VINDOLANDA

RESEARCH REPORTS, NEW SERIES

VOLUME IV

THE SMALL FINDS

FASCICULE III.

THE TOOLS

by

Justin Blake, BA
Vindolanda Research Reports, New Series

Volume I  The Early Wooden Forts.  
Introduction and analysis of the structures, with bibliography  
Coin Report. 1994

Volume II  The Early Wooden Forts.  
Reports on the Auxiliaries, the writing tablets, inscriptions,  
brands and graffiti. 1993

Volume III  The Early Wooden Forts.  
Preliminary reports on the leather, textiles, environmental  
evidence and dendrochronology. 1993

Volume IV  The Early Wooden Forts. The Small Finds.  
Fascicule I - The Weapons (Published, 1996)  
Fascicule II - Security: The Keys & Locks (Published, 1997)  
Fascicule III - The Tools (Published, 1999)  
Fascicule IV - Writing Materials (Published, 1999)  
Fascicules V - IX (In preparation)

Volume V  The Early Wooden Forts.  
The samian and amphora stamps, and the pottery. (In  
preparation).

Volume VI  The Severan Fort.

Volume VII  The Third Century Vicus.
VINDOLANDA & its neighbours on the 'Stanegate' frontier before the construction of Hadrian's Wall.

Vindolanda and its neighbours after the commissioning of Hadrian's Wall.
<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vindolanda fort &amp; vicus in the third century</td>
<td>v</td>
</tr>
<tr>
<td>The Dating of the Material</td>
<td>vi - vii</td>
</tr>
<tr>
<td>Preface</td>
<td>viii</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Cleavers</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Knives</td>
<td>4 - 17</td>
</tr>
<tr>
<td>Metalworking Tools</td>
<td>18 - 25</td>
</tr>
<tr>
<td>Agricultural Tools</td>
<td>26 - 32</td>
</tr>
<tr>
<td>Sculptors, Masons &amp; Plasterers Tools</td>
<td>33 - 37</td>
</tr>
<tr>
<td>Leatherworking Tools</td>
<td>38 - 40</td>
</tr>
<tr>
<td>Tools for processing Wool &amp; Cloth</td>
<td>41 - 42</td>
</tr>
<tr>
<td>Woodworking Tools</td>
<td>43 - 51</td>
</tr>
<tr>
<td>Miscellaneous Tools</td>
<td>52 - 56</td>
</tr>
<tr>
<td>Bibliography</td>
<td>57 - 58</td>
</tr>
</tbody>
</table>
Vindolanda fort and vicus, in the third century

The excavated structures are shown in bold lines, and those inferred from other evidence in outline only. The site of the large pre-Hadrianic forts of periods II to IV is indicated. The Stanegate road passed immediately to the north, separating the site from the parade ground and cemeteries.
THE DATING OF THE MATERIAL

In the catalogues which follow, each find is identified by its unique small find number, which relates to its find spot as recorded in the principal excavation archive, and this number is followed by an indication of the period of occupation in which it was found. The current dating of the periods is given below, together with the principal evidence used in those calculations.

PERIOD I
AD 85-90
All the material from this context was found in the western ditch of the primary fort, sealed below the deliberate packing and the floors of the subsequent enlarged period II fort. The suggested post-Agricolan date may be a little late, because the only possible dating evidence came in the form of a deposit of unused samian ware from La Graufesenque, which included the stamps of potters whose wares are found at Pompeii as well as a number whose period of production appeared to post-date AD 79 by a few years. Dragendorff form 29 was almost entirely absent.

PERIOD II
AD 90-97
The latest coin in this context was a slightly worn sesterius of Domitian, AD 87. The strength report of Coh. I Tungrorum probably belonged to this context.

PERIOD III
AD 97-105
This is the most closely dated of all the periods of occupation. The nine coins closed with three issues of Nerva, AD 97, one of which was worn, but the deposits included a writing tablet referring to the governor of Britain, Neratius Marcellus, known to have been in office in January 101, and another document, with consular dates for 103 and 104 and subsequent records, suggested continued occupation into the late spring of 105. The garrison in this period included Coh VIII Batavorum, and there were no further references to that cohort from material in later contexts.

PERIOD IV
AD 105-120
There were numerous coins of Trajan in this period, closing with an unworn Via Traiana issue of AD 112-114. A writing tablet contained the consular date for AD 111. Timber used in the foundations of the buildings included material dated by dendrochronology to AD 104. Writing tablets included reference to legionaries in residence, in contexts best interpreted as preliminary surveys for the construction of the Wall.

PERIOD V
AD 120-140
Material from the floors of buildings of this period included a slightly worn dupondius of Hadrian, AD 119-121. The occupation appeared to be relatively lengthy, judging by the worn and repaired floors.

PERIOD VI
AD 160-180
The bulk of the material from this context was found in the two western ditches of what is presumed to be a late Antonine fort. The ditches were dug through the floors of the period V and IV structures, but were later back-filled and sealed to provide for later second century construction, associated with a military annexe. The latest coin from this deposit was a worn as of Faustina 1, AD 141+.

PERIOD VIA
AD 180-200
There was no secure dating evidence from the floors of the timber annexe buildings erected over the sealed period VI ditch, and the given date is no more than an approximate guide, taking account of the subsequent development.
PERIOD VIA
AD 200-213
The timber annexe of period VIA was replaced by a series of stone-built structures enclosed by a clay rampart and ditch, which was firmly dated to the Severan period by at least twelve unworn denarii of the House of Severus. The entire complex was soon deliberately demolished, before the construction of the military bath-house associated with the late stone fort of the Fourth Cohort of Gauls, and the civilian settlement.

PERIOD VII
AD 213+
This period saw the construction of the stone-built civilian settlement outside the walls of the late stone fort. How long the bulk of that settlement survived is uncertain, but it is evident that it was principally of third century date. For the dating of the various alterations within the fort, see Bidwell 1985.

PERIOD VIII
AD 300/400+
The material from this context came from the western ditch of the late stone fort, and the bulk of it should represent the final accumulation of rubbish before the garrison abandoned efforts to maintain the ditch. The most obvious late fourth century pottery types were little in evidence, and a closing date for the deposits may have been nearer AD 350 than 400.

PERIOD U/S
Unstratified material.
PREFACE

The Vindolanda Trust is grateful to many people, too numerous to name here, who have contributed to the drawing of the finds in this Report. To contain the publication to a reasonable size, the bulk of the damaged or repetitive items have not been illustrated. Thanks are also due to Mrs. Patricia Birley and Mrs. Linda Thompson for their work on the conservation of the material in the Chesterholm laboratory.

All Romano-British archaeologists are grateful to Professor Manning for his invaluable guidance on the proper identification of iron objects, and the author of this Report would be the first to acknowledge his work, especially in the Catalogue of Romano-British Iron Tools, Fittings and Weapons in the British Museum (1985).

Justin Blake began his work on this collection while still an undergraduate at Durham, and he has been in post at Vindolanda as an assistant archaeologist since September, 1996.

Robin Birley
Director, Vindolanda Trust.
INTRODUCTION.

Vindolanda’s iron tools form one of the largest Romano-British collections outside the British Museum. The finds are as diverse as they are numerous, ranging from the mundane axe blade to the unique wire making device, or the brush. The anaerobic conditions have given the added bonus that the tools from the pre-Hadrianic levels are as the Romans left them, with negligible corrosion. This allows us to see detail on some artifacts that would be lost under normal circumstances of preservation.

The term “tool” is a broad heading for a whole multitude of implements that perform a vast number of tasks. For the purpose of this fascicule “tool” has been taken to mean: “an instrument used or worked by a handi-craftsman or labourer in his work.” (Websters 3rd international dictionary). So carpenters, smiths, and farmers tools have been included but pins, clamps etc., although they could be classed as tools, have been omitted.

To date the bulk of the excavations at Vindolanda have been in the civilian settlement outside the late stone fort and around the central block of buildings in the pre-Hadrianic levels. This has put an obvious bias on the artifacts found, in that no workshops or shops selling tools were located in these areas. Many of the finds have come from early fort ditches and the conclusion reached here is that the tools have been lost or discarded, being of little or no further use to the owner. This explains why many of the well preserved tools are broken, for example the shears. There can be little doubt that as more of the site is excavated many more tools will be recovered and the likelihood is that many will be in mint condition.

As mentioned above, the Vindolanda site has produced some remarkable tools, many of a highly unusual nature. Four in particular stand out against the others as being particularly important. These are the brush, the nail heading tool, the wire making device and the industrial plane. All four are very rare finds and the wire making implement and the brush are unique to Roman Britain. The plane is unusual for its huge size and nail heading tools are rarely found, even if the item it produced is among the most common find from many sites.

