

# Viking Stirrups from England and their Background

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*THE SO-CALLED VIKING STIRRUPS are the earliest appearance of this important piece of riding equipment in Britain. It is argued, from a distribution of known find-spots, that they were not introduced by the Scandinavian settlers of the 9th century but are more likely to relate to the ravaging of the war bands led by Olaf Trygvasson, Sweyn Forkbeard and Cnut the Great during the reign of Aethelraed. Two distinctive British classes emerge, derived from north European types, suggesting that they were already being made in this country.*

*This paper is the result of research undertaken by Bill Seaby from the late 1940s and continued to the present time by Paul Woodfield.*

Iron stirrups, many large and decorated with silver or brass wire patterns, have for many years constituted a group of stray finds from Britain that has attracted little attention from archaeologists and art historians. This is partly due to their comparative isolation from better known art and metalwork techniques, and partly due to their general absence from excavated and documented burials and habitation sites.

It is the purpose of this paper to consider these stirrups in greater detail than has hitherto been attempted, setting them against a wider background; and to put forward one tentative explanation for their occurrence and distribution in Britain.

## EARLY HISTORY

Stirrups as specially designed metal footrests were a comparatively late development in the history of equitation. The English word itself stems from the Anglo-Saxon *stirap* or *stigrap* (*stigan* — to mount; *rap* — a rope) and indicates, as does the French *étrier* (from Old High German *estriſa* — a strap of leather), that the early form was usually of material less permanent than metal.

The domesticated horse, it has been suggested,<sup>1</sup> first made its mark on the west by facilitating the rapid spread of the Battle Axe culture through Europe. Clarke

has, however, pointed out<sup>2</sup> that in the absence of representational art there is insufficient evidence at present for the riding of horses before the Iron Age, and only with the appearance of prick spurs in La Tène I<sup>3</sup> and their development into several forms by La Tène III can riding as a regular feature of life be confirmed.

The origin of the stirrup has been discussed at length by various scholars, in particular Hampel,<sup>4</sup> Schlieben,<sup>5</sup> Zschille and Forrer,<sup>6</sup> Reinecke,<sup>7</sup> Joep,<sup>8</sup> and White,<sup>9</sup> and it is not proposed to enter into the polemics of the subject in this paper except by way of comment. It seems that a clear view on the evolution and transmittance of the stirrup must await further archaeological or representational evidence from central and east Europe.

Representations of some kinds of foot support for use in mounting or riding appear first in the north of the Indian subcontinent in the last centuries B.C. and take the form of saddle hooks,<sup>10</sup> or toe stirrups, but at present it remains unclear whether these devices have any direct bearing on the emergence of the metal foot stirrup proper, which in that area does not appear until very much later, the 10th century.<sup>11</sup>

The first true stirrups appear in Chin dynasty tomb figures from Hunan<sup>12</sup> and their regular use is confirmed in a reference in Chinese literature dated to A.D. 447. This reference incidentally also states that they were unknown in the Han period, ending around A.D. 220. Chinese stelae exist in numbers portraying the stirrup, the earliest from A.D. 523<sup>13</sup> and continuing through the 6th and 7th centuries.<sup>14</sup> From China the knowledge of the stirrup spread rapidly to Korea, and thence to Japan where it was known by the mid 6th century.

In the west the picture is rather more confused. Leather sling supports for the feet were apparently used by Scythians<sup>15</sup> before the 3rd century A.D. but these perishable materials normally leave no archaeological record, and the innumerable representations from the classical world give no hint that the feet did other than grasp the flanks of the horse. More significant however is their absence from the rich Scythian and indeed the well-preserved perishable Pazyryk grave goods although it cannot be conclusively argued *e silentio* that some form of foot stirrup was unknown to these horse-orientated peoples of the high steppes.<sup>16</sup> Indeed, metal stirrups have been found in Siberian graves,<sup>17</sup> perhaps only deposited as booty, dating as far back as the 3rd or 2nd centuries A.D.; and this evidence, paralleled with the rapid dispersion in east Asia, makes Kiseler's 6th century dating of stirrups from Turkic graves in the Altai not at all improbable.<sup>18</sup> With the bitter and frequent conflicts between the Tsin and East Tsin dynasties and the nomadic Huns in the 4th century, and the subsequent troubles between these same peoples and eastern Europe in the 5th, it would not be surprising if the knowledge of the use and benefit of the stirrup is eventually demonstrated as having spread from China through central Asia to the boundaries of eastern Europe by the 5th century A.D.

In Europe itself, the first appearance of the stirrup, as has often been repeated, is amongst the Avars who arrived in Dacia from the Don basin in 556 and were to replace the Lombards in Pannonia in 568. The first incidence cannot at present be dated earlier than the first half of the 7th century and the question must remain open whether the stirrup arrived with them, or was in fact carried to Europe by a

succeeding folk movement from the central Asian region.<sup>19</sup> The peoples with whom the Avars came into contact in Europe, the Slavs to the north, seem to have had the stirrup by the same date.<sup>20</sup> To the south the Empire of Byzantium despite, or perhaps because of, the employment of Avars as mercenaries after 556, does not seem to have made use of the stirrup until later, the first reference being to 'iron stirrups' in a military manual<sup>21</sup> dated either at face value to 582–602 or, according to some scholars,<sup>22</sup> in the early 8th century. The Eastern Empire may, of course, have become acquainted with the stirrup from other wide contacts, by trade, or more likely directly from the Persians, who had the stirrup by 690. The Byzantines may even have learned the use of the stirrup from their Arab enemies, who themselves changed from straps with wooden treads to those of iron as a result of the campaign of Al Muhallab bin Abi Sufra in Persia in 694.<sup>23</sup> White's gloss<sup>24</sup> on this reference that metal stirrups could not drag an unseated rider as do wood and leather ones may be something of an oversimplification of the situation.

In North-West Europe a significant representation is that of the equestrian Emperor Constantine using stirrups, which appears as an ivory relief in the sacristy of Aachen Cathedral and dated to the later 6th century.<sup>25</sup> If this dating is correct, then although anachronistic in conception, it must be the earliest depiction of the stirrup in the west, though the date of its arrival at Aachen remains open. By the 8th century the stirrup cannot have been unknown to the Franks, for their neighbours the Alemanni were interring such with burials of pre-700 at Pfalheim, Oettingen and elsewhere.<sup>26</sup>

Later, in 761, Pepin the Short gave a Byzantine reliquary cloth<sup>27</sup> depicting a bestirrupped Emperor hunting lions to the tomb of St Austremoine in Mozac. It is of course possible for a successful people to be in frequent contact with a cultural innovation without feeling the need to adopt it or indeed even to appreciate its potential, and the absence of stirrups from true Frankish contexts supports this possibility. By 800 however the stirrup is clearly illustrated four times in the Apocalypse of Valenciennes<sup>28</sup> from the middle Rhine region, and we may assume that by the 9th century the stirrup had been adopted in the Carolingian Empire.

To this extent then the archaeological and epigraphic evidence accords with the traditionally held view<sup>29</sup> that the stirrup was first appreciated and adopted by Charles Martel in his drastic reorganization of the army at or about the time of his victory over the muslim berbers at Poitiers, 732–33. Perhaps this is due to some extent to his drafting in cavalry from the Alemanni, whom he had overcome some three or four years earlier in the defence of the mayoralty, the *regnum Francorum* and Christianity.

The earliest forms of the metal stirrup are of considerable interest in that they embody morphologically the construction of wood, rope and leather forms. The simple mounting loop appears translated into a metal form in a 9th-century finely decorated stirrup in the Zschille collection, probably originating in Hungary; and a similar inlaid stirrup from the Loire is preserved in the Musée Dobrée, Nantes. The persistence of this form may be illustrated by an English example, Inventory No. 6 from London, now in the Museum of London. The form of the timber tread set between two loose split thongs and firmly bound to them may well be fossilized

in the prominent bosses at the ends of the bow, representing knots, in a number of English examples. The alternative method of inserting a wooden tread into a continuous strap is probably represented by the persistent reinforcing bar which appears in many European and indeed in some Far Eastern examples.<sup>30</sup> Four English examples have the bar twisted resembling a rope.<sup>31</sup>

Thus the metamorphosis to metal forms can be particularly well seen in the stirrups of North Europe and Britain, suggesting that one or more of the early forms have parallel development with those of Hungary, rather than being derived solely from the latter region.

### DEVELOPMENT IN CENTRAL EUROPE

The development of the stirrup in Hungary is already well documented. The type used by the Avars in the 7th and 8th centuries is classed as Type 'A' by Hampel.<sup>32</sup> The bow is generally circular, and triangular in section; it is surmounted by a rectangular loop set in the same plane and having a corresponding rectangular slot through which passed the leathers. The tread is flattened and widened and has a reinforcing rib on the underside. An example of this type has been found in England, in London, and is now in the Museum of London (Inv. No. 8). Hampel's Type 'B' is simpler. Here the suspension loop is formed by a constriction of the upper part of the bow to form a small loop. Such stirrups were also common among the Slavs at about the same period.

Type 'C' either developed from Type 'B' in the Hungarian plains during the 8th and 9th centuries, or was introduced from the north-east. The arms are bowed out into a horseshoe shape and the tread is flattened and beaten up a little above the ends of the arms, or is rivetted in as a separate piece. Later examples of this type, which is well represented at such sites as Kiš Dobra, have the arms brought in to form a pointed arch, the suspension loop hammered out into a large wide rectangle and the tread flattened or bowed slightly upwards. Either the stirrup was fixed hinge-wise onto a specially contrived strap plate rivetted to the end of the leather, or a wide strap or sling passed through the suspension loop and was buckled to the saddle. Such development parallels that found in North-West Europe.

Hungarian Type 'D' is a development of the Avar form Type 'A', and is characteristic of the Magyars of the 10th and 11th centuries. The bow is of a simpler triangular shape, with arms of a flattened triangular section spreading to a broad convexly curved tread. The suspension loop is a narrow oblong slit cut into the deep apex at the junction of the arms. Related stirrups have been found in Germany, and it is more than probable that this form is the prototype for the late Saxo-Norman stirrup found in England.<sup>33</sup>

In all Hungarian forms the suspension loop is always in the same plane as the bow, and in many cases the reinforcement rib under the tread extends a considerable distance up the arms.

### DEVELOPMENT IN NORTH EUROPE

In Scandinavia, investigations into the typology and development of the stirrup have been carried out by Brøndsted,<sup>34</sup> Blomqvist,<sup>35</sup> Petersen,<sup>36</sup> Grieg,<sup>37</sup> and

Jonsson.<sup>38</sup> Two major types are discerned, and from these, by the development and fusion of different elements, some almost certainly of central European origin, most other types were evolved.

The first main type, referred to here for convenience as Scandinavian Type 1, appears to owe little to Hungarian forms. It consists of a simple iron sling broadened and flattened at the base, with arms of circular section curving outwards and round to make the bow. The loop, formed by a simple twist of the arms, is always set at right angles to the plane of the bow. Two varieties occur, (a) where the bow is low and 'D'-shaped, and (b) where the bow is elongated like a pointed arch. This type appears dated to the 8th century in Vendel grave III in Sweden. Examples of Type 1a have appeared in England at Standlake, Oxfordshire (Inv. No. 2) and at York where Waterman<sup>39</sup> has proposed an 11th-century date. The type is generally without decoration, although rather similar ones found in graves dated to the 9th century at Ditsmarschen and from elsewhere in Germany<sup>40</sup> are inlaid with silver wire on the iron in a pattern reminiscent of the twisted strands of a rope.<sup>41</sup> This feature, together with the radically different setting of the loop, suggests that such

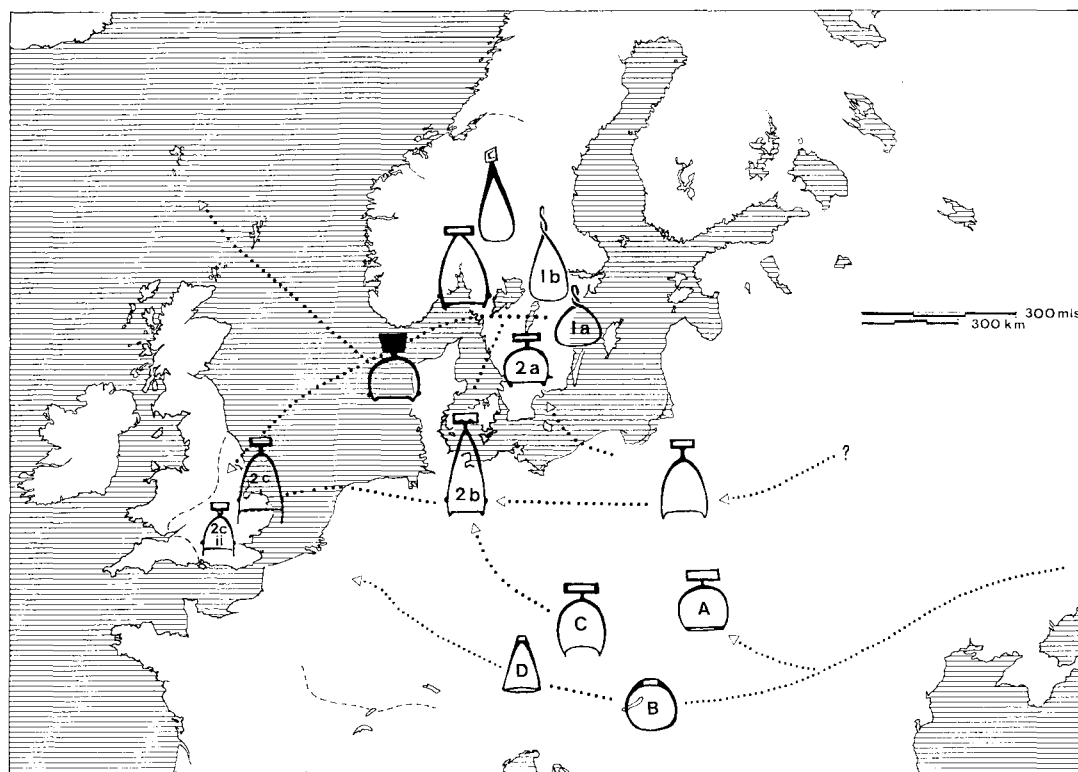


FIG. 1  
The evolution of stirrup forms in Europe

stirrups were evolved as direct copies of rope or leather slings and not directly taken from the more advanced forms current in Hungary and further east at the same period, the 8th and 9th centuries. In view of this the damaged example in the Museum of London (Inv. No. 6) may well have been brought to England from northern Europe.

The second principal type in North Europe has, as its most characteristic feature, a pronounced rectangular suspension loop set in the same plane as the bow, as found amongst the Hungarian examples. This appears in two forms which seem to develop independently at first and later fuse to give the highly conventionalized decorated stirrup predominantly centred in Denmark and England during the later 10th and 11th centuries. One pattern, termed here 2a, is short with an almost semi-circular arched bow, and having treads wide and upfolded within the arms of the bow. These widened ends of the arms take the form of inverted escutcheon-shaped plates with bosses situated at one or both sides of the junction of arm with plate. A further boss is sometimes found at the junction of the bow and loop.

