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THE EXCAVATIONS OF 2001-2002
VOLUME I

by
Andrew Birley
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VOLUME 1

THE EXCAVATIONS
OF 2001 AND 2002

CIVILIAN SETTLEMENT, SEVERAN AND
SECOND CENTURY FORTS, AND THE PRE-
HADRIANIC OCCUPATION,
WITH A REPORT ON THE TRIAL
EXCAVATIONS AT CARVORAN

BY

ANDREW BIRLEY

WITH CONTRIBUTIONS FROM
ANTHONY BIRLEY, PATRICIA BIRLEY, ROBIN BIRLEY,
JUSTIN BLAKE, RICHARD BRICKSTOCK, ELLEN
HAMBLETON, JACQUI HUNTLEY, LOUISE LOE AND
ELISE MARLIERE.
Fig 1: Aerial view of Vindolanda in 2002, with the position of the excavations marked with an arrow. (Photo: Film Nova).
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Acknowledgements

The 2001 excavation season, from April to the end of August, was only completed because of the magnificent support the Trust received from a number of most generous organisations and individuals, and because the Staff were determined to continue their work in spite of the hostile atmosphere. The Foot and Mouth outbreak had a devastating effect upon the economy of the region, and there were real fears that the archaeological and education services teams that had been built up over the past 30 years would have to be disbanded. Without the financial support of the Friends of Vindolanda, the Sir James Knott Trust and, above all, the Northern Rock Foundation, reinforced by a number of other Charities and individuals too numerous to record here, but nonetheless deeply appreciated, the Trust would have foundered. This Report, and Volume II by Justin Blake, is dedicated to those wonderful people.

Thanks are also due to a fine group of volunteers, including many from the USA, who endured some awful weather in both 2001 and 2002, and also put up with the fumes from nearby funeral pyres in 2001, and to Mike Green and Martin Sowerby who served as supervisors for the better part of both seasons. The Trust has been fortunate to secure the services of Richard Brickstock for the coins, Anthony Birley for the writing tablets, inscriptions and graffiti, Jacqui Huntley for the environmental analysis of material from recent excavations, Louise Loé for the forensic report on the human skull, and Ellen Hambleton for the report on the dog skeleton. Elise Marlière came to Vindolanda to study the wooden containers in the summer of 2001, as a part of her research for her own studies, now published (L’oûtre et le tonneau dans l’Occident romain, Monographies instrumentum 22, 2002), and was persuaded to return in 2002, to prepare a special paper on Vindolanda’s wooden containers and amphorae. It is published with this Report, in her native language, with a brief synopsis in English by Anthony Birley. Jon Hather and Rob Sands have continued their work on the wooden artefacts, as has John Peter Wild on the textiles. Richard Sim continues to work on a number of the iron objects, and Alan Bowman, David Thomas and Jim Adams hope to publish Vin. Tab. III before the end of 2003, with work continuing on the study of the stylus tablets.

Other members of the Trust’s staff have made contributions to the study of the small finds (especially Patricia Birley and Justin Blake), whilst Patricia Birley, Linda Thompson and Barbara Birley continued to keep the Museum conservation laboratory in full working order. Alison Rutherford once more dealt with the infra-red photography of the writing tablets, and she has now photographed every ink tablet since the discovery of the first specimen in March 1973. The Trust, and the wider audience of Romano-British historians, owe much to her special skills and enormous patience. David Sherlock, Inspector of Ancient Monuments, made numerous visits to the excavations, and provided helpful advice. Finally, the Trust must acknowledge the invaluable IT skills of Hannah Marriott, especially for transcribing all previous excavation reports onto CD-Roms.
Preface

This report, Volume I, is principally devoted to the excavations of 2001 and 2002, in an area lying to the west south west of the West Gate of Stone Fort 2, largely below the floors of civilian buildings excavated in the 1970’s. The excavations produced much further information about that civilian occupation of the third and fourth centuries, but it was mainly concerned with the underlying stone and timber periods, dating from Vindolanda’s earliest fort in the late AD 80’s to the short-lived and unorthodox Severan complex. Although the pre-Hadrianic remains had been severely damaged by the subsequent digging of three mid-second century defensive ditches, important evidence was found – including nearly 100 writing tablets. The majority of the tablets were fragmentary and in poor condition, but they did include a surprising quotation from Virgil’s Georgics, a second example of a Strength Report of the First Cohort of Tungrians, and an intriguing account relating to the issue of military weapons.

The effects of the disastrous 2001 foot and mouth outbreak, involving reduced staffing and finances, meant that it was impossible to produce the two promised Research Reports in the time available before the commencement of the 2002 excavation season. Thus the 2001 and 2002 Reports have been combined, resulting in two volumes rather than four. One Report, Volume II by Justin Blake, is concerned with a variety of important sites on the perimeters of the Vindolanda complex, including the Romano-Celtic temple, and this Volume I, by Andrew Birley, deals largely with his work in the area described above. Due to the prohibitive costs of publishing heavily illustrated reports in short print runs, the 2001/2002 volumes will appear only in CD Rom format. The Vindolanda Trust regrets this break with tradition, but it believes that this method will probably become the norm within a very short time.

Within this volume, the opportunity has been taken to update the published information about both the Severan military complex and the subsequent civilian settlement, together with reports on the complete collections of legionary tile-stamps, the amphorae (with their inscriptions and stamps), and an analysis of the wooden containers from the pre-Hadrianic levels.

The volume also includes the photographs and preliminary readings, by Anthony and Robin Birley, of the most intelligible of the near 100 writing tablets found in 2001 and 2002. The report on the leather goods is no more than a token contribution, illustrating the most interesting of the footwear, together with a purse – the bulk of the material was of a similar nature to that found in considerable quantities in previous excavations, to be reported on by Carol Van Driel Murray in due course. There is no report on the voluminous quantity of pottery, which included much La Graufesenque samian from the pre-Hadrianic levels, and it is hoped to devote a separate volume to pre-Hadrianic pottery at a later date. Small finds reports have
been kept to a minimum, dealing only with the outstanding items, and concentrating upon the tools and the weapons.

The report on the wooden barrels and box staves, recovered over many years of excavation, is particularly welcome, as Elise Marlière has been able to bring to bear her considerable knowledge of the continental examples to illuminate this important aspect of the Roman army's commissariat, and she also reports on her preliminary examination of the amphorae, with a full description of the 73 stamps on Dressel 20's. Jacqui Huntley's environmental report includes descriptions of material from the excavations of 1998-2000 as well as that from the current work, and Louise Loe has contributed a detailed report on the examination of the skull of the unfortunate young man which had been deposited in the Severan ditch. Ellen Hambleton's report on the skeleton of the young dog found near the skull shows how this somewhat deformed young beast had been skinned before final dumping in the same ditch.

At the conclusion of the Vindolanda excavation season in 2002, trial excavations took place at Carvoran fort, eight miles to the west, to determine the state of preservation of the remains of the fort walls and the south gateway, and to provide positive evidence to clarify the many reports of widespread destruction, instigated by the early medieval castle builders, the Carrick farming family and the Military Road builders. Sadly, as the report shows, those antiquarian 'tales' had not exaggerated the situation.
### Basic descriptions of the main context numbers allocated in 2001 & 2002 excavations at Vindolanda, area A.

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<td>Unstratified material from the top layer of excavation</td>
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<td>VIB</td>
<td>The floor of a Severan workshop, predominantly burnt red clay with loose op-sig inclusions.</td>
</tr>
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<td>V01-3A</td>
<td>V</td>
<td>First laminated layer beneath the north end of the Severan workshop with inclusions of fallen wattle &amp; daub. All placed on top of a cobbled roadway surface. Interpreted as demolition of nearby buildings on to the roadway surface.</td>
</tr>
<tr>
<td>V01-4A</td>
<td>IV</td>
<td>Directly beneath V01-3A, a dirty turf layer, containing an abundance of butchered animal remains, mixed with pottery and the occasional iron object. The most northerly room of period IV structure. Wattle &amp; daub fences remaining, but badly damaged, a constant flow of water into the trench.</td>
</tr>
<tr>
<td>V01-5A</td>
<td>VII/VIII</td>
<td>Civilian debris from near the southern wall of the earlier Severan workshop floor. A mixture of ribble and loose earth, with evidence for burning.</td>
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<td>V01-6A</td>
<td>V</td>
<td>Cobbled roadway surface continuing to south of V01-3A.</td>
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<td>V01-7A</td>
<td>VII</td>
<td>Vicus building remains built on top of the southern end of the Severan workshop floor area. Mixed clay floors, no organic remains.</td>
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<td>V01-8A</td>
<td>V</td>
<td>Cobbled roadway of period V at the southern extremity of the later Severan workshop above. No organic material remained on top of the roadway, which had seen many repairs with larger stone in this section.</td>
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<td>V01-9A</td>
<td>II/III</td>
<td>The sump placed through the floors of period II/III buildings in the most northerly room of the schola to enable excavation to continue. Mostly mixed turf and laminated material, surprisingly clean, little bone or pottery.</td>
</tr>
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<td>V01-10A</td>
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<td>A small roadway ditch to the east of the cobbled road, with an estimated depth of some 50cms. Mainly full of rotting organic material, animal defecations and smashed wattle &amp; daub (mainly birch).</td>
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<td>V01-11A</td>
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<td>Main corridor to the east of room 2 (context V01-12A). Heavily flagged floor, with mixed laminate and dirty turf layer. Much evidence of burning remains, with the top 4-8cms of laminate clearly fire damaged but intact.</td>
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<td>V01-14A</td>
<td>II/III</td>
<td>Laminated material beneath the hard packed clay floor and ovens of room 3 in the period IV building above. Laminated material was fairly clean, but very wet soggy, with slowly running water continuing through this layer during excavation. Many leather objects and some wooden objects, A mass of wattle &amp; daub passing through this layer, much of it demolished, in a poor state of preservation.</td>
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The bottom of the causeway ditch of period I fort. Clean laminated material sits on top of a black burnt layer at the bottom of the ditch, a good mixture of Roman artifacts pressed into the natural clay that forms the ditch edges.

Silty black material with masses of animal remains on top of heavily flagged stone floor of room 2 inside the period IV building.

The period V roadway continuing under and beyond the foundations of the later Severan workshop's southern wall.

The start of period I ditch 3 on western side as it left the causeway ditch system, heading north. Similar to context V01-13A, though capped by a layer of clean leaf fall, on to part of which a raft of fallen wattle & daub had been placed to support the foundation of the buildings of period II/III above.

Thick laminated material directly beneath V01-16A. Period III carpeted floor.

Beneath V01-19A, separated by a thin band of clay, another 30-40cms of laminated material, resting on top of a raft of wattle & daub.

Patchy and in poor condition, three posts and some decaying wattle & daub pressed into the foundation of the VIB workshop floor above.

Rubble & cobbles of Severan roadway between the workshop and a barrack block to the west of the workshop, providing access to both buildings.

Northern end of the roadway that divided the workshop from the barrack block to the west.

Similar to context V01-18A, beneath the corridor of the period IV building above, a period I ditch running north from the causeway ditch to the south.

Cobbler's shop floor surface, consisting of dirty laminated floor layer, badly decayed, and damaged by the proximity of later Severan roadway above.

Similar context to V01-24A, demolition of period II/III structures, including a pair of window shutters, pressed into the earlier period I fort ditch system.

Demolition and laminated material on top of period V roadway, immediately above room 4 of the period IV below.

Continuation of V01-25A to the west.

Continuation of V01-25A to the south.

Period I fort ditch number 4. Very black debris from base of ditch, probably caused by a mixture of rapid decay and burning.

Silty material next to the boarded wall in the cobbler's workshop.

Silty black earth 1m to the south of the boarded wall of the cobbler workshop.

Leaf fall layer covering debris from period I in period I fort ditches.

Similar to context V01-28A.

Heavily burnt material lying beside the large oven in room 3 of the period IV schola.

Silty black earth and mixed laminate lying directly beneath the cobbler's shop floor from period V.

The main corridor linking rooms 1,2,3,4,6 in the period IV structure. Heavily flagged, and often repaired, this surface was sporadically covered with burnt laminated flooring.

The floor material, mostly burnt clay and turf with a fine mix of ash from room 4, the small oven room in the period IV building.

The northern end of the corridor linking rooms 1,2,3,4,6 in the
period IV building. Similar to context V01-37A.

Directly below the cobbler’s workshop of period V, mixed debris and timbers from the demolition of period IV and III buildings. A thorough demolition had taken place of these earlier structures.

V01-41A I
V01-42A II/III

Period I ditch side, under V01-40A, into natural boulder clay.
Below the floor of the small corridor dividing rooms 3 & 4 in period IV. A band of clay some 27cms thick followed by over 60cms of laminated material, mostly clean of occupational debris.

V01-43A III
V01-44A I

Below the floor of context V01-38A.
A brief examination of the bottom of period I fort ditch beneath the cobbler shop floor. Abandoned due to water problems and safety issues caused by the massive foundations of vicius structures some 4m above.

V01-45A I
V01-46A VIB

Period I fort ditch Number 4. Below room 4 in period IV above.
Severan drain running beneath the barrack block, roadway and workshop floor in a west/east direction. The terminus for this drain was uncovered in the 1991-4 excavation seasons to the east of the 2001 & 2002 SMC area.

V01-47A VIB
V01-48A IV

Packing for the floor of the Severan workshop. Mostly thick clay with little in the way of inclusions.
The false wall dividing the eastern range of rooms in the building from the higher terrace to the west of room 4.

V01-49A IV
V01-50A I

Room 6, a small store room. Hard baked clay floor.
Period I fort ditch below context V01-48A

2002

Brief description of contexts

V02-1A VIB
V02-2A VIB

Severan roadway between barrack and workshop
Foundations of V02-1A, consisting of a layer of turf, approximately 60cms thick, on top of remains of period V buildings (including cobbler’s workshop).

V02-3A IV
V02-4A IV

False wall dividing upper and lower terrace of period IV next to rooms 1,2,3.
Same as V02-3A, false wall filled with debris, and built over foundations of earlier period II/III structures.

V02-5A IV

Rubble terrace boundary supporting false wall to west of rooms 1,2,3,4 in period IV.

V02-6A VIII
V02-7A VIII

Vicius foundations of main courtyard to the south of the Severan annex, and of a later date, built on top of its southern defences.
Vicius accommodation to the west of the main courtyard.

V02-8A VIB
V02-9A VIB

Severan well, constructed into southern rampart mound.
Severan southern rampart mound, to south of workshop and roadway. Made primarily from clay, to a depth of over 2.5m.

V02-10A V
V02-11A IV

Roadway continuing on from V01-17A.
The southern part of room 2 in the period IV structure uncovered in the 2001 excavations.

V02-12A VI
V02-13A VI

Rubble filled large Antonine fort ditch.
Same as above.

V02-14A VI
V02-15A VIB
V02-16A VIB

Turf filled Antonine ditch beneath Severan roadway.
Severin fort ditch to south of rampart.
Severin fort ditch to south of rampart.

V02-17A VI

Large rubble causeway leading to Antonine fort’s western gateway.

V02-18A VIB
V02-19A II/III

Severan well’s construction trench.
Remains of buildings below rooms 1 & 2 of period IV.
Mostly wet laminated material mixed with heavy clay, mixed up during Roman demolition of structures.

V02-20A VIB

The silt and liquid sand from the bottom of the Severan well, find spot for the altars, bucket and roofing slates.
Ditch running through Antonine rubble causeway, east/west.
Remains of *Vicus* drain to east of main courtyard, packed with clay, late pottery and the findspot for the gryphon.
Ditch running through rubble Antonine causeway north/south.
Partition wall and drain to east of period IV, separating it from the western wall of the Hadrianic palatial building.
Cobbled surface of the main causeway, running east/west through centre of area later occupied by the Severan fort's southern defences.
Dividing wall between two period III structures, lying directly below context V02-25A at a depth of 50-70cms.
The floor surface of site LXXVII, a mixture of flag stones and burnt clay.
Boarded wall cut out by later Severan fort ditch on its northern bank.
Period II/III structures below western terrace wall of room 1,2, of period IV.
Planked floor of period II below boarded wall of period III.
Remains of period IV structures on the southern bank of period VII B fort ditch.
Dirty turf level overlying Antonine rubble causeway below the floor of site 71.
The remains of room 8 inside the period IV structure. A thick laminated carpet once covered this area, placed on to a hard baked clay floor which is typical of other rooms in the building. This room was badly damaged by the cutting of the Antonine ditch through its middle.
Floor of site LXXVII (*Vicus*)
Room 8 at its most southerly end.
Antonine rubble causeway below site LXXVII.
Same as above
Ditch cutting through V02-38A
Same as above.
Period IV structures surviving the cut of V02-40A
Laminated material to a depth of 60cm in the bottom of this ditch, running north/south and cutting through the Antonine causeway below the course later used by the Severan rampart above.
The terminus of a new period I fort ditch running east/west at the southern end of the Severan barracks.
Roadway to the south of the vicus courtyard building, providing access to that building.
Brief examination of exit drain from SE corner of stone fort 2.
Period I Fort – cAD 85-92

The Roman history of Vindolanda began at some time in the mid AD 80’s, with the arrival of Coh I Tungrorum¹, beginning a long association with Vindolanda, and forming the garrison for much of the next 55 years, with occasional absences filled by Batavians². It is possible that an earlier Flavian fort may have been situated to the north of the Stanegate road, but excavation has not been possible on that site to examine suggestive traces³.

The first timber fort of Coh I Tungrorum was built almost directly on the site taken by the later stone forts, utilizing the eastern edge of the natural⁴ Vindolanda plateau. The plan, fig. 2, page 2, shows the alignment of those two forts. After the initial examination of the primary fort’s western ditch, adjacent to the rampart, in the programme of 1991-94, further exploration of period I was undertaken in the 2000 excavations, by Justin Blake, when the large southern ditch was partially explored⁵. The period I fort ditch at this point was uncharacteristically spartan, but for a single coin of Vespasian. The ditch had been filled with boulders⁶ at a later date, presumably after the demolition of period I and before the construction of periods II and III.

The large pre-Hadrianic baths to the south of the present stone fort can be assigned to timber forts II, III, and IV, rather than I, so the location of this earliest fort’s baths remains a mystery, as does any trace of a timber built vicus, though the latter may well have been totally destroyed by the construction of the much larger periods II, III, and IV forts.