Although there are rare finds in the collection, there are some absentee’s from the site that have been occasional if not common finds from other sites. Such finds might well have been expected in a collection so large. For example, although there have been many agricultural implements found, there has been no sign of any part of a plough or a sickle. Both of these tools have been found regularly elsewhere. Turf cutters have turned up around Europe, Britain and the Hadrian’s Wall area, but none have been found at Vindolanda yet, when they were undoubtedly being used. The most basic of metal working tools have been found at Vindolanda, such as tongs and hammers, but metal working anvils are absent even though there is a fine mower’s anvil. Other than these few items, Vindolanda has produced a stunning array of Romano-British tools from tightly dated deposits.

The tools are also preserved so well that in most cases they can be identified and their use described without any doubt. The only problem is one which is common to any examination of tools of any date. This is the fact that many tools are used for a variety of tasks, and items such as chisels are difficult if not impossible to ascribe to one certain tradesman, when one form could be used to equal effect by a carpenter, smith or a mason. Because of this fact there will be artifacts in each section of this fascicule that could be placed in at least two, if not more sections. The headings given are a loose guideline to the most likely use for each tool.
CLEAVERS.

Romano-British cleavers were predominantly used for the chopping of meat in much the same fashion as cleavers are used today. They are often similar in shape to Roman knives, but are heavier, especially in the blade. Manning 1985 lists the forms that Romano-British cleavers take and states that cleavers were usually socketed. The Vindolanda examples are mostly tanged, but their size and weight leave no doubt that they were cleavers. All of the Vindolanda cleavers were found in the later or unstratified layers.

No 163. Period U/S: length 220mm, width of blade 50mm, width of tang 11mm. Iron cleaver of Manning type 2b, showing the typical characteristics of a slightly tapering back in line with the tang, and a convex blade.

No 434. Period U/S: length 225mm, width of blade 55mm, width of tang 10mm. Iron cleaver of Manning type 2a or 2b. This example shows a convex blade and the back has only a slight taper in line with the tang. The point has been worn away badly.
No 3821. Period VII/VIII: length 126mm, width of blade 32mm, diameter of socket 15mm. Complete iron cleaver and fragment of wooden handle. This cleaver is shaped very like a Manning type 2b cleaver. The Vindolanda example is very small for a cleaver, but is socketed rather than tanged, which Manning 1985 states as being "usual" for cleavers rather than knives.

No 3834. Period U/S: length 220mm, width of blade 58mm, width of tang 10mm. A well preserved cleaver of Manning type 2a. This example has a wide blade and a highly convex edge. The back is almost straight with the tang.
KNIVES.

Roman knives are very similar in form and size to modern knives and used for the same purposes. There were many different types, and Manning 1985 distinguishes twenty four of them (see below). There are problems with the identification of some types, largely due to alterations to the original shapes caused by heavy use and re-sharpening, sometimes exaggerated by corrosion. In the British Museum collection, few of the well dated knives survived in good condition, and this Vindolanda collection, both well preserved and closely dated, is therefore of considerable value, spanning some three centuries of occupation.

Types of Romano-British knife, after Manning 1985.

No 130. Period U/S Vicus: length 108mm, width of blade 15mm, width of tang 5mm. The knife is tanged and the back runs along the same line as the tang. The blade edge is slightly convex. This example shows the same characteristics as a Manning type 11a.


No 332. Period VII/VIII. Badly broken and corroded knife blade.
No 336. Period VII/VIII: length 102mm, width 25mm. Corroded fragment of an iron knife blade.

No 457. Period VII Vicus: length 110mm, width of blade 27mm, width of tang 8mm. The knife is a Manning type 15, broken at the blade.

No 480. Period U/S Vicus: length 54mm, width 30mm. Fragment of bronze knife blade. This blade has been very worn before being lost or discarded.

No 487. Period VII/VIII: length 178mm, width of blade 18mm, width of tang 8mm. The blade of this knife is triangular in outline, with the tang running down the midline of the blade. These characteristics are the same as a Manning type 16. This example shows signs of wear on one side of the blade.

No 545. Period VIIIB: length 184mm, width of blade 32mm. Corroded, fragmentary iron knife blade.

No 600. Period VIIIB: length 38mm, width 21mm. Decorated bronze leopard knife handle. The handle has been ornately fashioned into a leopard’s head with the spots running down the neck. The iron blade has been broken off near the handle.

No 964. Period U/S Vicus. Badly broken and corroded iron knife.

No 1012. Period VII/VIII: length 142mm, width 21mm. The blade is suggestive of a Manning type 16, because of its triangular shape. The example is very worn and the tang or socket which would attach it to the handle has been broken off.

No 1134. Period IV/V: length 66mm, width 15mm. This small knife blade has been broken at the tang and the point, however, enough of it remains to establish it as a Manning type 16.

No 1243. Period II/III: length 75mm, width 10mm. Iron knife blade with inscription RITIA T. (RIB vol. ii Fascicule 3 1991) The knife has been broken at the point and the tang. It also shows two semicircular notches along the blade edge.
No 1326. Period U/S: length 47mm, width 10mm. Small fragment of an iron knife blade.

No 1414. Period IV/V: length 142mm, width of blade 15mm, width of handle 5mm. This knife is of a type not listed by Manning, having a convex blade and an upward curving back. It is not tanged or socketed, but the blade and square handle are constructed from one solid piece of iron without any joint between.

No 1419. Period VI: length 139mm, width of blade 32mm, width of tang 10mm. Iron knife of Manning type 11a, broken at the point.

No 1428. Period IV: length 36mm, width 17mm. Small fragment of an iron knife blade.

No 1523. Period V/VI: length 150mm, width of blade 9mm, width of handle 8mm. Bone handled knife of Manning type 7a. Manning (1985) notes this knife type as probably a razor rather than a knife, and states that these knives come from a period (usually mid first century) when it was fashionable for men to be clean shaven. The Vindolanda examples are predominantly from late first century levels, although there are knives of second and third century date. The definite S shape of the blade makes it probable that the knife had a specialist function. If the knives were extremely well sharpened they could have been used as razors. Another possible use would be as a filleting knife, with the S shaped blade keeping the hand clear of the meat or fish being filleted. The point is broken but the blade shows the typical downward curve from back to point. The handle has cross hatching at its ends and linear hatching down the centre. It is attached by two rivets to a flat iron tang. As with most knives of this type, there is an end loop. The blade show a series of inscribed crescents, which could be a cutler’s stamp.

No 1587. Period VI: length 114mm, width 19mm. Iron knife blade, snapped at the tang. The back of the blade is straight and flat with the blade edge being slightly convex to form the point.

No 1616. Period VI: length 140mm, width of blade 22mm, width of tang 6mm. Iron knife of Manning type 16, with a symmetrical triangular blade and a tang at a slight angle to the blade.
No 1622. Period VI: length 89mm, width 22mm.
   Iron knife of Manning type 13, with the back curving gently down to meet the
   straight blade. The point and the tang are broken.

No 1630. Period U/S Vicus: length 80mm, width 14mm.
   Iron knife blade, snapped at the tang and the point and with a worn edge.

No 1658. Period U/S.
   Broken and corroded iron knife blade.

No 1672. Period VI: length 52mm, width 16mm.
   This knife has been snapped at both the point and the tang with only a flat part of
   the blade surviving.

No 1675. Period VI: length 113mm, width of blade 16mm, width of tang 10mm.
   Iron knife of Manning type 11a, with a straight back in line with the tang, while
   the edge curves up from the heel to meet the tip.

No 1737. Period VII Vicus: length 98mm, width 30mm.
   Corroded iron knife blade, snapped at point and tang.

No 1776. Period VII Vicus: length 136mm, width 26mm.
   Iron knife blade, snapped at tang and point.

No 1794. Period VII Vicus: length 108mm, width 19mm.
   Badly corroded iron knife snapped at point and tang.

No 1806. Period U/S Vicus.
   Broken and badly corroded iron knife blade.

No 1834. Period VII Vicus: length 199mm, width, 20mm.
   Badly corroded iron knife in two pieces.

No 2011. Period VII Vicus: length 42mm, width 10mm.
   Small fragment of bronze knife.

No 2093. Period U/S Vicus: length 67mm, width 11mm.
   Severely corroded iron knife blade.
No 2233. Period U/S Vicus: length 108mm, width 30mm. Corroded iron knife, with a circular tang and a curved back that slopes to meet the straight edge. The point has been snapped but enough remains to identify it as a Manning type 13.

No 2302. Period U/S Late stone fort: length 240mm, width of blade 48mm, width of tang 8mm. A well preserved iron knife of Manning type 13, showing the characteristic curve from tang down to point.

No 2333. Period U/S Late stone fort: length 125mm, width 34mm. Iron knife blade, bent and snapped at the tanged end.

No 2346. Period U/S Late stone fort: length 123mm, width 32mm. Iron knife blade with fragment of bone handle.

No 2446. Period U/S Late stone fort: length 138mm, width of blade 38mm, width of tang 10mm. Iron knife blade snapped at the point. The blade is very convex and the tang is heavy in comparison to the blade.