Several stirrups of this type occur in the grave field at Tuna, Alsike and have already been described in detail by Dr Arné.<sup>42</sup> It would appear probable that the form owes its origin in part to the Hungarian stirrup Type 'C', although it has been suggested that the source may be looked for not in Hungary but among other horse-riding peoples further east;<sup>43</sup> not only does it occur commonly at Tuna, Birka and elsewhere in Sweden, in Norway, Denmark and in England, but highly developed examples occur in Russia and Finland, to which areas it is more difficult to explain a dispersal from the Hungarian plains. It will however be recalled that Sweden was at that time developing trade routes through Russia to the south.

In England, the only example that has yet appeared is a fine stirrup from York (Inv. No. 7) which has an emphasized loop, overlaid with bronze plating on the lower bar; it is set, perhaps fortuitously, at a slight angle to the bow. A wide knob occurs on one side, and another may also have been present on the opposite side where severe damage now obscures the original shape. A noteworthy feature of this specimen is that the arms of the bow have been cut away at regular intervals on the front face to provide a series of flat surfaces for a further application of thin bronze plate. Such elaborate decoration suggests that the stirrup is not quite as early in date as its general Scandinavian form would indicate. Waterman has likened its shape to a stirrup from the Tuna gravefield, and noted that the technique of decoration has its parallels in Denmark.

A second form, 2b, which may be termed the North European stirrup, as distinct from Scandinavian, is a graceful attenuated shape with a high pointed arch, lobes or bosses at the junction of the arms and side plates, and a strengthening rib continued down across the side plates, perhaps preserving a memory of the arms forming a continuous loop under the tread. The tread is usually set high in the arch by the upfolding of the side plates, and bands of silver wire or sheet inlay decorate the neck and side bosses (Fig. 5).

Undecorated examples of this type have been dated to the second half of the 10th century in Sweden at the remarkable boat-burial cemetery at Valsgärde, Uppland,<sup>44</sup> and to the beginning of the 11th century at the cemetery at Lutomiensk,

Poland.<sup>45</sup> Representatives of this class in Britain have been found at Finedon, Northants. (Inv. No. 11) and another in the Ransom collection in Cambridge (Inv. No. 10), possibly from Hertfordshire. Another, smaller and less elegant, and with the rib continuation over the plates only commemorated by a streak of silver overlay was recovered from the R. Lea at West Ham, and has every feeling of being a local copy (Inv. No. 12). In Scandinavia where other varieties occur, the type is not as widespread or as common as those previously described, and the possibility of this class being an early insular form should be borne in mind.

One distinct form which appears to be a specialized later Scandinavian development derived from Scandinavian 2a has, in addition to the normal semi-circular-shaped bow, a decorated trapezoidal 'strap plate' in place of the suspension loop. The plate is usually pierced with four or five small holes by which it was rivetted either to another metal plate clasping a leather strap, or directly to the leather itself, the inference being that the strap was free-ended and not looped. Side bosses are usually small, and the strong horizontal tread is set only a fraction above the ends of the arms. Examples occur mostly in Denmark, but one in Sweden came from a barrow in Södermanland, another from an 11th-century grave at Köping, Västmanland; others are from Norway and three from Iceland.<sup>46</sup> These last are surprisingly the only metal stirrups associated with the Vikings yet known from that country. One fine bronze example occurs in Britain near Romsey, Hampshire (Inv. No. 9). The decoration of the plate is noticeably similar to one of the Icelandic examples, and has been described by Kendrick as reminiscent of the Urnes style; he suggests the stirrup is an 11th-century import into Britain, probably from Denmark. In the absence of further examples there seems no basis for assuming that this type of stirrup developed in England.<sup>47</sup> In fact, it may well owe its origin to the use of ornamental stirrup attachment plates fastened to the leather straps and slotted into the rectangular loops of certain stirrups of Type 2, the classic example being the pair from a grave at Velds, Orum, Denmark, which Wilson now claims as late Saxon workmanship.<sup>48</sup>

A similar trapezoidal copper alloy plate with four rivet holes and incised design inlaid with a lead solder was recovered from a Christian burial at Waltham Cross, Essex in 1976.<sup>49</sup> The rather crudely executed design is clearly derived from the Romsey and Scandinavian prototypes. This plate is too small to be a stirrup plate of the Velds type, and a small projection at the rear of the narrow end might indicate that it is a horse-bit plate of the type discussed by Rygh.<sup>50</sup>

Perhaps an intermediate form between the strap plate and the normal suspension loop is seen in the horseshoe-shaped stirrup from Stange, Hedmark, Norway (University Museum Cat. No. 10793), which has the rectangular suspension loop pierced with two holes, although it could indicate that this particular example was adapted for suspension by thongs. The stirrup also bears traces of inlay in the form of an interlace pattern on the side plates, decoration being rare in Norway. Again, a further intermediate variation between the pierced and slotted loop, this time on a 2b stirrup with silver inlay, was discovered at Brandstrup, Jutland;<sup>51</sup> it has vertical projections extending from the lower bar of what is otherwise a perfectly normal rectangular loop, incompletely dividing the slot into four piercings.

An unusual and probably late local form, occurring in South Germany with parallels in Hungary, has a swivel neck and a rhomboidal loop with animal-head terminals.<sup>53</sup>

Generally, it might be inferred that rope and leather, sometimes in combination with wood, may well have continued for centuries in the west and north after these materials had been replaced by bronze and iron in the eastern plains. Delay in the employment of iron forms in the west and north may have been occasioned, not so much by a lack of knowledge of the advantages in employing a metal stirrup, as by a shortage of iron for all but the more essential weapons and tools.

The various types of stirrup in North-West Europe already described would seem to co-exist from the 9th century onwards, and the results of certain fusions are apparent. One type, common in Norway, seems to be a development of Scandinavian Type 1. It preserves the simple sling shape without footplates, and the setting of the loop at right angles, but the loop itself is a rectangular plate with a slot instead of a twist at the bow. Decoration is usually present in the form of horizontal inlaid bands of silver wire. Although this type has not yet with certainty been found in Britain, one stirrup which seems to be a derivative is now in the Ashmolean Museum (Inv. No. 5). Here the ninety-degree setting of the loop is retained, and the arms, instead of connecting directly to the lower bar of the loop, are detailed off by a spherical boss. This stirrup is unfortunately without provenance or number, but it may be that referred to in the 1685 Catalogue as '*Calcar et Stapes*<sup>53</sup> *Danicus ex dono Christoph White*' (Entry B. 453 in Dr Plot's hand). It is tantalizing to reflect whether Danish antiquities dug up in Britain were so easily recognized as such in the 17th century, or whether the stirrup had then recently been found in Denmark and brought over to England. A further line of development is indicated by a stirrup from Gudbrandsdalen farmstead, Norway, in the Oslo University Museum. The tread in this case is still obviously continuous with the arms, but the widening is carried up the arms as side plates which, like the arms, are decorated with interlace. The small rectangular loop is still found set at ninety degrees.

In Britain, apart from those finds already discussed, the type which appears in the Viking period is a coarser version of the elongated Scandinavian Type 2b and conveniently referred to as 2c. It is also known in Sweden and elsewhere, although rare, and appears to be somewhat later in date than 2b.<sup>54</sup> The loop retains the typical rectangular Avar shape, but the bow is shorter and wider. The arms are usually of triangular section and continue outwards in parabolic form, terminating in large emphasized knobs and wide sideplates. The upfolding of the beaten-out arms to form the tread is often difficult to distinguish; in most cases it would seem that the tread has been separately inserted into the bow.

### DISTRIBUTION IN EUROPE

Stirrups associated with the Vikings are not limited to Scandinavia and England. They have also been found in Germany, where they are not common, as far south as La Sauge, Neuchâtel in Switzerland, in France as far west as the Loire, and east into East Prussia where they seem to have persisted late into the 12th century in the pagan graves at Dolkheim.<sup>55</sup> The absence of all types, other than the strap plate



variation, from Iceland, a land otherwise rich in finds of the period, is significant. Among the 34 recorded specimens from the British Isles, none has been recovered from Ireland, Scotland or Highland Wales, the strictly Norse region of penetration in the 10th and 11th centuries. The significance of distribution in England will be discussed below.

### DECORATION

Over the European region two contrasting types of decoration applied to iron stirrups are apparent, one in which the iron is covered with sheet metal, silver and later brass, and secondly, where the decoration is applied as brass, silver or copper wire.

In Europe, the original form seems to be that employing silver sheet with impressed or stamped decoration and beaten over parts of the stirrup. The pair of Scandinavian 2c stirrups from Norsa, Västmanland, now in the Museum of National Antiquities, Stockholm, is so decorated. Silver decoration of this type, but without the impressed and stamped decoration, appears on two English finds, both of the North European 2b form, one from the R. Nene at Finedon, Northants (Inv. No. 11), and another from the Ransom collection now in Cambridge (Inv. No. 10), possibly a Hertfordshire find, while a third specimen from the R. Lea at West Ham (Inv. No. 12) bears silver inlay on the side plates preserving the continuity of the arms of the bow across the plates. This last stirrup shows, by its more insular lines, that the technique had its practitioners in England, and perhaps leads directly to the technically similar plating in bronze appearing on 12th-century stirrups (e.g. that found with Inv. Nos. 23 and 26).

Decoration of stirrups with silver, brass or copper wire occurs from the Avar period in Hungary to the latest period under consideration, the late 12th century in Britain. Early examples are: a stirrup attributed to the 8th century from Voro-smart, Hungary, with spiral inlay around the bow and on the facings, and a finely decorated example also from Hungary in the Zschille collection, dated to the 9th century.

Scandinavian Type 1 does not obviously lend itself to decoration, nor does Type 2 until it appears in its more developed forms. In Germany, however, the type generally bears decoration resembling the twisted strands of a rope. Type 2 occurs in decorated form widely, though sparingly, outside Denmark and Sweden, Norway having only two examples both bearing on bow and side plates an intersecting chain or guilloche pattern. Denmark has produced some of the finest examples of decorated stirrups from Velds, Fly and other sites in Jutland, and from Stengarde and Nørre Langelse in Langeland. This last find, now in the National Museum at Copenhagen, may be quoted as of particular interest in as far as a pair of stirrups, complete with attachment plates, a pair of spurs, a battle axe, sword and other riding gear were found associated in a large grave; all were similarly decorated with an interlocking ring guilloche, chevron and intertwining strapwork.<sup>56</sup> It is significant that the two attachment plates, similar in size and shape, differ in detailed decorative treatment. Although no decorated pair of stirrups has yet come to light in England, such dissimilar patterning tends to support evidence for certain anomalies found amongst

English examples: it may suggest that a pair, if and when found, could well differ individually in detail (see supplementary reference S. 23). The Nørre Langelse find also serves as a reminder that other similarly decorated riding gear might be expected to turn up in England; in fact, the fine spur from Canning Town, London, now in the Museum of London, is a good case in point.<sup>57</sup>

The somewhat stereotyped decoration of the English 2c group of stirrups would appear to be an insular development, although a possible parentage may be perceived in the decorated stirrups of Denmark, for instance, the stirrup from Fly. The only continental example bearing decoration in any way similar to the English group is an example in the National Historical Museum, Stockholm, found unprovenanced in Sweden.<sup>58</sup> On this stirrup, vestigial bosses are replaced by slight notches, and the strengthening ribs are highly developed, both of which suggest that the specimen is early; this point is somewhat offset by later features such as the welded tread and the highly conventionalized decoration.

On the English Type 2c stirrups, ornamentation is indeed remarkably uniform both in design and application. On the arms a returning scroll pattern extends the full length of both outer faces, while the knobs at neck and sides are usually covered with close-set parallel lines, so close sometimes that the knobs appear plated. Decoration on the suspension loop is usually confined to the front face of the lower bar where it takes the form of vertical, diagonal or horizontal parallel lines. The greatest scope to the craftsman was offered by the enlarged side plates, where scrolls are arranged in rough horizontal tiers and form, in the majority of cases, a more or less bi-symmetrical composition centred on vertical lines. Occasionally the front edge of the tread is found to be inlaid with a zigzag line and in one case (Inv. No. 14) the flanged edges of the loop. Most noticeable in this scheme of decoration is the limited extent to which the craftsman was prepared to vary the design, even to the extent of that shown on the Reffley Springs stirrup (Inv. No. 17).

The actual technique used in the decoration of Type 2 stirrups, including those with silver plate, although hitherto loosely described as inlay, is not in fact produced by any of the normal inlay processes. Specimens have been inspected by the late Herbert Maryon, the authority on craft techniques formerly at the Department of British and Medieval Antiquities at the British Museum. He comments as follows:

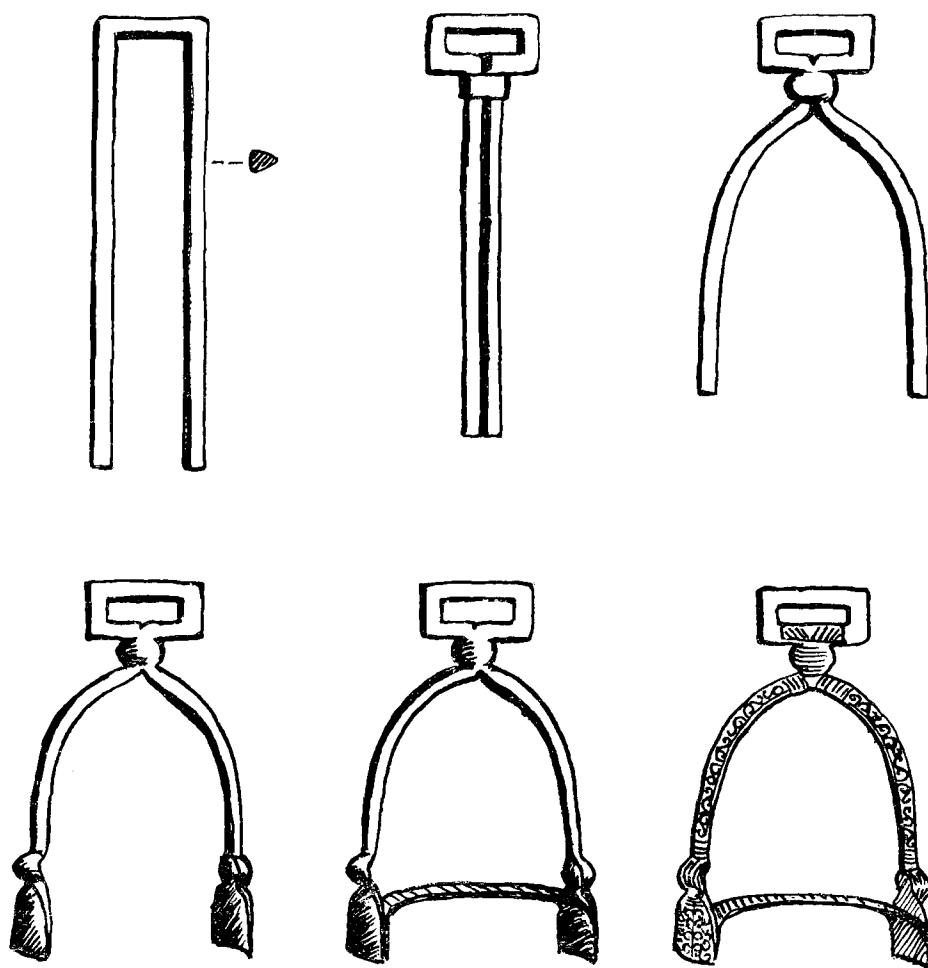
The outer surfaces of the stirrups are hatched by repeated cuts from a sharp chisel worked with a hammer. The cuts cross each other at irregular angles. Two wires twisted together form the pattern. They are hammered into and across the roughened surface left by the chisel cuts. Two points of discussion arise here. This method of plating a surface by hammering sheet metal on and into a previously roughened background has been practised by many nations. The smiths of Damascus and other places in the Near East often employed this method for the decoration of their wares. But it has no relation to true damascening — a process which concerns the steel, of which many Indian, Persian and other arms are made — the structure of the actual blade or piece of armour as considered apart from any gold, silver or niello inlays.