Those sections of the western ditch explored in the 1991-1994 excavations produced a hoard of broken but unused samian pottery, a strength report on a writing tablet⁷, and a wagon axle, to name but a few of the most important discoveries. There are, of course, difficulties when relying upon material from a ditch for a date of occupation. All too often the rubbish may have been thrown into the ditch by the men responsible for levelling the site in advance of reconstruction, and a date extracted from that material might be several years later that the end of the occupation. However, in this case at least the La Graufesenque pottery was firmly embedded in the mud at the ditch bottom, suggesting deposition before the back-filling, and the complete absence of Dragendorff 29’s, as common as Dr 37’s on Agricolan sites in Scotland, was surely a significant pointer to the absence of similar early occupation.

¹ The Vindolanda archaeologists regard the two strength reports of Coh I Tungrorum as belonging to the period I ditch, and not to the period II floors.
² cAD97-105.
³ Aerial photographs by the late Professor Barri Jones, and the discoveries of Roman leather at a depth of five feet in the 1890’s (by Anthony Hedley) make this a strong possibility.
⁴ The plateau may be natural or indeed may have been shaped by earlier pre-Roman settlement which has yet to be detected by virtue of the great depth of the remains.
⁶ A common practice on the site, through multi-periods of occupation, although not universal.
⁷ Several tablets of note are now known to come from period I, including a letter to a decurion.
Little of the interior of the period I fort has been examined, and the bulk of it remains firmly hidden beneath the stone forts remains, which has only been partially excavated. It is known from the excavations inside stone fort 2's praetorium that the preservation of the early timber forts beneath is not of the same quality as under the vicus to the west. When trial trenching was undertaken in the courtyard of the stone fort 2 praetorium in 1998, it was found that the clay foundations inserted for the stone buildings had caused the removal much of the timber below, and that the natural landscape had risen to a level that was only some 2-3m below the foundations of the stone remains, unlike the 5m to 6m outside the perimeter of the stone forts.

Much then remains to be discovered about the first garrison of the site: the bulk of its structures are still undiscovered, and it is to be hoped that in future excavations of the later fort plateau provision for deeper trenches will be made, so that an opportunity to gather more evidence of the arrival of the Roman army at Vindolanda is not squandered.

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Fig 2 The position of the period I fort (in red) in relation to Stone Fort 2, in the light of current evidence.

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8 See Birley, Birley, Blake 1998.

It was anticipated that the 2001/2002 excavations would avoid the period I fort defences altogether, as up to that point only one ditch had been clearly recognizable as belonging to that period in the west, and it passed some 7-12m to the east of the SMC area. However, as periods V to II were slowly uncovered, it became clear that massive subsidence to those structures had taken place. The reason behind this became apparent as approximately 3.8m below the level of the vicus shop floor above, a whole series of deep fort ditches was uncovered, cut into the natural clay.

Traces of three large ditches were found, running north from a wide causeway (4.4-5m in width) to the south, as well as two linking ditches to either side of the causeway, and a further ditch to the west of the causeway, running east/west. The plan, fig 4, page 4 shows the period 1 fort with the revised ditch system in place. It is possible that up to six separate ditches surrounded the period 1 fort on the western side, suggesting that perhaps the garrison was either nervous in its outlook or that the commanding officer had a garrison with too much time on its hands. It should be noted that there has been no excavation to the necessary depth to the south of this area, and the multiple ditches may well be found there at a later date.

Excavation of the early ditch system proved to be a difficult undertaking. Running water was a constant problem, and as a consequence the excavators had to overcome a difficult gauntlet of hazards to recover any evidence at all from those levels. At a depth of over 3.5m from the vicus floors above, the summer water table could be as much as 1m above the ditches in dry weather, and up to 3m above the ditches in the weather experienced in the summers of 2001 & 2002. However, the excavation was well worth the effort, as the ditches from period 1 fort were to provide a wealth of new evidence about the garrison. Some of the evidence came from writing tablets, such as a new fragmentary strength report, as well as other more material items such as a helmet crest, and toy swords made from oak.

The fig. 3 shows the ditch system looking north/west from above the main west gate causeway of the period I fort. Situated above the fort ditches are the remains of periods II, III & IV structures that had the difficult task of spanning the earlier ditch system.

The ditches all had shallow convex bases, filled with 10-15cms of burnt straw and grasses. In this layer of debris, the centurion’s helmet plume SF8454, and a toy child’s dagger, W2001-89 were the most notable of the small finds from 2001, and both came from the second outermost ditch. In 2002, on the other side of the causeway shown in fig. 4, two remarkable finds were made, the first being a small wooden box with lid and

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9 Which provided access across the ditches to the fort from the west.
10 Perhaps evidence of a military annex/compound attached to the fort to the west.
11 Mentioning Julius Verus and his once again, see the report on pages 90-92.
12 For the full report on the toy dagger, see page 211.
contents still inside, W2002 – 41A\textsuperscript{13}, and the other being a wicker basket lid, SF8837, reported on page 183.

Starting from the fill in the bottom of the ditches, a thin layer of burning existed some 5-15cms thick followed by a laminated fill of 20-30cms which was mostly clean. The burning perhaps represented a quick land clearing exercise by using fire. If so the year must have been a very dry one for the bits of straw and grass in the bottom of the ditches to catch fire. This in turn was capped by a very thin 5-8cms thick layer of leaves, presumably marking an autumn leaf fall\textsuperscript{14} (mostly birch and the occasional oak). Above this a completely clean silt layer of some 15-20cms was spread evenly across all the ditches. Finally this layer was topped by a layer of compacted turf (mostly clean, but some occasional leather items) and then laminated carpet from the floors of periods II, III structures.

\textsuperscript{13} Reported on page 210.

\textsuperscript{14} The only layer of this type encountered, suggesting that perhaps the garrison was kept busy by routinely clearing out the fort ditches in period 1, and that sufficient forestation remained in the vicinity.
**Fig. 4** The period I western fort ditches, incorporating the results of the 1980's and 1990's excavations. The area to the south of the 2001/2002 area (above the scale) has not been examined so far. The function of these two small east to west ditches is unknown. The principal effect of these multiple ditches was to create highly unstable ground for the succeeding larger pre-Hadrianic forts – and for all subsequent construction on the site.

**PERIOD 1** fort ditches. Small finds, wooden objects, and leather objects, from the 2001 & 2002 excavations area A. All of the following artefacts came from the ditch systems associated with the western gate of period I fort at Vindolanda. The objects that are highlighted feature elsewhere in the report, in their relevant sections.

<table>
<thead>
<tr>
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<th>Brief description</th>
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<tbody>
<tr>
<td>SF8158</td>
<td>V01-15A</td>
<td>Gaming counter – bone</td>
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<tr>
<td>SF8168</td>
<td>V01-18A</td>
<td>Samian stamp + graffito Dr 18 [ATIN (N retro); graffito] SSIM</td>
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<td>V01-18A</td>
<td>Trumpet brooch</td>
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<td>SF8341</td>
<td>V01-30A</td>
<td>Large iron axe pin</td>
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<td>SF8342</td>
<td>V01-30A</td>
<td>Puff ball</td>
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<td>SF8343</td>
<td>V01-30A</td>
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<td>SF8344</td>
<td>V01-30A</td>
<td>Copper-alloy off cuts</td>
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<td>SF8345</td>
<td>V01-30A</td>
<td><strong>Iron punch with bone handle</strong> p186.</td>
</tr>
<tr>
<td>SF8351</td>
<td>V01-30A</td>
<td>Iron needle</td>
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<td>SF8359</td>
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<td>Copper-alloy disc</td>
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<td>SF8360</td>
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<td>SF8506</td>
<td>V01-30A</td>
<td>Samian stamp Dr 27 OFAPR</td>
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<td>SF8509</td>
<td>V01-30A</td>
<td>Pottery cheese press</td>
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<td>Samian Stamp Dr 27 INGEN</td>
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<td>V01-45A</td>
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<td>SF8454</td>
<td>V01-45A</td>
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<td>V02-43A</td>
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<td>V02-43A</td>
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<td>SF8837</td>
<td>V02-43A</td>
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<td>Small spindle</td>
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<td>V01-18A</td>
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L2001-129  V01-30A  Tentage
L2001-130  V01-30A  Tentage
L2001-131  V01-30A  Shoe
L2001-255  V01-45A  Tentage (6 panels)
L2001-256  V01-45A  Tentage
L2001-257  V01-45A  Shoe
L2001-258  V01-45A  Shoe
L2001-259  V01-45A  Scrap
L2001-261  V01-45A  Shoe
L2001-278  V01-45A  Scrap
L2001-279  V01-45A  Shoe
L2001-280  V01-45A  Scrap
L2001-281  V01-45A  Scrap
L2001-282  V01-45A  Scrap
L2001-283  V01-45A  Pair of shoes
L2001-284  V01-45A  Shoe
L2001-285  V01-45A  Off cuts
L2001-286  V01-45A  Childs shoe
L2001-287  V01-45A  Shoe
L2001-290  V01-50A  Marching boot (complete)
L2002-236A  V02-43A  Shoe
L2002-237A  V02-43A  Off cuts
L2002-238A  V02-43A  Carbatina shoe
L2002-239A  V02-43A  Shoe
L2002-240A  V02-43A  Shoe
L2002-241A  V02-43A  Marching boot
L2002-242A  V02-43A  Tentage
L2002-243A  V02-43A  Shoe
L2002-244A  V02-43A  Off cuts
L2002-250A  V02-43A  Scrap
L2002-251A  V02-43A  Tentage
L2002-252A  V02-43A  Shoe
L2002-253A  V02-43A  Scrap
L2002-259A  V02-43A  Shoe
L2002-260A  V02-43A  Shoe
L2002-261A  V02-43A  Scrap
L2002-262A  V02-43A  Off cuts

**Coins**
C 504 Vespasian AD 72-73.
Periods II and III
Circa AD 92 - 105

These periods of occupation have proved in the past to be the most productive in terms of artefacts and written material. In part this has been due to the exceptionally fine anaerobic conditions that prevailed in the areas excavated between 1973 and 1994 (see VRR vols I-IV), but also because demolition of both periods’ structures occurred before heavily used floor carpets had been removed. In the case of the period III material, it has been argued that the garrison had been summoned at short notice to the Danube theatre of war, resulting in the dumping of much non-vital equipment. The writing tablet evidence for all of the periods of occupation at Vindolanda has been substantially updated recently by Anthony Birley’s latest publication,¹⁵ and a summary of the dating evidence can be found in the introduction (page xv).

The garrisons at Vindolanda during this time were Coh I Tungrorum (possibly still there in the early part of period II) and Coh VIII Batavorum, both probably milliaria and the latter part mounted, occupying forts that appear to have been around 7 acres in size. The plan in fig. 5 page 10 shows these forts in relation to the later stone fort 2. Both forts had been constructed across the former extensive ditch system of the smaller period I fort. The praetorium of Flavius Cerialis¹⁶ in period III has been partly examined as has a large section of the via praetoria, as well as the south gate.

Periods II and III in 2001 & 2002

In the event, the remains of the periods II and III occupation in the area investigated during the 2001 and 2002 seasons proved to be disappointingly slight, but for very clear reasons. It had been the Roman efforts to gradually level up the considerable natural hollow in the ground further to the east and south that had led to the demolition crews leaving up to 40 cms of walls standing, before spreading a thick layer of turf or clay above the old floor surfaces, to create a clean platform for new structures. But where the original ground surface rose to the west, there was no call for such procedures, and most of the early buildings’ foundations were removed entirely, leaving only the stumps of a few larger posts. Fortunately, the inefficiently back-filled period I ditches had contributed to significant subsidence on parts of the site, leaving much greater traces of the II and III walls where they crossed the old ditches. Thus narrow strips of the earlier buildings remained, with some of the very damp organic flooring, although it proved impossible to separate with any degree of certainty the flooring of period III from that of its predecessor. There was the added problem that at least one of the major load-bearing north to south walls lay beneath the later stone walls of both Severan and civilian structures, both of which were leaning over to the east, making it necessary to leave an area of at least 1.50m unexcavated.

¹⁵ Garrison Life at Vindolanda – A Band of Brothers, 2002
¹⁶ Of Coh VIII Batavorum.
Directly beneath the hard baked clay and turf floors of the period IV structure lay the demolished remains of the periods II and III wattle and daub fences. The fences and posts of periods II/III ran on a slightly different alignment to those of period IV above. It remains unclear if the period II buildings were merely modified in period III or re-built completely. More walls were added, others demolished, but the basic dimensions of the structures seem to have remained the same, and probably would have not been tampered with at all if not for the chronic instability provided by the foundations, which had to straddle the period I fort ditch system (a task which they ultimately failed to cope with adequately).

Only 20-30cms of laminated floor material survived from these levels above the causeway of period I\textsuperscript{17}, but more survived due to subsidence into the fort ditches below (on either side of the causeway), which was very severe in places, up to half a metre at the junction of the earlier ditches and the causeway.

Due to the nature of the demolition, it was almost impossible to distinguish between the period II and III structures, if indeed they did differ at all. What remains seems to have been barrack block style accommodation, using mainly wattle and daub, and birch & alder in the construction. The builders in periods II & III were well aware of the problems that the ditches posed to their construction and they sometimes went to considerable lengths to combat the problem\textsuperscript{18}. Over the main junction of the ditches and the causeway, a mattress of wattle and daub was placed over the ditch in an attempt to add extra stability.

No coins were recovered from the floors of the periods II and III buildings in 2001, but in 2002 three emerged, two being worn copper issues of Vespasian (C 521 and 533), and the other a sestertius of Trajan AD 103-111 (C522), being the first coin of that emperor to be found in a period III context. Many other interesting artifacts (some very large) survived in good condition in the protective carpets of laminate. 16 shoes came from the various rooms explored, and 12 writing tablets, in 2001, with a further 42 tablets in 2002, giving the written word a distinct advantage in this period over all other categories of finds. The most important fragment of a document to be recovered was a quotation from Virgil's Georgics I.125, in tablet T02-38A.

Textiles survived very well in periods II and III, and in 2001 & 2002 this was no exception, with 18 separate and fragmented items recovered\textsuperscript{19} in the two years of work. As well as this, many interesting small finds have survived in exceptionally good condition, such as the fine knives, one of which appears to be solid steel (SF8662) and bears the name of the cutler\textsuperscript{20}.

\textsuperscript{17} See page 3 on the period I fort ditch causeway.
\textsuperscript{18} Which were in the main unsuccessful.
\textsuperscript{19} All of which are due to be analysed by JP Wild at Manchester University.
\textsuperscript{20} Report on this item is on page 188.
The finds from the floors, and the nature of the surviving building walls, were not inconsistent with identification as a barracks. The only possible alternative use would have been as some form of workshop, but nothing was found to support such a view.

Fig. 5 Not all of the period II/III structures were wattle & daub; many buildings shared the construction style most often found in period IV in 2001 & 2002 excavations, having large posts, which supported boarded walls, the gaps then plugged with puddled clay to make them watertight. Planked floors were the norm, rather than flagged, the planks all being re-used from barrels or other containers, laid on clay under-floors, and supporting laminated carpet above.

Fig. 6. Period II/III fort plans, with the later stone fort 2 and its bath-house, showing the difference in size and alignment to the earlier periods of occupation.
Fig. 7 A section showing the natural clay cut to make the causeway ditch for period I fort and the subsequent building on the site that took place after that. An attempt was made to fill the ditches with multiple wattle & daub fences for period II/III fort constructions.

Fig. 8 Periods II/III heavy wattle walls crossing the period I fort ditch to the north of the main causeway ditch in the background. The occupants of all periods after the initial digging of these fort ditches experienced acute problems with the foundations of their buildings. Perhaps this can explain the relatively late construction of stone forts on the site.
Fig. 9 taken in 2002, showing the forest of timbers that represent the mix up of periods II-IV in the hollow created by the period 1 causeway ditch. Floor levels and parts of rooms were thoroughly mixed up due to heavy subsidence in the area, and the constant running of water made the excavation of this area very difficult to undertake. The later stone buildings of the Severan period, such as the well (top left) sliced through all the occupation layers on the site, removing them entirely within the well's vicinity.

Periods II/III – Small finds lists from these two periods, including lists of wooden objects recovered and leather objects, textiles from the 2001 & 2002 excavations. All artefacts featured elsewhere in the report are highlighted in bold. V01= 2001 excavations & V02= 2002.