No 2519. Period VII/VIII: length 105mm, width of Blade 35mm. Iron knife blade of Manning type 12a.

(After Bidwell 1985, page 142).

No 2558. Period VII/VIII: length 155mm, width of blade 18mm, width of tang 7mm. Iron knife of Manning type 14.

No 2670. Period VIII: length 257mm, width of blade 32mm, width of handle 28mm. Solid handled iron knife. The knife has a convex back and cutting edge and is very worn.

No 2927. Period VII/VIII: length 250mm, width of blade 50mm, width of tang 10mm. This knife has a convex blade and its back is angled from the tang to the point.

No 2936. Period VII/VIII: length 91mm, width 18mm. Iron knife blade snapped at the handle. The blade has a straight back and a gently curving convex edge.
No 3121. Period U/S Late stone fort: length 270mm, width of blade 30mm, width of tang 10mm.
The blade is the same as a Manning type 11a, although, the tang is set in the centre of the blade and not the top, making the knife unusual.

No 3327. Period VI: length 180mm, width of blade 20mm, width of handle 16mm. Iron knife of Manning type 7a. This knife has been snapped at the point and the bone plates attached to the blade tang are missing, although the pins to hold the bone plates still survive. It has a series of tiny crescents inscribed vertically down the apex of the bend in the knife’s blade. This could be a cutler’s stamp.

No 3355. Period III: length 187mm, width of blade 23mm, width of handle 19mm. Iron knife of Manning type 7a. This complete knife has a decorated bone handle of the same style as Manning’s Q17 example. The blade has the S shape typical of knives of this type and is inscribed with the same series of crescents as No 3327, which is probably a cutler’s stamp.

No 3411. Period III: length 208mm, width of blade 14mm, width of handle 14mm. Iron knife of Manning type 7c. The S shaped blade is less pronounced on this knife but the decorated bone handle and end loop are the same as other knives from this group.

No 3476. Period VI: length 125mm, width of blade 14mm, width of tang 6mm. Iron knife with a convex back that curves to meet the straight edge. It is tanged at the centre of the blade. Manning type 14.
No 3511. Period V: length 61mm, width 22mm.
Triangular fragment of an iron knife blade.

No 3541. Period III: length 55mm, width 23mm.
Tip of an iron knife blade of Manning type 16.

No 3564. Period VII/VIII: length 68mm, width 17mm.
Possible bone knife handle.

No 3601. Period II: length 240mm, width of blade 30mm, width of handle 16mm.
Extremely well preserved iron knife complete with wooden handle. The gently sloping back and straight edge make it typical of a Manning type 13.

No 3651. Period VI: length 110mm, width 22mm.
Fragment of iron knife blade.

No 3856. Period VI: length 105mm, width 18mm.
Iron knife of Manning type 16, snapped at the tanged end.

No 3909. Period I/II: length 126mm, width of blade 16mm, width of handle 14mm.
Small iron knife of Manning type 7b. The bone handle shows cross hatching at the ends and a large cross in the centre. The knife has an end loop and a very pronounced S shaped blade.

No 3931. Period II: length 57mm, width 16mm.
One half of a bone knife handle. The handle is cross hatched at both ends, and was attached to the tang by two rivets, the holes for which are visible.
No 3945.  Period II: length 164mm, width of blade 14mm, width of handle 14mm. Complete iron knife of Manning type 7c. The blade has a much shallower S shape than other knives of Manning's type 7, however the decorated bone handle and end loop are the same.

No 4006.  Period VI: length 109mm, width 18mm. One half of a bone knife handle. This rough handle has been smoothed into a hexagonal shape on the outer surface and left as natural bone on the inside.

No 4038.  Period III: length 74mm, width of blade 20mm, diameter of handle 22mm. Very well preserved example of a Manning type 23 knife, complete with cylindrical bone handle. According to Manning 1985, this was an Iron Age type which passed out of use by the end of the second century.

No 4108.  Period II: length 134mm, width of blade 20mm, width of tang 8mm. Iron knife of Manning type 11a. This knife, dated to AD 90-97, fits in with Manning's examples which come from the mid first century.
No 4168.  Period III: length 184mm, width of blade 20mm, width of handle 16mm. Complete iron knife of Manning type 7b. The bone handle is decorated with cross hatching and the blade has the same inscribed crescents as No’s 1523 and 3327 which could be the cutler’s stamp.

No 4178.  Period II: length 41mm, width 21mm. Iron knife handle with end loop and flat tang. One rivet hole for attachment to the knife is still visible.

No 4201.  Period IV: length 214mm, width of blade 28mm, diameter of handle 28mm. Complete iron knife with bone handle of Manning type 15. Manning 1985 notes this type as the most common of Romano-British knives, but there are few examples from Vindolanda.
No 4207. Period III: length 238mm, width of blade 34mm, diameter of handle 34mm. Complete iron knife with wooden handle. This knife has no cutting edge and is identical to a modern pallet knife.

No 4215. Period VI: length 77mm, width 22mm. Fragment of iron knife blade, broken in many places.

No 4230. Period VI: length 75mm, width 12mm. Fragment of a thin iron knife blade or possibly a razor, showing the start of a tang.

No 4340. Period VI: length 115mm, width 20mm. Fragment of an iron knife blade, broken at both ends.

No 4370. Period III/IV: length 72mm, width 17mm. Fragment of a knife blade that has been broken at both ends.

No 4378. Period V/VI: length 140mm, width of blade 23mm, width of tang 7mm. This knife has the gentle convex edge and straight back of a Manning type 11a.

No 4391. Period V/VI: length 94mm, width of blade 20mm, width of tang 8mm. The triangular blade and central tang make this a Manning type 16. Manning 1985 states that few knives of this type are dated, but that the type was a long lived form.

No 4491. Period V: length 53mm, width 34mm. Fragment of a knife or cleaver blade that has been snapped.

No 4638. Period V: length 89mm, width 28mm. Iron knife blade, broken at the tanged end and very worn at the point.
No 4680. Period VI: length 110mm, width 19mm.
Triangular iron knife blade, snapped at the tang which was in the centre of the blade.

No 5021. Period V/VI: length 66mm, width 15mm.
Fragment of an iron knife blade, broken at the tanged end.

No 5214. Period V: length 64mm, width 32mm.
Small fragment of a knife tang or handle, with a rivet hole visible.

No 5218. Period V: length 72mm, width 10mm.
Small piece of a knife or a razor which has been broken at point and tang.

No 5219. Period V: length 61mm, width 18mm.
Small fragment of a knife blade broken along the edge and point.

No 5230. Period VI: length 215mm, width of blade 15mm, width of tang 6mm.
Complete iron knife of Manning type 16. The triangular blade is almost dagger like, but only has one edge rather than two. The tang and handle have been preserved exceptionally well and the end shows a disk of iron, which would have fitted onto the end of the handle of wood or bone.

No 5514. Period VI: length 145mm, width of blade 17mm, width of tang 9mm.
Triangular knife blade with central tang: Manning type 16.

No 5540. Period VI: length 124mm, width of blade 22mm, width of tang 5mm.
Complete iron knife of Manning type 23.

No 5633. Period IV: length 109mm, width 107mm.
Corroded iron knife blade. This knife is probably a Manning type 16, but it has been snapped at point and tang.

No 5661. Period IV: length 116mm, width of blade 22mm, width of tang 13mm.
Slightly corroded iron knife snapped at the point.

No 5707. Period VIII: length 73mm, width of blade 15mm, width of tang 4mm.
Fragment of a small iron knife. The blade has been snapped near the hilt.

No 5744. Period VIB: length 97mm, width of blade 17mm, width of tang 6mm.
Small iron knife snapped at the point.
No 5870. Period VI: length 54mm, width 14mm. Small fragment of an iron knife.

No 5933. Period VII/VIII: length 72mm, width 22mm. Bone handle; most probably from a knife.

No 5943. Period V: length 134mm, width of blade 20mm, width of tang 6mm. The back and the edge of this knife are straight. They run parallel to each other for most of the blade but the back curves sharply down to form the point.

No 5997. Period VI: length 194mm, width of blade 15mm, width of handle 20mm. Complete iron knife and wooden handle in an exceptionally good state of preservation. Probably a knife of Manning type 11a, although, the blade has been repeatedly sharpened, resulting in a concave edge.

![Image of No 5997 knife]

No 6011. Period VI+: length 214mm, width of blade 15mm, width of tang 5mm. Iron knife with bronze hilt. The straight back and upward curving edge of this knife are typical of a Manning type 11a. This example has been snapped off at the point.

No 6072. Period IV: length 152mm, width of blade 21mm, width of tang 8mm. Well preserved knife of Manning type 24. The back and tang of the knife have a very definite S shape and the point is upturned, although not higher than the tang. Manning 1985, notes this type as Iron Age and continuing into the Roman period. He states that they passed out of use in the first or second century, so this is a late example.

