The Finds Research Group AD700-1700

DATASHEET 36

Brigandine and Jack Plates

by

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This *Datasheet* aims to raise awareness and assist identification of two forms of armour: brigandines and jacks. These armours were commonly worn in the late medieval and Renaissance periods, but the individual ferrous plates are only occasionally recognised within archaeological assemblages. The brigandine was a flexible armoured garment for the upper body in which overlapping rectangular or trapezoidal plates were riveted to a canvas doublet (Figure 1). By contrast, in a jack of plates, each plate was of roughly square shape and had a hole pierced through the centre through which it was sewn into a linen doublet with each edge overlapping adjacent plates (Figure 2, internal, Figure 3 external).

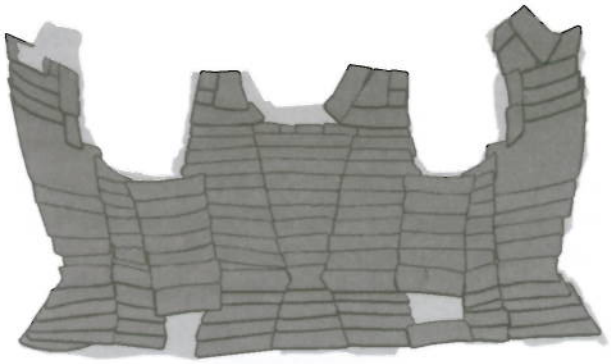

Figure 1: Interior of brigandine, showing exposed plates. Italian c 1470 (Royal Armouries III.1664)

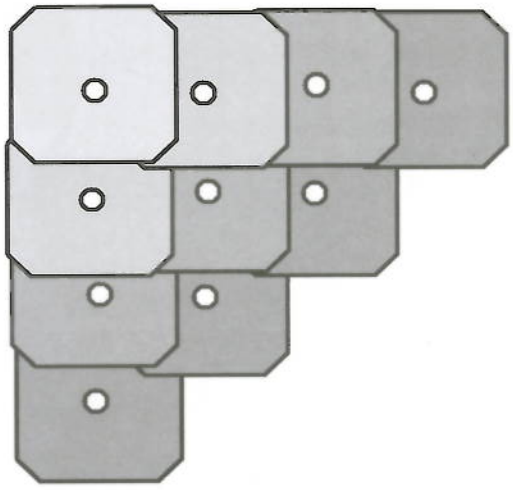

Figure 2: Schematic diagram showing typical arrangements of plates within jack

Documentary evidence

The textual and illustrative evidence for both types has been reviewed in detail by Eaves (1989). The brigandine was the longest serving form of the two and probably developed from an earlier type known as a coat of plates. The earliest European documentary references to brigandines are from 1367, with the first in England in 1397. Widespread use, particularly in Italy, Spain, Flanders, France and England is attested from the second quarter of the 15th until the mid 16th century. Although there is no evidence of manufacture after this date, the use of old brigandines apparently continued into the early years of the 17th century.

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Documentary references to jacks occur from the 13th century. However, it is believed the earliest refer only to fabric, leather or tow-stuffed defences. Later developments included jacks containing mail or plates of horn. The jack of plate, with its ferrous plates, is first recorded in the second quarter of the 16th century. In the second half of the century it replaced the quilted jack and the brigandine as the favoured armour of infantry in England and Scotland, although not elsewhere in Europe. Manufacture of jacks of plate appears to have ceased at the end of the 16th century but the use of old garments continued at times of need. Military supplies sent out to settlers in Virginia in 1622 included jacks of plate. Their use during the English Civil War has been confirmed by archaeological finds, although as Eaves (1989, 91) points out, jacks in use as late as this 'would have been old-fashioned to the point of inviting ridicule and probably in highly parlous condition'.

