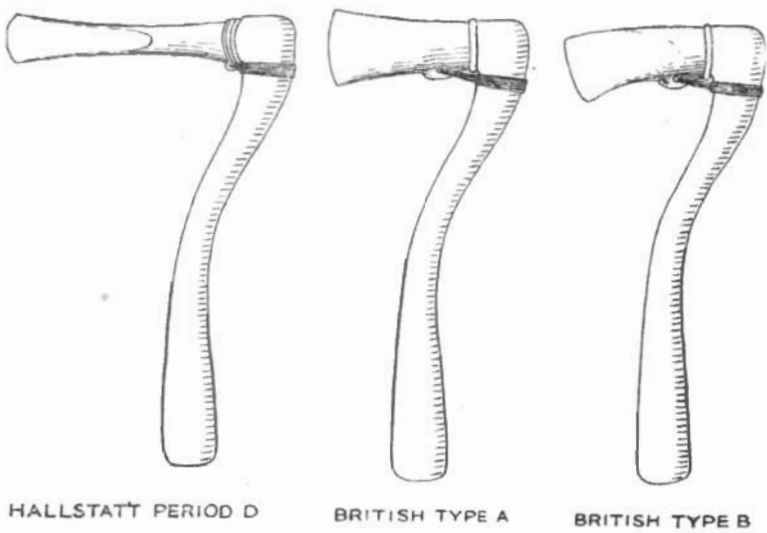


FIG. 1.

TYPES OF SOCKETED IRON AXES

the similarity (except for size) is largely due to the method of construction, so that the interest of these specimens lies rather in their differences, small though they may be.

One obvious difference is that, whereas nos. 4, 5, 8, 9 and 10 show the broadening of the cutting edge symmetrical with the body (Fig. 1, A), the remainder droop or broaden downwards (Fig. 1, B) in such a manner as to produce a more useful and practical tool than the straight and slender

[1] See *Archiv für Anthropologie*, New Ser. iii (1905), Fig. viii, 19; and Sacken, *Das Grabfeld von Hallstatt*, p. 41, Pl. vii, 19.

type of 'Hallstatt D.' The formation of the loop also shows an interesting variation. The axes are all so much corroded that the method of construction is unrecognisable in most of them, but nos. 6 and 7 are preserved well enough to exhibit two different methods of producing the loop.

In no. 6 the loop was forged separately, of channel section, with ends splayed for welding to the body. When found, this axe was more crusted with scale even than no. 5, but careful treatment in distilled water gradually reduced the scale until, the loop being cleared, its construction was plainly revealed. The writer had similar axes forged by a skilled blacksmith and thereby proved that it was no easy matter to weld on the small loop. It required a pure quality of iron to effect the weld, and very skilful judgment to bring both loop and body to the exact temperature necessary for successful welding. The writer witnessed an expert smith repeatedly failing to accomplish this.

In axe no. 7 there is a large hole in the body under the loop, which strongly suggests that the loop was pressed up from the metal of the body. Probably longitudinal gashes were first cut to define the loop, and then, after heating, it was forced up from inside.

A third method, suggested by no. 2, may have been the production of a loop by pinching up the metal on the body and piercing the lug thus formed.

An interesting feature of these socketed iron axes from England, Scotland and Ireland is their general similarity to one another and their marked difference from the Continental types. They seem, in fact, to indicate an indigenous British industry. Their close resemblance to the bronze socketed axe in its latest phase makes it clear that they were primitive efforts to produce, in the newly-discovered metal, tools of the same form as tradition had proved most useful and practical in bronze, regardless of the unsuitability of the material and of the difficulty of manufacture. The wonder is that, at so early a stage in the use of iron, the craftsman could have produced at all a forging that required considerable skill, well-refined metal and good tools.

Yet, in spite of this skill, the rarity of the new iron axes seems to imply that they were unsatisfactory in use.

Various factors may have contributed to this result. It is possible that the nearly pure iron required for their manufacture was too soft to be really serviceable.[1] It may have been softer at the edge than the bronze axes, which generations of production had evolved to an excellent quality, further hardened by hammering—a treatment which would be ineffectual on iron. But it might be expected that any disadvantage in this would be balanced by the greater toughness and unbreakability of the iron.