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<td>V01-19A</td>
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V2001-23    V01-19A    Turned handle
V2001-25    V01-19A    Bung
V2001-31    V01-19A    Ornamental bung
V2001-45    V01-19A    Joiner's mallet
W2001-41    V01-20A    Bung
W2001-42    V01-20A    Half a barrel stave
W2001-43    V01-20A    Oak scraper
W2001-44    V01-20A    Small barrel stave
W2001-46    V01-20A    Handle
W2001-35    V01-24A    Bobkin
W2001-33    V01-26A    Shutter
W2001-36    V01-26A    Phallic object
W2001-37    V01-26A    Handle - needle case
W2001-101   V01-40A    Bung
W2001-86    V01-42A    Box
W2001-88    V01-42A    Carding comb
W2001-89    V01-42A    Child's dagger
W2001-91    V01-42A    Plasterer's float
W2001-92    V01-42A    Wazrel stave
W2001-93    V01-42A    Box lid
W2001-94    V01-42A    Staves
W2001-97    V01-42A    Ornamental shaped spade object
W2002-22A   V01-19A    Peg
W2002-32A   V02-19A    Stave
W2002-33A   V02-19A    Bung
W2002-39A   V02-19A    Comb
W2002-40A   V02-19A    Bung
W2002-26A   V02-24A    Bung
W2002-27A   V02-24A    Bung
W2002-43A   V02-30A    Stave (barrel)
W2002-44A   V02-30A    Stave (barrel)
W2002-45A   V02-30A    Barrel lid
W2002-46A   V02-30A    Key (Egyptian lock)
W2002-47A   V02-30A    Peg

Leather  Context  Brief description
L2001-19    V01-09A   Mostly scrap tentage
L2001-32    V01-14A   Shoe
L2001-33    V01-14A   Scrap
L2001-45    V01-14A   Lady's shoe
L2001-55    V01-19A   Complete boot
L2001-109   V01-20A   Half a shoe
L2001-110   V01-20A   Tentage
L2001-111   V01-20A   Tentage
L2001-114   V01-20A   Shoe
L2001-115   V01-20A   Shoe
L2001-116   V01-20A   Shoe
L2001-117   V01-20A   Tentage
L2001-118   V01-20A   Shoe
L2001-119   V01-20A   Tent leather scraps
L2001-121   V01-20A   Scrap Leather
L2001-80    V01-24A   Tent leather scraps
L2001-81    V01-24A   Shoe
L2001-82    V01-24A   Tent leather scraps
L2001-83    V01-24A   Clothing?
L2001-101    V01-24A    Shoe
L2001-84     V01-26A    Boot
L2001-85     V01-26A    Purse
L2001-86     V01-26A    Tent leather scraps
L2001-87     V01-26A    Shoe sole
L2001-88     V01-26A    Tent leather scraps
L2001-89     V01-26A    Tent leather scraps
L2001-90     V01-26A    Tent leather scraps
L2001-91     V01-26A    Tent leather scraps
L2001-95     V01-26A    Tent leather scraps
L2001-96     V01-26A    Shoe
L2001-97     V01-26A    Tent leather scraps
L2001-98     V01-26A    Shoe
L2001-99     V01-26A    Tent leather scraps
L2001-195    V01-40A    Shoe
L2001-211    V01-40A    Tentage
L2001-212    V01-40A    Tentage
L2001-213    V01-40A    Off cuts
L2001-214    V01-40A    Shoe
L2001-215    V01-40A    Off cuts
L2001-216    V01-40A    Tentage
L2001-217    V01-40A    Part of a shoe
L2001-218    V01-40A    Tentage
L2001-219    V01-40A    Off cuts
L2001-220    V01-40A    Tentage
L2001-221    V01-40A    Off cuts
L2001-222    V01-40A    Off cuts
L2001-223    V01-40A    Tentage
L2001-224    V01-40A    Tentage
L2001-225    V01-40A    Scrap Leather
L2001-226    V01-40A    Scrap Leather
L2001-227    V01-40A    Scrap Leather
L2001-228    V01-40A    Scrap Leather
L2001-253    V01-40A    Ladies Shoe
L2001-254    V01-40A    Scrap Leather
L2001-189    V01-42A    Cow hide with shoe off cut
L2001-190    V01-42A    Scrap Leather
L2001-207    V01-42A    Tentage
L2001-208    V01-42A    Tentage
L2001-230    V01-42A    Tent leather scraps
L2001-239    V01-42A    Tentage
L2001-240    V01-42A    Tentage - with stitch pattern
L2001-241    V01-42A    Tentage
L2001-242    V01-42A    Shoe
L2001-243    V01-42A    Tent fragments
L2002-120A   V02-19A    Marching Boot
L2002-121A   V02-19A    Off cuts
L2002-122A   V02-19A    Off cuts
L2002-123A   V02-19A    Partial shoe
L2002-152A   V02-19A    Marching boot
L2002-153A   V02-19A    Shoe
L2002-154A   V02-19A    Shoe
L2002-155A   V02-19A    Shoe
L2002-156A   V02-19A    Shoe
L2002-157A   V02-19A    Tentage
L2002-158A   V02-19A    Scrap
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<td>L2002-192A</td>
<td>V02-31A</td>
<td>Shoe</td>
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**Textile Context**

- TT01-1  V01-19A  Insole from shoe
- TT01-2  V01-19A  Large segment from a garment
- TT01-3  V01-19A  Large segment from a garment
- TT01-4  V01-19A  Large segment from a garment
- TT01-5  V01-19A  Large segment from a garment
- TT01-6  V01-19A  Segment
- TT01-7  V01-19A  Segment
- TT01-8  V01-19A  Segment
- TT01-9  V01-19A  Segment
- TT01-10A V01-42A Small fragment
- TXT02-1A V02-19A Scrap
- TXT02-2A V02-19A Scrap
- TXT02-3A V02-19A Scrap
- TXT02-4A V02-31A Small segment in poor condition

**Coins:**
- C  521  Vespasian AD 77-78
- C522  Trajan AD 103-111
- C533  Vespasian AD 71
Period IV – AD 105-120/22

Throughout the area in which the examination of the early wooden forts has been concentrated since 1973 – essentially a twenty to twenty-five metre wide strip outside the western wall of stone fort II, south of the west gate – the remains of the period IV occupation have been exceptionally well preserved. The structures had been built with heavier timbers, and with more oak than previous periods, and the occupation had been of longer duration. Although some of the floors had been disturbed by later military ditch digging, for stone forts 1 and 2 to the east, fortuitously the ditches had avoided the principal walls, which therefore remained standing up to 40 cms high above the former floors. The succeeding period V wooden structures had, however, been severely mauled by both the ditch diggers and the builders of the subsequent stone structures of the Severan occupation and then the civilian settlement.

In 1991-94 an exceptionally large and well-built structure had been partially examined close to the west gate of stone fort 2, and its provisional plan was published in VRR I (p 127), where the period of occupation was incorrectly ascribed to period V. A reconsideration of the evidence, in the light of subsequent work, has amended this to period IV. Although those parts of the building which lay between the eastern walls of civilian buildings and the western wall of stone fort 2 were fully examined, the presence of the civilian and earlier Severan stone buildings made full examination of the western portion of the structure impossible. There remained, therefore, considerable doubt about the western limit of the building, and the matter was only solved during the 2002 excavations.

The 1991-94 building was described at the time as ‘a palatial building of Hadrianic date’, and that perhaps should now be modified to ‘later Trajanic and Hadrianic’. It lay in what must have been the central range of buildings, and if it had been the praetorium – and with its small baths suite it is difficult to envisage any other function – it would be logical to expect to find granaries or a headquarters building flanking it. The position of the period IV south gate is not yet known, although it was not on the site of the periods II and III south gates, and the principia presumably lay astride a road to the gate.

In 2001 excavation took place in the nearest accessible area to the west of the limits of the 1994 work, some 3 metres from the last major north-south wall of the praetorium. Although period IV structural remains were swiftly discovered, built in the same style with heavy use of oak posts, it was not until late in 2002 that it was possible to investigate a small area where the lack of vicus and Severan walls allowed a full sight to the relationship of this period IV structure to that found in 1991-94. It proved that the 2001/2002 structure was not a part of the praetorium, but was instead a completely separate building.

Although only the eastern half of the building was fully excavated, with minor work on its western wing, it was evident that it was neither principia nor granary, and the internal arrangements (described on pp 20-30)) also ruled out a function as barracks
or workshop. It is possible that it was one of those necessary but ill-recognised buildings, serving as a residence or club for the officers below the rank of centurion, namely a schola.

It is the accepted maxim that the soldiers lived in barrack buildings, divided into a number of units (contubernia), each occupied by, nominally at least, eight to ten men, with a small flat at one end of the building, for the residence of the centurion. Some commentators would argue that this flat was occupied by all the officers of the century, including the centurion, but if the centurion was married, it is most unlikely that he would have shared the accommodation with any but his family and personal servants. Where, then, did the other officers live? It is surely unacceptable in any army for the deputy centurions (optiones) and other senior men – the curatores (whatever their precise functions), and the cluster of standard bearers, quartermasters, doctors, vets and the occasional beneficiarius - to be herded into a contubernium with a group of ordinary soldiers. Apart from any other consideration, such men required office space of some sort, to allow for the efficient maintenance of records, and there was no space in a principia for more than a few of them. Modern armies have catered for such men with special mess buildings for officers and senior NCO's, and it is highly likely that the Roman army did the same. The writing tablets contain numerous records of these officers, and in one (Inv 1528a, to be published in Vin. Tab III later in 2003), there is a direct reference to the schola or club.

As long ago as 1963-4, R.C. Bosanquet raised the question of a possible officers’ mess house in his report on the excavations at Housesteads (AA3, XXV, 241), when trying to explain the function of the unusual block XV. That building possessed a small baths suite at one end, but was otherwise identical in dimensions to the adjacent barrack blocks. Anne Johnson (Roman Forts, 1983, 192-3) draws attention to similar buildings, although without baths suites, at Corbridge, Pen Llysten and Oberstimm. It is certainly the most likely explanation for the period IV building examined in 2001-02.

The excavation of the period IV structure

The excavation in 2001 uncovered the western range of a building that was believed at the time, to have been part of the praetorium, excavated in 1993-4. This interpretation has been revised in the light of work undertaken in the summer of 2002, which demonstrated that although the building was running parallel to the period IV praetorium, it was separated by a narrow corridor, less than 50cms wide, making the two contemporary but detached entities. After taking this into consideration, it is now argued that the building served the function of a schola or officers’ mess club for the period IV fort.

The southern range of the building consisted of kitchens and storage rooms, creating a considerable fire hazard inside a timber fort. This may have been the issue that marked the end of the structure’s usefulness, with most of the timbers being heavily and irreparably fire damaged when the structure was either purposely demolished or abandoned, and a deep spread of burnt material covered the floors in all the rooms explored. Parts of badly burnt doors, tools, and pottery littered the building in a random
manner suggesting rapid abandonment, perhaps due to an accidental or indeed non-accidental fire.

Fig. 10 The palatial building as identified in 1993, with the ‘schola’, and the western fort wall of stone fort two in black.

Room by room description of the remains of the schola from period IV.

Room 1

Measuring 3.38m x 2.44m, room 1 (see the plan on p.22) was examined in the summer of 2002, and is the most southerly room, attached to the others by a long narrow corridor which links through to rooms 2-6 (missing room 5). A well-made wattle drain, stone flagged, ran past the south part of the room, and it was boarded by the double wall and terrace on its western side. Main access to the building was probably achieved through the corridor to its south, so it would have been the first room encountered inside the building. The floor was made with packed grey clay, approximately 20-30cms deep, with remains of poorly surviving laminated flooring with a deposit of charred burning on

21 Unlike that of the period III praetorium, where care was obviously taken in clearing out certain rooms, and carefully collected piles of rubbish (including writing tablets) were found.
top²². Fig 12 shows the basic layout of the room and its position in relation to the rest of the structure.

Unusually for this building, room 1 provided comparatively little in the way of small finds²³, with only three of any note being recovered: a battered *patera* SF8598, trumpet brooch, and a pennanular brooch SF8606. The room was almost completely clean of animal remains, unlike nearby room 2, and not a single scrap of leather was recovered from the room or the adjacent corridor. In contrast to the lack of leather, many wooden objects were recovered.

The quantity of bungs would suggest perhaps a storage room for barrels and other such containers, although no amphorae were recovered. However, this is possibly a too simplistic formula to ascertain the room’s primary function as the presence of even a limited volume of laminated carpet material normally would suggest the function to be attached to living purposes. The floor of the room sagged appreciable in its centre, as it was located above an earlier ditch system. The sagging must have been a contemporary issue for those using the building, as the clay used in the flooring was thicker in the centre of the room and in other parts had been re-laid.

**Room 2**

The first room of the building to be explored in detail in 2001 was situated approximately 2m below the southern extremity of the Severan workshop’s south wall. Due to the Severan and *vicus* foundations above (which could not be removed), only

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²² As has characterised the entire building explored thus far.
²³ Neither coins nor tablets were recovered from this room.
perhaps 80 percent of room 2 was accessible for archaeological investigation, the total area being slightly less than 3.24m x 4.21m. Enough of the room was exposed to give a good indication as to its original purpose, aided by a great number of finds. Room 2 was the second in line from the main access to the building, via the large corridor to the east.

The boarded western wall remained to a height of 40cms in places, and the boards were two courses high. Many more wall-boards were strewn across the floor where they had fallen. Both the upright timbers and the boarded wall were made from oak. Most of the boards were 90-105 in length, although one fallen example was 1.43m in length. In thickness the boards ranged from between 6-8mm, and retained a great flexibility considering their age, as is characteristic of oak recovered from the pre-Hadrianic layers of the site. The boards were fixed to the upright timbers by 55mm nails, and a great many of these were also recovered from the floor of the room.

The floor surface of the room was covered in very large and well laid flag stones\(^24\), with the hard packed clay beneath as a under-floor. A raised stone water conduit running E/W through the middle part of the room, cut into the floor and was lined with good flagstones. 30cms above the flagstones of the main floor surface there was a layer of silty black earth mixed with high concentrations of both charcoal and wood ash. The thick layer was supported by a large quantity of bones, spread unevenly across the floor\(^25\). The bones on first analysis seem to have been a mixture of cattle and domestic pig. Almost all of the bone showed butchery marks and many were recovered, sitting in a black residue of rotten and decomposed organic remains.

\(^{24}\) In direct contrast to the rest of the rooms of the building.

\(^{25}\) Very reminiscent of the drain to the south of the 3\(^{rd}\) & 4\(^{th}\) century praetorium, see Birley, Birley, Blake 1993.
No animal remains were recovered from the raised water and waste conduit in the floor. This suggests that perhaps the drain was covered with either flagging or more likely a wooden capping, that would have easily perished in the fire, or been removed in any following salvage operation if one took place.

Little evidence remained to suggest that the room had ever been carpeted with laminated flooring. The burnt animal remains, ash, soil and fallen debris were scattered directly on top of the flagged floor. Laminated carpet had survived well enough to be recognized in a burnt state from other parts of the schola, so the lack of carpet would suggest that the room was not used as a living space, and the large volume of bone and prominent drainage channel would suggest a meat storage room, or general storage room for perishables.

Fig. 13. excavation in progress in the storage room, the flags have been removed to show the hard packed clay under-floor.

Fig. 14. Illustrating the depth of period IV remains at the southern end.

Very few personal artifacts have been recovered from this room in the building. Of those personal items six were shoes, including a rare (and badly worn) pair of shoes\textsuperscript{36}, and three scraps of tentage. The amphora stamp SF8167, reported on page 171, was recovered as well as an interesting and rare wooden object, half of one of a large pair of window shutters with handle still attached. The relative lack of tentage, shoes, and

\textsuperscript{36} Only one other pair of shoes has ever been found on the site, out of the 3000 single boots and shoes found at Vindolanda.
personal objects, as well as the small amounts of pottery from this context supports the idea that the room was not used for the storage of non-perishables. Also of note was the complete lack of barrel staves, bucket staves and evidence for other wooden storage containers.

Only one coin came from this room, and not surprisingly it was a coin of Trajan, slightly worn, C.496 Trajan AD103-11. For a full coin list see pages 121-122, by Richard Brickstock.

**Room 3 – The large oven room.**

During the excavation of the 3rd and 4th century praetorium in stone fort 2, a room of similar dimensions was discovered, filled with many small clay ovens*. Unlike that in the stone fort praetorium, the large clay oven room in the timber built schola of the Tungrians was a solid clay mound, with various ovens at various levels placed into it. The clay mound itself was 2.15m long x 1.37m wide x 1.7m deep. At its last level of use, five separate ovens were built into the superstructure, and a stone backing along the eastern side protected the corridor from what must have been a fire hazard. Just like the corridor to the north of the room, the large clay oven room suffered from chronic subsidence. It is clear that the members of the schola dealt with this problem in a novel way, which was to build ovens on top of ovens, always keeping pace with the subsidence. No fewer than 3 levels of ovens were visible when a section was placed through the structure, showing the subsidence as a steady problem. This part of the building is particularly prone to stability problems due to the fact that room 3 lies over the top of the main junction of all the outer western ditches with the causeway ditch for the fort gates’ west access*, from the earlier timber period I.

Despite the obvious function of this room, due to the extensive fire damage, and subsequent demolition, very little other structural evidence could be determined in the room. The west wall of room 3 remained boarded in the same fashion as that of the adjoining room 1, although when the boards were excavated they were in a terribly fragile state, due the combination of fire damage and the less than conducive preservation qualities of the clay used predominantly in room 3.

It is probable that access to the room to the north through the small corridor was deemed unsuitable due to subsidence, and sadly no evidence for a new door threshold remained intact, although it can be assumed that access would be more stable from the south, from room 2. Traces of a badly burnt door were discovered in the corridor adjacent to room 3, and it is likely that this is all that remains of the elusive doorway, although access directly from the long corridor to the east would be difficult in the later stages as the clay ovens effectively blocked access from the east into the room.

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27 See Birley, Birley, Blake 1998, page 12, room vii
28 As can be seen on page 5 in fig. 4 plan of the western fort ditches of timber fort 1.
Fig. 15 large clay oven in room 3, with the period I ditches profiled below.

As expected from a room whose main function was cooking, very few small finds were recovered, and those few organic finds, such as shoes, were in a poor state. It was rather surprising that two tablets were recovered, T01/25, T01/26 respectively, both of which showed traces of ink writing.

The main corridor.

As seen on the plan on page 22 a 16.01m long by 1.11m wide corridor linked all of the rooms on the western wing of the schola together. Like room 1, the corridor was heavily flagged, and its eastern wall was originally boarded with the same thin planking used on the west wall of rooms 1 & 2. The corridor has one major T-junction that takes in a smaller corridor that divides the large oven room from the small oven room, rooms 3 & 4 respectively.

The debris on top of the flags of the corridor differed slightly from that found in any of the individual rooms. The same burnt material at an approximate depth of 30cms that was present through the entire building was there. As well as the fallen boarded wall planking, and more substantial door sections, and barrel staves, beneath that, a slightly

29 Their lack of significant scripts is reported on page 86.
singed, thick layer of laminated carpet was spread through the entire length of the corridor on top of the flag stones. The depth of this carpet varied enormously, and tended to be thicker towards the walls of the corridor (a depth of between 20-35cms, the top 2cms burnt).

The fact that most of the carpet remained intact is an indication that the laminated material was damp enough to resist the final destructive fire. In places, the flagstones had been replaced or repaired, normally by using a thin shale stone, packed around with turf. On making these repairs, no attempt to remove the stale carpet beneath had been made, and the material was merely covered over. Some of the repairs were more to combat subsidence than to fix wear and tear problems. As reported on pages 3-5 the period I fort’s ditch system to the west was very extensive (more so than originally supposed) and as such caused problems for every Roman Army builder who used the site from that time onwards.

This natural subsidence into the extensive fort ditch system of Coh I Tungrorum’s first fort at Vindolanda can be seen as particularly vexing for some of the period IV fort’s more elderly NCO’s, particularly as it is likely that some of the men doing the repairs to the praetorium and other buildings on the site could have been employed perhaps only 20 or so years earlier in digging the ditches in the first place.

The presence of the laminated carpet was a boon in terms of the survival of organic material from the schoila. Five shoes were recovered from the floor, as well as more substantial tent panels, of which there were a further four. One of the two wooden combs recovered from the excavations W2001-84, and three tablets, two stylus, and one ink were found here, as well as the first stylus pen, SF8415 to come from the 2001 excavations, fully reported on page 197.