Unfortunately there seems to be no generally accepted name for such work. The word inlay seems to imply a regular groove into which the wire may be laid. Overlay is nearer the mark and one could write of a steel object being overlaid with scroll patterns in brass or silver wire on a hatched surface.<sup>59</sup>

In view of these remarks it would seem more accurate to adopt the term 'overlay' in this connection, although the term 'counterphet Damaskine work', used in a 1547 inventory of the royal possessions, appears specifically to refer to the type of decoration found on the stirrups.

### CONSTRUCTION

Figure 2 shows an interpretation of the method of construction of the larger English Type 2cii and certain other examples. The similar sectional area of the loop, bow and side plates indicates that the smith began with a triangular-section length



### SUGGESTED MANUFACTURE OF TYPE C2 STIRRUP

FIG. 2

Suggested method of manufacture of the English Type 2cii stirrup

of iron, and by hammering this bar at appropriate points, produced a stirrup complete except for a tread. As the tread usually has a greater sectional area, it may reasonably be deduced that in the majority of specimens it was inserted separately, the bent-down ends being welded to the sideplates. In the sub-type i this analysis is supported by an examination of the neck which is obviously the result of joining together two triangular-section arms, and further corroboration comes from examples of sub-type ii showing notches above and below the neck boss (e.g., Inv. No. 24).

Some Norwegian and Swedish examples still retain a gap in the arch formed by the two arms, and in the pair of stirrups from St Mary's Hill, Glamorgan (Inv. Nos. 32, 33), the neck junction has either sprung apart or, like many Scandinavian examples, was never intended to be fused. The side bosses might be explained either as a rivetted junction where the tread is an integral part of the stirrup, the opposite knob being added for symmetry, or as an interpretation in iron of the projecting ends of a wooden tread inserted in a leather sling. Whichever interpretation is correct, the bosses became an essential part of the developed stirrup and later took on added decorative significance to the extent that in the English sub-type ii extra metal must have been applied to give them a more pronounced form.

Of the 34 finds of stirrups in Britain, twelve (Inv. Nos. 1-12) have already been mentioned as being continental in form, and perhaps with the exception of Nos. 5 and 12, their presence here can best be explained as direct imports from abroad, most probably from or via Scandinavia. The fact that they are of different types tends to support this conclusion. Number 5 has also been discussed as being probably from Denmark even though the workmanship is generally poorer than might be expected from that country. Of the remainder, two others may equally well be imports, No. 2 from the Thames at Sansom's Ford, Standlake, Oxfordshire, and No. 1, the similar stirrup from York. Both are of Scandinavian Type 1a, the Oxfordshire example having one extra whole turn between loop and bow. They could well have been made by early Viking settlers in this country.

The second group is more nearly related to the general North European type which is also represented in Scandinavia. Their elegant form is associated with silver overlay and is represented by Nos. 10 and 11, and 12, significantly from the old Danelaw boundary, the R. Lea, appears to be stylistically a derived form, and thus is likely to have its origin in Britain.

In addition to these alien types of stirrup, three others do not fit comfortably into the English series. Firstly, the rather poor stirrups from St Mary's Hill, Glamorgan (Inv. Nos. 32 and 33) which, apart from the two Isle of Man finds, are the only certain pair to have been found in Britain; these Welsh examples have a narrow tread and a very small square loop incompletely joined at the neck. Both bosses and side plates are virtually non-existent and the high fold-up of the tread is apparently continuous with the bow. Such features tend to suggest an early date; perhaps a pagan Viking burial of the 9th or 10th centuries. The third example, from Long Down, Great Kimble, Bucks (Inv. No. 31), is also rather small, having arms widening to a low-set tread and being directly attached at the top to a well-developed loop. Similar features are found on certain Scandinavian stirrups and the Hungarian

Type 'C', and may indicate an early date although the general coarseness has the appearance of later degeneration.

The English group itself comprises fourteen decorated stirrups and a further four where the decoration is either no longer discernible, or was never present. Taking the decorated examples first, they appear to fall into two distinct groups, the characteristics of which can be tabulated as follows:

*Group i* (seven examples)

1. The stirrups are large.
2. The suspension loop is connected to the bow by a longish neck, sub-rectangular in section, formed by the juxta-position of the two arms of the bow.
3. The arms are generally splayed in parabolic form.
4. The tread is occasionally reinforced along the underside with a twisted iron bar.
5. The side bosses are formed out of the arm by being beaten hollow on the inner face.
6. The overlay on the loop tends towards horizontal lines.

*Group ii* (seven examples)

1. The stirrups are of a smaller squatter form.
2. The suspension loop is connected to the bow by a boss of slightly flattened spherical form requiring an increment of metal over the two conjoined arms.
3. Side bosses are usually solid, again requiring additional metal.
4. The loop overlay tends to be of inclined or near vertical parallel lines enclosed in a frame.

It will be noted that although Group i is apparently typologically earlier, there is as yet no other evidence to support such deduction. The differences may indeed be regional rather than chronological.

Among the first group, comprising seven stirrups, the most noticeable variation in form is seen on No. 18, formerly in the collection of Lady Dorothy Nevill of Petersfield, Hampshire, and now in the Metropolitan Museum of Art, New York. Here the side bosses vary from others of the group by being solid and more prominent, and the bow is unique in having a more or less oval cross-section.

Decoration is fairly uniform within this small group, with horizontal lines on the loop in both examples from the R. Witham, Nos. 14 and 15, and the one from the Avon at Chippenham, No. 16. But the Reffley Springs example, No. 17, has an unusual six-pointed petal design on the side plates, while the Nevill stirrup is the only specimen known from Britain having the scroll design on the arms on the loop. The Chippenham stirrup is at present unique in having decoration in the form of a zig-zag overlaid line on the forward edge of the tread and No. 14, from Lincoln, similarly has decoration on the uniquely flanged loop. It may be that others originally had such decoration in these positions but it has worn away. One may suggest therefore that the Chippenham and Lincoln stirrups were lost when relatively new.

The second and larger group includes seven decorated examples. Numbers 23 and 26 are of interest in that they were found together about 1886 by workmen rounding off the corner of the island in the Cherwell, just below Magdalen Bridge, Oxford. Also associated in this find were human bones, remains of a horse, an iron spur, a horseshoe, a pair of iron shears or scissors, and another stirrup of quite different type, more probably associated with the early Norman period, having

decoration in the form of bronze plating and carved animal head terminals. The two stirrups of Group ii, the spur and the shears could all be contemporary, but the horseshoe and the third stirrup appear to be later in date. From the context in which they were found, the objects do not seem to constitute one or more Viking burials, but could have been lost in fights at or near the fording place of the Cherwell.<sup>60</sup> The fact that the two Viking stirrups are not a pair, plus the evidence of the associated finds, lends colour to the idea that the find represents the clearing up after one of the Danish raids such as that when the town was burned by the invaders in 1009, a suggestion originally put forward by Leeds.<sup>61</sup>

In No. 23 the arms are somewhat inturned, giving a rather more elegant appearance than is usual. Inventory Nos. 21 and 22, although found many miles apart, are among the English series those most nearly resembling a pair. Both moreover exhibit a similar weakness in the tread, which has partly perished, and with much the same wear on the loop. Indeed it is difficult not to believe that these two stirrups, one from the Thet and the other from the Thames, were not actually products of the same workshop. That from the Thames at Oxford, No. 23, is also very similar to the other two.

Among Group ii one poorly-preserved example might be mentioned as having concave instead of the more usual solid knobs. This stirrup, No. 27, from an unrecorded site in London, now retains only traces of its former overlay decoration, which abnormally appears to have been a series of lozenges similar to some continental examples.

Of the examples now without decoration, it seems reasonable to assume that three, Nos. 28, 29 and 30, belong to Group ii as they bear all the characteristics of the group other than the overlay decoration, which has in all probability corroded away. The example from the Thames, No. 29, now at Norwich, has in addition the twisted iron bar reinforcement under the tread more characteristic of Group i. The solitary example from Kent, No. 30, is noteworthy as being generally larger than the other stirrups of the group. Any decoration it may have had is no longer present, but the side plates bear additional knobs opposite the ends of the low-set tread. This feature would appear to have been the result of a repair, the tread having been reset into the lower part of the arms and the rivetted ends burred over, and the foot-rest arched upwards.

Example No. 13, again from the Thames and now in the British Museum, is of particular interest as it may be the earliest of the English Type 2c stirrups. It is generally of English form with a wide tread, but is shaped from metal of circular section, also clearly forming the loop and side plates. There is no decoration, and the metal seems to be in a sufficiently good state of preservation to retain at least some part of it had it ever been present. The stirrup also has small side bosses formed by a thickening of the arms, instead of the large decorative bosses which seem to be a feature of the later period. These points and the general clarity of outline tend to place this specimen as a forerunner rather than a late development of the 2c form.

How the two European-type stirrups (Inv. Nos. 6 and 8) came to be in London is not apparent. They may have been brought over by early Viking raiders who had already travelled by boat up one or more of the main rivers, plundering or perhaps

trading; equally they may have come through more normal channels of trade. The stirrups were known to Laking and recognized by Ward Perkins as probably 11th century, although both should, technically, be more than a century earlier than this. The form of the now lost stirrup (Inv. No. 34), recorded in the 19th century as having come from a grave near the Tynwald Hill, Isle of Man, together with a battle-axe and beads, is unknown.

### LATER FORMS

Some time, perhaps in the late 11th century as evidenced by the Bayeux tapestry, stirrups of Type 2c seem to have given way to forms having the loop as an integral part of the bow, and decoration in the form of plating. These may be triangular in form, such as an example in the Ashmolean Museum, 'D'-shaped, or intermediate between the two; but in all cases the arms of the bow do not extend much below the level of the tread. Examples of these later types have been found in Britain at Witney, Oxfordshire; Ilchester, Somerset; London; Islip, Oxfordshire; Oxford (in the Cherwell as already described); and in Norway and Sweden.<sup>62</sup>

### DECORATION IN THE VIKING PERIOD

Reginald Smith was the first to point out the connection between the decoration of the stirrups and the Anglo-Danish vine scroll pattern.<sup>63</sup> The connection is particularly clear in Anglian crosses and grave monuments of Yorkshire and the North Midlands which Kendrick classes with his belated scrolls of the 11th century.<sup>64</sup> Scrolls, including return volutes, were also a well-known feature used by European goldsmiths from the Migration Period onwards and have been executed in various techniques including chip-carving, filigree and inlay.<sup>65</sup> It is therefore not surprising to see the running vine scroll taken and adapted to fill the narrow arms and plates of stirrups and other riding gear of the 10th and 11th centuries, although from the foregoing discussion it may be assumed that this adaptation took place originally in Europe and became fixed in its application at the same time as the development of 2c took place in England. Indeed, the formalized English decorative scheme appears to have evolved in the knowledge of more stylish Danish and Norwegian designs such as the Brandstrup and Fly stirrups. On the arms the returning scroll pattern seems to take precedence in England over the interlace and key patterns; it spreads with the unsophisticated abandon of the vernacular along the full length of the arms and over the side plates in often well-differentiated horizontal bands.

On the loop, the preponderance of horizontal and vertical lines may be a devolved form of the Danish rectilinear key pattern. Blomqvist has suggested that the origin for the employment of such decoration should be looked for, not in North-West Europe, but further east among the inlaid weapons of Russia and Finland.<sup>66</sup>

### DISTRIBUTION IN ENGLAND

The pattern of early stirrup finds in Britain with a reasonably accurate recorded provenance is shown in Fig. 3. With few exceptions the finds are in a good state of preservation for early ironwork, a situation that must be largely explained by the

fact that most examples are recorded as having been found in the beds of rivers or in a similar damp position, where the normal processes of corrosion would have been considerably retarded by the absence of air. Geographically the finds are mostly confined to three areas, the Thames and lower Severn valleys, East Anglia, and Lincolnshire. Roughly a third come from the established area of the Danelaw, and more than half from within the Saxon kingdom. This pattern makes no sense when seen in relation to the areas of major Scandinavian settlement from 875 to 954<sup>67</sup> but if seen against the recorded movements of the Danish host over the years 993 to 1017 there is a notable degree of correlation.

The following modern paraphrased account of the harrying of Swein and Olaf (Anlaf) as recorded in the Anglo-Saxon Chronicle<sup>68</sup> demonstrates the point. Horses were not used in battle at Maldon in 991, and are first mentioned in 994 after which date they were regularly commandeered for more audacious raiding deep inland.

In 994, after Sweyn and Olaf had attacked London by ship, they went into Kent, Sussex and Hampshire and horsed themselves for further inland raiding. In 999 the host came up the Medway and after a successful engagement got horses and rode far and wide as they pleased. Again in 1001 after the battle of Pinhoe in Devon the host went riding over the countryside plundering. In 1004 Sweyn raided East Anglia and attacked Thetford, but was intercepted by Earl Ulfketel on his return to his ships. In 1006 the host, after wintering in the Isle of Wight, sallied out to Berkshire at Christmas, and after taking provisions and sacking Wallingford proceeded along the Berkshire Downs to Cuckhamsley Knob in an act of defiance, riding past the gates of Winchester on the way back to their ships. After the battle of Ringmere in Norfolk, 1010, the Danes had possession of the place of carnage, and there were they horsed and afterwards had dominion over East Anglia, and the land they ravaged and burned for three months; and they even went into the wild fens and they destroyed men and cattle and burned throughout the fens, and Thetford they burned and Cambridge. And afterwards they went southward again to the Thames and the men who were horsed rode towards the ships.

Again in 1015 Sweyn returned with his fleet to Sandwich, Kent, and thence up the coast to his headquarters at Gainsborough, and all the Northumbrians and folk of Lindsey submitted to him, and soon after, all the people north of Watling Street. Then when his army was victualled and horsed he came over Watling Street to Oxford where the townsfolk soon submitted; thence to Winchester where they did the like. From there he went eastward to London where much of his people was drowned in the Thames because they kept not to any bridge. But the men of London would not submit because Ethelred and Thurkil were there. Then went Sweyn to Wallingford and so over the Thames westward to Bath and sat down with his forces. In 1015 and 1016 Cnut followed up his father's successes with land raids which penetrated as far as Gloucestershire in the west and Chester in the north.

The approximate routes followed by the Host as recorded in the Chronicle are shown on Fig. 3.