A second possible factor in the failure of the type may have been the expense of the new material. In view, however, of the fact that iron in some form eventually displaced bronze, this could not for long have been a decisive reason. A far more likely reason is expense of manufacture. The bronze socketed axe, cast in its mould, had been relatively easy to produce, whilst on the other hand the iron hatchet of the La Tène period—the prototype of our modern hatchet—was similarly suitable for mass-production in iron. But the iron socketed axe represented a laborious effort to translate a type appropriate to bronze into a foreign and unsuitable material. The result must have been costly and often unsatisfactory, and was not therefore likely long to survive the older tradition of craftsmanship.

The transitional character of the technique of these axes carries with it a general implication as to their date, namely, the transition-period between the Bronze and Early Iron Ages (say, between 700 and 400 B.C.). No certain collateral evidence for dating, however, has yet been observed with them. On Cold Kitchen Hill in Wiltshire, no. 7 (Pl. i) was found in disturbed soil in conjunction with a large quantity of iron, bronze and bone tools, etc., ranging from the La Tène I period (fifth or fourth century B.C.) to the end of the Roman era. Another (no. 9) was found on the Scottish site of Traprain Law, which was occupied from the Bronze Age until the fourth or fifth century A.D. But these examples are in neither case from closely stratified deposits, and do not therefore really help the chronology of the type.

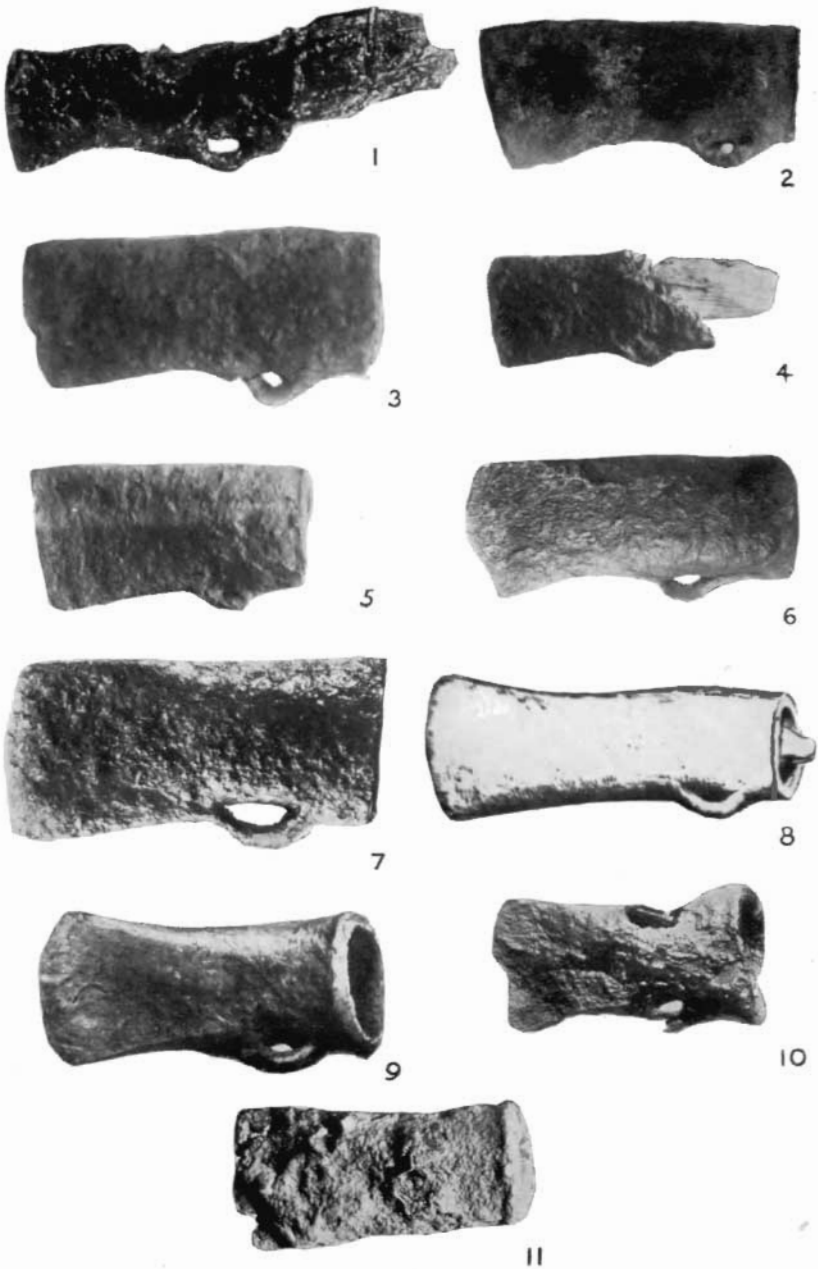
Finally, it is worth noting that, of the dozen known