The walls separating the corridor with the rooms to its west seem to have been a mixture of wattled and daubed and plank. They had suffered more in the fire than the west wall, and as such only the foundations remained.

**The Small Corridor**

Separating rooms 3 & 4 was a small 2.58m long by 1.03m wide adjoining corridor that links with a T-junction into the main corridor described on the previous pages. Although a relatively small area in scale with the main rooms of the building, and adjoining corridor, this small area proved to be exceptional in the number and quality of its finds. The floor had had two successive levels of flagging; the lower of the two can be taken as primary, and it would appear that during the building’s relatively short life span (estimated at only 12-15yrs) the centre part of the floor sank up to 45cms into the earlier ditch below. The effect of such a massive subsidence over a short period of time can only be guessed at, but it apparently did not prove devastating for the building as a whole, as the floor was duly raised to be almost level (and there it remained level until the point of excavation some 1900 years later).
The small corridor was important because in its primary phase (presumably pre-subidence) access to both the small oven room and the large oven room was gained through this vestibule. Perhaps after the repairs to the floor, or as part of a larger re-modification of that wing of the building, both doors were blocked up, and small internal wattle & daub walls were placed to cover the gaps. The door threshold timbers, complete with door sockets, door lip and bolt holes remained in situ, merely covered over by the clay of the wattle and daub fencing.

![Small corridor looking east, with the doorway to the south to the large oven room, and to the north to the small oven room.](image)

A complete quern stone lay on the floor, with its iron and lead attachments remaining intact (see page 84). Also, most surprising, was the discovery of a complete mortarium bowl. Not only was it unbroken, but it was upside down on the floor, its base burnt, with the original contents still inside.

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30 For a description of pre-Hadrianic building techniques at Vindolanda see VRR, Vol I, 128-130.
31 The contents of this bowl are awaiting analysis with Jacqui Huntley at Durham University.
Fig. 17 The mortarium during and after excavation.

Fig. 18 on the right shows the small corridor (on the left hand side of the photograph) in relation to the main corridor (to the right) and room 4 in the upper left corner of the photograph. The large oven room to the south has been removed to examine the earlier periods of occupation below. The sagging floor of this section is clearly visible in the photograph, and was caused by the ditch system of the first known fort at Vindolanda, also constructed by Coh 1 Tungrorum.

It became apparent that some of the objects found in this corridor and other rooms were dropped by accident, and most likely in a hurry. The random chaos on top of the flagged floors in the corridors is unexplainable by random losses, or debris from simple demolition.

Room 4 – the office/small oven room.

Measuring 4.5m x 3.9m this small room had served two distinctively separate functions in its lifetime. Access to the room was originally via the small corridor, and the door threshold remained in situ. This was then blocked at a later date by the entrance being boarded with thin oak planking, and a new entrance into the room from the large corridor, in the room’s NE corner was made. The stone threshold for this remained intact, and showed extensive fire damage, the stone being blackened and crumbled by the heat of a fire.
The construction method for the walls of the room had been largely based on wattle and daub. The west wall of the room, which was the main load bearing wall, was again unusually wattle and daub only, whereas the remainder of the wall along this side of the building was boarded throughout. The repaired/modified south wall of the room, including the blocked doorway, used a combination of wattle and boarding. The primary floor of the room was a baked clay floor, which sat upon a foundation of turf, 40cms deep. Once again, the floor dipped in its centre as the room straddled a fort ditch, and the middle of the room sank some 34cms. This was then repaired, possibly at the same time as the other major refits to the rest of the rooms, and a large quantity of turf, capped with a rough and thin flagged surface was placed over the subsidence\textsuperscript{32}.

The primary use of room 4 appears to have been as an office of sorts. The evidence for this was the large quantity of stylus pens that came from the walls of the room and the floor. Added to this, the Tagomas tablet, T01/39\textsuperscript{33} came from the floor of the room, immediately to the NW of the original doorway. The location of an office next to what was undoubtedly the kitchens and food storage, was sensible. There must have been plenty of accounts to keep for supplies of foodstuffs for the schola, as well as other items, and it is likely that non-food items may have been stored relatively close by (such as lances)\textsuperscript{34}. Other benefits would be the obvious advantage of heat from the large ovens next-door, smells of cooking food, and ready availability of snacks when needed.

The general refit of this wing of the building saw a change in function for the small office, and a clay oven was placed into the room next to the blocked up doorway along the south wall. A large quantity of grain was recovered from the area immediately surrounding the small oven, and this was sent away for analysis to Durham.

\textit{Fig. 19 Small oven room and corridors.}

\textsuperscript{32} A method that was not used elsewhere in the building.
\textsuperscript{33} For a full description of the Tagomas tablet, see pp 95-99.
\textsuperscript{34} Reference to the main subject matter of T01/39.
Fig. 19 above clearly shows the small oven room on the right with the corridor running along the left hand side. The small clay oven was now the dominant feature of the room, and can be assumed to have been the principal purpose of the room after the refit.

A varied collection of artifacts came from the upper floor surface of the room, and relatively few from the lower. The finds included unusual items, such as part of a bath clog W2001-79, and a piece of fine chair furniture W2001-80, as well as a number of barrel and bucket staves, a single shoe, and a number of iron spikes which could have been used as meat hooks.

The partition walls to the west of room 1,2,3,4,5 & 7. Immediately to the west of rooms 1-7 (minus room 6), a second external wall, set into a rubble terrace was located and explored. It appears that the western walls of these rooms all had a second load-bearing wall immediately to the west of them, with a small gap of 60-80cms between. This was then tied in places to another wall running parallel to the others making a 50-70cm tall terrace separating rooms 1-7 (minus 6) with room 8.

Fig. 20 A large timber construction linking the two walls that encompass the terrace together. The location of this part of the structure can be seen on fig. 12 on to the west of room 3 (the large oven room).

35 Unlike some of the other rooms, it appears that the office was cleared out before the room’s function was changed, with only one tablet remaining to give a clue as to its original purpose.
The construction of the outer two walls seems to have been similar to that of the inner wall. At set intervals of between 80-110cms, large oak timber uprights had been placed, supported by the surrounding rubble terrace, which was of a height of 60-70cms. Little trace of boards survived, but it is likely that once above the level of the stone terrace the wall would have been boarded with thin oak planking, similar to that found on the internal wall. A very large volume of exceptionally fine pottery, ranging from Samian, to the face pot of Mercury\(^{36}\) was recovered from the cavity between the first two walls, as well as an expensive child’s boot, child’s slipper, and amphora, complete with painted inscription\(^{37}\), the residue of its original contents still glued to the inside.

**Room 5.**

At 3.38m x 1.13m, the purpose of this room may well remain a mystery. Very little of room 5 was recovered, and that little that remained was reduced to foundation level or, in its northern section, below foundation level. The proximity of the later period V roadways above made preservation of material from this location unlikely at best. It is unclear if access to room 7 beyond was possible, or whether or not the two rooms were separate at all. It is possible that the purpose of room 5 was to house a staircase giving access through to a second level of the building.

**Room 6 – Small storage room.**

Immediately to the north of the small oven room was situated a storage room. Only part of this L-shaped room could be examined, as a greater part of the room lay directly beneath a large *vicus* stone cooking bench which could not be removed for the purpose of the excavations. However, enough of the room was examined to be able to suggest what its purpose may have been, and also the rough dimensions of the room, which had a floor area of roughly 8m square.

The main entrance to the room from the south was through the north end of the long corridor, through a wide entrance, suitable for the easy transportation of unwieldy amphorae and barrels. The floor of the room was a packed tar and clay surface, with light flagging, and a small wooden drain exited the room to the east. The wooden drain was filled with a white paste that may be the residue of food substances\(^{38}\).

The floor surface was littered with blackened debris from the fire, and all of the remaining wattle walls stood to a height of no more than 30cms, and showed extensive fire damage. Two amphorae stamps and a very important amphora graffito came from the southern part of this room\(^{39}\). The graffito clearly bore the name of Tagomas, and it was not until several weeks later that the corresponding tablet from Room 2 was read, naming

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36 As reported on pages 181-182.
37 See the report on the amphorae on page 158, with fig. 112.
38 We are awaiting the environmental analysis of this substance to be completed by Jacqui Huntley at Durham University.
39 See the general report on the amphorae stamps from Vindolanda on pages 167-176.
Tagomas once again as a *vexillarius*, believed to be associated with a detachment of Varduli cavalry. It would appear that Tagomas was a sensible man as far as keeping his own olives stewed in wine well labeled, and near to a room that he perhaps used as an office. It also intriguingly suggested that perhaps the other officers of the Tungrians, e.g. possibly Titus Annius, a senior centurion, shared the same lodgings and that Tagomas did not trust his colleagues to stick to his own olives stewed in wine. For surely if Tagomas was the only senior occupant of the *schola*, such methods would not have been required.

![Fig. 21. The Tagomas amphora handle.](image)

Also present in some number were barrel staves, and two bolt heads. It is possible that this is evidence for more non-perishables being stored in this part of the complex, rather than the perishables to the south.

**Room 7.**

The area immediately below the northern section of the later Severan workshop floor, and around the large *vicus* oven above was the first part of the building to be tentatively explored in 2001. Sadly, the northern part of the building was very badly damaged in comparison to those parts to the south, and therefore provided much less information. The Hadrianic roadway above had made use of the fire-damaged shell of the *schola* at this point, and the large quantities of clay packing did not aid the good survival of organic matter. The weather in April of 2001 also had a part to play, with the area having to be abandoned for weeks on end because the water could not be removed fast enough to enable the excavation to continue in safety.

What was clear was that this part of the building showed no sign of having been flagged. Where some small parts of the walls survived they proved that the same construction techniques employed to the south were in use here. Wattle & daub internal walls, with traces of the same thin oak planking existed in places, but even more heavily fire damaged than before, and almost unrecognizable.
However, despite the difficulties in the excavation of this part of the structure, some exceptionally good quality artifacts were recovered. Perhaps one of the most unusual of these was the lance head\(^{40}\), with a small perfectly round hole that had been made through the blade in manufacture. This again tied in very well with the fact that the tablet found in room 3 listed those who are being charged for issues of lances. It is sadly unclear as to the exact variety, but it is more than possible that one of the lances issued to Tagomas was left in the burned building.

Room 8.

Situated to the west of the main kitchen / storage rooms discovered in 2001 & 2002, and on the upper terrace, room 8 left mere traces of its existence due to the latter digging of a major fort ditch through the centre of the room, removing all but traces of its existence from the archaeological record. The width of the room can be determined at around 2.44m, the length impossible to determine. The floor was similar to that used in room 1, a hard-baked grey clay floor, with patches of laminate still remaining on top of the surface, in places up to 40cms thick, but badly burnt on its upper layer.

\(^{40}\) For a full description of the lance head, see pages 199-206.
Fig. 24 The NE corner of room 7, with the Severan foundations resting on top of the period V roadway built on the remains of the schola.

Conclusions

The excavation of this part of the schola has added a large amount of quality information about the garrison at Vindolanda just prior to Hadrian’s Wall construction. Not only have many new names been added, and others’ ranks clarified, it has confirmed the dating sequence of the previous excavations undertaken in the adjacent areas during the last 30 years. The confidence in this dating sequence is of the utmost importance when considering the immense value the various parts of the Vindolanda collection represent, not only as individual collection, but also as a dating tool for other sites in Roman Britain.

For a long period of time in British archaeology, materials have been used to date sites. At Vindolanda, with its superb environmental conditions, watertight and exceptionally close and reliable dating can be achieved, and many parts of the collection could revolutionize our understanding of Roman Britain as a whole. Period IV has provided more dating evidence than any other period of occupation on the site, and as such the excavations of the schola have added to that already valuable resource.

The reasons for the schola’s extensive fire damage can only be guessed at. All that can be said with clarity on the matter is that there was fire damage, which was either partially or totally catastrophic to the building’s infrastructure. What was interesting was

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41 Notably Tagomas.
that much of the laminated carpet remained, singed but not completely destroyed, in particular in the corridors. The explanation for this could simply be the rising water from the fort ditches below, coupled perhaps with water being poured onto the flaming building by the occupants attempting to put out the fire.

What remains unclear is the extent of the *schola* to the west. More of the building undoubtedly rests below the Severan barracks to the west, and it can only be hoped that at some time in the future further exploration can take place.

**Period IV: The contexts and the finds.** The items highlighted in bold type are discussed elsewhere in the report; the others are awaiting further study before publication. It should be noted that this floor level produced a large quantity of pottery – especially La Graufesenque Dr 37's.

### The coins:

- C493  V01 ??A  Trajan AD 103-111
- C496  V01 ??A  Trajan AD 103-111
- C511  V02 03A  Trajan AD 103-111
- C518  V02 25A  Trajan AD 103-111
- C528  V02 05A  Trajan AD 101-102

### Small finds:

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<td>Samian stamp  Dr 33 IVLLINII. OF</td>
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| L2001-202 | V01-39A | Tentage
| L2001-204 | V01-39A | Uppers from fine shoe
| L2001-205 | V01-39A | Scrap leather
| L2001-206 | V01-39A | Scrap leather
| L2001-271 | V01-48A | Child’s boot
| L2001-275 | V01-48A | Scrap
| L2001-289 | V01-48A | Child’s slipper
| L2002-34A | V01-03A | Shoe
| L2002-35A | V01-03A | Shoe
| L2002-36A | V01-03A | Shoe
| L2002-37A | V01-03A | Shoe
| L2002-7A | V02-04A | Lady’s shoe
| L2002-10A | V02-04A | Shoe
| L2002-11A | V02-04A | Lady’s insole
| L2002-12A | V02-04A | Shoe sole
| L2002-14A | V02-04A | Shoe uppers, excellent condition
| L2002-15A | V02-04A | Shoe
| L2002-16A | V02-04A | Shoe (with uppers)
| L2002-18A | V02-05A | Shoe
| L2002-20A | V02-05A | Shoe sole
| L2002-119A | V02-25A | Off cuts
| L2002-116A | V02-25A | Partial shoe remains
| L2002-148A | V02-25A | Shoe
| L2002-194A | V02-34A | Shoe
| L2002-195A | V02-34A | Scrap
| L2002-207A | V02-34A | Shoe
| L2002-219A | V02-34A | Shoe
| L2002-220A | V02-34A | Shoe
| L2002-221A | V02-34A | Shoe
| L2002-231A | V02-34A | Shoe
| L2002-232A | V02-34A | Shoe
| L2002-211A | V02-36A | Shoe
| L2002-217A | V02-36A | Shoe/with copper-alloy studs
| L2002-273A | V02-36A | Partial shoe
| L2002-274A | V02-36A | Scrap
| L2002-275A | V02-36A | Tentage
| L2002-295A | V02-36A | Off cuts
| L2002-296A | V02-36A | Off cuts
| L2002-297A | V02-36A | Shoe
| L2002-298A | V02-36A | Shoe
| L2002-299A | V02-36A | Tentage
| L2002-300A | V02-36A | Tentage
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| L2002-291A | V02-41A | Shoe
Period V - c.AD 122-140/45?

Starting with the demolition of the period IV fort circa AD 122, period V at Vindolanda was another of the longer lasting timber phases of occupation, from c.AD 122 to the 140's. It is unclear why it was deemed necessary to rebuild the fort so completely at this time, as the same garrison appears to have been in residence (Coh I Tungorum)\(^{42}\).

The building of the period V fort saw the main central axis of the earlier periods II, III, IV, with successive praetoria along the N/S line (later taken by the stone fort 2’s western ditches) abandoned for buildings, and a roadway was placed over the top.

The Period V Roadway

Lying directly beneath the foundations of the Severan workshop floor, a well-cobbled 4.5-4.8m wide roadway from period V was uncovered. At the north end of the road, the surface lay 85cms below the floor of the workshop above, and to the south only 38cms below, showing that more fill was required to the north for the Severan workshop’s floor.

The road ran in a N/S direction. The plan on page 43 shows the relationship of this roadway to the Severan workshop and barracks/fortifications discussed earlier in this report. The road surface was comprised of similar material to that used later in the Severan period: small cobbled stones, with larger stones used in repairs. The edge of the roadway was lined with facing stones, and in the N/E corner of the area explored (directly below the N/E corner of the Severan workshop floor) the ground sloped away sharply into the earlier fort 1 ditch. Surprisingly, the roadway did not show much subsidence in comparison to the earlier building below the roadway\(^{43}\). Some minor subsidence had taken place between 5-10m from the south wall of the Severan workshop, and this was more heavily packed with large stone than the rest of the road surface.

The roadway varied in thickness, from 30cm in the north to 35-50cms in the south. Its foundations were based on a layer of turf some 20cms thick, on top of which a layer of crushed sandstone mixed in with turf was placed, finally the cobbles and larger stones/mixed flagging were placed into the crushed sandstone layer to form the road surface. The middle of the roadway was raised to form a camber, although this was disrupted for the most part by minor subsidence along the roadway’s line.

\(^{42}\) However, evidence for the burning of Period IV structures below, and the untimely death of Titus Annius may hold the key.

\(^{43}\) See pages 20-34, on the Period 4 schola.
Fig. 25 plan of period V roadway in relation to Severan complex above.

The north end of the roadway, being so deeply buried below the workshop floor, did have debris from surrounding period V buildings strewn across the road surface. A thin spread of wattle & daub from nearby buildings was randomly strewn across the road, and on top of this lay some 20cm of poorly preserved laminated carpet, presumably also from the demolition of the surrounding buildings.

Fig. 26 the north end of the roadway surface adjacent to the vicus cooking bench.
Although the laminated carpet was in poor condition, at little under 1m from the workshop floor above, the preservation conditions afforded by the predominantly clay packing of the workshop's foundations above the laminate made the survival of organic material possible. The time period between the demolition of the Period V structures and covering of the roadway with clay must have therefore been a short one, otherwise the exposed carpet layer would surely have decomposed because of exposure to natural elements.

As a consequence of this, one of the first finds from the area to the north was a small wooden key for the Egyptian lock system, SF8103, an example that normally only survived in its bone variant on other sites. Where wood begins to survive at Vindolanda, leather always seems to follow, and it is from period V in the 2001 excavations that the first good leather artifacts survived. 12 shoes were recovered from the road surface, amongst them a number of ladies' shoes, and children's footwear.

To the south of the later vicus cooking bench the road surface rose and the clay packing for the Severan workshop floor was placed directly on top of the road surface, and no trace of laminated material survived. The preservation of leather and organic material was therefore not possible. A small altar, unfortunately blank, was recovered from where it had been placed in to the road surface itself, illustrating the mixed nature of the surfacing material used.