The inference here is not so much that the discoveries of stirrups in recent times are the direct result of any specific raids by the Danish host, since a majority of the irons found are seen to be in a condition ready for discarding, but that these records are the first indication of the extensive use of stirrup-using horsemen in Saxon England. Whether or not the Danes brought their smiths with them from Europe, it seems probable that many of the riders were drawn from the settled



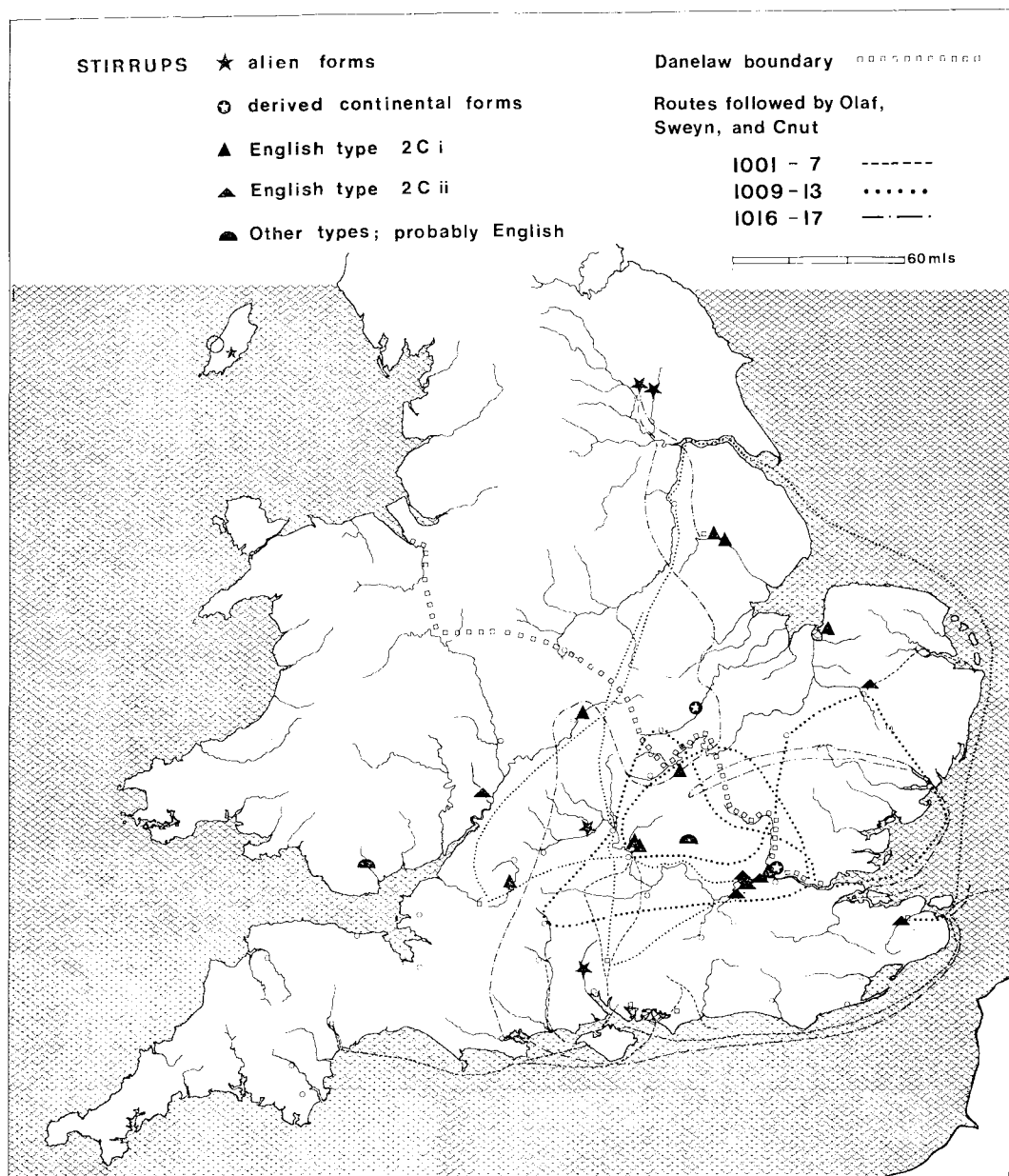


FIG. 3

Distribution of known finds of Viking stirrups and approximate routes followed by the Danish host, A.D. 1000 to 1018

Anglo-Scandinavian population whose equipment would at least be of the same ancestry as those of the Danes themselves. The form of the decoration on local equipment would by that time however have come under the strong influence of Christian symbolism as represented by sculpture in Mercia and Northumbria. Not only were stirrups decorated in this style, but also some of the spurs as well as the pommel of a sword from the Thames at Battersea, now in the Pitt-Rivers Museum at Oxford.<sup>69</sup> These remind us that the double scroll pattern and parallel lines, all carried out in overlay twisted wire, were not confined to horse furniture and furnishings alone but were equally applicable to offensive weapons. Several spears and battle-axes using the same technique and somewhat similar decoration are known from Britain and Ireland.

The introduction of the stirrup, it would seem, also marked an important stage in the art of fighting from horseback, for now for the first time a man could 'stand on his horse' and be able to couch his spear firmly under his arm (instead of wielding it loosely in his hand), thereby gaining the full value of the weight and momentum of horse and rider behind the thrust. A similar advantage would be had for the use of the battle-axe. Indeed, it seems likely that such tactical advance would have been fully appreciated by horseborne Viking invaders at least by the mid 10th century, and that the developed English form of stirrup represents the fulfilment of that need.

### REPRESENTATIONAL EVIDENCE

Apart from the Bayeux tapestry already mentioned where the illustrations of stirrups seem generally to be of later types, contemporary pictorial evidence of the 2c stirrup in use is almost non-existent. One early 11th-century manuscript, however, in the Cotton collection and of English provenance, London B. L. Cotton Cleopatra C. viii folios 4b and 5, which contains the text of Prudentius's *Psychomachia* shows a group of warriors, the leaders of which have stirrups which extend down beyond an up-bowed tread. If allowance is made for the conventions of contemporary draughtsmanship, which in this case is of a high standard, the representation may well be intended for the English 2c stirrup.<sup>70</sup>

It has not, therefore, been possible to ascertain exactly how these stirrup irons were mounted and how attached to the saddle. In describing the Hungarian and Scandinavian forms mention was made of slings and of special decorative brass stirrup plates. It was Brøndsted who first suggested that the pair of plates from Velds in Jutland were decorated in England in the early 11th century and, although there might appear to be an affinity with the 'Ringerike' style, the work is remarkably English in character, especially the birds and the sheath and bud on the acanthus of the terminals. Wilson, too, has fully accepted the Velds plates as English,<sup>71</sup> so it is interesting to speculate why this well-known form of stirrup mounting should be relatively common in Denmark but virtually unknown in this country. The very large openings in the Type 2c suspension loops demand more than an ordinary leather. Indeed, the wear on the upper bar seems more consistent with iron swinging against another metal loop than against fabric or leather. Such mountings might make for ease of assembly and release; and since stirrups were

amongst the most prized possessions of a Viking, judging by grave finds in Scandinavia, he would almost certainly keep them with him when not in the saddle and polish them to brightness before remounting.

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#### INVENTORY OF VIKING PERIOD STIRRUPS FROM BRITAIN

Abbreviations used in this section:

- |   |  |
|---|--|
| British Museum (1923)                   | <i>A Guide to the Anglo-Saxon Antiquities</i> , London.  |
| Hinton, D. A. (1974)                    | <i>A Catalogue of the Anglo-Saxon Ornamental Metalwork, 700-1100, in the Department of Antiquities, Ashmolean Museum</i> , Oxford. |
| Laking, G. (1920)                       | <i>A Record of European Arms and Armour through seven centuries</i> , I, London.   |
| Manning, P., and Leeds, E. T. (1920-21) | 'An archaeological survey of Oxfordshire', <i>Archaeologia</i> , LXXI, 227-65.   |
| Seaby, W. A. (1950)                     | 'Late Dark Age finds from the Cherwell and the Ray, 1876-86', <i>Oxoniensia</i> , xv, 29-43.                                       |
| Shetelig, H. (1940)                     | <i>Viking Antiquities in Great Britain and Ireland</i> , IV, Oslo.   |
| Ward-Perkins, J. B. (1940)              | <i>Medieval Catalogue</i> , London.  |
| Waterman, D. M. (1959)                  | 'Late Saxon, Viking and medieval finds from York', <i>Archaeologia</i> , xcvi, 59-105.   |
| Wheeler, R. E. M. (1927)                | <i>London and the Vikings</i> , London Museum.   |
| Wilson, D. M. (1964)                    | <i>Anglo-Saxon Ornamental Metalwork, 700-1100, in the British Museum</i> , London.   |

#### ALIEN FORMS

##### (a) *Scandinavian Types*

##### 1 YORK. Yorkshire Museum

Scandinavian Type 1a. Very small. Arms of circular section beaten flat and slightly arched to form wide, slightly upbowed tread. Twist  $\frac{1}{4}$ -time anti-clockwise.

H.  $3\frac{7}{8}$  ins. (9.9 cm); W.  $3\frac{1}{2}$  ins. (8.9 cm)

Ref.: Waterman (1959), 75-76, fig. 8, No. 3.

**2 SANSOM'S FORD**, Standlake, Oxfordshire. Ashmolean Museum, acc. no. 1887.3010 Said to have come from the R. Windrush, GR SP386017, but the ford is a little W. of where the Windrush joins the Thames.

Scandinavian Type 1a (Rygh 588). Exactly paralleled at Birka, Sweden. Arms of circular section beaten out flat to form tread. Loop at right angles to bow with  $\frac{3}{4}$  time corresponding twist clockwise.

H.  $5\frac{3}{4}$  ins. (14.7 cm); W.  $4\frac{3}{8}$  ins. (11.1 cm)

Ref.: Manning and Leeds (1921), 265, under R. Thames, Brighthampton; Wheeler (1927), 38, No. 1, fig. 18A; Shetelig (1940), 59.

**3, 4 BALLADOOLE**, Isle of Man. Manx Museum, Douglas, 66-372-10/11

Second pair, and only stirrups from an archaeological datable context, in Britain. Found in 1945 with a boat burial, in association with a pair of spurs, buckles, a shield boss and other objects, dated by excavator (G. Bersu) to the end of the 9th century. 'D'-shaped and apparently fashioned in exactly the same way as No. 6, the ends of the arms curling under the foot-rest to which they are welded.

H.  $5\frac{3}{4}$  ins. (14.6 cm); W.  $4\frac{7}{8}$  ins. (12.4 cm) approx.

Ref.: G. Bersu and D. M. Wilson, *Three Viking Graves from the Isle of Man*, research monograph of the Society for Medieval Archaeology (1966), 29f., fig. 19.

**5 UNKNOWN LOCALITY**. Ashmolean Museum, Oxford, 1685 Cat. B.453; Old Cat. pp. 70-71, XLI. Catalogue entry reads '*Calcar et Stapes Danicus*' - associated with a spur. Type probably derived from Scandinavian Type 1c. Twist of loop fossilized into boss beneath rectangular loop which is set at right angles to bow. Arms continue below flat inserted tread. The same technique is seen in the pair from Balladoole, Isle of Man (Inv. Nos. 3 and 4)

H.  $6\frac{1}{4}$  ins. (15.9 cm); W.  $3\frac{7}{8}$  ins. (9.9 cm)

Decoration: Bow: silver overlay comprising double horizontal lines at regular intervals.

Ref.: Shetelig (1940), noticed p. 59.

**6 LONDON**. Museum of London, B.2

No detailed find spot, possibly R. Thames.

Long ovate bow, the slender arms, semi-circular in section, showing a low reinforcement rib below the wide, flattened tread. Cylindrical neck with horizontal lines representing its construction by twisting the arms of the bow. The suspension loop, which should have been at right angles to the bow, is now missing. No decoration on bow, but much corroded.

Present H.  $9\frac{1}{8}$  ins. (23.2 cm); W.  $4\frac{1}{2}$  ins. (11.5 cm)

Stirrups of this class, mostly decorated, have been found in Scandinavia, Germany and elsewhere (see p. 91 *supra*) and are generally dated to the late 9th and 10th centuries.

Ref.: Laking (1920), fig. 125(a); Ward-Perkins (1940), fig. 24, No. 1.

**7 YORK**. Yorkshire Museum

Scandinavian Type 2a (Rygh 590). Very wide loop set at slight angle to short neck, hexagonal in section. 'D'-shaped bow with arms notched on one (front) face to hold thin bronze plating. Wide flattened keeled knob on one side, the other side too badly damaged to judge if corresponding knob existed; very shallow sideplate and upfolded horizontal broad tread. The loop and one side of neck still preserve bronze plating cut to appropriate shape and possibly cemented, rather than hammered, into place.

H.  $6\frac{3}{8}$  ins. (16.2 cm); W.  $5\frac{1}{4}$  ins. (13.3 cm)

Ref.: Waterman (1959), fig. 8, No. 4, where continental parallels are given.

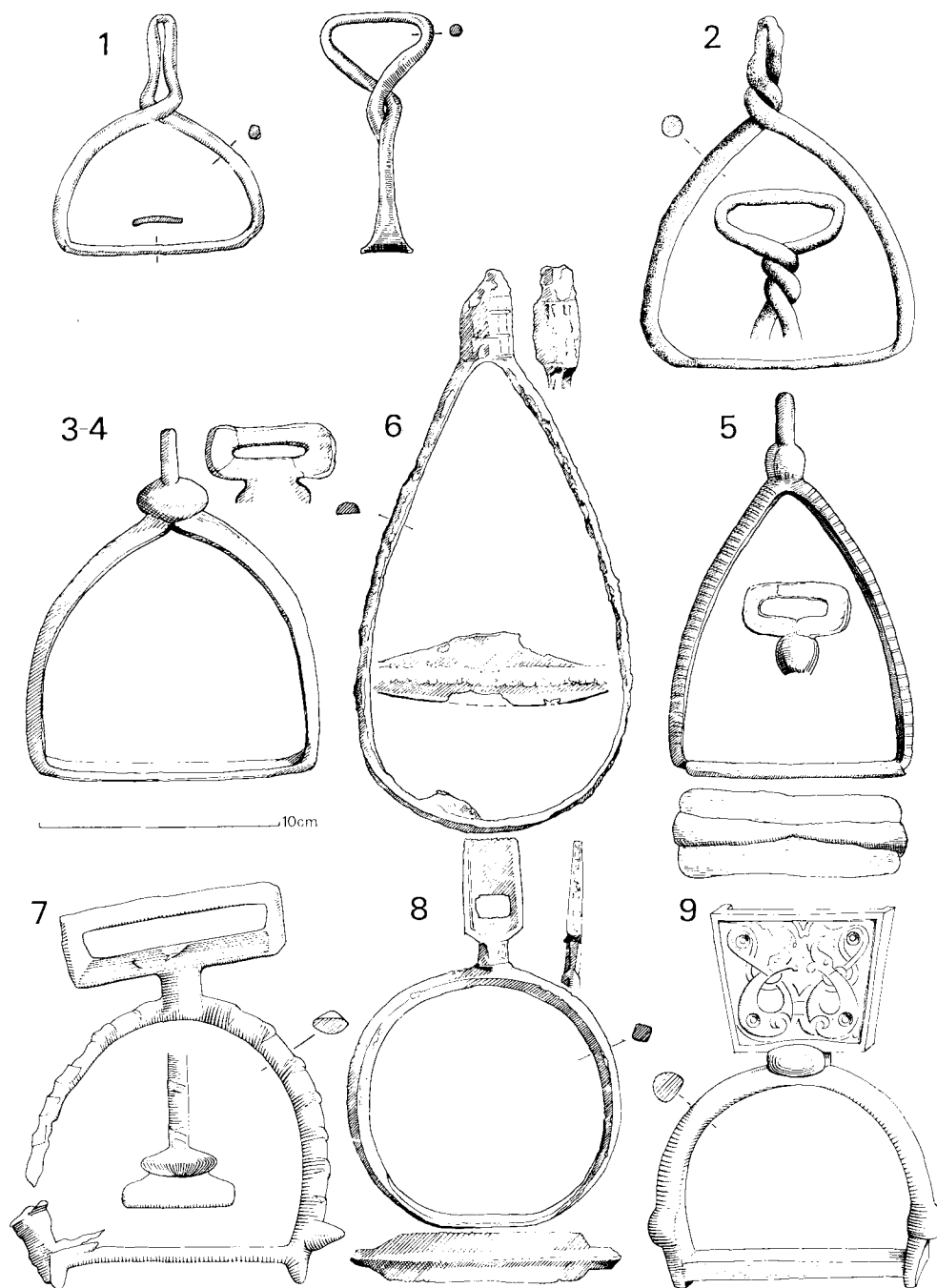


FIG. 4  
Stirrups of alien type found in Britain. See also No. 36

**8 LONDON.** Museum of London, B.1

No detailed find spot, possibly R. Thames.