![Image of No 6072 knife]

No 6076. Period V: length 134mm, width of blade 19mm, width of handle 16mm. Iron knife of Manning type 7a or 7c. The point has been snapped off, but the decorated bone handle survives. The pattern is cross hatched at the ends and shows two linear lines in the middle.

-15-
No 6129. Period VI B: length 83mm, width of blade 38mm, width of tang 10mm. Broken iron knife, snapped at tang and point.

No 6199. Period VI: length 96mm, width 24mm. Iron knife, snapped at the tang. The downward curving back and straight edge of the knife identify it as a Manning type 13 knife.

No 6261. Period V: length 250mm, width of blade 37mm, width of handle 11mm. Unusual iron knife. The back is convex while the blade, although damaged, is straight. The point has been broken off.

No 6311. Period IV/V: length 158mm, width of blade 18mm, width of Tang 12mm. The blade of the knife is S shaped from point to tang. The tang is flat and holds two rivets; probably to accommodate a bone handle.

No 6322. Period III: length 280mm, width of blade 34mm, width of handle 25mm. Complete wooden handled knife. The knife has a convex curving back and a concave curving edge, due to repeated sharpening. The handle is attached to the blade by a tang which runs from the back into the handle.

No 6328. Period VI: length 120mm, width of blade 12mm, diameter of handle 8mm. Small iron knife with bone handle: Manning type 14.

No 6382. Period IV/V: length 148mm, width of blade 18mm, width of handle 8mm. Iron knife of Manning type 7a or 7b. The knife has been broken at the point, but the bone handle shows cross hatched ends and a linear marked centre.

No 6397. Period V: length 105mm, diameter 34mm. Antler knife handle.

No 6416. Period VII. Very heavily corroded iron. Possibly a knife blade.
No 6527. Period IV: length 184mm, width of blade 36mm, width of tang 6mm. Iron knife of Manning type 11b. The blade has a slightly downward curving back and a convex edge tapering up to the tip.

No 6535. Period V: length 75mm, width 24mm. A very badly corroded and broken iron knife blade.
METAL WORKING TOOLS.

Vindolanda has produced a large number of metal working tools, most of which have been found in the pre-Hadrianic levels. The anaerobic conditions have preserved the tools in mint condition and implements such as the files still show teeth on their faces, where under more typical preservation conditions they would have long since disappeared.

There are no highly unusual metal working tools, but there is a large number of the basic types of smith's tools, files and punches.

One interesting factor is the small number of metal hammers in the collection. Iron hammers were undoubtedly a very common basic tool, as W.H. Manning, (1985) points out: "The attributes of the blacksmith in Roman art were the anvil, tongs and hammer: the basic tools of his craft." It seems odd that in a collection so large that hammers are rare. One explanation would be the large scale use of wooden mallets for much work instead of the iron hammer. Another explanation would be the fact that the excavations so far have covered the central block of buildings in the pre-Hadrianic levels. This area, containing the headquarters building and the commanding officer's residence, would never have been a great epicentre for tool production or distribution and so the small number of hammers and the absence of any anvils would be explained by this. As excavation continues and different buildings are uncovered, there can be little doubt that many more metalworking tools will be found.

HAMMERS.

No 1763. Period U/S Vicus: length 108mm, width 20mm, depth 24mm.
Small, cross-paned hand hammer. The head is square in profile with the back tapering into a cross pane. Although quite corroded, the small, circular eye is visible. The hammer has a rounded face to avoid spoiling the metal being struck. Its small size and weight mean that this tool was most likely used for fine metal work.

No 5329. Period IV: length 135mm, width 14mm.
Cross paned hand hammer. The head is circular and this cylindrical shape continues to a circular eye that bulges out from the main shaft. On the rear side of the eye the shaft is rectangular in form and forms the flat cross pane. There is a trace of the handle within the eye socket which has now been covered in the iron corrosion from the rest of the head. Such a delicate hammer would have been used for fine jobs rather than for ordinary metal work or carpentry. It is possible that a tool of this type could have been used for sculpting or for producing fine metal work.
TONGS.

No 5301. Period V: length 133mm, length of jaws 68mm. A broken set of iron tongs, snapped at the handles. The jaws are circular and have long extended tips for gripping the metal being worked. Manning 1985 notes that there were two sizes of tong in use in Britain during the Roman occupation. The small length of the jaws mean that these tongs belong to his first, or smaller set of tongs under 160mm long. They were used for holding small pieces of hot metal during working.

No 3812. Period VI: length 212mm, length of jaws 56mm. A well preserved set of small tongs. The jaws are bowed and then straighten out at the tips. Where the jaws are fastened together there is a copper washer. The handles are round and have small bulbous tips. A set of tongs as small as this can only have been used for detailed metalworking such as jewellery production, or for lifting small crucibles of precious metal.
CHISELS.

The shape of Romano-British chisels is very similar for both metalworking and carpentry and therefore can rarely be classified with certainty to either use. It is possible that a great number of chisels were used for both purposes. Because of this doubt, the Vindolanda chisels, with the exception of No 5184 (see below) have been placed in the woodworking tools section, although it is accepted that some of these chisels may have been used for metalworking.

No 5184. Period VII/VIII: length 13mm, width of blade 22mm, width of head 20mm. Set or chisel. The square head is solid and tapers sharply into a thin concave blade. The stem is sharply concave to the head and splays out into a wide point that has been broken. Such a tool would have been used to cut hot metal and would have been held either by hand or hit with a sledge hammer, using wires to keep the chisel in position.

PUNCHES.

No 3309. Period VI: length 65mm, diameter 6mm. Small iron punch. The punch is square in shape and tapers to a point only 3mm in diameter. The small size of this punch means that it would have been held by a wire to keep the smith’s hand clear of the hot metal being worked.

No 4065. Period III: length 229mm, diameter of stem 12mm. Long iron punch. The stem is circular and tapers near the tip to a flat rectangular form similar to a modern screwdriver tip. The tip and the head have been broken off.

No 4241. Period I: length 121mm, diameter of stem 5mm. Iron punch. The head is circular and is very battered. The stem is also circular but runs into a pointed square tip.
No 4486. Period V: length 55mm, diameter of stem 9mm.
Tiny iron punch. The flat circular head shows signs of heavy use. The stem is roughly square in form and tapers to a sharp pointed tip. The small size of this tool indicates that it would be held by a wire while it was struck to keep the smith’s hand clear of the hot metal. Alternatively the punch could have been used for detailed decoration of metal.

No 4540. Period III: length 83mm, diameter of stem 10mm.
Small iron punch. The head is slightly corroded but shows signs of being battered. The square stem tapers slightly to a point. This is a very similar tool to the better preserved example No 4486 (see above). Again this tool could have been used as a punch or for decorating metalwork.

No 5114. Period III/IV: length 106mm, width of stem 10mm.
Iron punch. This punch has a flat head that shows a great deal of use. The stem is square in profile until two thirds of the way down, where it tapers to a sharp point.

No 5130. Period V: length 83mm, width of stem 7mm.
Iron punch. The head has been broken off but the square stem and point are complete. The stem tapers sharply to a blunt tip.

No 5166. Period III: length 76mm, width 10mm.
The top of this punch shows much wear and the edges have curled down towards the stem. The stem is circular and tapers to a sharp point. There is a hole cut into the stem, perhaps for a pin to hold a further wooden handle which could fit into the hollow part of the stem near the top.

No 5188. Period V: length 104mm, diameter of stem 8mm.
Badly worn iron punch. The circular stem tapers very slightly to the tip which has been snapped.

No 5272. Period V: length 56mm, diameter of stem 7mm.
Very small iron punch. The punch is cylindrical for most of its stem, but flattens out towards the tip. This is another tool that could well have been used for the decoration of metal as well as being used as a punch.

No 5385. Period V: length 99mm, diameter of stem 13mm.
Damaged iron punch. This punch has been snapped on the circular stem and the square tip has been splayed out, probably as a result of continuous hammering.
No 5635. Period IV: length 119mm, diameter of stem 16mm, diameter of head 24mm. Iron punch. The head is flat and shows considerable wear. The tip is blunt and slightly bent at an angle from the circular stem.

![Image of No 5635](image)

No 6320. Period VI: length 110mm, width of stem 6mm. Thin iron punch. The tool is square in form and gently tapers from the flat head to a sharp tip.

No 6597. Period III: length 145mm, diameter 10mm. Cylindrical iron punch. The head is slightly rounded and the stem is quite uneven along its length but does show a gradual taper towards the tip. The point is damaged.

**FILE/RASP.**

No 2901. Period VII: length 140mm, width of blade 17mm, width of tang 7mm. Iron metalworker’s file. The blade is thin and flat on one side and convex on the other. There is a tang at one end. Although there are no teeth visible on the tool today, its shape makes this certain to have been a metalworker’s file.