The cobbler's workshop

At the northern limit of the SMC area, parallel to the north walls of the barrack to the west and the workshop to the east, what was probably a cobbler's shop partially survived the normal demolition to be found elsewhere on the site.

The cobbler's shop floor was made of turf and clay, with a layer of silt some 37cms deep covering a layer of laminated material, which varied in depth to a maximum of 48cms. A single boarded wall running E/W through the building was the only major
architectural survivor of the demolition, and the foundations for this were raised on top of a rough rubble wall.

Although little structurally survived of this building, (one boarded wall, running E/W and the occasional post were all that structurally remained) a large number of artifacts survived in excellent condition from the building.

The most significant of these were a leather working knife SF8349, a cobbler’s hammer, SF8347 (complete with wooden handle)\(^44\) and a total of 16 shoes (various) as well as a leather tools bag, L2001-154 and off cuts of leather with the shape of shoes cut from them.

**Period V small finds and other artifacts made from wood and leather that were recovered from the 2001 & 2002 excavations at Viadolanda. Those items that are highlighted in bold feature elsewhere in the report in their relevant sub-sections.**

<table>
<thead>
<tr>
<th>SF Number</th>
<th>Context</th>
<th>Brief description</th>
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<tbody>
<tr>
<td>SF8103</td>
<td>V01-03A</td>
<td>Wooden key for Egyptian lock</td>
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<tr>
<td>SF8112</td>
<td>V01-03A</td>
<td>Possible spear - heavily corroded</td>
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<tr>
<td>SF8113</td>
<td>V01-03A</td>
<td>Samian stamp Dr 33 DAGOMARVS</td>
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<td>SF8119</td>
<td>V01-03A</td>
<td>Unidentifiable iron object</td>
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<td>SF8133</td>
<td>V01-03A</td>
<td>Mini Altar - blank</td>
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<td>SF8163</td>
<td>V01-03A</td>
<td>Decorated copper alloy</td>
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<td>SF8131</td>
<td>V01-06A</td>
<td>Javelin</td>
</tr>
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<td>SF8143</td>
<td>V01-10A</td>
<td>Small iron tweezers, good condition</td>
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<td>SF8144</td>
<td>V01-10A</td>
<td>Iron wagon fitting</td>
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<td>V01-11A</td>
<td><strong>Ballista bolt</strong></td>
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<td>SF8146</td>
<td>V01-11A</td>
<td><strong>Ballista bolt</strong></td>
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<td>SF8147</td>
<td>V01-11A</td>
<td>Gaming counter</td>
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<td>SF8320</td>
<td>V01-29A</td>
<td>Samian stamp Dr 37 JBQ</td>
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<td>SF8321</td>
<td>V01-29A</td>
<td>Pewter plate, inscribed</td>
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<td>SF8324</td>
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<td>SF8325</td>
<td>V01-29A</td>
<td>Worked antler</td>
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<tr>
<td>SF8346</td>
<td>V01-29A</td>
<td>Bronze head stall (horse)</td>
</tr>
<tr>
<td>SF8347</td>
<td>V01-29A</td>
<td><strong>Iron Hammer with wooden handle</strong></td>
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<tr>
<td>SF8348</td>
<td>V01-29A</td>
<td>Iron protractors (fragment)</td>
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<td>V01-29A</td>
<td><strong>Leather working knife</strong></td>
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<td>V01-29A</td>
<td>Bronze strapping</td>
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<td>SF8353</td>
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<td>Latch - iron</td>
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<td>Lock plate (2 parts, not complete)</td>
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<td>SF8356</td>
<td>V01-29A</td>
<td>Rope, in a coil</td>
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<td>SF8435</td>
<td>V01-29A</td>
<td>Joiner’s dog</td>
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<tr>
<td>SF8436</td>
<td>V01-29A</td>
<td>Samian stamp Dr 33 CAVPIRRA M</td>
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</tbody>
</table>

\(^{44}\) See the report on all of the tools from the excavations by Justin Blake, pages 186-196.
| SF8442 | V01-29A | Iron bar |
| SF8455 | V01-29A | 2 lead strips |
| SF8457 | V01-29A | Iron latch |
| SF8358 | V01-31A | Brooch |
| SF8361 | V01-31A | Part of an iron bridle |
| SF8362 | V01-31A | Bronze pin / needle |
| SF8369 | V01-31A | Pin from brooch |
| **SF8382** | **V01-31A** | **Spearhead (?)** |
| SF8467 | V01-32A | Iron collar |
| SF8468 | V01-32A | Bronze stud |
| SF8365 | V01-34A | Decorated copper alloy |
| SF8366 | V01-34A | Lead scrap |
| SF8367 | V01-34A | Copper alloy fitting (for leather) |
| SF8368 | V01-34A | Hair pin |
| SF8381 | V01-34A | Lead plug |
| SF8465 | V01-34A | Copper alloy hair pin |
| SF8466 | V01-34A | Iron tool? |
| SF8471 | V01-34A | Loricca, copper alloy |
| SF8472 | V01-34A | Iron strap, decorated |
| SF8476 | V01-34A | Samian gaming counter |
| SF8477 | V01-34A | Samian stamp Dr 33 illeg. |
| SF8478 | V01-34A | Unidentified iron object |

**Wood numbers**  **Context**  **Brief description**

| W2001-38  | V01-28A   | Tent Peg |
| W2001-40  | V01-29A   | Handle   |
| W2001-54  | V01-29A   | Strange post |
| W2001-55  | V01-29A   | Barrel Stave |
| W2001-58  | V01-29A   | Chair leg |
| W2001-62  | V01-31A   | Unidentified |
| W2001-68  | V01-31A   | Unidentified |

**Leather**  **Context**  **Brief description**

<p>| L2001-1   | V01-03A   | Shoe |
| L2001-2   | V01-03A   | Childs shoe |
| L2001-3   | V01-03A   | Off cuts |
| L2001-4   | V01-03A   | Shoe - Slipper - Ladies |
| L2001-5   | V01-03A   | Scrap |
| L2001-6   | V01-03A   | Shoes - Ladies |
| L2001-7   | V01-03A   | Scrap |
| L2001-8   | V01-03A   | Scrap |
| L2001-9   | V01-03A   | Shoe |
| L2001-10  | V01-03A   | Part of a shoe |
| L2001-20  | V01-03A   | Scrap Leather |
| L2001-21  | V01-03A   | Shoe |
| L2001-22  | V01-03A   | Shoe |
| L2001-35  | V01-03A   | Shoe - heel |
| L2001-11  | V01-06A   | Part of a shoe |
| L2001-12  | V01-06A   | Tent leather |
| L2001-13  | V01-06A   | Shoe |
| L2001-16  | V01-06A   | Scrap |
| L2001-92  | V01-28A   | Tentage |</p>
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<td>L2001-161</td>
<td>V01-31A Shoe</td>
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Periods VI, VIA and VIB
Circa AD 160-212

A few words of explanation are required to explain why the three major changes in occupation that succeeded the period V fort and concluded before the construction of Stone Fort II with its vicus (circa AD 212, period VII), are numbered periods VI, VIA and VIB.

In the mid 1970's, after the discovery of the five early timber forts, a numbering system was used to describe the then known periods of occupation at Vindolanda. It was assumed that the period V fort was succeeded by what has become known as Stone Fort I, about which little was known except for its highly unusual principia, lying beneath the remains of the later structure. This period was naturally numbered as VI. The earliest of the stone buildings to the west were then thought of as Vicus I and associated with that fort. The arrival of the Fourth Cohort of Gauls in or soon after AD 212 saw the start of period VII, and the major upheaval at the beginning of the fourth century started period VIII. Period IX was assigned to the dimly perceived Theodosian reconstruction after AD 367.

The excavations outside the western wall of Stone Fort 2 resumed in 1985, and it soon became very clear that the activity in that part of the site during the second century was much more complicated than originally envisaged. There was no problem with period VI or Stone Fort I, with its multiple western ditches, but it was then discovered that those ditches had been backfilled some years before the end of the second century. An orderly line of large timber buildings had been constructed above the ditches, and those timber buildings had been demolished when the first of the stone buildings had been constructed — and those stone buildings, far from being "vicus I", were in fact a part of an unorthodox Severan military compound. The Severan buildings were in turn demolished to make way for the vicus proper, which was firmly associated with Stone Fort II.

Rather than alter the designations of period VII and successors, it was decided to divide period VI into its separate occupations, with VI covering, as before, the life of Stone Fort I, but probably now to be dated to circa AD 160-200, with VIA being the still unexplained timber phase outside its western wall, and dated circa AD 180-200, with VIB assigned to the Severan military phase, circa AD 200-212. In much the same manner, Paul Bidwell demonstrated (in Bidwell 1985) that there had been many phases to the third century occupation of Stone Fort II, which could easily be assigned to periods VIIA, VIIB, etc. Period VIII remains as the reconstruction of Stone Fort 2 early in the fourth century, but in the vicus outside its walls it is usually impossible to distinguish later third century occupation from that of the fourth century, and the designation VII/VIII has to be applied. Period IX, where it can be recognized, is still associated with the Theodosian reconstruction, but a period X needs to be added, to distinguish the traces of post-Roman and fifth century activity to be seen in some parts of the Stone Fort site.
Period VI – c.AD 160+

Evidence of the period VI Stone Fort I period was encountered in two widely separated areas in 2001/2002. This involved the western ditches of the fort within the excavation area, together with evidence revealed during the consolidation of the latrine in the SE corner of Stone Fort 2 and its associated fort wall.

1. The southern wall of Stone Fort I. In 2000 a short stretch of its southern fort wall was located, some eight metres to the north of the later wall of Stone Fort 2, and in the course of consolidation work on that latter wall in 2002 further information came to light, at the south east corner. Additional excavation had to be undertaken at the point where the sewer of the latrine in the SE corner passed below the fort wall, because there was still a steady flow of ground water in the side channels, and provision had to be made for it to escape down the steep bank to the south. This required excavation on the berm outside the fort wall, with the discovery of what proved to be the SE corner of the wall of Stone Fort I, extending some 2 metres further to the south at this point.

The newly discovered section of wall lay on a significantly different alignment to the later wall, and its line was such that it would join up with the section discovered to the west in 2000, resulting in a non-rectangular shape. Why the builders had adopted this line is unknown, because there were no known obstacles in the way of the more regular line, which would have continued the wall 2 metres to the south of the later wall for the full length. It should be recorded that so far there has been no definite record of the precise whereabouts of that earlier stone fort’s western and northern walls.
Fig 29 Stone Fort I's southern lay-out? The reasoning behind such a peculiar angle for the southern wall is unknown. The principia was partially examined in 1934 and 1997-98.

2. The western ditches. Elsewhere, on the main excavation site, the known multiple western ditches were located, in each case butting against the major roadway leading westwards from that fort's western gateway located by Ian Richmond in 1934 (AA4 xiii 1936 233-238). The deep ditches had removed considerable stretches of pre-Hadrianic remains, and those parts examined in 2002 were as full of leather waste as the other parts examined in 1992-94.

Fig 30 The period VIA timber building, immediately below the vicus and Severan roadway, to the east of Vicus sites V and LXX. It was built above the backfilled inner ditch of Stone Fort I, but the construction of the Severan and vicus buildings to the west had removed the bulk of its remains.
Period VIA
Circa AD 180-200

Throughout the examination of the area to the west of the western wall of Stone Fort 2, evidence for complicated timber structures had come to light, below the Severan military structures but running across the filled-in Stone Fort I ditches (VRR I,p 133) The structures were well preserved below the later civilian north to south roadway outside the eastern walls of the vicus buildings, but had been severely mauled by the foundations of the Severan structures further to the west. The plan, fig. 30, shows the eastern part of a major structure of this period, lying to the east of the present excavation area. Although the plan is fragmentary, enough survived to suggest that it had been a large and regularly laid out structure, probably more like a barrack building than anything else, and the buildings of the same period further to the south were of similar type. The individual rooms had a variety of flooring, ranging from flagstones to cobbles and clay, and two of the rooms possessed hearths near the eastern walls. There were no squared oak posts amongst the walls, which were composed of alder and birch alone.

Apart from isolated posts, little survived from this period further to the west, except for a room at the northern end of the 2001 excavation area, where there was strong evidence for its use as a cobblers workshop.

The presence of timber barrack buildings, if that is what they were, constructed to the west of the western wall of Stone Fort I, above its backfilled multiple ditches, remains a considerable puzzle. There are as yet no inscriptions or tablets to provide any written information about this period of occupation, and even the nature of the garrison remains uncertain. For the moment, therefore, we can only record what was found, and hope that a sensible interpretation can be developed in due course.

Period VIA Beneath The Workshop Floor.

Beneath the southern end of the workshop floor, as shown in fig. 27 on page 43, some small structural remains did survive in the packed clay, although mostly badly damaged wattle & daub, made from silver birch wood. No artifacts were uncovered to complement this.

The northern part of VIA structures beneath the later workshop foundations appeared to have been completely removed by the builders of that workshop. Once again, no artifacts that could be ascribed to period VIA survived either.
Period VIA in 2002

Few signs of the continuation of period structures VIA were uncovered during the 2002 excavation season (which was primarily concerned with the area covered by the southern most defences of the later Severan fort). However, it became clear that the main Severan fort ditch to the south was in fact a re-cut of an earlier more impressive ditch running along the same alignment, providing evidence that the excavations had most likely located at least one of the fort ditches associated with this elusive period of Vindolanda history/archaeology. While most of the debris in the fort ditches can be associated with the Severan occupation of the site, a smaller perhaps drainage ditch was cut during this phase, and it yielded a little late second century pottery and items of footwear.

Period VIA small finds and other artifacts made from wood and leather that were recovered from the 2001 & 2002 excavations at Vindolanda. Those items that are highlighted in bold feature elsewhere in the report in their relevant sub-sections. The other items are awaiting further research before future publication.

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<td>V01-21A</td>
<td>Small Ballista bolt head</td>
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<td>SF8184</td>
<td>V01-21A</td>
<td>Gaming counter</td>
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<td>SF 8188</td>
<td>V01-21A</td>
<td>Samian stamp Dr 33 TITVS, FECIT</td>
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<td>SF8634</td>
<td>V02-21A</td>
<td>Samian stamp Dr 33 TINTIRIOF</td>
</tr>
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<td>SF8635</td>
<td>V02-21A</td>
<td>Iron rings + peg</td>
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<td>V02-21A</td>
<td>Marked bone object</td>
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<td>SF8637</td>
<td>V02-21A</td>
<td>Gaming counter (pottery)</td>
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</table>

Wood          | Context | Brief description               |
---------------|---------|---------------------------------|
W2001-29       | V01-21A | Wooden spoon in dagger motif    |
W2001-30       | V01-21A | Wooden roundel                  |

Leather       | Context | Brief description               |
---------------|---------|---------------------------------|
L2001-76       | V01-21A | Shoe                            |
L2001-77       | V01-21A | Shoe                            |
L2001-78       | V01-21A | Shoe                            |
L2001-79       | V01-21A | Shoe                            |
L2002-76A      | V02-21A | Shoe                            |
L2002-77A      | V02-21A | Shoe                            |
L2002-78A      | V02-21A | Shoe                            |
L2002-79A      | V02-21A | Strap                           |
L2002-80A      | V02-21A | Shoe                            |
L2002-81A      | V02-21A | Shoe                            |
L2002-82A      | V02-21A | Shoe                            |
L2002-83A      | V02-21A | Shoe                            |
L2002-84A      | V02-21A | Shoe                            |
L2002-85A      | V02-21A | Shoe                            |

Coin – C489 Hadrian AD 134-138
The Severan remains (period VIB)

The bulk of the civilian settlement closest to Stone Fort 2 had been constructed above the remains of a stone-built military complex, now firmly dated to the Severan period. When these structures were first located in 1970-73, it was assumed that they must represent the first phase of civilian occupation, and they were accordingly referred to as 'Vicus I'. However, subsequent excavation has linked them to the extraordinary circular buildings phase of occupation on the fort site to the east, which had been constructed above the levelled remains of Stone Fort 1\textsuperscript{45}. A full explanation of this Severan occupation is still some years distant, requiring considerable additional excavation, especially in the area to the north of the main thoroughfare.

![Fig. 31](image)

The plan of the Severan complex, above, is an updated version of that published in Birley R et al. 1998 (pages 14-15), taking account of the evidence provided by excavations since that date. The current excavations took place in site 5, in the roadway between 5 and 4, and to the south of those sites, across the rampart mound and ditch.

On the plan, the Severan remains are shown in relation to the western wall and gateway of Stone Fort 2, whose western ditch cut through the Severan remains between the fort wall and the eastern limits of sites 6, 8 and 15.

\textsuperscript{45} See the excavation report, Birley, R et al., 1997, pages 12-15, for the previous summary of the Severan occupation.
‘A’ marks the position of the most south-westerly of the circular stone huts, some of which underlay the later fort wall: others had been located below the northern end of the Stone Fort 2 praetorium and to the east of the north gate. There is now no doubt whatsoever that the huts had been constructed after the demolition of Stone Fort 1 and before the building of Stone Fort 2, which latter must have taken place in AD 212 or 213, and a Severan date appears to be certain.

The position of a rampart mound and ditch, marked as ‘B’, is no more than an educated guess, but it appears to be justified by the clear trace of an east to west wall on the berm of the SF2 fort (site ‘7’), built in the same style and on the same alignment as the southern walls of sites 2 to 6 further to the west, suggesting that the Severan complex once stretched onto the former platform of Stone Fort 1. Direct evidence for linking it to those buildings had been removed by the ditch diggers of Stone Fort 2.

Site 6 was largely excavated in 1993-94, when a substantial industrial-type oven was found in its northern quarter, suggesting that the building had been some kind of workshop rather than a barracks. Site 5 was excavated in 2001-2002, and is reported on below. It, clearly, was not a barracks either.

Sites 3 and 4 were a pair of barrack buildings, with site 4 much better preserved than 3, with its doorways easily distinguishable. Site 2 was probably an annex of site 1, and together they formed what was probably the residence of the person in command of this unusual complex, with a baths suite at the southern end which was older than the rest of the structure, and presumably represented a partial survivor of a period VIA (late Antonine ?) bath house. The small structure built into the rampart mound immediately outside the western wall of site 1 was a double bread oven.

The presumed position of a western gateway is marked as H. Excavation to provide proof, and to determine whether there were guard-chambers, must await the provision of an alternative route for visitors to the site.