Circular bow of lozenge section, the outer keels of the arms continuing as a reinforcement ridge until flattened out into tread; short lozenge section neck and long rectangular suspension loop, tapering in thickness, and having low-set almost square opening.

H.  $6\frac{1}{4}$  ins. (16.2 cm); W.  $4\frac{3}{8}$  ins. (10.6 cm)

This stirrup, of Hampel's Type 'A', is very like one found at Tuna in Sweden, datable to the 10th or early 11th centuries and noted as an East-European type, intrusive to Sweden. The London example is likely to have had its origin amongst the Avars of Hungary, who penetrated as far as Cambrai and the Loire in the 9th and 11th centuries.

Ref.: Laking (1920), fig. 125(c); Ward-Perkins (1940), 90-91, fig. 24, No. 2.

**9 MOTTISFONT, Nr. Romsey, Hants.** Private possession 1887, not located

Discovered in peat.

Scandinavian type, probably Danish and late 11th century(?). Bronze 'D'-shaped bow of 'D' cross-section, with small bulbous knobs and thick horizontal tread. Instead of a loop there is a fixed strap plate, with four holes for attachment, bearing a zoomorphic interlace of inlaid silver in a devolved Urnes style, very reminiscent of an example found in Iceland.

H. 6 ins. (15.2 cm); W.  $4\frac{13}{16}$  ins. (12.0 cm)

Ref.: C. H. Read, *Archaeologia*, 1. (1887), 532-33, pl. 26; Shetelig, (1940), noticed p. 58; Wilson (1964), 109. See also T. J. Arné, *Södermanland Aldre Kulturhistorie* xvi, 60, fig. 5, who shows a pair of stirrups with richly ornamented attachment plate, twisted and articulated on the bow; these were found in a ploughed out tumulus; and the stirrup from Merkivoll, Iceland, published by H. Arbmán in *Upplands Förnminnes — förenings Tidskrift*, xlv (1935-37), 268-69, fig. 8 and a fragment from Stenåsa sn, Öland, fig. 6

*(b) General North European type probably of alien origin*

**10** Probably MIDLANDS. Museum of Archaeology and Ethnology, Cambridge. Ransom Collection 23-1157 (Ransom lived at Hitchin, Herts., so the stirrup may be from that area)

Scandinavian Type 2b. Loop worn. Cylindrical neck, with moulding, adjoining bow. Bow tall with arms splayed ending in tear-shaped knobs, but with ribs continuing down over side plates. Plates up-folded to form horizontal tread.

H.  $11\frac{1}{2}$  ins. (29.2 cm); W.  $5\frac{1}{8}$  ins. (13.0 cm)

Decoration: silver overlay on neck and side bosses.

Ref.: Shetelig (1940), noticed p. 68.

**11 FINEDON, Northants.** Northampton City Museum

Dredged from 7 to 9 ft. deep in the bed of the R. Ise, during reconstruction of a bridge at GR SP908696, in 1926. Other finds included a spearhead and dagger but association was not proven.

Scandinavian Type 2 b. Loop worn and end fractured. Cylindrical neck with horizontal grooves. Small bow with arms of triangular section ending in small knobs detailed off by moulding and having curved grooves reminiscently zoomorphic. Plates have residual ribs and are folded up to form arched tread with reinforcing rib under.

H.  $11\frac{3}{4}$  ins. (29.8 cm); W.  $5\frac{1}{2}$  ins. (14.0 cm)

Decoration: traces of silver overlay on arms and loop, and over end plates.

Ref.: V. I. Evison, *Records of Buckinghamshire*, xx (1977), 343 and fig. 3.

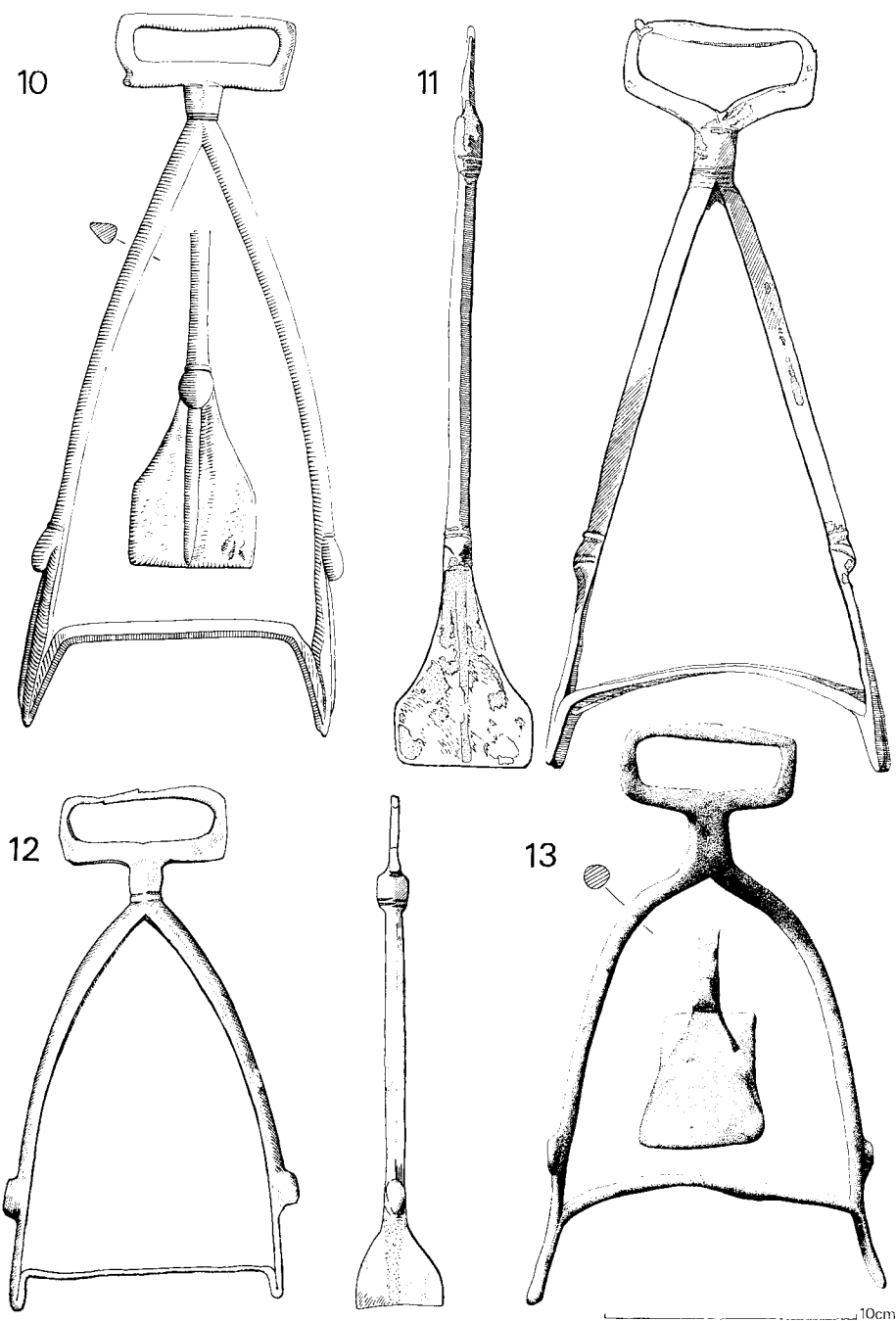


FIG. 5  
Stirrups of north European types from Britain

**12 WEST HAM.** Passmore Edwards Museum, P.E.M. 164.78

Recovered from R. Lea during the construction of the Northern Outfall Sewer in 1864, GR TQ384836.

Derivative type, quite possibly of English origin. Loop worn, triangular neck with cut grooves, small bow with triangular sectioned arms ending in ovate knobs formed with increment of metal. Triangular plates, upfolded to form flat tread.

H.  $8\frac{1}{4}$  ins. (20.8 cm); W.  $4\frac{3}{4}$  ins. (12.2 cm)

Decoration: silver overlay confined to simulating extension of arms across plates only.

Ref.: unpublished.

## ENGLISH FORMS

### *English Type 2c — Early form without decoration*

**13 LONDON.** British Museum, 91, 4-18, 19

Dredged from R. Thames.

The stirrup is formed from metal of roughly circular or sub-angular section. Large loop; cylindrical neck formed from fusion of the two arms. Bow somewhat splayed, with small flattened knobs and inverted escutcheon-shaped sideplates. Slightly arched tread inserted into bow, now broken at one end. Reasonably good state of preservation. No decoration.

H.  $9\frac{1}{8}$  ins. (23.2 cm); W.  $5\frac{5}{8}$  ins. (14.3 cm)

This stirrup has all the features of the developed English form, but the small knobs and simple direct construction tend to suggest that this is the earliest of the English examples.

Ref.: Shetelig (1940), noticed p. 88.

### *English Type 2ci — Large decorated type with cylindrical necks*

**14 LINCOLN 1.** British Museum, 58, 11-16, 6

From R. Witham, near Lincoln, before 1858 (given by (Royal) Arch. Inst.).

Large loop. Tall narrow bow with arms of deep section and sideplates connected to suspension loop by a long neck. High arched tread supported by twisted iron bar.

H.  $12\frac{1}{2}$  ins. (31.2 cm); W.  $4\frac{7}{8}$  ins. (12.4 cm)

Decoration: Loop: horizontal lines of irregular length, without frame, also on flanged edges. Sideplates: four tiers of scrolls surmounted by a triangular design instead of the more usual horizontal lines. Design generally coarse.

Ref.: Wilson (1964), 39, 62, 201, Cat. No. 133, pl. XLI; Shetelig (1940), noticed p. 99.

**15 LINCOLN 2.** Lincoln Museum, 9663-06

From R. Witham between Lincoln and Kirkstead. Presented with other arms and utensils without association, 1787-88, by Dean and Chapter of the Cathedral.

Large bow, bulbous knobs and high-necked side plates. Horizontal tread later repaired and reinforced below each end, and all supported by a twisted iron bar. Surface somewhat corroded and pitted.

H.  $12\frac{1}{8}$  ins. (30.8 cm); W.  $5\frac{1}{8}$  ins. (12.9 cm)

Decoration: Loop: horizontal lines, no frame. Sideplates: three horizontal zones of continuous scrollwork surmounted by three bands of crosses. One further line of crosses, below panel, enclosing lower two bands of scrolls.

Ref.: *Lincolnshire Notes and Queries*, III and IV (1892-94); Wilson (1964), noticed p. 115; Shetelig (1940), noticed p. 99.



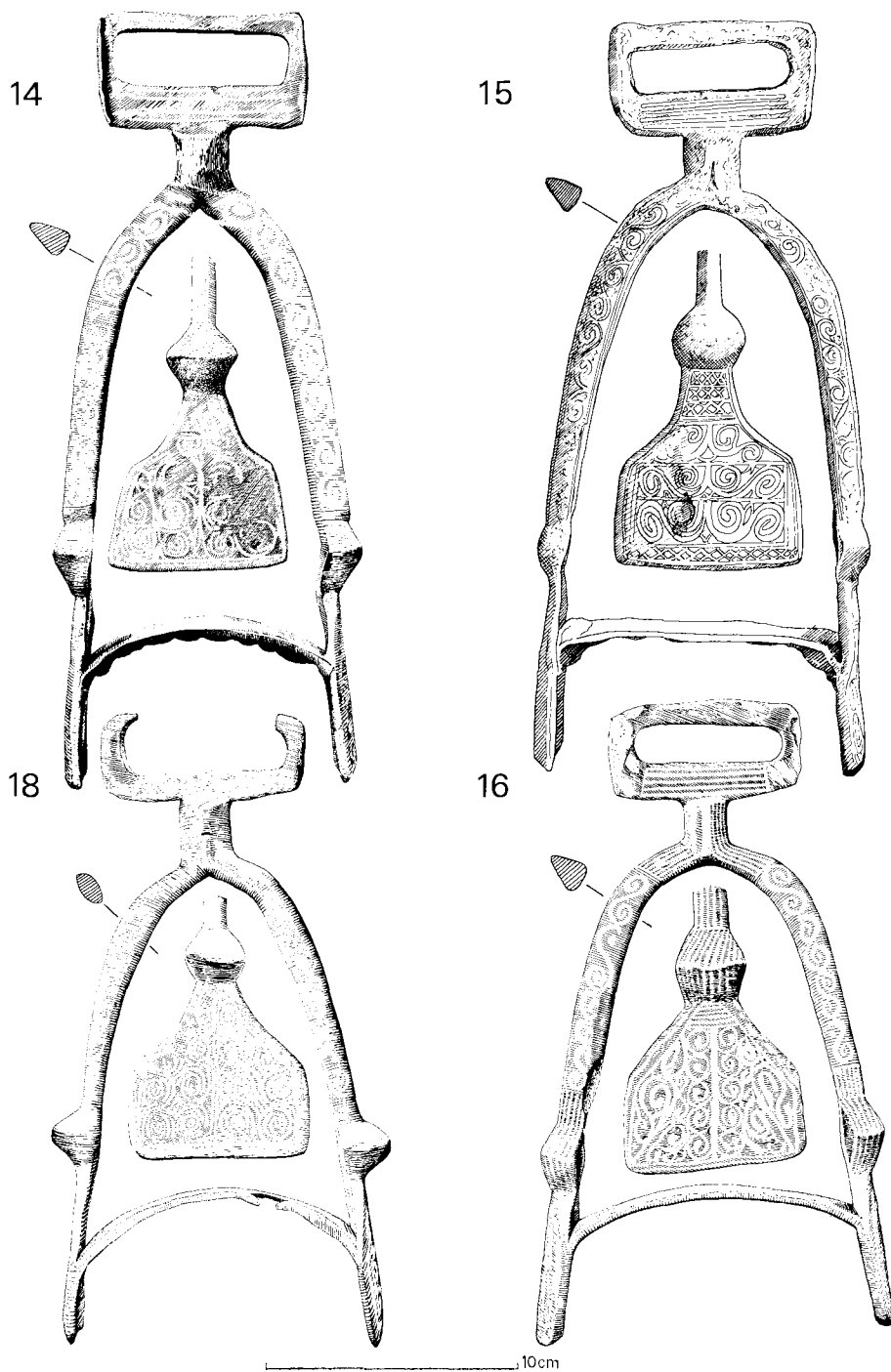


FIG. 6  
Stirrups of English group 2ci

**16** Near CHIPPENHAM, Wiltshire. Herbert Art Gallery & Museum, Coventry, A/990/61

Dredged from bed of R. Avon, 1934. Dr W. H. Brazil Collection.