![Image of No 2901](image)

(After Bidwell, 1985 No 55, page 140).

No 3731. Period II/III: length 162mm, width 28mm. Heavy iron bar. The bar is flat on one side and convex on the other. There are no striations on either side of the bar, but its form is typical of a metalworker’s file.

No 4060. Period IV: length 108mm, width 7mm. The tool is roughly cylindrical except at its top where it is predominantly square. The square section tapers into a tang. At the other end there are numerous striations very closely spaced together at around fifteen teeth per centimetre. This was undoubtedly a metal working file.

![Image of No 4060](image)
No 4435. Period III: length 245mm, width 13mm.
Long iron bar, square in profile and with a small tang at one end. The square shape and the tang leave little doubt that this is a metalworker’s file of the more common square type, even though there are no teeth left.

No 5087. Period IV: length 251mm, width 10mm.
Tanged, square iron bar which gently tapers to a flat tip at one end. This is a typical square shaped metalworker’s file and shows 10 teeth per centimetre along its entire length.

No 5299. Period II: length 175mm, width 16mm.
A very worn iron bar. The bar is rectangular and tapers to a broken tang at one end. It has also been broken off at the other end. This was most probably a metal worker’s file, although its battered state and lack of teeth make an identification difficult.

No 5304. Period V: length 192mm, width 7mm.
Rectangular bar of iron. The bar tapers very gently from one end to the other. Even though there are no teeth visible and the bar does not seem to have been tanged, this was probably a metalworker’s file.

No 5636. Period IV: length 154mm, width 12mm.
Small, rectangular iron bar with a tang at one end. At the opposite end of the tool the end is pointed like a chisel blade. The tool is very slightly corroded and this has masked any visible teeth but its most likely function was as a metalworker’s file.

No 5647. Period IV: length 328mm, width 10mm.
Long, thin rectangular iron bar tapering slightly at both ends. This bar shows slight striations on two of its four sides. This fact coupled with its shape make it a metalworker’s file of the common square type, see Manning 1985.
No 5741. Period V: length 226mm, width 10mm. Rectangular iron bar that tapers gently at both ends. This is certainly a metalworker’s file even though there are no teeth visible.

No 5801. Period IV: length 254mm, width 12mm. Rectangular iron file. The tool is flat on one side and is convex on the other. It tapers at both ends into two small tang-like features, or possibly handles. In the centre of the blade there is a rectangular cut slot that tapers rapidly and appears on the other side of the blade only as a pin prick hole. This could have been a slot cut for a top handle to control the file with greater accuracy.

No 6504. Period IV/V: length 195mm, width 13mm. Chunky rectangular iron metalworker’s file. The file tapers gradually from one end to the other. One end is corroded, covering the detail, while the other end is snapped off. All four sides show teeth and the average is ten teeth per centimetre.

No 6547. Period IV. A very badly corroded iron file in four pieces.
DIVIDERS.

No 3686. Period III: length 170mm.
Complete set of dividers. The two divider legs are square in profile and come to ring heads. There is a bolt type of pin that runs horizontally through the rings with a slot cut through it. A large iron wedge is inserted through this slot to space the divider legs. In between the bolt head and the divider legs is a leather washer that has welded to the bolt and the divider legs. The leather has been covered by a hard black layer of corrosion. The reason for this layer is that sheath-forming bacteria, such as Gallionella ferruginea, has promoted differential aeration. Such bacteria has formed the blistered covering over the leather. According to H. J. Plenderleith and A. E. A Werner 1979, this is quite a common process in anaerobic conditions. Dividers were commonly used by many tradesmen including metalworkers during the Roman period.
AGRICULTURAL TOOLS.

There was a considerable variety of tools which could be classified as being for agricultural use, although some significant items were entirely absent, most notably the plough shares, rakes and coulters. However, it must be emphasised that the majority of the tools in the collection were found within the central areas of the pre-Hadrianic forts, which were unlikely to contain much evidence of agricultural activity.

ANVIL.

No 2997. Period VII, Stone fort: length 156mm, width of stem 20mm. Portable mower’s anvil. Heavy iron spike with an S shaped loop of iron passing through the anvil one third of the way down the stem. The tip of the anvil is snapped. The head is slightly rounded to prevent burring and shows considerable use. Such an anvil was a Roman introduction to Britain and was used to repair or sharpen scythe or sickle blades. The anvil was placed in the ground up to the S shaped loop which kept it steady. Then the blade was placed on the top and the required work carried out. See Bidwell 1985, fig 51.

(After Bidwell 1985 No 60, page 142).
HOE.

No 4317.  Period V: length 120mm, width of tang 12mm, depth of blade 35mm. Complete iron hoe. The solid blade is set at an angle to the tang and is curved backwards towards the handle at each end. There is also a slight angle on each tip that would propel soil onto a furrow when the tool was pulled. The hoe would have been attached to a long handle, probably made of wood, by its tang. The likelihood is that the handle would also have been bound to the hoe by some means, because the tang alone would not have been enough to keep the handle attached to the tool which is, after all, designed to be dragged backwards. When the hoe is elevated to a working position the blade is only at a slight angle to the ground, which would make it an ideal tool for tasks like weeding and piling up soil around crops.

No 834.  Period VI B: length 195mm, width 48mm. One of the tines is missing and the blade is corroded. The tool is a forked hoe of Manning’s narrow bladed type. (See Manning 1976.) Such hoes were among the most common type used in Roman Britain. They were used for weeding and other such tasks.
SPUD.

No 2184. Period VII: length 184mm, width of blade 75mm, diameter of socket 30mm.
Iron spud. The tool is socketed and there is a nail or rivet hole in the socket to
further strengthen the link between handle and blade. The triangular blade is
sharp, flat and splayes out towards the tip. Such a tool was used for weeding or as
Manning 1985 notes, the triangular type in recent times was used for cleaning
plough mould boards and shares.

-28-

SPADE.

No 3732. Period IV: length 156mm, width 160mm.
Iron spade sheath. This is a spade sheath of Manning’s straight mouthed type C.
(see Manning 1985.) The edge and lower part of the sides are grooved to
accommodate the wooden blade, part of which still survives on this example. The
cutting edge is straight and at a right angle to the sides. One of the sides is missing
but the other is intact, showing a nail at its top that joined the wood to the iron
blade. There is also a nail through the centre of the iron blade that holds the wood
to the iron edge. According to Manning 1985, the use of an iron edge was a
Roman introduction to Britain.
No 2562. Period U/S: width of blade 165mm. Straight mouthed spade blade, broken at both sides. The heavy iron plate shows the characteristic gap at the top for the wooden blade of the tool to fit into, although the arms at each side have been broken off. See Bidwell 1985, fig 50.

(After Bidwell 1985 No 57, page 140).

SCYTHE.

No 2237. Period U/S: length 140mm, width 42mm. Badly corroded fragment of an iron scythe blade.

No 4442. Period IV: length 150mm, width 58mm. Fragment of an iron scythe blade, showing the characteristic ridge at the back of the blade and the sharpened edge.

REAPING HOOK.

No 1152. Period VI B: length 135mm, width 44mm. Corroded fragment of a possible iron reaping hook blade.
No 1632. Period VI: length to apex of hook 148mm, width of blade 24mm, width of handle 15mm.
Complete iron reaping hook of Manning type two (see Manning 1985). The tool has a strongly curved blade that runs from the tip of the blade to the closed socket. Part of its wooden handle still survives in the socket. This type of reaping hook was used extensively in Roman Britain for the cutting of cereals. The hook was dragged through a bunch of cereal stalks which were held taut by the other hand.

No 2334. Period U/S: length 152mm, width 32mm.
Iron blade of a Manning type 2 reaping hook, snapped at the socket.

No 3738. Period III: length 155mm, width 19mm.
Reaping hook of Manning type 2. The sharp edge runs from the tip, down the stem to the flat tanged handle. The majority of the blade is therefore on the straight edge of the tool rather than the hooked section. There is a small blade on the back of the tool which is sharpened to a cutting edge.

No 4413. Period II: length 110mm, width of blade 26mm.
Corroded reaping hook of Manning type 1, snapped at point and tang. The cutting edge runs from the tip to where the point straightens.
ENTRENCING TOOL/DOLABRA.

No 3606. Period II: length 400mm, width 150mm.
Complete iron entrenching tool. The large blade is straight and has a wide cutting edge. There are two lugs, one on each side of the oval shaped eye. On the back of the tool there is an small adze blade which balances the pick blade. Overall the dolabra is slightly curved in profile. Such a tool was a common military item, used for digging trenches and earthworks. So far they have nearly all been found on military sites.

PICK AXE.