The buildings on the north side of the main thoroughfare have not been excavated, and the plan relies upon brief glimpses of their outlines observed during the excavation of the overlying civilian buildings. The eastern part of site 8 was partially examined in 1994. In plan it looks remarkably like the rear portion of an auxiliary headquarters building, but within the two most northerly of the small rooms were raised furnace platforms, and a number of broken and complete crucibles lay on the ground nearby. It remains a possibility that sites 8 and 9 were connected, and that the complex had served as a principia before alternative use at a later date.

The space occupied by 18 is now dominated by the remains of the third century military bath house, whose builders had removed entirely all previous structures on the site (see Blake, J. 2003 for further details).
Two sections were cut across the broad clay rampart in 1967 and 1968, marked as E on the plan, and a third, F, was excavated in 1974. The 2002 section was sited to the south of site 5. The ditch was sectioned adjacent to that, and a further section was excavated in 2002 across the ditch to the north, at point G.

Rampart and ditch must curl round the military bath house in the north west corner, and if the northern lay out is similar to that at the south, these features will be found immediately to the north of sites 15 to 17. Without considerable excavation within the platform of Stone Fort 2, further information about the relationship of this military complex to the serried ranks of circular huts on the old Stone Fort I platform cannot be obtained. But it should be emphasised that the stone buildings in the complex are well built, and in a style very unlike those later erected in Stone Fort 2. The facing stones are smaller, and occasional thin string courses have been added, and the mortar used has a distinct sandy brown texture. All the walls are a uniform 54 cms wide. So far there has been no indication of the nature of the garrison, or the real function of this complex. The unorthodox lay-out, and the high standard of construction, perhaps indicate a legionary vexillation rather than an auxiliary cohort, but whatever it was, the occupation period cannot have been much longer than the time it took for construction – and it was to be followed by comprehensive demolition. This episode in Vindolanda’s history must remain something of an enigma for the moment.

The 2001/2002 excavations

In the 2001-2002 excavation area one of the barrack-like structures was examined in detail, in the course of locating the underlying pre-Hadrianic remains, together with the adjacent roadway to the west and a broad section of the rampart and ditch to the south was also excavated. The rampart was found to include a contemporary well. No significant information emerged to shed further light upon the precise nature of the Severan occupation, but important details were discovered.

1. The Severan workshop or stores building (no. 5)

The structure’s outline had been revealed in the 1973 excavations, and its dimensions were 26.0m north to south, and 4.65m wide, measured across the walls. It was assumed that it must have been another barrack building, similar to the example on the west side, across the roadway, but the full examination demonstrated that it had been more like a large shed, with its western side largely open to the roadway. The floor had been covered with a mixture of clay and crushed opus signinum, up to 25cms deep. Other Severan structures nearby had similar floors. At apparently random intervals on the floor there were a number of small clay ovens. The absence of any debris from metal working suggested that the ovens had been for normal bakery purposes. At some stage all the ovens had been demolished, and a fresh floor had been laid above their remains, suggesting that the function of the building had changed.
Fig 32  
The lay-out of the Severan buildings (in dark black) below the early third century civilian buildings, outside the West Gate of Stone Fort 2.

Fig 33  
The bulk of the 2001/2002 excavations took place below Severan no. 5, the roadway to the west, and the rampart and ditch area to the south.
The proximity of the roadway outside the western limit of the building and the open-sided nature of the 'wall' provided good wagon access for stores. There were no internal drains, and it is highly unlikely that animals had been sheltered there. The roof had probably been covered with stone slates, which were standard for Vindolanda buildings in most periods of occupation, and the numerous small fragments of tile found on the floor probably represented debris from the opus signinum floor material.

Occupational material was sparse, but there was a small portable anvil (8106), part of a small bronze cup, and a pottery perfume bottle. There was little pottery, but it would not have looked out of place in a late second/early third century occupation, and the five coins, all worn, dated to the mid second century (see Brickstock's report, 121-124). One of the fragments of brick or tile included a partial stamp, almost certainly of the series produced by the Sixth Legion (see Robin Birley's report, 118-120).

**The Severan roadway**

The roadway was 4.75m wide and ran from its junction with the major east to west thoroughfare at the northern end to the southern limit of the structures on each side, where the wide clay rampart cut off all access further to the south. For a minor side road, it had been remarkably well built, with a 45cms deep layer of rubble laid down on the clay that covered the earlier timber periods, and a top dressing of small stones and cobbles. There was a side drain on the western side, and surface water was fed into the major west to east drain which ran the full length of the Severan buildings, from the commanding officer's residence eastwards. The road surface had been maintained efficiently, and there was little debris on the surface.

In the course of removing the roadway in order to examine the underlying timber buildings, the two lowest courses of the eastern wall of the adjacent barrack building on the western side were exposed for the first time, to reveal a fine phallic symbol on one of the stones near the southernmost door (see below, fig. 35).

*Fig. 34*

*The Severan roadway, looking south, with a vicus wall on the left.*
The Severan rampart mound

A ten metre wide section was cut through the clay rampart to the south immediately beyond the workshop and roadway, beneath the later courtyard of civilian site LXXVII. The rampart was 9.5m wide, and survived to a maximum height of 1.56m. It had been laid down on the line of the earlier east to west roadway, used by both pre-Hadrianic and mid second century forts, and as it was slightly wider than that earlier road, the rampart builders had carefully filled in the butt ends of the three mid second century ditches with deep piles of rubble. A single surviving course of masonry, bedded into the clay, formed the northern limit of the rampart some 50 to 60cms from the southern walls of the Severan buildings, providing no more than a pedestrian passageway between rampart and the southern walls of the barracks. Opposite the south-eastern end of Severan site 6, there were traces of a stone kerb running north-south, at the point where the rampart had been removed altogether to accommodate later roadways, and this had probably been associated with a gateway through the rampart.

There were no traces of any ovens having been built into the northern edge of the rampart, but as such utilities were available within the adjacent buildings to the north, there was nothing surprising in that absence.

The Severan well

3 metres off the SW corner of the Severan workshop, a small part of the rampart mound had been levelled and flagged, surrounding a well, which must have served the adjacent buildings. A square pit, just short of 2 x 2m, had been excavated through the rampart clay and the underlying pre-Hadrianic remains and into the subsoil.

The well measured 1.12m internally at its surviving top, although the uneven character of its composition suggested that several courses of masonry had been removed in its subsequent demolition (and had probably been tipped into the well). The stone used in the construction was a buff sandstone of thin slabs, with a maximum thickness of only 12 cms. This type of stone continued to a depth of 1.65m from the surviving top, after
which considerably larger stones were used, with an average thickness of just over
20cms, down to the bottom at 4.56m. At a depth of 2.6m from the top, a small square
hole had been left in the west side of the wall, possibly to allow water from a now
defunct spring to flow into the cavity. The base of the hole was worn smooth,
presumably by the constant inflow. The foundations of the well had been excavated to a
depth of 1.03m into the underlying boulder clay. At the bottom, the well measured only
92cms in diameter, compared with 1.12m at the top.

Fig. 36 Two views of the Severan well cut into the northern edge of the rampart mound.

No mortar of any type, or clay bonding, had been used in the construction, but the
interlocking stones formed a very strong frame. The original 2m square hole dug by the
well gang was easily distinguishable, and the entire space between the circular well’s
facing stones and the edges of the construction trench had been filled with overlapping
stone slabs, again without any clay packing.

The excavation of the well was a difficult operation, and health and safety considerations
had to be the prime concern. The well proved to have been filled to the top with stones
and slates, probably acquired during the demolition of the buildings to the north. The
first two metres of fill were removed without any serious interference from water, but
thereafter the inflow was constant. In the hope that important dating material might be
found in the lower reaches of the well, determined efforts were made to complete the
excavation. For safety reasons, it was necessary to widen the excavation area and
remove the top 2 metres of well masonry, to allow the work to be completed.
At a depth of 3.25m, the fill of building stones gave way to layers of stone roofing slates, largely complete and lying flat, almost as though they had been carefully placed in that position. Amongst the top slates lay a small votive altar dedicated to Hvvetir (SF 8629 below, p.75f), standing upright, and a further one metre down lay another votive altar (SF 8633), sadly without an inscription. Below the roofing slates, in the final metre depth, there was a layer of ink black silt and mud, containing the ironwork of a bucket, part of a wooden lock, a small barrel lid, and a battered goat’s skull.

Apart from the two votive altars and the material at the bottom, the remainder of the well produced only a few bones – the skull and shoulder blade of a cow, and a chicken’s leg bone and part of a wishbone.

Roman wells often produce considerable quantities of dumped or accidentally lost material, but the comparatively clean state of this example was probably due to a short existence during the Severan occupation, with deliberate destruction of the facility at the same time as the demolition of the associated buildings. The well presumably served the occupants of both the nearby barracks and the adjacent workshop, and it must be possible that another well may be found within 25m to the west, to serve the Severan buildings in that area.

The Severan ditch
Immediately to the south of the rampart, a 5m wide and 2.3m ditch had been cut, running parallel with the rampart. Combined with the unusually wide rampart, the combination
represented a most impressive defensive system, much more substantial than any of the pre-Hadrianic timber forts.

The Severan ditch was a re-cut of an earlier and probably late Antonine ditch, associated with the period VIA annex. The digging of the original gently sloping ditch had removed almost all traces of earlier timber construction, and it bottomed on the clay subsoil. The original ditch was then partially filled in with rough rubble to create steeper sides for the Severan version, backing directly onto the southern edge of the clay rampart mound. The lower part of the ditch was covered by a layer of decomposed leaves, lying on a layer of light grey silt which contained considerable quantities of cast off footwear, animal bones and pottery. The remainder was filled with loose soil, with a capping of some 70cms of clay on the top. The clay had been placed there by the later vicus occupants, as they reduced the height of the rampart and the depth of the ditch, to create somewhat insecure foundations for later stone buildings.

Unlike the exceptionally clean fill of the nearby Severan well, the rubbish deposit in the ditch was very considerable. Although capped with clay from the rampart mound, the conditions were far from being anaerobic, due to the continual flow of water from east to west - a flow that created great problems for the excavators in what was a very damp 2002 summer. The bulk of the rubbish consisted of three categories - bone (mostly cattle and pig), leather (mainly footwear) and pottery. In the bone category, the most unusual find was a human skull, missing the lower jaw, which was the first find of its type to appear in the past 35 years. The forensic analysis of this specimen can be found on pp 213ff. Immediately alongside the skull were the fully articulated remains of a dog, which had been skinned (see the report on pp.250-257). Whilst it is not possible to prove that the two finds were directly associated with each other in such a general dump of waste matter, it should not be ruled out of the question.

More than 150 items of footwear were recovered from the six metre length of ditch examined, mostly lying on the bottom of the layer of silt. The majority had been the property of adult males, and all were in a ruinous state.

Fig. 38 The Severan ditch beneath the civilian site LXXVII.
Period VIB small finds; and other artifacts made from wood and leather that were recovered during the 2001 & 2002 excavations at Vindolanda. Items that are highlighted in bold appear elsewhere in the report in their relevant sections. As the excavation of this period involved two distinct areas, notably inside and outside the fort walls, the normal categories have been sub-divided to reflect this, as it is clear that different volumes of different artifacts come from places such as fort ditches in comparison to anywhere else on the site.

No items of leather were recovered from inside the Severan fort's defences, as in most cases the preservation levels were too low for the survival of organic matter. The only exception to this was the foundation of the Severan roadway separating the barracks from the workshops, which provided enough protection for a few mainly wooden objects to survive. The fort ditches, though not anaerobic, were sealed by demolition of the predominantly clay ramparts of this fort. After an initial examination of the following list a modern day scholar could be forgiven for thinking that the Severan garrison left the site barefoot, leaving all their shoes in the ditch.

It is interesting to note (although perhaps not unusual) that at least half of the foot ware recovered from most periods of occupation on the site were female, the other half male, suggesting a well mixed population of combatants and non-combatants, as well as many children. Period VIB is no exception to this rule, even though all of the material in 2002 has come from a purely military context, and no evidence for a vicus existing in this period has yet been found.

Small finds from inside the fort, including the well:

<table>
<thead>
<tr>
<th>SF numbers</th>
<th>Context</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF8102</td>
<td>V01-02A</td>
<td>Small Samian gaming counter/ rough</td>
</tr>
<tr>
<td>SF8104</td>
<td>V01-02A</td>
<td>Graffito - Samian base CE</td>
</tr>
<tr>
<td>SF8108</td>
<td>V01-02A</td>
<td>Amphora stamp LQ S. no. 45, page 173.</td>
</tr>
<tr>
<td>SF8109</td>
<td>V01-02A</td>
<td>Iron hook</td>
</tr>
<tr>
<td>SF8110</td>
<td>V01-02A</td>
<td>Bronze fitting - square shaped</td>
</tr>
<tr>
<td>SF8111</td>
<td>V01-02A</td>
<td>Bronze edging</td>
</tr>
<tr>
<td>SF8120</td>
<td>V01-02A</td>
<td>Slate ring</td>
</tr>
<tr>
<td>SF8130</td>
<td>V01-02A</td>
<td>Samian gaming counter</td>
</tr>
<tr>
<td>SF8132</td>
<td>V01-02A</td>
<td>Samian stamp Dr 31 DOHCCVSM</td>
</tr>
<tr>
<td>SF8134</td>
<td>V01-02A</td>
<td>Black pottery gaming counter</td>
</tr>
<tr>
<td>SF8135</td>
<td>V01-02A</td>
<td>Bronze tube</td>
</tr>
<tr>
<td>SF8136</td>
<td>V01-02A</td>
<td>Bronze strap</td>
</tr>
<tr>
<td>SF8137</td>
<td>V01-02A</td>
<td>Bronze stud</td>
</tr>
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<td>SF8138</td>
<td>V01-02A</td>
<td>Sword tip</td>
</tr>
<tr>
<td>SF8141</td>
<td>V01-02A</td>
<td>Bone gaming counter</td>
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<tr>
<td>SF8142</td>
<td>V01-02A</td>
<td>Scrap copper-alloy</td>
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<tr>
<td>SF8182</td>
<td>V01-02A</td>
<td>Copper-alloy ring</td>
</tr>
<tr>
<td>SF8187</td>
<td>V01-02A</td>
<td>Copper-alloy cup</td>
</tr>
<tr>
<td>SF8197</td>
<td>V01-02A</td>
<td>Graffito</td>
</tr>
<tr>
<td>SF8306</td>
<td>V01-02A</td>
<td>Pottery perfume bottle</td>
</tr>
</tbody>
</table>
Small finds from the Severan Fort ditch

SF8612 V02-16A Iron bracket
SF8630 V02-16A Thin sheet of ornamental bronze
SF8641 V02-16A Intaglio
SF8643 V02-16A Iron Blade
SF8644 V02-16A Joiners dog
SF8657 V02-16A Lead
SF8651 V02-16A Iron ring
SF8652 V02-16A Samian Stamp GENIALIS
SF8654 V02-16A Lead
SF8655 V02-16A Ring (probably silver)
SF8656 V02-16A Button (half)
SF8658 V02-16A Human remains - Skull
SF8659 V02-16A Entire dog
SF8661 V02-16A Snake head adornment
SF8673 V02-16A Lead
SF8675  V02-16A  Strap end
SF8676  V02-16A  Gaming counter (pottery)
SF8677  V02-16A  Bronze needle
SF8678  V02-16A  Half a bronze ring
SF8680  V02-18A  Iron prong/weapon
SF8686  V02-16A  Gaming counter
SF8687  V02-16A  Bronze belt attachment
SF8690  V02-16A  Stylus pen
SF8691  V02-16A  Stylus pen
SF8692  V02-16A  Gaming counter (black glass)
SF8875  V02-16A  Sling shot

### Wooden objects from inside the Severan Fort Wall

<table>
<thead>
<tr>
<th>W number</th>
<th>Context</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>W2002-1A</td>
<td>V02-02A</td>
<td>Peg</td>
</tr>
<tr>
<td>W2002-2A</td>
<td>V02-02A</td>
<td>Small box (half remains)</td>
</tr>
<tr>
<td>W2002-3A</td>
<td>V02-02A</td>
<td>Rope</td>
</tr>
<tr>
<td>W2002-4A</td>
<td>V02-02A</td>
<td>Peg</td>
</tr>
</tbody>
</table>

### Wooden objects from the Severan fort ditch

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<th>Context</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
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<td>W2002-23A</td>
<td>V02-16A</td>
<td>Box wood comb (half of)</td>
</tr>
<tr>
<td>W2002-29A</td>
<td>V02-16A</td>
<td>Wooden knife handle</td>
</tr>
</tbody>
</table>

### Leather objects from the Severan fort ditches

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<th>Context</th>
<th>Brief description</th>
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</thead>
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<td>V02-15A</td>
<td>Shoe</td>
</tr>
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<td>L2002-39A</td>
<td>V02-15A</td>
<td>Shoe</td>
</tr>
<tr>
<td>L2002-40A</td>
<td>V02-15A</td>
<td>Shoe</td>
</tr>
<tr>
<td>L2002-41A</td>
<td>V02-15A</td>
<td>Shoe</td>
</tr>
<tr>
<td>L2002-42A</td>
<td>V02-15A</td>
<td>Shoe</td>
</tr>
<tr>
<td>L2002-43A</td>
<td>V02-15A</td>
<td>Shoe</td>
</tr>
<tr>
<td>L2002-44A</td>
<td>V02-15A</td>
<td>Shoe</td>
</tr>
<tr>
<td>L2002-46A</td>
<td>V02-16A</td>
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<td>V02-16A</td>
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<td>V02-16A</td>
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<tr>
<td>L2002-61A</td>
<td>V02-16A</td>
<td>Scrap leather/off cuts</td>
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L2002-65A  V02-16A  Shoe
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L2002-67A  V02-16A  Shoe
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L2002-69A  V02-16A  Shoe
L2002-70A  V02-16A  Shoe
L2002-71A  V02-16A  Shoe
L2002-72A  V02-16A  Shoe
L2002-73A  V02-16A  Shoe
L2002-74A  V02-16A  Shoe
L2002-75A  V02-16A  Shoe
L2002-86A  V02-16A  Patch/Tent
L2002-87A  V02-16A  Shoe
L2002-88A  V02-16A  Shoe
L2002-89A  V02-16A  Scrap
L2002-98A  V02-16A  Shoe
L2002-99A  V02-16A  Shoe
L2002-100A  V02-16A  Shoe
L2002-101A  V02-16A  Scrap
L2002-102A  V02-16A  Shoe
L2002-103A  V02-16A  Shoe
L2002-104A  V02-16A  Shoe
L2002-105A  V02-16A  Shoe
L2002-106A  V02-16A  Scrap
L2002-107A  V02-16A  Shoe
L2002-108A  V02-16A  Shoe
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L2002-112A  V02-16A  Shoe
L2002-113A  V02-16A  Shoe
L2002-114A  V02-16A  Shoe
L2002-115A  V02-16A  Scrap
L2002-117A  V02-16A  Shoe
L2002-118A  V02-16A  Shoe
L2002-124A  V02-16A  Shoe
L2002-125A  V02-16A  Shoe
L2002-126A  V02-16A  Shoe
L2002-127A  V02-16A  Shoe
L2002-128A  V02-16A  Shoe
L2002-129A  V02-16A  Shoe
L2002-133A  V02-16A  Shoe
L2002-134A  V02-16A  Shoe
L2002-135A  V02-16A  Shoe
L2002-136A  V02-16A  Shoe
L2002-137A  V02-16A  Shoe
L2002-138A  V02-16A  Shoe
L2002-139A  V02-16A  Shoe
L2002-140A  V02-16A  Shoe
L2002-141A  V02-16A  Shoe
L2002-142A  V02-16A  Shoe
The coins:
The thirteen coins were nos. 477, 478, 479, 481, 490, 491, 495, 499, 519, 520, 524, 529 and 533 – see the report by Richard Brickstock, pp 121-124. The majority were found amongst the foundations and floor make-up of the Severan structure.
The vicus of Stone Fort 2

The 2001/2002 excavations took place in an area of the vicus outside the walls of Stone Fort 2, whose plan is included below. It is unfortunate that the major project, commenced in 1967, designed to complete the excavation of the civilian settlement, was seriously disrupted by the discovery of the pre-Hadrianic remains underlying parts of the excavated remains. This resulted in the abandonment of the vicus research project, and it was only in the course of the 2001/2002 seasons that additional evidence came to light. It is the intention now to make further progress on this important work, which will facilitate the publication of a comprehensive report on at least the civilian settlement attached to Stone Fort 2. It must be recognised, however, that such a report will only encompass settlement in the years after circa AD 213, when the Fourth Cohort of Gauls became the garrison of Vindolanda. Numerous earlier civilian structures remain to be found, perhaps lying in fields to the north and west of the current Vindolanda Trust property.