Loop showing slight wear. Large splayed bow with deep flattish knobs and large sideplates. Tread arched. Well preserved (Pl. VIII, A).

H.  $10\frac{1}{8}$  ins. (25.7 cm); W.  $5\frac{5}{16}$  ins. (13.5 cm)

Decoration: Loop: horizontal lines in frame. Sideplates: five horizontal bands of scrolls with floral feature emanating from lower corners. Tread: chevron overlay along front edge.

Ref.: Letters to T. D. Kendrick, British Museum, from F. Millward Banks, Treasure House, Stratford-upon-Avon, Warwicks, August/September 1934, in B.M.; Wilson (1964), noticed p. 99.

**17** REFFLEY SPRING, Norfolk. Kings Lynn Museum, A.463

$\frac{1}{4}$  mile from R. Gaywood, 2 miles NE. of Kings Lynn. Presented to Museum by Sir William folkes, Hillington Hall, in 1904.

Top bar of loop worn through at one end. Deep low knobs. Deep sideplates. Arched tread, supported by a twisted iron bar.

H.  $11\frac{1}{4}$  ins. (28.6 cm); W.  $5\frac{3}{4}$  ins. (14.6 cm)

Decoration: Loop: double line zig-zag within frame. Sideplates: six-pointed flower form with double scroll issuing from between each petal.

Ref.: Wilson (1964), noticed p. 111.

**18** Lady Nevill's stirrup. Metropolitan Museum of Art, New York. 47.100.23

Unknown provenance in southern England (?) before 1892 (Lady Dorothy Nevill lived at Petersfield, Hants.)

Top bar of loop broken away through wear. Splayed bow with arms of more oval section. Knobs prominent and solid, unlike others of this group. High arched tread (Pl. VIII, B).

H.  $10\frac{1}{4}$  ins. (26.0 cm); W.  $5\frac{1}{2}$  ins. (14 cm)

Decoration: Loop: returning scroll within frame. Sideplates: four tiers of scrolls.

Ref.: apparently unpublished. On loan to Victoria and Albert Museum, London, with other objects of metal work from collection of Lady Dorothy Nevill period 1892-1915. Information regarding known history of this stirrup supplied by William H. Forsyth of the Metropolitan Museum to W.A.S. in 1949.

**19** BLEAK HALL, MILTON KEYNES, Buckinghamshire. Bucks. County Museum, 76.73

Found GR SP85953630 in parish of Woughton-on-the Green, at depth of 6 ft. during construction of a factory.

Poorly preserved specimen, having the lower half of the bow, tread and part of loop missing. Arms of bow distorted, triangular in section.

Surviving height  $3\frac{3}{4}$  ins. (14.5 cm)

Decoration: Four horizontal lines around neck revealed by X-ray.

Ref.: Not previously published.

**20** WARWICK. Warwick Castle Armoury, H.004

Unprovenanced, but possibly found in the R. Avon. The collection was largely assembled before 1806 by George Greville, second Earl of Warwick. The stirrup is not consistent with the theme of the collection and may have been added from dredging operations carried out in the R. Avon below the castle in the 19th century.

Three quarters of loop missing. Large splayed bow, bulbous knobs and large sideplates. The wide arched tread is fractured across (Pl. VIII, A).

H.  $9\frac{1}{8}$  ins. (23.2 cm), but originally about 10 ins. (25.5 cm). W.  $4\frac{3}{4}$  ins. (12.0 cm)

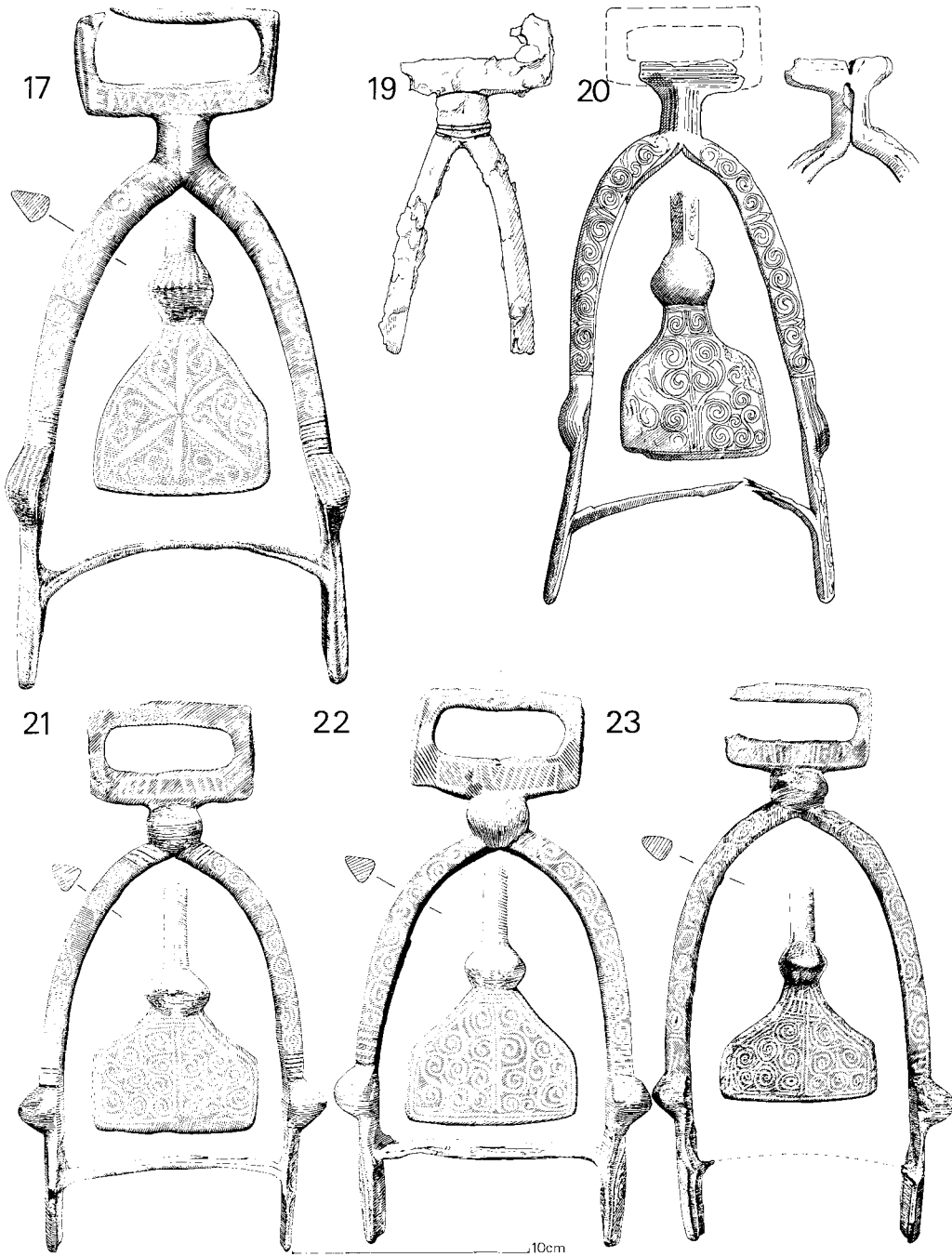


FIG. 7

Nos. 17, 19 and 20: Stirrups of English group 2ci  
 Nos. 21, 22 and 23: Stirrups of English group 2cii

Decoration. Loop: horizontal lines. Neck: vertical lines. Sideplates: loosely constructed scrolls springing from either side of vertical lines through centre. Two extra scrolls in upper panel below knob.

Ref.: Not previously published.

*English Type 2cii – Smaller type with globular necks*

**21 KILVERSTONE**, Nr. Thetford, Norfolk. Norwich Museum, 58–36

Dredged from bed of R. Thet, 1836.

Neat bow with arms ending vertically. Solid ridged knobs. Large sideplates. Slightly arched tread. Similar to No. 22 and might almost be considered a pair with it.

H.  $9\frac{1}{8}$  ins. (23.2 cm); W.  $5\frac{1}{8}$  ins. (13.0 cm)

Decoration: Loop: two series of diagonal lines inclined towards centre at top, in frame. Sideplates: four tiers of scrolls.

Ref.: R. R. Clarke, *East Anglia* (1960), 232 and pl. 52; Wilson (1964), noticed p. 106; *Catalogue of Antiquities*, Norwich Castle Museum (1909), No. 607.

**22 LONDON**, Battersea. British Museum, 54, 4, 24–1

R. Thames, 1854.

Loop worn; bow slightly inturned. Large sideplates and solid knobs. Tread horizontal and much damaged on one edge where worn. If found with Nos. 21 or 23 would have been considered a pair.

H.  $9\frac{1}{4}$  ins. (23.5 cm); W.  $5\frac{3}{16}$  ins. (13.2 cm)

Decoration: brass. Loop: radial vertical lines within frame. Sideplates: four tiers of scrolls and scroll on bow.

Ref.: Wilson (1964), 39, 62, 144, Cat. No. 35, pl. XXI; British Museum (1923), 91, fig. 110; Shetelig (1940), noticed p. 88, fig. 56.

**23 OXFORD 1**. Ashmolean Museum, 1886.443

From R. Cherwell at Magdalen Bridge, in association with No. 26 and other finds. Purchased June 1886.

Loop broken at one end. Bow elongated and inturned. Wide sideplates. Tread missing.

H.  $9\frac{3}{8}$  ins. (23.8 cm); W.  $4\frac{15}{16}$  ins. (12.6 cm)

Decoration: loop: radial vertical lines within frame. Sideplates: three tiers of scrolls surmounted by two bands of vertical lines.

Ref.: Seaby (1950), 33–34 et seq.; Manning and Leeds (1920–21), 253; Wilson (1964), noticed p. 110; Shetelig (1940), 12; Hinton (1974), Cat. No. 25.

**24 BARBER'S BRIDGE**, Nr. Rudford, Tibberton, Gloucs. Gloucester Museum (Marked 19)

Found on the site of a ford across the Red Brook, a small tributary of the R. Leadon, and some 300 yards therefrom (SO772223), in the winter of 1866–67. Presented by John Bellow, 1902.

Top bar of loop broken away completely, through wear. Narrow bow and smaller sideplates than is usual. Horizontal tread. Loop has notch in bottom of slot indicating construction.

H.  $8\frac{13}{16}$  ins. (22.4 cm); W.  $4\frac{7}{8}$  ins. (12.4 cm)

Decoration: Loop: horizontal sagging lines, no frame. Scroll on bow worn, and on sideplates three loosely organized tiers of scrolls with suggestion of floral decoration in corner, as on Inv. No. 16. Horizontal lines in apex.

Ref.: J. D. T. Niblett, *Proc. Soc. Antiq.*, III (1867), 520 (given as 13th century); a drawing in R. A. Smith's notebooks, Anglo-Saxon volume, p. 50, where the circumstances of recovery are given; Wheeler (1927), 41; Wilson (1964), noted p. 111.

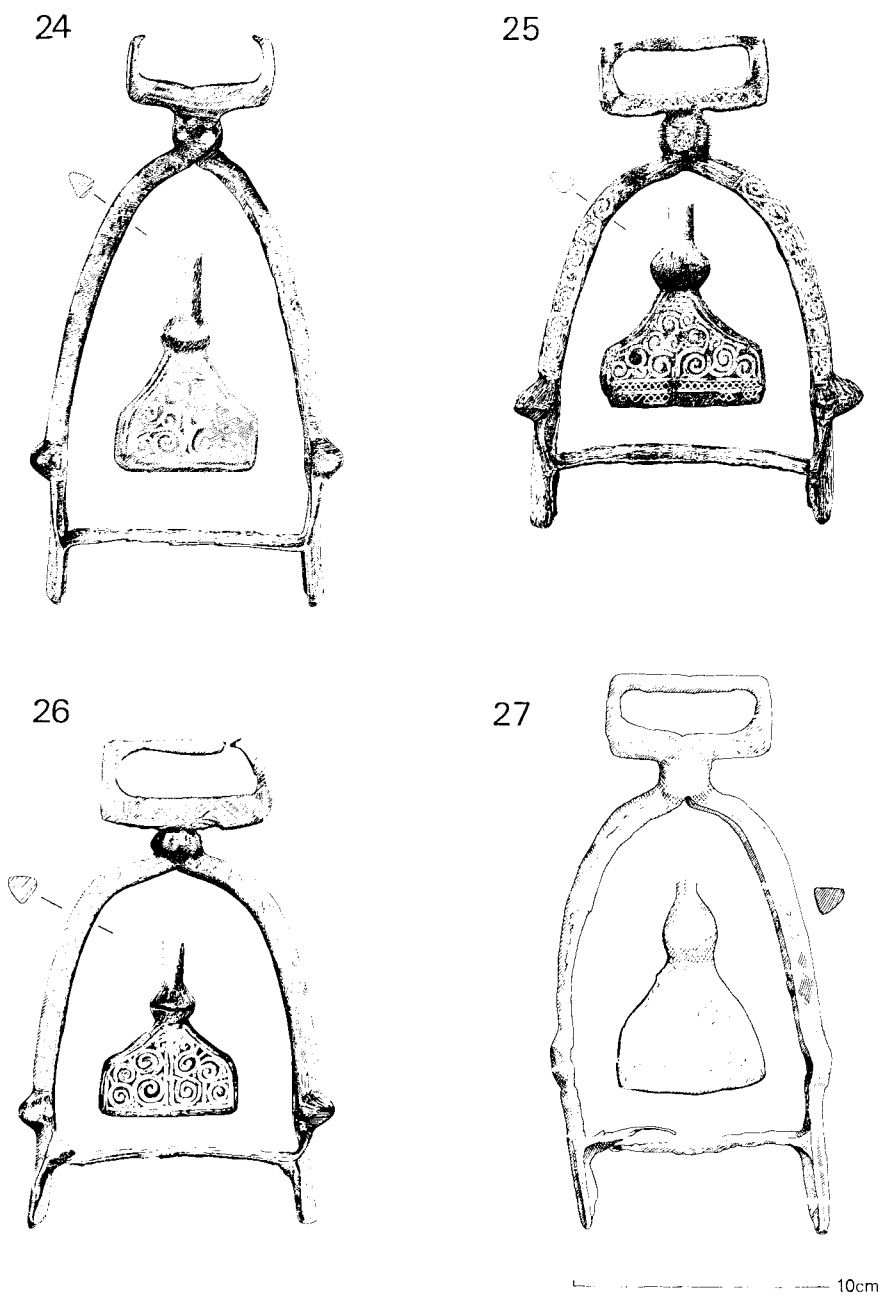


FIG. 8  
Stirrups of English group 2cii. See also No. 35.  
No. 27 undecorated.