No 1217. Period U/S: length 392mm, width 30mm.
The pick is slightly curved in profile and has a swollen area around the eye. One point is chisel edged while the other is a true point. The eye is rectangular in order to house a wooden handle which would have to have been of considerable length to balance the tool. Tools of such a profile are generally considered to be mason’s picks, (see Manning 1976) however, this example is too long to be classed as such and would have been used more as a general purpose pick. Such tools are still used today for the breaking of hard surfaces and for loosening soil.
BRANDING IRON.

No 4482. Period III: length 196mm, height of letters 27mm. Long square sectioned stem ending in a flat plate set at ninety degrees to the stem. The plate has the letters C (retro.) E. Because of its location to the period III praetorium this has led Birley, R. 1993, to believe that the letters could be expanded to CE(RIALIS). Cerialis was the commanding officer at Vindolanda in that period.
SCULPTORS, MASONs AND PLASTERERS

TOOLS.

This is a fine collection, numbering sixteen tools. The British museum’s collection numbers only nineteen according to Manning 1985. As well as being numerous, though, the Vindolanda picks and modelling tools are mostly in mint condition. Out of the main types of sculptors, masons and plasterers tools the only type missing from the Vindolanda examples is the axe hammer.

This is a section of tools where many implements from other sections could have been used. For example, the iron hammers in the metalworking section could have been used to great effect as mason’s hammers, whereas the picks here may well have been used as agricultural picks for earth works or farming.

PICKS/HAMMERS.

No 937. Period II: length 102mm, width 23mm, depth 20mm.
Small, hand-held pick/hammer. The tool has one cross paneled blade and one vertical paneled blade, which is damaged. There is a rectangular hole in the centre of the implement where the handle would have been mounted. Such a small pick/hammer would have been used for detailed work such as decoration, perhaps by a sculptor and possibly instead of a chisel.

No 998. Period III: length 408mm, width 60mm, weight 6.80kg.
Large mason’s pick/hammer. This tool is similar to Manning’s type 1 mason’s pick. It has a rough square eye and tapers to two points, one at each end. The large size and weight of the tool mean that it would have been used for quarrying stone or for very rough dressing at the quarry site.
Period III: length 385mm, width 50mm, weight 3.74kg. Large mason’s pick/hammer almost identical to the above example No 998. The tool has a point at one end and a vertically running blade at the other end. It has a roughly rectangular eye. Such a large and heavy implement would have been used for basic stone dressing or even quarrying. Fine dressing or shaping would have been almost impossible with such a large and heavy tool.

No 1618. Period IV: length 265mm, width 35mm, depth 30mm. Heavy iron pick/hammer snapped at one end. The implement is slightly curved in form and has a circular eye. One end is pointed and the other runs into a vertical blade, although the end has been snapped off. This pick/hammer is small enough to have been used as a hand held tool, however, it is still very heavy to be used as such. This is another tool that was most probably used for basic stone dressing or quarrying rather than for fine work.

No 5211. Period II: length 222mm, width 40mm. Small iron pick/hammer with a circular eye. The tool is curved in form and has a chisel blade at one end and a point at the other. Held by one hand, this implement is light enough to have been used for fine dressing of stone or even for sculpting. Part of the wooden shaft still survives in the eye. An almost identical tool was found at Newstead (See J. Curle 1911.)
CHISEL.

No 5272. Period V: length 56mm, diameter of stem 7mm. 
Very small iron chisel. The chisel is cylindrical for most of its stem, but flattens 
towards the tip. This tool could well have been used as a sculptor's chisel 
being the ideal size for the decoration of stone.

MODELLING TOOLS.

Modelling tools were used by many types of craftsmen for the smoothing of 
surfaces or for decorating items. Such tools were used by sculptors shaping wax, 
clay or wet plaster, or by potters to decorate their wares.

No 3866. Period V: length 126mm, width of stem 10mm, width of blade 15mm, length of 
blade 58mm. 
Barrel stemmed modelling tool of Manning type 3. The stem shows decoration of 
cross hatching and linear grooves. One blade has been snapped off but the other 
remains, showing a very slight chisel like tip.

No 3985. Period VI/VII: length 225mm, width of blade 22mm. 
Modelling tool of Manning type 1. The triangular blade is broken and the stem is 
snapped.
No 5143. Period IV: length 145mm, width of stem 10mm, width of blade 10mm. Modelling tool of Manning type 3. This long example has been bent at some point and the decoration has been lost to corrosion, but its use as a modelling tool is undoubtable.

No 5234. Period VIII: length 80mm, width of blade 10mm. Possible modelling tool of Manning type 1. This tool has been snapped at the blade and along its handle.

No 5534. Period II: length 48mm, width of blade 17mm. Blade of an iron modelling tool. This triangular blade is a Manning type 1 tool, but has been broken at the stem.

No 5537. Period II: length 94mm, width of blades 10mm, diameter of stem 8mm. Complete modelling tool of Manning type 3. This tool has two blades, both with straight edges and both snapped at their ends. The barrel stem is decorated with a series of linear grooves and cross hatching at either side.

No 6005. Period IV: length 158mm, width of blade 17mm. Iron modelling tool. The triangular blade has a very slight chisel edge. The stem is cylindrical and tapers into a long tang.
TROWEL.

No 3007. Period VIII: length 120mm, width 60mm.
Blade of a mason’s trowel. The leaf shaped blade is snapped at one side. The
blade runs into cranked handle that has been snapped off. See Bidwell 1985.

(After Bidwell 1985
No 56, page 140).

No 5149. Period III: length 165mm, width 75mm.
Large, leaf shaped mason’s trowel. The blade is large and comes to a blunt,
rounded tip. There is part of a handle surviving that runs in an S shape from the
back of the blade but this has been snapped before it reached a socket or tang.
Both the blade and handle are identical to a modern trowel.

PLASTERER’S FLOAT.

No 297. Period U/S: length 142mm, width 115mm.
Possible plasterer’s float. The plate is a square of iron 163.3 cm², which is flat on
the front, but has a rounded handle running down the middle of the back. This
could have been used as a plasterer’s skimming float, however, an equally
plausible use would have been as a handle for a door or cupboard.
LEATHERWORKING

TOOLS.

Vindolanda has produced a very large quantity of leather, ranging from almost complete tents to horse equipment, an archer's thumb guard, a sling pouch and a voluminous range of footwear. Amongst this material there was a considerable quantity of scrap from leatherworkers establishments. Yet there were few tools which could be identified with certainty as coming from such places. The examples recorded here are predominantly items used in the decoration of leather, and all were found in the six earliest periods.

The majority of the Vindolanda tools are awls, mainly of Manning types three or four. Recognition of such tools requires that the points should be intact, which was usually the case, thanks to the environmental conditions.

Tools which are missing from this collection are slickers, lunette knives and cobblers lasts.

AWLS.

No 887. Period IV/V: length 121mm, width of head 18mm, width of stem 4mm. Iron awl similar to Manning type 3a. This awl has a solid iron head which is square in section. The stem, also square, tapers from the handle severely at first and then more gradually to form the tip.

No 3640. Period II/III: length 84mm, width of handle 17mm, width of stem 4mm. Small awl with bone handle. This tool has a square stem that tapers very slightly to a sharp point. The handle is roughly cylindrical and is split at the top.

No 3639. Period VI: length 113mm, width of head 7mm, width of stem 4mm. Solid iron awl of Manning type 3a. This example has a diamond shaped head which then tapers sharply into a square stem that gently tapers further, into a sharp point.
No 3986. Period II: length 142mm, diameter of handle 17mm, diameter of stem 4mm. Leatherworking awl of Manning type 4a, with part of the wooden handle. The handle is cylindrical in shape and snapped at the end. The stem is square at the tang but cylindrical for the majority of its length ending in a sharp tip. This, according to Manning 1985, is one of the more common types of awl.

No 4323. Period IV: length 70mm, width 5mm. Small iron awl with tang. The square stem tapers gradually and runs into a very sharp point.

No 4339. Period VI: length 113mm, width of head 16mm, width of stem 4mm. Solid iron awl. The head is octagonal and this form continues as the stem tapers to a point.

No 5031. Period V: length 124mm, diameter of handle 18mm, diameter of stem 4mm. Complete leather workers’ awl of Manning type 4a. The circular stem widens very slightly before running into the bone handle. This handle has deep scratches running around its side and the top shows signs of a heavy battering.

No 5165. Period IV: length 100mm, width 5mm, diameter of handle 26mm. Complete awl with wooden handle. The stem is tanged, square in form, and tapers gradually to a sharp point. The handle is cylindrical and has engraved linear lines around its base and middle.

No 6078. Period IV: length 85mm, width 5mm. Small tanged iron awl of Manning type 4a. The tool has a small pyramidal tang and a square stem that tapers to a sharp point.
LEATHER PUNCHES.

No 3668. Period VI: length 135mm, width 10mm. Solid iron leather punch. The tool has a circular head which has vertical striations engraved on it. The stem immediately below the head is thin but quickly widens into a bulky square block. This then tapers again into the long square point. This is a perfectly preserved leather punch that would have been pushed or struck into the leather to decorate it. The further the punch went into the leather the larger the square hole would have been.