Justin Blake’s Report includes the important information on the Romano-Celtic temple at the north-western end of the site, the evidence for much rebuilding of vicus structures immediately to the south of the military bath house, and the remarkable heavy use of land right up to the Trust’s western field boundary, almost 200 metres from the West Gate of Stone Fort 2. The 2001 Report, dealing with the southern defences of Stone Fort 2, included the discovery of civilian-type buildings adjacent to the South Gate of the fort.

Fig. 39

46 I am grateful to my Director of Excavations, Robin Birley, for extensive discussions on the results of the excavations in the vicus between 1967 and 1973.
The bulk of the structures in the above plan had been civilian ‘strip houses’, of the kind examined at Housesteads in the 1930’s excavations and seen in aerial photographs outside almost every Roman fort in the north of England. There has never been any direct evidence to link them with particular inhabitants, and it has been assumed, probably correctly, that these were the homes of the civilian dependents of the soldiers, as well as a number of merchants, veteran soldiers and other camp followers. However, several of these extra-mural structures had been predominantly military buildings, which would have been placed in that locality even if no civilians had been present. The most obvious of those was the military bath house, but others would have included a number of temples, and at Vindolanda the metal-working establishment outside the SW corner of Stone Fort 2 (site II) might have fallen into that category as well. The pre-Hadrianic writing tablets have reminded us that the garrison had very considerable stocks of animals – horses, cattle, sheep, goats and fowl – which would at the least create a demand for storage facilities, and many of the bulk supplies of building materials would require sheltered housing as well. Thus some of the rectangular structures near the fort walls, lacking hearths and cooking benches, may have been entirely military properties. The battered foundations of buildings near the South Gate, and some of those outside the SW corner of the fort – especially sites LXXIV, LXXV and LXXVIII – could well have been military store-houses, for which there was no room within the fort. The large building once interpreted as a mansio is now known to have been a Severan commanding officer’s residence, but an official guest house should be found in the third century settlement: such a building was evidently under construction as early as period II, when a duty roster recorded men being assigned to building work on a hospitium.\footnote{Vin Tab 156.}

The vicus excavations have also revealed substantial indications of military involvement in the planning and construction of the settlement, which should cause no surprise. The land immediately adjacent to the fort formed a part of the garrison’s territorium, over which the commanding officer had absolute control. It is inconceivable that the prefect would permit unregulated construction by civilians so close to his fort, and it seems inevitable that the army would have laid down the basic infrastructure, with clearly marked out building plots. The Vindolanda evidence points to the careful insertion of a basic drainage system and the provision of high quality roadways. The major east to west road that led to the fort’s western gateway had been a principal thoroughfare for over a hundred years before the Fourth Cohort of Gauls constructed Stone Fort 2, and little more than re-surfacing was required. But the very fine flagged north to south road, running from its junction with the east to west road down to the south-western corner of the fort, was as good an example of military road construction as any on the frontier, and the subsidiary east to west road half way down that line was almost as good. There can be no doubt at all that these roads or streets were built by the military, and that they represented time-consuming and expensive work.

Further army input is implied by the nature of the vicus building foundations. The settlement was constructed on land that had been the scene of very significant activity for the previous hundred and thirty years. Both the earliest pre-Hadrianic fort
and the first Stone Fort had been sited more or less on the platform later occupied by Stone Fort 2, and those forts had been provided with multiple western ditch systems. Although strenuous efforts had been made to back-fill those ditches before subsequent occupation, they continued to create problems of subsidence throughout the Roman occupation. Other areas, not directly affected by such ditches, had at least a metre of occupation debris lying above the natural subsoil when potential civilian builders were given access to the land. It is clear that the person responsible for supervising the basic vicus construction was well aware of the underlying ground conditions, and that orders were given that all buildings must be provided with exceptionally strong foundations. The method chosen is so far unparalleled on the northern frontier: wall foundation trenches were packed with rubble and clay to a depth of at least 80 cms, which served as a base for massive, roughly rectangular stones, most of which were too heavy for lifting without block and tackle or other mechanical means. In one case (site III) there were five layers of the large stone blocks below that at the top. On those solid foundations some structures then received normal small ashlar building stones for walls, but some appeared to have had no more than horizontal wooden base beams, into which the wooden posts for timber walls would have been inserted.

The acquisition of many hundreds of these massive foundation blocks represented a huge undertaking, both for quarrying, transporting to the site, and then for placing on the building foundations, and it is difficult to visualise individual civilian families being in a position to be able to organise such a procedure. It seems much more likely that the army had marked out the building plots, inserted the foundations and base blocks, and then possibly left it to the individual tenants to erect their own dwellings. In these circumstances, the often used phrase ‘civilian settlements grew up outside the walls of the forts’, should be amended to ‘the military authorities made orderly provision for the settlement of civilians close to the forts’. The precise details of the legal position of the occupiers is unknown, but it is certain that all fell under the authority of the fort’s commanding officer, who presumably delegated day to day control to a chosen army or civilian representative. The Vicani Vindolandenses altar hinted at a form of self-government for the civilians, and their representative, chosen or appointed, presumably reported directly to the prefect.

The strong element of military involvement in the creation of the Vindolanda vicus is important to appreciate when analysing individual structures and attempting to understand the civilian influence at the site. The civilians should not be seen as groups of camp followers settled indiscriminately outside the walls of the fort. Their presence was necessary for the well-being of the garrison, and their lives were very much dominated by the requirements of the garrison, without whom they could not exist. There were undoubtedly many changes to the original buildings in the course of the occupation, with the addition of extensions, and possibly the amalgamation of two plots into one, and it has been impossible to date those alterations.

None of the buildings in the areas so far examined possessed gardens, yet some form of allotments must have been essential to all the families, and we must assume that such facilities lay on the fringes of the settlement, to the north and the west. Many
families must also have owned animals of some kind, and the prefect must have allocated grazing facilities. It is clear from the magnetometer survey of the field to the north of the Stanegate that there had been considerable activity in that area, including buildings, and the 2002 discovery that structures extended as far as the western boundary of the Trust property means that there must also be evidence of at least agricultural activity to the west of that. It is therefore evident that the true size of the civilian settlement at Vindolanda was a great deal larger than previously visualised — as has been the case at Carvoran, after the evidence provided by the magnetometer survey there.

The 2001/2002 excavation area A

The excavations of 2001/2002, described below, took place in the area immediately to the south-west of the West Gate of Stone Fort 2, where the buildings fronted onto both the major east to west roadway and onto the subsidiary flagged road, running north to south, alongside the western ditch of the fort. The second east to west street formed the southern boundary of the excavation area.

All of these vicus buildings, with the exception of site LXXVII, had been excavated to floor levels in 1971-73, and in 1991-1994 sites IV, V, LXX-LXXII, the north to south roadway and the western ditch of the fort had been the scene of pre-Hadrianic excavations. Although the roadway was removed by the excavators to gain access to a broad stretch of early remains, excavation within the confines of the vicus buildings was severely restricted by the necessity to retain the stone walls, which often resulted in the abandonment of the work before the earliest pre-Hadrianic remains were reached. At no stage did the excavators at that time discover the presence of the outer ditches of the first of the pre-Hadrianic forts.
The three civilian buildings that fronted onto the main east to west road at the northern end (sites IV, XXXIVB and XXXIVA) had been plain rectangular structures without any traces of partition walls, and all had flagged floors showing many signs of repair. Site IV, approximately 14.4 x 6.72 m, possessed an unusually large raised stone cooking bench, with the remains of ovens at the southern side, suggestive of catering for more people than normal house occupants, and its position immediately outside the fort gate made it a prime candidate for an inn of some kind. The adjacent site to the west, site XXXIVB, 19.04 x 5.76 m, also possessed a large cooking bench with side ovens and was probably another commercial establishment. Site XXXIVA, to its west, 11.6 x 4.8 m, with a small hearth and at least two ovens, was probably a normal civilian house. Sites XXXIVC and XXXVIII, to the south, possessed no direct access except through the buildings to the north, and both may have been no more than extensions of those establishments.

The three buildings to the south of site IV all fronted onto the flagged roadway which ran alongside the lip of the western ditch of Stone Fort 2. Site V/LXX (the northern half was excavated two years before the southern extension was discovered and given a separate site number), approximately 13.92 x 9.60 m, was the most unusual and distinctive of all the buildings in the settlement. Although it possessed the large stone blocks typical of almost all the buildings outside the walls of the fort, they were of superior quality and had been dressed by the masons, perhaps hinting at a previous existence in a different building. The structure had been divided into five rooms on the ground floor, with an enclosed yard, whose double doors provided wagon access to the adjacent roadway. No other vicus building remotely resembled this site, and it had presumably been the home of a reasonably wealthy family – perhaps that of a merchant or even a veteran. It was most unfortunate that the building had been efficiently demolished at some stage, and that much of the western portion had collapsed, due to subsidence over the line of one of the mid second century fort ditches.

The two adjacent sites to the south, LXXI and LXXII, 9.35 x 9.25 m and 6.20 x 9.58 m, were thought to be normal strip houses at the time of excavation in 1973. LXXI had been extended to the north at some stage, taking in what had been a passageway leading to the west, and the main body of the dwelling possessed both hearth and a raised oven platform. Its neighbour, LXXII, had been divided into two rooms, with a raised cooking bench in the eastern room, against the southern wall. That southern wall bounded the subsidiary flagged east to west roadway. At the SW corner of LXXII, a wall was found extending to the west, and the site was given the number LXXVII, but it was not further explored in 1973. The area was re-examined in the course of 2002, leading to a revised explanation of the roles of both LXXI and LXXII.

A general point needs to be made about the evidence for occupation in these and other civilian buildings at Vindolanda. Although the floors, both flagged and clay, exhibited signs of considerable repair and modification, and the hearths had been bearing fires for many years, the occupation debris was remarkably scant compared with that lying in and above the floors of the earlier military buildings. The proximity of the floors to the modern turf line was such that no organic material could be expected to

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survive, and animal bone was in very poor condition. But apart from severely corroded nails, there were few iron or bronze objects, pottery was scarce and coins were very rare. The reason for this scarcity may be no more than efficient housekeeping in premises with female inhabitants, for there is no reason to believe that occupation was short-lived. John Casey has argued (in Bidwell 1985, p 105) that the scarcity of fourth century coins in the settlement area proved that the settlement had been abandoned before the end of the third century, as he conveniently relegated the few definite fourth century coins to the category of ‘casual losses’ by passers-by. But it should be noted that in the not inconsiderable area examined in 2002, not one coin was found in the vicus contexts, yet pottery included calcite-gritted and Crambeck wares, which cannot be earlier than the mid fourth century. The settlement may well have been smaller in the fourth century, but it is impossible to claim that it had been abandoned.

The excavations of civilian structures in 2001 and 2002

Sites XXXIVA, XXXIVB and XXXIVC were re-examined in the course of the 2001 work, but little more than isolated pockets of occupation material had survived the 1972 excavations, although it was evident that there had been extensive repairs to the floors, in part because of subsidence into earlier mid second century fort ditches. XXXVIII was re-examined in 2002.

The major new work on civilian structures took place in 2002, with the examination of what proved to be a large enclosed courtyard attached to site LXXVII, with a partial examination of the attached structure on the western side.

Fig. 41
The upper foundations of the eastern wall of Vicus XXXIVA, rising through the earlier Severan roadway. There were four additional courses of rough boulders inserted beneath the road.
The site of LXXVII was a good one, being constructed on the slightly higher ground provided by the remains of the wide Severan clay rampart, which itself had been laid down over the solid foundations of pre-Hadrianic and mid second century road surfaces. Only on the southern lip of this site had problems been encountered, where subsidence above the line of the Severan ditch had had to be countered by the provision of a buttress to one of the western building’s walls. Access to the 18 x 10m courtyard was provided by double doors in the southern wall, providing a gateway 3.34m wide, leading onto the east to west roadway.

Fig 42 Vicus site LXXVII, incorporating sites LXXI and LXXII to the east.

On the eastern side of the courtyard a drain was inserted, using the western walls of sites LXXI and LXXII as one side of the structure, and a second drain was provided on the western side, capped with flagstones. The surface of the yard was composed of random flagstones and cobbles, bedded into the clay of the old Severan rampart. The principal feature of the yard was a roughly constructed well in the south west corner. Excavation was limited to a depth of 1.0m, due to the collapse of the stone walls below that, but if the feature was designed to penetrate to the underlying water table (like the Severan well nearby), it should have reached a total depth of some 4.0m. The stone used in the construction of the well varied from large vicus-like foundation stones in the top course, to a very large mortar measuring over 60 cms high, embedded in the south western wall. The construction was so rough that it is possible that the well was originally lined with timber, and the surviving masonry may represent no more than the fill of the construction pit. The material recovered from the first 1.0m was predominantly building stones and rubble.

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Finds from the courtyard area were few and far between, with a light scatter of pottery and bone, a battered and repaired small bronze ornamental gryphon and an altar dedicated to the Vitiæ. There were no coins, and the pottery, although including fragments of calcite gritted and Crambeck wares, was no more than a collection of random fragments.

On the western side of the courtyard a number of wall foundations of what may have been a substantial structure survived, although the plough marks on some of the large foundation blocks suggested that much of the site had been cleared in the early middle ages. The internal floors were of clay, with traces of burning on them, together with debris from ovens, and the light scatter of pottery again included calcite-gritted wares. It is hoped to examine the remainder of this building in the 2003 excavation season.

The plan of this site (Fig. 42) hints at the possibility of sites LXXI and LXXII being parts of the complex. The western walls of both structures had been heavily robbed, but both had traces of what could have been doorways in them, leading into the courtyard. Further analysis must await the excavation of the remainder of the complex, but the current view is that these structures may have been parts of a very substantial building, possibly serving as a _mansio_ or administrative centre for the settlement.

**Small finds from the vicus excavations in 2001-2002 at Vindolanda.**

A large part of the _vicus_ examined in the 2001 & 2002 excavations had been previously explored in the excavations of the 1970's, and as a consequence many of the finds had been already been recovered. Others, like the copper-alloy statue of the gryphon (SF8653), were recovered from the exploration of the foundations of some of those buildings.
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<td>SF8847</td>
<td>V02-35A</td>
<td>Samian stamp Dr 33 (?) JILI - with 8 dots in semi-circle</td>
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**Coins**

- C480 Lucilla AD 164-169
- C502 Trajan or Hadrian
- C530 Domitian
Two new altars from Vindolanda and the cult of the deity Hvitir

First altar, found in Severan well, May 2002.
8629: context 02 20A; 281mm high, 134mm wide.
Provisional reading:

1  DEQHV
2  VETR.
3  NOB...
4  VEGVS
5  VOLS

Fig. 44
deo Hvitir[ir[i] Nob[i]...vegus vo(tum) libens] solvit

'To the god Hvitir (OR Hvitir[e]r) Nob...vegus willingly fulfilled his vow.'
OR: 'To the god Hvitir (OR Hvitir[e]r) Nob[i]lis? (and) Vegus willingly fulfilled their vow.'

The inscribed face of the altar is damaged a little on the right hand side and there seems to be a secondary vertical cut going through the last letter of each line from line 1 to line 4.

For previously known dedications to this deity see below. There are more than a dozen different spellings, including some beginning Hv-. This is the first example beginning Hvrr-.

In line 1, the second and third letters are very faint, but there can be no doubt about the reading DEO. The letters HV seem clear, although the cross stroke of the H and the right hand stroke of the V are gone, the latter perhaps removed by the vertical secondary cut.

As the assumed fourth letter of line 2 is not preserved, it is uncertain whether the god's name was spelt Hvetir or Hveteri. But Hvetri or Hveteri are also possible. The second last letter of this line is badly preserved but the diagonal stroke of an R seems clear enough; the last letter, which should be an I, is not preserved, unless it is represented by the vertical stroke taken to be a secondary cut.