**25 LONDON**, Nr. Tower Hill. The Armouries, H.M. Tower of London, B.327

Found in R. Thames. Presented by the Office of Works, 1914.

Top bar of loop worn thin. Short bow with pronounced solid knobs. Wide footplate. Slightly arched tread.

H.  $7\frac{1}{2}$  ins. (19.1 cm); W.  $5\frac{5}{16}$  ins. (13.5 cm)

Decoration: Loop: interlocking wavy or zigzag lines, within double frame. Sideplates: three tiers of scrolls, barely symmetrical, underlined with two bands of wavy or zig-zag lines.

Ref.: Wheeler (1927), 38–39, fig. 17; Wilson (1964), noticed p. 108; Shetelig (1940), 88.

**26 OXFORD 2.** Ashmolean Museum, 1886 444.

Found in R. Cherwell with No. 23. Not a pair. Purchased June 1886.

Loop worn through. Bow of average proportions with small solid knobs and wide sideplates. Slightly arched tread.

H.  $7\frac{5}{8}$  ins. (19.4 cm); W.  $4\frac{15}{16}$  ins. (12.6 cm)

Decoration: Loop: diagonal parallel lines within frame. Sideplates: three loosely defined tiers of scrolls.

Ref.: Seaby (1950), 33–34; Manning and Leeds (1920–21), 253; Wilson (1964), 110; Shetelig (1940), 12 (where this stirrup and No. 23 are considered a pair); Hinton (1974), Cat. No. 26.

**27 LONDON**, Unknown locality, but labelled ‘Thames’. British Museum, O.A. 295. Boxed with other iron objects, all labelled ‘prob. C.R.S. from London’

A small heavily corroded stirrup. Irregular shaped bow with hollow knobs. Horizontal tread, now broken.

H.  $8\frac{9}{16}$  ins. (21.7 cm); W.  $4\frac{1}{4}$  ins. (10.8 cm).

Decoration: much corroded. Hatched lozenge patterns on bow.

Ref.: Wilson (1964), 39, 62, 179, Cat. No. 89, pl. XXXIII; Shetelig (1940), 88 (mentions two plain iron stirrups, one found in 1845).

*Stirrups, probably of English group 2cii, but not now bearing decoration*

**28 LONDON**, Westminster. British Museum, 56, 7–1, 2626

Found in the R. Thames. C. Roach Smith Collection.

Large deep loop with top bar worn thin. Spherical neck boss. Neat arms and solid keeled knobs. Flat tread, partly broken.

H.  $8\frac{3}{4}$  ins. (22.3 cm); W.  $5\frac{1}{8}$  ins. (13.0 cm)

Ref.: Shetelig (1940), noticed p. 88; British Museum (1923), 90–91.

**29 HAMPTON WICK**, Middlesex. Norwich Museum, 22–41

Dredged up from the R. Thames, c.1841. Part of loop missing. Solid knobs. Slightly arched tread reinforced with a twisted iron bar. Heavily corroded.

H.  $8\frac{1}{4}$  ins. (21.0 cm); W.  $4\frac{3}{4}$  ins. (12.1 cm)

Ref.: *Cat. of Antiquities*, Norwich Castle Museum (1909), No. 609.

**30 KENT (?)**, possibly Canterbury. Beane Institute and Royal Museum, Canterbury, 1091

Find place unrecorded. The poor state of preservation might indicate a location on land rather than in a river.

An odd stirrup, large for group ii. Loop worn through. Solid knobs. Tread seems to be a replacement, welded in at a lower position than the original. Knobs on sideplates may be the rivetted-over ends of tread.

H. 10 ins. (25.4 cm); W. 6 ins. (15.3 cm)

Ref.: Shetelig (1940), 59.

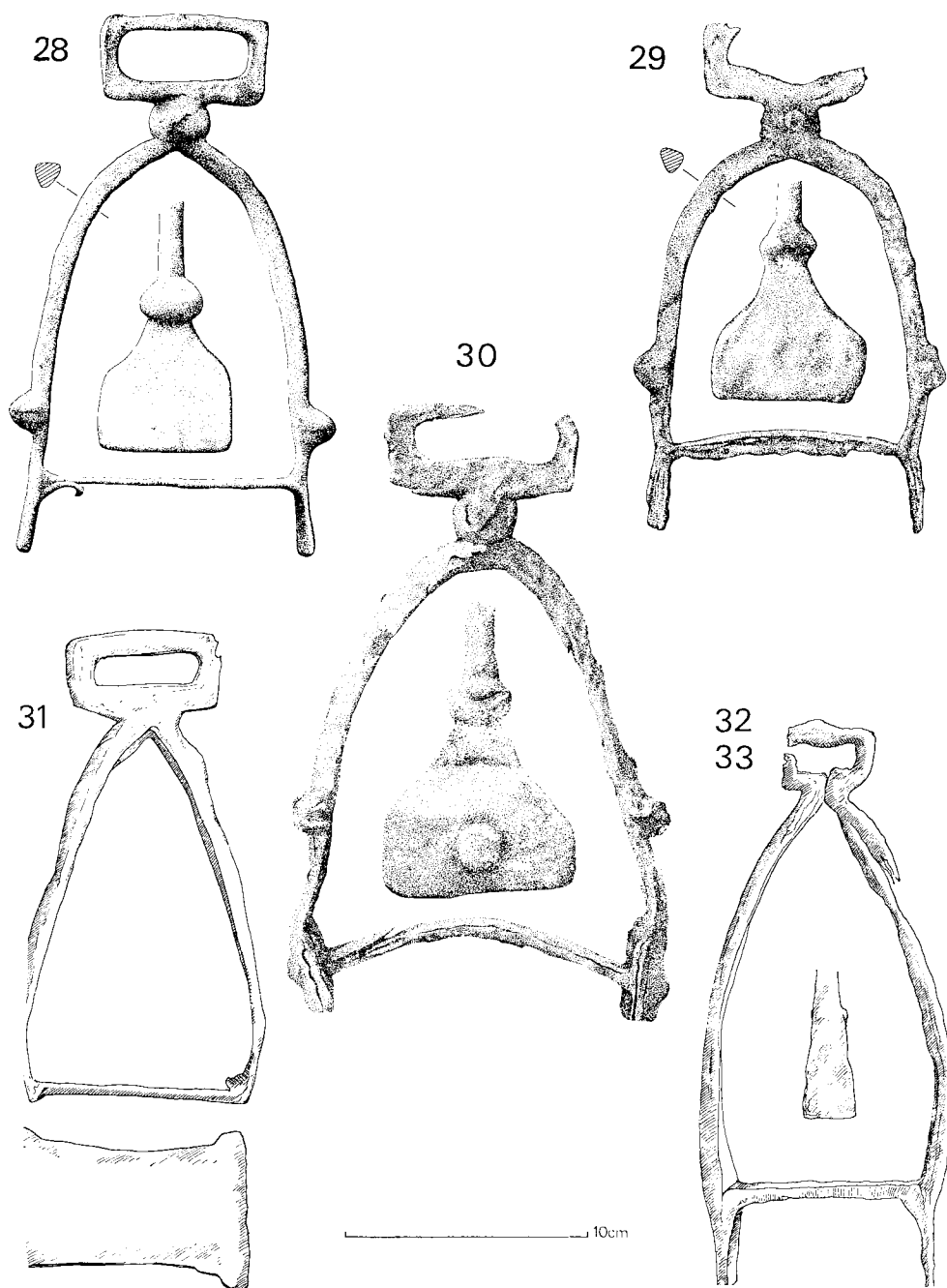


FIG. 9  
Stirrups of English group 2cii without decoration  
Nos. 31-33, Miscellaneous types

## MISCELLANEOUS FORMS

*Simple forms with loop in same plane as bow, probably English origin*

**31 LONGDOWN FARM**, Great Kimble, Bucks., GR SP835044. Bucks. County Museum, Aylesbury. 10880

Rectangular loop joined direct to bow without intervening boss. Tread continuous with splayed arms although suggestion of downfold at one side. No knobs or decoration. Direct connection of arms with loop and with low-set tread is a Scandinavian feature and may indicate early date.

H.  $7\frac{1}{2}$  ins. (19 cm); W. 4 ins. (10.2 cm)

Ref.: A. Morley Davis, *Cambridge County Geography, Buckinghamshire* (1912), 101; *V.C.H. Bucks.*, I, 205.

**32, 33 ST MARY HILL**, Glamorgan. National Museum of Wales, Cardiff, 94.250

The first of only two extant pairs from Britain and the only stirrups from Wales. The best of the two rather poorly preserved specimens shows a small square loop continuous with bow and arms imperfectly fused at neck. Arms bowed and deeply unfolded to form narrow tread. No proper sideplates. Features appear early, probably from a pagan Viking burial of the 9th, or early 10th, century.

H.  $9\frac{3}{8}$  ins. (23.8 cm); W. 4 ins. (10.2 cm)

Ref.: *Cardiff Museum Report* (1893-94), 19.

*Unknown form*

**34 ST JOHN'S KIRK**, GERMAN, Isle of Man. Lost

Found in a cist on Peel side of megalithic cist in the roadside at Tynwald Hill which contained battle axe, a stirrup and a handful of beads, during the 19th century.

Ref.: H. R. Oswald, in *Manx Society*, v (1860), 198, notes that Frank Matthews of Glen Moor opened the cist; B. R. S. Megaw, 'Weapons of Viking Age found in Man', *Jnl. of Manx Museum*, III, 235; Shetelig (1940), 25.

## ADDENDA

Since the above text was completed a further two stirrups have appeared.

*English Type 2cii — Smaller type with globular necks*

**35 SEAGRY**, Wiltshire. Devizes Museum, 47/1979

Dredged up with silt from R. Avon at GR ST972812 with a scramasax, a hanging bowl mount of 7th-8th centuries and a late medieval cap badge, not in association.

Small rounded bow of arms of triangular section, shallow and slightly inturned sideplates and pronounced solid knobs. Wide flat tread inserted into bow and partly eroded through. Abrasion caused by wear on rear of neck knob and on rear inner edges of side knobs.

H. 8 ins. (20.6 cm); W.  $5\frac{7}{16}$  ins. (13.7 cm)

Decoration: Applied brass sheet etched with copper coloured linework, applied to lower member of loop, to neck knob in the form of a human mask, to the arms of the bow, knobs and sideplates. Overlaid lines of brass wire applied to the slightly flanged ends of the loop, and on the forward edge of the tread.

Comment: The form of this stirrup is typical of English Type 2cii. The decoration, although conforming generally in style, is varied through the different technique used, thus the scroll forms are more solid and less linear. The overlay technique still appears on the side knobs and edges and the sheet metal appears to be keyed in a similar way. The scroll form on the loop may have been seen as flowing horns of the wide-eyed mask on the knob, thus the scrolls of the arms may be viewed as issuing from his mouth, which is not represented. The rear side of the arms has been simplified to two instead of three leaf forms. The



sideplates bear two devolved animal heads linked in opposed position, each with straight tendrils in Ringerike-like style. The background to the ornamentation is scored with a roulette wheel to take the copper coloured alloy inlay which also outlines the pattern.

This stirrup, which is well preserved and excellently conserved, shows the continuity of continental sheet overlay practice into the fully developed English forms. The condition of the stirrup suggests that it was lost accidentally rather than being discarded.

Ref.: Unpublished.

The authors are grateful to Dr Paul Robinson of Devizes Museum, and the Wiltshire Archaeological Society, for allowing the example to be included here.

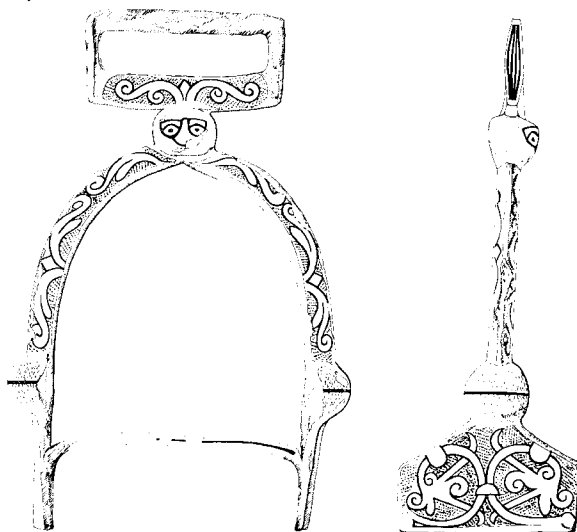


FIG. 10

No. 35. English Type 2cii, from Seagry, Wiltshire

*Alien form of Scandinavian origin*

**36 WINCHESTER, Hampshire.** Castle Yard excavation, 1979, Trench ix. Find No. CY 297.

Recovered from a late tenth-century context.

Iron stirrup having a small triangular loop set at right-angles to the bow. Neck boss formed with an increment of metal. Bow formed as a pointed arch with arms of triangular section and low folded-up tread separated from arms by slight hollowed knobs. Loop worn in antiquity, bow damaged. N.B. Not illustrated.

H.  $7\frac{3}{8}$  ins. (18.7 cm); W.  $4\frac{1}{16}$  ins. (10.4 cm)

Decoration: Non-ferrous plating.

Comment: This stirrup is clearly of an insular form with its developing hollow knobs but retains early features in its low set upfolded tread and the Scandinavian setting of the loop at right-angles to the bow. The typologically early date amongst the British finds is also indicated by the plating.

The late 10th-century date provided by the excavators serves well to confirm the hypothesis above that the stirrup was at an early stage of its development in Britain at this time.

The authors are most grateful to Mr Martin Biddle for permission to refer to this find ahead of its publication in Volume viii, Part 2, of the Winchester Excavation Reports.