![Image of No 3668.]

No 5825. Period III: length 166mm, width of stem 6mm, diameter of handle 23mm. Iron punch and part of wooden handle. The punch is fitted to the handle by a tang and has a cylindrical stem that tapers to the tip. The point is broken. The handle is wooden and has bands of horizontal scratches running around it. It is also cylindrical for most of its length, but has a wider knob at the top. The handle is broken off for most of its top.
TOOLS FOR PROCESSING WOOL AND CLOTH.

The only type of tool in this section is shears, of which there were numerous examples of both the loop and U shaped spring types (Manning 1985). All came from the period VI or later occupations.

SHEARS.

No 1004. Period VII/VIII: length 130mm.
Iron shears of Manning type 2. (Manning 1985.) This is a set of shears with a straight cutting edge to the blade and a curving back, that sweeps round to form the simple U shaped handle. Unfortunately, the blade is snapped before its tip and the handle is snapped at the spring.

No 3497. Period VI A: length 227mm, length of blades 112mm.
Iron shears of Manning type 2. The blades are straight, along their edge and have curving backs. At the back of each blade a small semi circle has been cut away, and around these, there is a series of tiny punched holes, for decoration. The spring is U shaped and widens at the end to provide extra strength.
No 3881. Period VIII: length 219mm, length of blade 113mm. Three quarters of a set of iron shears of Manning type 2. One blade and the handle of this tool survive with the handle being broken in two. The blade has a slight curve along its edge and a more pronounced curve along its back. The handle is a looped spring which would have given more power than the U shaped type.

No 4379. Period V/VI: length 165mm, length of blade 96mm. Half a set of iron shears of Manning type 2. The blade has a straight cutting edge and a gently curving back. The part of the handle that survives continues along this curve until the break. There is not enough of the handle left to determine if this was a U shaped, or loop spring.

No 5732. Period VI: length 185mm, length of blade 90mm. Half a set of iron shears of Manning type 2. These shears have been snapped at the spring and the blade has been broken in two. The blade is extremely worn and shows corrosion, but it has a slightly curving edge and an almost straight back. The handle loops out away from the blade, to provide power for the simple U shaped loop.

No 6015. Period VI: length 155mm, length of blade 77mm. Half a set of iron shears of Manning type 2 or 3. These small shears have a very worn blade, which is concaved along its edge and has a curving back. The handle continues the line of the curve to where it is snapped. Enough of the handle survives to see that it was a simple U shaped spring that provided the power.
WOODWORKING

TOOLS.

The wood working section contains the largest collection of tool types from Vindolanda, and there is an especially large number of both chisels and saw blades. For all of the collections large size and diversity, there are various tool types missing. Adzes, drill bits and carpenter’s knives have not been found, which makes the lack of any drill bits puzzling, considering the huge amount of wood work recovered from the earlier levels.

The tools are all of typical Roman types, with the exception of the S shaped blade chisel and the special industrial plane, which is unique, and goes a long way to explaining the construction of the huge base beam timbers found in the early levels.

AXES.

No 2009. Period III: length 177mm, depth 60mm. Corroded iron axe head of Manning type 2. The front face of this axe is virtually straight while the rear face curves markedly backwards to form the wide cutting edge. The tool may have had lugs around the eye but the corrosion makes it impossible to identify for certain.
No 5904.  Period V: length 157mm, depth 50mm.  
Iron axe head. This small axe has a small square pail, which unlike many 
examples could not have been used as an effective hammer. The front face runs in 
a strong downward curve to the cutting edge. The rear face runs parallel to the 
front face at first in a thin shaft, then splays out to produce the cutting edge. The 
oval eye is flanked by four small lugs. The small size and weight as well as the 
steep angle of the blade mean that this axe was most likely used for more delicate 
shaping tasks rather than heavy felling or the roughing out of raw timbers.

![image of axe head]

SAWS.

No 3339.  Period III: length 70mm, depth 11mm, 3 teeth per cm.  
Fragment of a small iron saw blade, with five teeth showing. There are two rivet 
holes visible at one end. This was probably a flat blade tang and the rivet holes 
would be used to attach a handle of bone or wood. The tang is snapped off at the 
second rivet hole and the blade is broken soon after the start of the teeth. This is a 
very fine hand saw which would have had a short blade. The tool would have 
been used for very fine wood work.
No 3619. Period III: length 94mm, depth 42mm, 3 teeth per cm.
Iron saw blade. The back of the blade curves very slightly to the point where the
blade is snapped. The end of the saw is complete and has a nail hammered
through the blade near the end. This nail is bent to form a loop and as it is the only
joining point at the end of the saw this must have been a bow or frame saw, rather
than a hand saw which would require at least two rivet holes to secure a handle.
The teeth are badly worn but appear to be symmetrical, which according to
Manning 1985, is most typical of a bow saw. Teeth set like this would be able to
cut backwards and forwards.

No 4567. Period III: length 70mm, depth 9mm, 3 teeth per cm.
Small fragment of an iron saw blade. This fragment is snapped at both ends but
shows clearly the teeth formed by semicircles being clipped out of the blade. The
small nature of this saw make it ideal for extremely fine jobs but unsuitable for
rough, basic carpentry.
No 5112. Period II: length 132mm, depth 15mm, 3 teeth per cm.
Complete iron saw. The back is straight for the majority of its length and curves gently upwards towards the tip. The cutting edge runs parallel to the back and also curves up at the tip. The teeth are set facing forwards and would cut when the saw was pushed away from the body. The flat handle shows no sign of being tanged, but it does have a single hole towards its end. Again this is a small saw which would have been used for delicate cutting.

No 5427. Period VI: length 71mm, depth 24mm, 3 teeth per cm.
Broken piece of an iron saw blade. This is a small fragment of what must have been a substantially larger saw blade. From the surviving piece it is impossible to define what type of saw this was, although the symmetrical teeth suggest the saw could cut in both directions. The cutting edge runs straight but the back shows a slight curve as if it is tapering to a point at one end.

No 6041. Period VI A: length 150mm, depth 74mm, 1 tooth per cm.
Fragment of a very large iron saw. The blade is snapped at both ends and the few remaining teeth are very worn indeed. The large size of the saw means it is probable that it was used for cutting substantial timbers such as the large base beams used in construction. The straight but slightly narrowing back and the large size of the teeth make this an almost identical saw to a modern day tool.

CHISELS.

No 150. Period U/S Vicus: length 296mm, width 19mm.
Long, corroded iron chisel. This chisel has a flat, square head which is larger than the rest of the shaft. The top of its shaft is square in form which then changes to a cylindrical stem for the remainder of its length. The shaft is broken and the blade is missing. The amount of corrosion makes identification difficult but the large size of the tool means that it is most likely a metal workers or mason’s tool.

No 663. Period VII Vicus: length 222mm, width 23mm.
Corroded iron firmer chisel. The round head shows considerable wear and tapers into a circular shaft. The shaft suddenly changes one third of the way down to a flat blade. The blade does not appear to be splaying out and is snapped off before the cutting edge.

No 1832. Period III: length 235mm, width 26mm, diameter of head 40mm.
Badly corroded iron chisel with a circular head. The shaft is square at the top and tapers at the tip to form a flat chisel blade, which is partially broken.
No 1844. Period U/S Vicus: length 112mm, width of blade 20mm. 
Badly corroded iron chisel. This small chisel is tanged and appears to have had a 
square shaft. The blade splay out sharply and narrows in depth to produce a sharp 
cutting edge. Judging by its small size and the thin splayed blade, this was 
probably a paring chisel. The large amount of corrosion makes a definite 
classification almost impossible however.

No 3330. Period VII: length 131mm, width of blade 14mm, diameter of shaft 9mm. 
Iron paring chisel. The shaft is circular and socketed to accommodate a handle of 
wood, bone or horn. There is a groove etched around the top of the shaft. The 
shaft narrows towards the bottom and splay out into a triangular blade. This 
blade is snapped at its very tip and this may have been the reason for it being 
discarded. There are three linear marks scratched into the surface of the blade 
running parallel to the cutting edge. These lines are exactly 5mm apart from each 
other and in between them there are four tiny triangles cut out of the sides of the 
tool. This could well have been a mark of ownership, or, perhaps it could have 
been a ruler of sorts so that an even depth could be cut out of the wood by the 
carpenter with each cut the tool made.

No 3997. Period VI/VII: length 81mm, width 10mm. 
Possible iron chisel blade. A thin strip of iron with a definite cutting edge at the 
tip. The shaft is narrowing further away from the blade and could have run into a 
tang. This example looks to have been a small paring chisel blade.

No 4471. Period V: length 92mm, width of shaft 12mm, width of head 13mm. 
Iron firmer chisel. The rectangular head is in perfect condition and shows very 
little wear. The top of the shaft is roughly square or octagonal in form and tapers 
evenly on both sides into a plain rectangular blade; the edge of which, is partly 
broken.