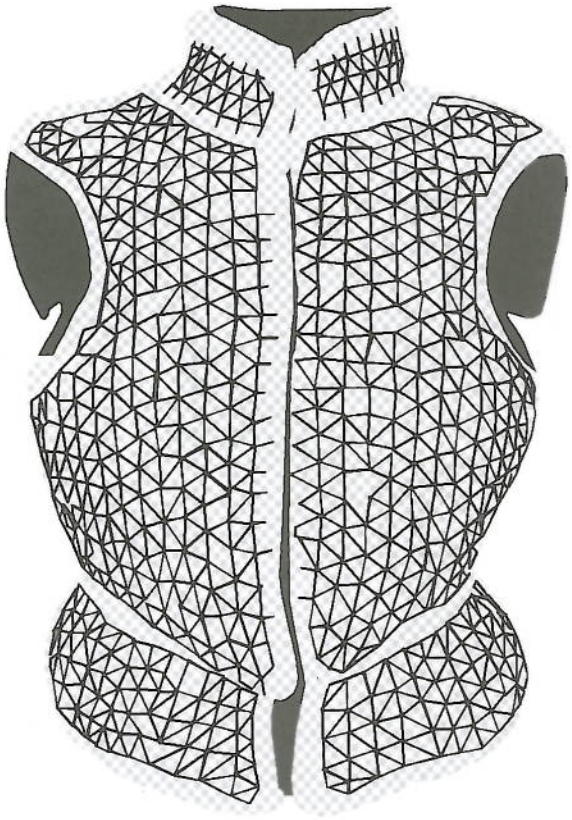

Figure 3: Jack of plates, c 1580 showing characteristic stitching on the outside of the fabric (Royal Armouries III.1277)

Surviving armours

Both types of armour are relatively poorly represented in even the largest armour collections compared to solid plate armour. This is largely due to the vulnerability of their organic materials to decay, but also because jacks and most brigandines were relatively low status armour and therefore not retained for display to the same extent as armours made for the fighting nobility. Jacks are particularly poorly represented. By far the most extensive collection, that of the Royal Armouries, contains only eight armours in near complete condition.

Excavated evidence

Survival in the ground and post excavation recognition of brigandine and jack plates is limited by the ease with which the thin ferrous plates corrode and disintegrate. The best examples are recorded from anaerobic, waterlogged environments, such as Tooley St., London (Egan, pers. comm.). Generally, where whole armours or large sections of armour were buried, such as Debenhams, Chester (Garner *et al.*, in prep.), Pontefract Castle (Roberts, 2002, 339-41 and 345) or Beeston Castle (Eaves 1989 and 1993), recognition is relatively easy, particularly when the mineralised mass is X-radiographed. However, single or scattered plates are more problematic and it is likely that many examples have been misclassified or unrecognised.

Identification

Brigandine plates vary considerably in size. It is generally assumed that larger plates tend to be earlier, but a single garment may contain plates of a multitude of shapes and sizes (Figure 1). The common feature of all brigandine plates is a row of rivets along the upper edge of the plate. These rivets are of iron but are commonly capped with copper alloy (Figure 4a, b and c). Most plates show evidence of tinning. Stylistically it has been suggested that a triangular cluster of rivets (Figure 4a) indicates a later 15th-century date (Eaves 1989, 94).

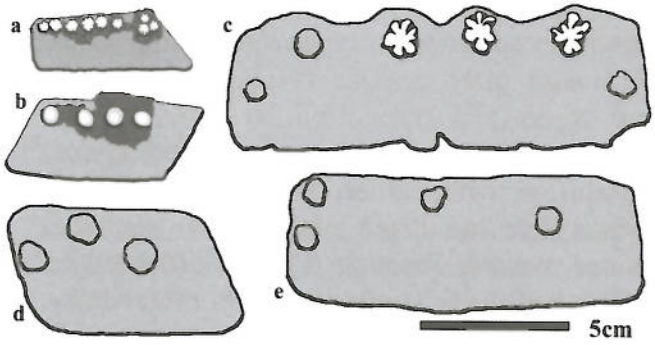

Figure 4: Brigandine plates: a) Tooley St., Southwark, late C15th; b) Royal Armouries III.49, mid C16th; c) Sachsendorf, Austria, late C14th; d), e) Sachsendorf, mid-late C15th.

Jack plates are normally of approximately square shape, typically 25 to 40 mm in width. All are pierced by a central hole, which can be round or square. On many the corners are clipped, presumably to help protect the cord binding, but this is far from universal. The finish can range from very precise and uniform to extremely rough and variable. Rare surviving examples of the detachable sleeves from jacks have narrow, elongated plates (Figure 5g). Plates do not appear to have been tinned, except where they used recycled material, as described below.