[1] Pure iron is rarely used nowadays, most of the material commonly called 'iron' being in reality a grade of steel.

specimens, six come the Thames or its tributaries below Richmond. On the other hand, this coincidence should not be allowed to weigh unduly in an estimate of the distribution of the series, in view of the two facts that (a) the river-bed is especially suitable for the preservation of iron objects, and (b) that the river below Richmond has been intensively dredged in recent times. The large proportion of iron axes recovered from the lower Thames may be due wholly or largely to these exceptional factors.

List of Iron Socketed Axes (Pl. i)

1. Found on the summit of the Berwyn Mountains in Merionethshire. Length 4·4 in. Width of cutting edge 2·0 in. Ridged loop 0·4 in. wide. Weight 8·5 oz. Retains part of wooden haft. Now in the British Museum. See *Archaeologia Cambrensis* 1855, p. 250 and 1879, p. 2; better illustrated in R. E. M. Wheeler, *Prehistoric and Roman Wales*, p. 202.
2. Found at Walthamstow, Essex. Length 5·0 in. Width of cutting edge 2·3 in. Channelled loop 0·6 in. wide. Weight 18·4 oz. Now in the British Museum. See *Brit. Mus. Early Iron Age Guide* (1925), 87.
3. Found in the Thames opposite the Tate Gallery on the Middlesex side. Length 5·6 in. Width of cutting edge 2·5 in. Loop 0·6 in. wide, much corroded. Weight 18·5 oz. Now in the British Museum, from the Greenwell Collection.
4. Found in the Thames at Mortlake. Length 3·5 (incomplete). Width of cutting edge 1·6 in. Channelled loop 0·5 in. wide. Weight 5 oz. Now in the London Museum.
5. Found in the Thames at Kew. Length 4·25 in. Width of cutting edge 2·2 in. Ridged loop 0·5 in. wide. Weight 12·5 oz. Now in the London Museum.
6. Found by the writer in July, 1921, on the low-tide beach of the Thames near "Old England," between Isleworth and Brentford, close to the spot where excavation has revealed remains of Hallstatt and later periods (see R. E. M. Wheeler, in *Antiquity* iii, 20). Near the



IRON SOCKETED AXES FROM THE BRITISH ISLES (about $\frac{1}{3}$)

same place the writer has also found, at various times, a "Thames pick" of flint, a polished stone axe, a perforated deer-horn pick, an antler pick, Roman tiles and potsherds, and a Saxon spear-head. Length 5·0 in. Width of cutting edge 2·2 in. Channelled loop 0·5 in. welded on. Weight 14 oz.

7. Found on Cold Kitchen Hill, Brixton Deverill, by R. Nan Kivell, in whose possession it lies. Length 5·6 in. Width of cutting edge 2·75 in. Ridged loop 0·62 in. wide. Weight 18 oz. See *Wiltshire Archaeological Magazine*, vol. xliii, no. cxliii (1925), 190.
8. Found in a crannog in Lough Mourne, Ireland. Present location unknown. Seen and sketched by Canon Grainger about 1883. Length 5·8 in. Width of cutting edge 2·3 in. Ridged loop (?). See *Journ. of the Royal Society of Ireland*, lviii (1898), 237.
9. Found on Traprain Law, Scotland. Length 5·25 in. Width of cutting edge 2·5 in. Now in the National Museum of Antiquities, Edinburgh. See *Proceedings of the Society of Antiquaries of Scotland*, lvi, 217, Fig. 17.
10. Found in Culbin Sands, Morayshire, Scotland. Length 4·0 in. Width of cutting edge 2·13 in. Loop fragmentary. Weight: of no consequence, since the specimen is a mere shell. Now in the National Museum of Antiquities, Edinburgh.
11. Found in the Thames at Mortlake. Length 4·15 in. Width of cutting edge 2·2 in. Loop missing, but it may have been lost from a bad weld. The specimen is much encrusted. Now in the London Museum.

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