No 5055. Period IV: length 98mm, width 10mm, diameter of head 40mm. 
Perfectly preserved iron firmer chisel. The tool has a small circular head that has 
curled down edges which suggests the chisel was struck by an iron hammer rather 
than a wooden mallet. The chisel shaft is octagonal at the top and tapers gradually 
into a two sided, flat blade, with a quite narrow edge.
No 5277. Period IV: length 205mm, width 23mm, diameter of head 30mm. Heavy iron mortice chisel with a circular head, half of which is missing and the remainder shows signs of heavy use. The shaft is square in section and is bevelled on one side to form a sharp blade, which is very slightly splayed.

No 5345. Period VI: length 123mm, width 19mm, depth 3mm. Flat iron chisel. This chisel has a flat strip stem which widens slightly from the head to the blade. The head is rectangular in line with the stem and shows the characteristic down curled lip, common on tools that have been struck with an iron hammer. The actual cutting edge is very unusual being shaped in a waving line across the blade. The result of this shape is that the tool would cut two channels if hit at an oblique angle, or an S pattern if struck at 90° to the wood being worked. Such an irregular blade can only mean that this chisel had a specialized function, perhaps for cutting decoration in wooden objects such as furniture.

No 5721. Period VII/VIII: length 236mm, diameter 21mm. Badly corroded iron chisel. The head and the blade of the chisel are broken off leaving only the circular shaft.

No 6071. Period III: length 80mm, width of blade 19mm. Small iron firmer chisel. The shaft is octagonal in form and tapers into a flat blade with an edge slightly wider than the shaft. The flat head is relatively unmarked suggesting little use before the tool was lost or discarded.
No 6316. Period VI A: length 93mm, width of blade 30mm.
Rough iron mortice chisel. The head has been broken off and the shaft and blade are very rough, perhaps through wear. The blade splay's out from the shaft and the cutting edge is dented and worn. The badly made shaft is predominantly circular and snapped before the head.

No 6453. Period VI: length 86mm.
Possible chisel. The shaft is thin and tapers into a tang at the top. The blade, formed by a bevel on one side of the shaft, is angled and much wider than the shaft. This angled blade could mean that the object, if it is a chisel, may have had a specialized function.

No 6578. Period VI B: length 112mm, width 15mm.
Iron firmer chisel. The chisel has a circular head that shows little sign of use. The shaft is circular for most of its length until it tapers on both sides and runs into a flat square blade.

BRADawl.

No 3522. Period III: length 132mm.
Iron bradawl. The tool has a pyramidal tang and a circular shaft which splay's out slightly into a narrow chisel edge at the tip. Such a tool would have a bone or wooden handle and was used to make a hole in a piece of hard wood in order to insert a nail. The hole was created by wiggling the tool rather than by pushing it or striking it.
GOUGE.

No 4387. Period V: length 165mm, width 36mm. The stem is rectangular in section and has been broken close to the blade. The oval shaped blade is strongly curved near the stem, but widens and flattens out towards the tip.

INDUSTRIAL PLANE.

No 88.578. Period III: length 588mm, width 120mm, depth 55mm. Large wooden frame with a rectangular hole through the centre. The shaft is circular in section and runs into a rectangular block. The hole in the centre of this block is some 75mm wide and set at around 40°. It shows signs of wear around its edges in the form of deep scratches. The bottom of the rectangular block is considerably smoother than the top. It is possible that this implement was the frame for a large plane blade which would have sat in the central hole. The plane would be pushed away from the body and most probably used for planing large building timbers.
No 3441.  Period VI: length 108mm.
Iron plane blade. The main part of the blade is rectangular and is snapped off before the cutting edge. It has two curved shoulders that join with the thinner stem. This stem has a very shallow S shaped profile and is also snapped off before the point at which it would be attached to the rest of the plane. The S shaped profile would mean that the blade is at a perfect cutting angle for planing wood.
MISCELLANEOUS

TOOLS.

This section contains some highly unusual pieces, such as the wire making device and the brush. The section also contains a rare nail heading tool and a splitting wedge.

The continuity between Roman and modern tools is no better illustrated than with the wrecking bars. The similarity between the modern jemmy bar and these wrecking bars is startling, showing how little tool design has changed in some respects over the last two thousand years.

BRUSH.

No 3981. Period I/II: length 230mm, width 195mm. Three large fragments of a stiff bristled brush. The brush has a predominantly square oak frame that bows inwards slightly along each side. There is a drilled hole of about 5mm diameter in each corner. The frame has circular holes of 5mm in diameter drilled into it at regular intervals which accommodates the bristles. There are roughly 15-20 bristles to each hole. The bristles are very worn and by the end of its life this could not have been a really effective implement. The stiff nature of the bristles mean that it was probably used for scrubbing, rather than for sweeping.
WRECKING BARS.

No 1000. Period VII/VIII: length 190mm, diameter of shaft 23mm. Stout iron wrecking bar. The flat circular head is very battered showing the characteristic downward curling iron lip, of a tool hit with an iron hammer. The circular shaft runs straight at first and then is angled downwards as it flattens into a two pronged claw. This claw is the same as on a hammer today and was used then, as now for the removal of nails during demolition. The nail would be wedged into the crack between the two prongs and the angle of the claw would give sufficient leverage to prize the nail out of its position.

No 3669. Period VI: length 165mm, width 12mm. Iron wrecking bar. At one end of the tool there is a simple flat tip, similar to a modern screwdriver blade. The shaft widens from this blade and curves around by ninety degrees to run straight for the rest of its length. It splays out slightly and has a claw at its tip. The two teeth are sharp and flat, similar to the single blade at the opposite end, but have a crack between them which would enable a nail to be gripped and removed by using the rest of the bar as a lever.
No 3719.  Period VI: length 150mm, width of shaft 20mm. Solid iron wreckage bar. The square head has been struck with an iron hammer and shows a curled down lip of iron around the head. The roughly square shaft is angled quite sharply into a two pronged claw. The gap in this claw is 6mm wide and has a circular hole 8mm in diameter making it ideal for the removal of nails as described above.

No 4102.  Period III: length 510mm, width 26mm, depth 30mm. Square sectioned iron wreckage / crow bar. One end of this tool has a two pronged claw similar to the other wreckage bars from the site, with the gap in the middle for the removal of nails. This claw is formed by a bevel on one side of the shaft. The shaft runs for 510mm before ending in a small rectangular tip. This is a much larger tool than the other wreckage bars from the site and would have been used more for levering and tearing things apart than being hammered, as the other wreckage bars appear to have been.
No 5617.  Period VIII: length 126mm, width of shaft 18mm.
Small iron wrecking bar. This tool has the battered head common to the other
wrecking bars from Vindolanda. It has a square shaft and the typical angled two
prong claw enabling the swift removal of nails.

**NAIL HEADING TOOL.**

No 4500.  Period III: length 180mm, width 40mm.
Heavy, rectangular iron block with five central square holes running through it.
The holes get progressively smaller from one end of the block to the other, the
largest being 12 x 12mm and the smallest being 5 x 5mm. Seen in profile, each
hole tapers as it passes through the block to give the nail its own tapering stem.
On the upper surface there appears to be a slight square depression around each
hole where the nail head would have been hammered into shape. The bottom
surface is completely flat around each hole. Such tools are very rare. Three have
come from Silchester (Reading Museum) and an example was found at Usk
(Manning 1995.)
DRAW PLATE.

No 4136. Period III: length 95mm, width 23mm. Small, rectangular iron block with four centrally placed circular holes. The block tapers very slightly from one end to the other and is broken at one end. At the broken end there is a semicircle of iron that has been removed, but this does not run completely through the iron to form a hole. The diameter of the semicircle is slightly larger than the other holes and it tapers through the bar. The other four holes are uniform in size being 12mm in diameter on one side of the bar and tapering through the bar to 3mm on the reverse. The artifact is very similar in shape to the nail heading tool No 4500, however the 3mm diameter holes are too small for nails. Dr. D. Simm 1997, has suggested that this was a draw plate for manufacturing wire rings for chain mail. The hot strands of iron would be placed in the wide end of the holes and then pulled through the block to produce measured lengths of wire.

WEDGE.

No 5955. Period V: length 84mm, width of blade 26mm, diameter of stem 11mm. Small iron wedge. The tool is made from one solid piece of iron with the cylindrical stem flattening out to produce a leaf shaped blade. The blade is bent slightly in profile although this was not a part of the original design. The tool is undoubtedly a wedge but what material it was used upon can not be discerned. It would have been an equally useful implement to the carpenter or mason for splitting wood or stone.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curle, J., 1911</td>
<td>A Roman Frontier Post and its People. The fort of Newstead in the parish of Melrose. Glasgow.</td>
<td></td>
</tr>
</tbody>
</table>