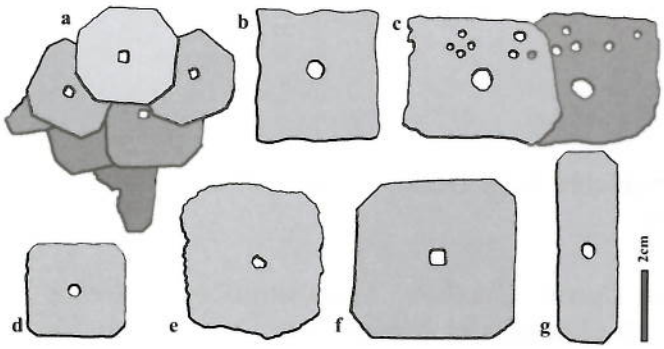

Figure 5: Jack plates: a) Pontefract Castle, W. Yorks (after Roberts 2002); b) Royal Armouries III.1917; c) Beeston Castle, Cheshire (after Eaves 1993); d) Tooley St., Southwark; e) Debenhams, Chester; f) Royal Armouries III.46; g) Plate from sleeve, Royal Armouries III.1885.

Both brigandines and jacks commonly re-used sheet iron from other objects, particularly obsolete armour and the re-use of brigandine plates in jacks, indicated by additional rivet holes (Figure 5c), obliquely cut edges or tinning is surprisingly common. Study of complete jacks (Starley and Richardson 2005) has also shown many of these to be constructed of distinctive groups of plates, which suggest that the garment had been re-assembled from the remains of other jacks.

Archaeological contexts

The context of finds of these armours is significant. Battlefield sites themselves have rarely yielded finds and it may be assumed that both scavenging after the battle and the corrosive nature of the upper soil layers have played a part in their absence. One exceptional find was the mass burial pit from the Battle of Wisby, 1361 on the Swedish island of Gotland where armour was not removed from the bodies prior to burial (Thordeman 1939). Many British find sites do have military connections, notably the castles at Beeston (Eaves 1993, 141-4), Camber (Scott 2001) and Pontefract (Roberts 2002, 339-41), but for these three sites the dating of the contexts suggests that the jacks of plate were of considerable age when deposited. Despite their period of fashion being the second half of the 16th century, this armour may have survived in sufficiently usable condition to be worn during the English Civil War. Finds' contexts dated to the period when such armour was commonly worn are surprisingly rare, though a single jack plate from Tooley St., Southwark (Egan, pers. comm.) and seven brigandine plates from the Dominican Friary, Boston (Moorhouse 1972, 41-2), from mid 16th- and mid 15th-century contexts respectively, provide two examples. Remarkably, some later finds have documentary support. At Debenhams, Chester, the heavily corroded jack of plates found may correspond to a 'jacke' listed in the 1617 inventory of Robert Fletcher, felt maker and this would appear to be a civilian garment. An excavated jack of plates from the early colonial settlement at James Town, Virginia, is likely to be linked to a known shipment of, presumably obsolete, armours from the Royal Arsenals in 1622 (Peterson 1956, 140).

Metallurgy

Compared to plate armour relatively little metallurgical analysis has been undertaken of jacks and brigandines. All are ferrous, but the quality is poor, generally being equivalent to that of cheaper munition armour, rather than the superior alloys and heat treatment seen in high status armour from the major European workshops. The presence of phosphorus is relatively common in low quality ironwork. Many ores contain small amounts of the element, from where it passes into the metal. Although far inferior to steel, even 0.1-0.2% phosphorus can slightly increase the hardness of the metal, and its presence should not be thought of as detrimental. A single plate from a Royal Armouries jack (Starley 1992, 247) was of iron, containing 0.1% phosphorus. Two corroded plates from Pontefract (Maclean and Starley 2002, 355-9) appeared, from relic structures, to be a low slag, ferritic iron and a piled composite of ferritic and phosphoric iron. Two brigandines from Sachsendorf in Austria were made of very heterogeneous mixture including iron, phosphoric iron and steel, but without any attempt to harden it (Starley 1992, 99-100 and 252-60).

Other armour

This brief *Datasheet* aims only to cover jacks and brigandines, two of the more commonly encountered armour types on British sites. Although plate armour is also occasionally recovered, and recognised, determining date and origin will generally require expert advice. Confusion with earlier, Roman armour may occur. The laminated manica (arm defence) plates recently found in Carlisle (Richardson 2001) had many similarities with brigandines. However, the archaeological context of all except stray finds should prevent confusion. Occasionally, less standardised and imported exotic forms of armour may also be found.

Acknowledgements

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