## NOTES

- <sup>1</sup> O. Rydbeck, *Medd. från Lunds Hist. Mus.* (1933-34), 77-98.
- <sup>2</sup> J. G. D. Clark, *Antiquity*, xv (1941), 51.
- <sup>3</sup> From Trugny, Aisne.
- <sup>4</sup> J. Hampel, *Altertümer des frühen Mittelalters in Ungarn*, i (Brunswick, 1905), 218-42.
- <sup>5</sup> A. Schlieben, 'Geschichte des Steigbügel', *Annalen des Vereins für Nassauische Altertumskunde und Geschichtsforschung*, xxiv (1892).
- <sup>6</sup> R. Zschille und R. Forrer, *Die Steigbügel in ihrer Formenentwicklung* (Berlin, 1896).
- <sup>7</sup> P. Reinecke, 'Zur Geschichte des Steigbügels', *Germania*, xvii (1933).
- <sup>8</sup> E. M. Jope, in C. Singer (ed.), *History of Technology*, III (Oxford, 1956).
- <sup>9</sup> L. T. White, *Medieval Technology and Social Change* (Oxford, 1962), 14-28 and notes pp. 140-46. This is the most recent and stimulating discussion with invaluable references, but his conclusions should be taken circumspectly.
- <sup>10</sup> *Ibid.*
- <sup>11</sup> Kao Chih Hsi, *Kaogu Xuebao*, iii (1959), 75-106 quoted by White.
- <sup>12</sup> F. Hirth, *Verhandlungen der Berliner Gesellschaft für Anthropologie* (1890), 209.
- <sup>13</sup> In the Royal Ontario Museum, Toronto.
- <sup>14</sup> Two T'ang stone reliefs of the 7th century or later at the University Museum, Philadelphia; others in the Metropolitan Museum, New York (facsimiles in the B.M.) show Chinese cavalrymen with harness and stirrups.
- <sup>15</sup> For example, the Chertomlyk silver vase (Clark, op. cit. note 1) although its date is a matter for dispute, and the representation referred to by K. Jeffmar, *Art of the Steppes* (Baden Baden, 1964, and London, 1968).
- <sup>16</sup> White, op. cit. note 9, 16 and note p. 141.
- <sup>17</sup> L. R. Kyzlasov, *Tashtykskaya epokha* (Moscow, 1960), 140, f. 51, 9-10.
- <sup>18</sup> See R. Girshman, *Artibus Asiae*, xiv (1951), 184.
- <sup>19</sup> Reinecke, op. cit. note 7, following Hampel. The first context securely dated by coins of the 7th century is at Ivancsa, Hungary: I. Bona, 'Avar Larassir Ivancsarol', *Archaeologiai Ertesito* (1970), 243-63.
- <sup>20</sup> O. Kleeman 'Samländische Fund und die Frage der ältesten Steigbügel in Europa', *Rheinische Forschungen zur Vorgeschichte*, v (1956), 116.
- <sup>21</sup> Οὐρβικίον τακτικά στρατηγικά, allegedly by the Emperor Maurice (c.A.D. 600). See J. Scheffer, *Mauricii artis militaris libri duodecim* (Uppsala, 1664), 22, 64. It may also be significant that Maurice clashed several times with the Avars.
- <sup>22</sup> F. Lammert, *Jahresbericht über die Fortschritte der Klassischen Altertumswissenschaft*, cclxxiv (1941), 45-47 summarizes the case for a later date.
- <sup>23</sup> By al-Jāhiz, setting down an oral tradition some 150 years after the event. Cf. S. M. Yusof, in *Islamic Culture*, xvii (1943).
- <sup>24</sup> White, op. cit. note 9, 19.
- <sup>25</sup> H. Stern, 'Quelques œuvres sculptées en bois, os et ivoire de style omeyyade', *Ars Orientalis*, i (1954), 128-30, and note 77 where a later date is preferred, with good reason.
- <sup>26</sup> W. Veck, *Die Alemannen in Württemberg*, i (Leipzig and Berlin, 1931), 75, and comment by D. A. Bullough in *Charlemagne and his Achievement in the Light of Recent Scholarship* (1970), 86-87.
- <sup>27</sup> Now in the Musée des Tissus, Lyon. The date of this cloth has also been disputed.
- <sup>28</sup> Valenciennes Bibliothèque municipale 99, illustrated on folios 12, 13, 19 and 35, dated by Bischoff in *Lebenswerk u. Nachleben* ii, 236 and confirmed on liturgical grounds. A. Dumas, *Studia Patristica*, v (1962), 25-29. See also comment in Bullough, op. cit. note 26.
- <sup>29</sup> H. Brunner, 'Der Reiterdienst und die Anfänge des Lehnwesens', *Zeitschrift der Savigny-Stiftung für Rechtsgeschichte, Germanische Abteilung*, viii (1887), 1-38; and his *Forschungen zur Geschichte des deutschen und französischen Rechts* (Stuttgart, 1894); and others following him.
- <sup>30</sup> Clark, op. cit. note 2, 51.
- <sup>31</sup> Inventory Nos. 14, 15, 17, and 29; White may of course be right to dismiss this type as a *jeu d'esprit* of the smith: op. cit. note 9, 142 and note 1 on p. 19.
- <sup>32</sup> Hampel, op. cit. note 4.
- <sup>33</sup> W. A. Seaby, 'Dark Age Finds from the Cherwell and the Ray', *Oxoniensia*, xv (1950), 29-43; J. B. Ward-Perkins, *Medieval Catalogue*, London Museum No. 7 (1940), 90-91 and figs. 24 and 25.
- <sup>34</sup> J. Brøndsted, 'Danish Inhumation Graves of the Viking Age', *Acta Archaeologica*, vii (1936).
- <sup>35</sup> R. Blomqvist, 'Stigbyglar' in *Kulturen Museum Arsbok* (Lund, 1948), 92-124.
- <sup>36</sup> J. Petersen, *Vikingetidens Redskaper* (Oslo, 1951), 32-36.
- <sup>37</sup> S. Grieg, 'Gjermundbufunnet', *Norske Oldfunn*, viii (1947), pl. IV, figs. 1-2.
- <sup>38</sup> A. B. Jonsson, 'Några Forntida Uppländska Stigbygettyper', *Fornvännen*, xlix (1954), 234-40.
- <sup>39</sup> D. M. Waterman, 'Late Saxon, Viking and medieval finds from York', *Archaeologia*, xcvi (1959), 74-76.
- <sup>40</sup> H. J. Hundt, 'Ein Tauschierter Steigbügel von Aholting, Ldkr. Straubing' *Germania*, xxix (1951), 3/4, 259-61, which example is dated as late as the 10th century. See also Duisburg-Stadtmitte, Braunwald, Immerstedt, Sahlburg-Galgenburg Grave VI.
- <sup>41</sup> H. Arbman, *Birka*, I, *Die Gräber* (1943), Grave 942, 364; and II, pls. XXXIII-XXXVII.
- <sup>42</sup> T. J. Arné, 'Das Bootgräberfeld von Tuna in Alsike', *K.V.H.O.A.A.* (Stockholm, 1934), 65-66.
- <sup>43</sup> Grieg, op. cit. note 37.
- <sup>44</sup> B. Schönback, in private communication to P.W. Not yet published.

- <sup>45</sup> K. Jażdżewski, 'Cmentarzysko wczesnośredniowieczne w Lotomiersku pod Łodzią w świetle badań w r (1949)' in *Inventaria Archaeologica*, Corpus des ensembles archéologiques (Pologne: Lodz and Bonn, 1958); also H. Simonsson, 'Ett sen vikingatida gravfält från Västmanland', *Fornvännen*, LXIV (1969), 69-89.
- <sup>46</sup> K. Eldjarn, *Kuml og Haugfé úr heidnum síð a Íslandi*, (Reykjavík, 1956), 258-59 and figs. 189-91. Only one has the trapezoidal plate, and none was found in a datable context.
- <sup>47</sup> W. Holmqvist, *Acta Archaeologica*, xxii (1951), 1-56.
- <sup>48</sup> Brøndsted, op. cit. note 34, Grave 33, 102-04; D. M. Wilson, *Anglo-Saxon Ornamental Metalwork 700-1100* (British Museum, 1964), 50, pl. IX.
- <sup>49</sup> P. Huggins, 'Monastic precinct excavations, Waltham Abbey, Essex, 1974-7', *Essex Archaeol. Hist.*, 11 (1979) forthcoming, fig. 12, no. 3 and 3a. The plate appears to be bronze, but spectrometric scanning by electron microscope shows an absence of tin and zinc but the presence of lead in the metal and lead alone in the inlay. Pottery associated with this burial was dated late 10th to early 11th century. The authors are grateful to Mr Martin Howe, Peterborough, for bringing this to their attention, and to Mr Peter Huggins for detailed discussions.
- <sup>50</sup> D. Rygh, *Norske Oldsager* (1885).
- <sup>51</sup> J. Laursen, *Kuml* (Aarhus, 1960), 90 et seq. and with results of X-ray, 'Nye billedet af et Gammelt find', *Kuml* (1970), 102-03.
- <sup>52</sup> For finds in Germany, see W. Veeck, 'Die Alemannen in Württemberg', *Germanische Denkmäler der Völkerwanderungszeit*, Römische-Germanische Kommission (Frankfurt, 1931), 75, pl. LXVI; L. Lindenschmidt, *Die Altertümer unserer Heidnischen Vorzeit, IV* (Mainz, 1900) pl. XXIII-V; (1911) 196, pl. XXXVI; K. Dinklage, 'Zur deutschen Frühgeschichte Thüringens', *Mannus* (1941), 496; A. Ekkehard, *Offa*, 11 (1931).
- <sup>53</sup> *Stapes* — stirrups. Littleton's *Dictionary* (5th edition, 1723).
- <sup>54</sup> Evidenced at Valsgårde, Grave 15. See also a pair at Norsa, Köping, Västmanland, and two pairs with cremation burials at Åsta, Björskog, Västmanland. (Letter B. Schönback to P.W.).
- <sup>55</sup> See footnote 50.
- <sup>56</sup> J. Brøndsted, op. cit. note 34, Grave 89, 169-71 and pls. V-IX.
- <sup>57</sup> R. E. M. Wheeler, *London and the Vikings*, London Museum Cat. No. 1 (1927), 41, fig. 19.
- <sup>58</sup> G. Westin, *Fornvännen*, xxxvi (1941), 93, text p. 95, et seq.
- <sup>59</sup> Maryon's definition of the term 'damascening' is more restricted than that in general usage.
- <sup>60</sup> But see H. Shetelig, *Viking Antiquities in Great Britain and Ireland, VI* (Oslo, 1954), 242.
- <sup>61</sup> E. T. Leeds, *V.C.H. Oxfordshire*, I (1939), 369. Dr Shetelig later agreed with this possible explanation. See also Seaby, op. cit. note 33, 35, and 38.
- <sup>62</sup> Ward-Perkins, loc. cit., note 33.
- <sup>63</sup> R. A. Smith, *B.M. Guide to Anglo-Saxon Antiquities* (London, 1923), 90-91.
- <sup>64</sup> T. D. Kendrick, *Late Saxon and Viking Art* (London, 1949), 57-58.
- <sup>65</sup> See, for instance, the evidence for his dating of the Whitby vine scroll lead mount put forward by G. Haseloff, *Antiq. Jnl.*, xxx (1950), 170-74.
- <sup>66</sup> In correspondence with W. A. S. See also P. Paulsen, *Axt und Kreuz bei den Nordgermanen* (Berlin, 1939), figs. 50-51, showing axes from Masku, Humikkala, Finland and Biljarsk, Russia, both having inlaid decoration.
- <sup>67</sup> A. H. Smith, *English Place-Name Elements*, E.P.N. Soc., XXV (Cambridge, 1956), map at end, also reproduced in G. Jones, *History of the Vikings* (Oxford, 1968), 222.
- <sup>68</sup> The raids of Olaf, Sweyn and Cnut are described in the Anglo-Saxon Chronicle, augmented by the chronicles of Henry of Huntingdon and Florence of Worcester, also by the Saga of Olaf Tryggvason, the Heimskringla and other sources.
- <sup>69</sup> Wilson, op. cit. note 48, 107 and pl. VII. On p. 39 Wilson discusses lozenge decoration in the same technique on the hilt of the Witham sword in the British Museum and cites parallel examples.
- <sup>70</sup> The help of Dr C. E. Wright of the Department of Manuscripts in the British Museum is gratefully acknowledged in this connection.
- <sup>71</sup> Seaby, op. cit. note 33, 42 where graphic evidence for other later forms of stirrup is given.
- In addition to the above references, the following articles and books have some bearing on the study of the history and development of the stirrup.
- S.1 E. Salin, *Le Haut Moyen Âge en Lorraine d'Après le Mobilier Funéraire* (Paris, 1939), 335 f.
- S.2 E. Salin, *Le Fer à l'Époque Mérovingienne* (Paris, 1943).
- S.3 *LII Memoire de l'Institut d'Égypte*, Institut Française (Cairo, 1948).
- S.4 H. Arbman, *Schweden und des Karolingische Reich* Kungl. Vitterhebs Hist. & Antik. Akad. XLIII (Stockholm, 1937), pl. XLV, Nos: 3, 4, 5, and L, No. 3.
- S.5 S. Müller, *Ordning af Danmarks Oldtid III*, Jsnalderen. See under 'Vikingetiden'.
- S.6 H. Arbman, 'Vikingatidsgraver vid Ulanda', *Upplands Fornminnesförenings*, XLV (1935-37), 261-75, figs. 6-9.
- S.7 *Aarbok for Universitets Oldsamlng* (Oslo, 1943-44), 379.
- S.8 N. Nicolaysen, *Norske Fornleuninger* (Christiania, 1862-66), 50, 57, 83, 196, 630, and 737.
- S.9 *Arsberetninger for Foreningen til Norske Fortidsminnesmerkers bevaring* (Years: 1866-69, 1871, 1874-75, 1877-79, 1883, 1885, 1887, 1890, 1893.)
- S.10 *Oldtiden*, VI (1916), 90, 144, 193, 237, 268; and VII (1919), 226.
- S.11 A. L. Lorange, 'Norske Oldsager i Bergens Museum', *Bergens Museums Aarsberetning* (1920-21), 144.

- S.12 A. W. Brogger, 'Borrefundet of Vestfoldkingernes graver', *Skrifter utgit av Videnskapsselskapet i Kristiana*, Hist-filos klass (1916), 17, No. 1, fig. 30.
- S.13 G. Westin, 'En Västmanlandsk Ryttagrav', *Fornvännen* (1941), 93, text, 85-101, figs. 3 and 7.
- S.14 W. W. Arendt, 'Sur l'apparition de l'étrier chez les Scythes', *Eurasia Septentrionalis Antiqua*, ix (1934), 206-08.
- S.15 A. D. H. Bivar, 'The Stirrup and its origins', *Oriental Art*, new ser. 1 pt. ii (1955).
- S.16 O. Klindt-jensen, 'Foreign Influences in Denmark's Early Iron Age', *Acta Archaeologica*, xx (1950), 87-108.
- S.17 Sir E. Minns, *The Scythians and Greeks* (Cambridge, 1913).
- S.18 Sir W. Ridgeway, *The origin and Influence of the Thoroughbred Horse* (Cambridge, 1893).
- S.19 K. Thorvildsen, 'Ladby-Skibet', *Nordiske Fortidsminder* (Copenhagen, 1957), 66, 71-73, figs. 53 and 58.
- S.20 B. Almgren, 'Vikingatagens höjdpunkt och slut', *Tor* (Medd från Inst. for Nordisk Fornkunska vid Uppsala Universitet), ix (1963), 236.
- S.21 H. Jahnkuhn, *Die Ausgrabungen in Haithabu* (Berlin, 1943), 123-24.
- S.22 P. Paulsen, *Der Wikingerfund von Leckhus* (Kiel, 1937), 34-43.
- S.23 I. Dienes, *Archaeologiai Ertesitő*, xciii (Budapest, 1966), 208-34 passim. French summary 'Quelques enseignements tirés de l'harnachement des hongrois conquérants'; IV *Les dimensions des étriers*. Dienes makes the point that the stirrup on the right side by which the cavalry man mounted was often larger and more finely decorated than the left.
- S.24 A.-L. Forsåker, *Stigbyglar med Tvärställd Remögla med Utgångspunkt från tre Svenska Fynd*, Uppsala seminar paper (1976), unpublished.
- S.25 Lefebvre des Noëttes, *L'attelage de cheval de selle à travers les âges* (Paris, 1931).
- S.26 M. Muller-Wille, *Das Wikingerzeitliche Grabfeld von Thumby-Bienebek, (Kr. Rendsburg-Eckenforde), Teil I* (Neumunster, 1976), with a distribution map of stirrup finds in Denmark at p. 28.

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