In line 3 the first letter is certainly N. The second letter is damaged, but the traces seem to support the reading O. Of the third letter only the top is preserved, and this could therefore be B, D, P or R; but NOD- and NOP- can probably be eliminated. The letters after this, perhaps three, are worn away. There might just be enough space to support the reading Nob[ilis]. The name is well attested, cf. in Britain RIB 1180, Corbridge: D M Ahtiehe filiae Nobilis vixit an(nnis) V. "To Ahtiehe, daughter of Nobilis, she lived five years." "Ahtiehe is probably a pet name derived from a Germanic compound like Ahtard or Aetohildis", according to S. Guttenbrunner, quoted in RJ.

B. Hence her father Nobilis was probably a German. Nobilis is not particularly common: Lörincz 2000: 102 can cite only 14 examples, six of them in Belgica and the Germanies (where there are also the only two examples of the gentilicium Nobilius).

However, in the Vindolanda altar, it could be that only two further letters should be supplied, e.g. IO, and the dedicator's name might have been e.g. Nob[i]o]vegus or Nor[jo]vegus. In line 4, the first two letters, VE, are certain, the third letter is surely a G, since there is a tail to it at the bottom right, the fourth is V. The last letter is so faint that it is not
really certain, but it is hard to believe it could have been anything but an S. If this is the end of a name beginning in line 3, e.g. Nob...vegus, no parallels can be found. There are various names beginning Veg- listed in Lőrincz 2002: 150f., but not Vegus; but he has one Vecus. If two dedicators are in question, there is no room for et between the names. Two other altars to this deity were dedicated by two men jointly, RIB 1602 and 1800. In the second, et can be read, but in the first it is restored, although there hardly seems space for it. For a dedication by more than one person without et between the names cf. RIB 926, omnibus dibus.

The reading of line 5 is entirely clear. The only oddity is the unusual formula: votum l(ibens) s(olvit)—or s(alverum) if there were two dedicators. But there are many variations of the standard V(otum) S(olvit) L(ibens) M(erito), cf. Index to RIB I: e.g. V P(osuit), V S L A(nimo) FE(cit), VLM, VLPM, VS, VSL, VSL(aetus)LM, VSLP, etc. For votum l(libens) s(olvit) cf. RIB 192+add., Colchester: matribus Sulevis Similis Atti f. C. Cant. VLS, and 1099, Ebchester: Genio [J]IVII Irieius [p]praef. VLS. For votum cf. 660, York: deo Vesteri Primumus vo(tum) l(ibens) m(erito), where the M in line 5 is a roughly cut later addition. R.P. Wright expanded this, implausibly, as Primumus Vol(ustiansus) m(erito). RCHM Eboracum, 118 no. 39 reads Primumus vo(vit) m(erito), quoted by Tomlin, add. to RIB I; but he prefers to take it as Primumus V [S] M, i.e. votum s(olvit) m(erito), ‘O being cut in error for S’. This is surely unnecessary. Why not read Primumus vo(tum)—or vo(vit)—l(libens) m(erito)? Otherwise, one might take M as cut in error for S—if not a later addition to a stone on which the S was no longer legible.

To sum up: there is probably a single dedicator, called Nob..vegus or Nor..vegus, not a name previously attested. But it is just possible that two men, called Nob[ilis] and Vegus, made the dedication jointly. The spelling of the deity’s name is previously unattested; the closing formula is unusual.

Second altar, found in Vicus site LXXI, May 2002.
8648: context 02 22A; 260mm high, 150mm wide.
Provisional reading:

1 DIBVS  
2 VITIRIB  
3 VS • ADN  
4 AMATVS  
5 FIL

dibus Vitirib Adnamatus fil(ius)

‘To the gods the Vitires, Adnamatus the son’.

The last letters of lines 1 and 2 are very faint, but quite clear. In line 3 the first two letters, followed by a stop, are also clear. Thereafter ADN seems the likeliest reading: A and the large, slanting N are certain; between them the letter D is less clear, but seems probable.

Line 4 could begin either MA or AM and the third and fourth letters are faint. On the whole the reading AMATVS seems very probable, given the frequency of the Celtic name Adnamatus and cognate forms: see Lőrincz & Redo 1994: 25f. for Adnamatinus, Adnamatius, Adnamato, as well as Adnamatus, for which they cite 32 examples, 14 of them in Noricum, where the name Adnamat also occurs on pre-Roman coins: Alfeldy 1974: 42. FIL, which seems quite clear, in line 5 can surely only be fil(ius), implying that the dedicator’s father, also called Adnamatus, was also, or had been, at Vindolanda, and indeed
had perhaps dedicated an altar to this deity himself, which could have stood adjacent to this one. The masculine plural *dibus*, rather than the ‘normal’ *dir or deis*, was evidently standard with this deity. The absence of a closing formula, VSLM or a variant, is not surprising, cf. the examples below. Of course, the dedicator may have intended VS at the beginning of line 3 to mean *v(otum) s(olvit)*, in which case one should understand *dibus Vitirib(us) v(otum) s(olvit) Adnamatus fill(ius)*.

**Dedications to this deity.** Numbers refer to RIB I except where otherwise stated. It should be noted that the nominative form given in this list may be misleading, at least for many examples of the singular form, i.e. the ‘real’ form was probably Hveter, Hvetir, Hvitrí, Hvvetír, Vetur, Vetir, Vetir, Vheter, Viter, Vitir, Voc(r)?.

*(= partly restored):*

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<tr>
<td>Hvvet[i]r[i]s</td>
<td>unpublished 1, Vindolanda 2002</td>
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Vetères 1456, 1604 (*with deo, although plural name!*), 1605, 1606, 1607*?*, 1699, 1729, 1730, 1802, 1803 (plural); Brit. 4 (1973) 329, nos. 11-12 (plural) (12)

Vetiris 660* (indexed as Veter in RIB), 1139, 1548, 1697, 1698, 1793, 1794, 1795, 2068; RIB II.3. 2431.3* (Vetere(ni)) (10)

Vetiríres 1728, 1796, 1797; Brit. 6 (1975) 285, nos. 6 and 77* (Vet[ ]i) (5)

Vetis 1335

Vheterís 727

Vitàres 925* (plural)

Vit[eres?] ?or Vit[i]res 1804* (plural)

Viteris 1798

Vitíres 1047, 1048* (VITBVVS) (both feminine!), 1336, 1457, 1805; Brit. 10 (1979) 348 no. 8 (all plural), unpublished 2, Vindolanda May 2002 (7)

Vitíris 971 (also Mogonos), 1046, 1087* (VIT only), 1088*, 1103, 1104, 1140, 1141* (Vit[ ]i), 1455, 1799, 1800, 1801; Brit. 18 (1987) 368 no. 7 (13)

Votris (?) 1458

Vitíris 13

Veteres 12

Veteris 10

Vítíres 7 (8 including 1804)

Vetirí 5

Hveteris 2

various 11 (one each)

total 61, of which 38 are singular, 23 plural, 49 are masculine, 2 are feminine and 10 could be either; 8 are spelt with Hv-, 1 with Vh-; 33 are spelt Vet- (or Hveter- etc), 26 Vit- (or Hvit-), 2 otherwise (Vic-, Vot-).
The texts (*= reading emended from RIB I; and I write Hv- rather than Hv-):

660*, Eburacum: deo Veteri Primulus vo(tum) l(ibens) m (m = ? s(olvit); cf. above)

727, Cataractonium: deo sancto Vheteri pro s(alute) Aurelii Mucianii V S L M

925*, Voreda (Old Penrith): Vicribus P S V S L M


971*, ibid.: deo Mogonti V[ir]ire san(ceto) Acl. ... S V S L M

973, ibid.: deo Hvetiri
cf. E. Birley, CW² 53 (1953) 26, 37 pl. II 6; Brit. 19 (1988) 507, reporting it as now in Carlisle Museum; photos in E. Birley 1986, plates II and III; Tomlin in add. to RIB I quotes Coulston & Phillips 1988: 189: 'This is the most exquisitely carved altar in Roman Britain and its quality is far superior to that of other altars to the Vetures, although its size is similar'. RIB notes: 'In relief on the left side is the apple-tree of the Hesperides entwined by a dragon; on the right side the head and forepart of the Bryxantia[e] boar, with a tree in the background' and adds 'see Birley [CW 53] for a discussion of the sides, and the connection with Hercules.' One may suggest that the unknown dedicatory took over an altar which had been prepared for a dedication to Hercules but never inscribed.

1046, Concangium (Chester-le-St): deo Vitiri Duilio V S
daeab[u]s Vitiribus Vitalis [V] S L M

daeab[u]s Vitiribus Viasudri[s]
deo Vit(i) or Vit(iri)
deo Vit(i)U[nthau[s] ... po(suit?) ...
deo Vitiri Maximus V S (on left side bird, on right boar)
deo Vitiri Iit[ ]
deo Veteri

deo Vitiri

1047, ibid.: deo Vitir(i)bus

1048*, ibid.: deo Vitir(i)bus, Vitalis [V] S L M

daeab[u]s Vitiribus Viasudri[s]
deo Vit(i) or Vit(iri)
deo Vit(i)U[nthau[s] ... po(suit?) ...
deo Vitiri Maximus V S (on left side bird, on right boar)
deo Vitiri Iit[ ]
deo Veteri

deo Vitiri

1335, Cumbercund (Benwell): deo Vetiri sangto (on left side patera, on right axe and knife)

1336, ibid.: Vitir(i)bus

1455, Ciburnum (Chester): deo sancto Vitiri Tertulus V S L M
dibus Veteribus

1456, ibid.: [di]bus Vitiribus

1457, ibid.: Suadnus votum d(eo) Votri v(otum) s(olvit) (?)
deo Veteri Uccus V L

1458*, ibid.: [di]bus Hvteribus

1459, ibid.: deo Hveteri Superstes [et] Regulus V S L M

deo Hvi[tr]i Aspuanis pro (se) et suis vot(um) sol(vit)
deo (se: should be dis or dibus!) Veteribus votum

1548, Brocolitia (Carrawburgh): [di]bus Vete[r]ibus

1549, ibid.: Veteribus [p]osuit Aurelius Vic[tor](or) V

dibus Vete[r]ibus [p]osuit Aurelius Vic[tor](or) V

1602, Vercovicium (Housesteads): [di]bus Vete[r]ibus

1603, ibid.: deo Vetteri Superstes [et] Regulus V S L M

deo Hvi[tr]i Aspuanis pro (se) et suis vot(um) sol(vit)
deo (se: should be dis or dibus!) Veteribus votum

1604, ibid.: [di]bus Vete[r]ibus

1605, ibid.: deo Vetteri Superstes [et] Regulus V S L M

deo Hvi[tr]i Aspuanis pro (se) et suis vot(um) sol(vit)
deo (se: should be dis or dibus!) Veteribus votum

1606, ibid.: [di]bus Vete[r]ibus

1607*, ibid.: deo [V]eteri (could it have been [H]veteri? )

1697, Vindolanda: deo [V]eteri (could it have been [H]veteri? )

1698, ibid.: [V]eteri (could it have been [H]veteri? )

1699, ibid.: [V]eteri (could it have been [H]veteri? )

Brit. 4 (1973) 329, no. 11, ibid.:

ibid. no. 12, ibid.:

Brit. 6 (1975) 285, no. 6, ibid.:

ibid. no. 7, ibid.:
deo Hvitiri V S  
ara Vitirum  
deo Hvvet[i][r][i] Nob[...]}vegus vo(tum) L S  
dibus Vitiribus Adnamatus fil  
deo Vetiri V (Ross 1967, pl. 87c; cf. two uninscribed altars from 
Chesters, one with boar and serpent, the other with serpent and 
rauen, Ross 1967: 345 & 314 fig. 180)  
dibus Veteribus posuit Romana  
(dibus Vetteribus [ ] (a star above text)  
deo Veneri Necalame[s] V S L M (on left side knife and 
axe, on right a quadruiped)  
deo Veneri Necalames V S L M  
L M  
deo Vetteri sancto Andiatis V S L M  
deo Vetteri V  
deo Viteri No[ ]  
deo Vitrini Meni(us) Dada V S L M  
deo Vitrini Milus et Aurides V S L M  
deo Vitrini Ne[ca]limes [p]ro v(oto) p(osuit) L M  
Veteribus [ ] (as restored by Richmond; Warburton's 
drawing shows only VETERES—the rest is left blank)  
dibus Vetteribus v(otum)  
dibus Viteribus Ivixa V S L M  
dibus Vitriribus Deccius V S L M (on right side probably 
a dolphin (?)—but a serpent according to Ross 1967: 314 fig.179; on 
left a boar)  
2068, somewhere on Hadrian's Wall: [dejo Veteri  
2069, somewhere on Hadrian's Wall: Hvitiribus votum  
Brit. 18 (1987) 368 no. 7, Arbeia (S. Shields): deo ansu (=?sancto?) Vitriri Cr[ ]  
RIB II.3, 2431.3, Thistleton Dyer, Rutland, silver votive plaque: de(o) Vete(ri) Mocux[s]oma 
pa(ngit) (cf. Ross 1967: 52 n.1 on the shrine in which this was 
found)  

Distribution:  
Carvoran: 13  
Vindolanda: 11  
Housesteads: 6  
Chesters: 4  
Chester-le-St: 3  
Corbridge: 3  
Great Chesters: 3  
Netherby: 3  
Carrawburgh: 2  
Ebchester: 2  
Lancaster: 2  
Benwell: 2  
+ one each at York, Catterick, Old Penrith, South Shields, Thistleton Dyer & 2 from 
somewhere along Hadrian's Wall (7) = 61.  
Thus 39 out of 61, 41 if one adds 2068-9, come from the area between the North Tyne and 
Carvoran. The heavy concentration in this zone may of course reflect no more than the pattern
of epigraphic finds generally: in particular, Carvoran and Vindolanda are 'over-represented' for various reasons.

**No dedicator named:** 973, 1087, 1139-40, 1335-6, 1456-7, 1549, 1604-5, 1728, 1797, 1803, 2068-9, Brit. 8 no. 22, Brit. 10 no. 8 (18)

**Single dedicator:** 660, 727, 925?, 969, 1046-8, 1088, 1103-4, 1455, 1458, 1548, 1603, 1606-7, 1698-9, Brit. 4 nos. 11-12, Brit. 6 nos. 6-7, 1729 (woman), 1793-6, 1801, 1804 (woman?), 1805, Brit. 18 no. 7, RIB II 3, 2431.3 (woman?), 2(?). unpub. Vind. (34) (?33)

**Two dedicators:** 1602, 1800 (2) (?unpub. Vindolanda no. 2) (2 or 3)

**Names of worshippers:** (R=Roman name, C=Celtic, G=German):

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admattus unpub. Vindo. no. 2</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Ael... 971</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Andatis 1796</td>
<td>C</td>
<td>female?</td>
</tr>
<tr>
<td>Aspanicis 1603</td>
<td>C?G?</td>
<td>female?</td>
</tr>
<tr>
<td>Aurelius Mucianus 727</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Aurelius Vict(or) 1606</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Aucides 1800</td>
<td>?Greek?</td>
<td></td>
</tr>
<tr>
<td>Cr... Brit. 18 no. 7</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Deccius 1805</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Duihno 1046</td>
<td>G</td>
<td></td>
</tr>
<tr>
<td>L... 1104</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Jul. Pastor imag. coh. II Delma. 1795</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Ivixa 1804</td>
<td>C?G?</td>
<td>female?</td>
</tr>
<tr>
<td>Longinus Brit. 4 no. 11</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Maxiums 1103</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Menius Daca 1799</td>
<td>(R)</td>
<td></td>
</tr>
<tr>
<td>Milus 1800</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Miti (?) 1141</td>
<td>C?</td>
<td></td>
</tr>
<tr>
<td>Mocux[s]oma RIB II.3, 2431.3</td>
<td>C?G?</td>
<td>female?</td>
</tr>
<tr>
<td>Necalames 1793-4, 1801</td>
<td>C?G?</td>
<td></td>
</tr>
<tr>
<td>No... 1798</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Nob...veagus unpubl. Vindolanda</td>
<td>C?G?</td>
<td></td>
</tr>
<tr>
<td>Primulus 660</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Regulus 1602</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Romana 1729</td>
<td>R</td>
<td>female</td>
</tr>
<tr>
<td>Senaculus 1699</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Senilis Brit. 4 no. 12</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Suadins 1458</td>
<td>C?G?</td>
<td></td>
</tr>
<tr>
<td>Superstes 1602</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Tertulus 1455</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Uccus 1548</td>
<td>G</td>
<td></td>
</tr>
<tr>
<td>Unthau[s] 1088</td>
<td>G</td>
<td></td>
</tr>
<tr>
<td>Viasudri[s] (?) 1048</td>
<td>C?G?</td>
<td>female?</td>
</tr>
<tr>
<td>Vitalis 1047</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>...i.iiu... 1607</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>[ ]tinf ]s 1698</td>
<td>?</td>
<td></td>
</tr>
</tbody>
</table>

The remainder uncertain.
Only in two cases is rank given: 1088 Unthau[s] pr(inceps?); 1795 Iul. Pastor imag. coh. II Delma. Five, Ael. ..., Aurelius Muicium, Aure. Victor, Iul. Pastor and Menius Dada, have names indicating or implying Roman citizenship.

Appendix

It may be useful to offer a partial translation of the article by F. Heichelheim 1961, the fullest discussion of this deity. (His numbering of the inscriptions has been emended to that of RIB; some passages are just summarised, and many references omitted.)

Vitiris (Hvitris, Hveteris, Vheteris, Votris, Votaris, Vetris, Vetiris, Hvetris, Hveteris, Vitris, Viteris, Vitira, Vitera, Vetera, Veterea). [some of these spellings need correcting in the light of RIB.]

A unique sort of Numen worshipped on Hadrian's Wall in Britain on almost 50 dedications, which can be invoked in the singular and the plural, and in both cases masculine and feminine, on one occasion significantly even as deo Veteribus (1604). The spelling of the name, which according to the principle of difficilior lectio may probably have been in its most unRoman form Hvitir, created great difficulties for the stone-carvers, as did the number and gender of the deity. The initial consonant, of which the pronunciation must have varied between hv, vh and v, and the exact form of the vowel(s), which vary between i, e and o, could clearly not be exactly expressed in the Latin alphabet.

Among animals associated with the deity on the stones we find a wild boar (1103, 1895), a snake or dragon (1895), a toad or bird (1103) and perhaps a rabbit (impossible in Roman times!) or hare (1336 [in RIB corrected to 'quadrued', rather than hare etc.]). The Numen is a saviour and lifesaver (727), is called sanctus (727, 1335, 1453, 1795) and was worshipped with blood and bloodless sacrifices (1335). The star sign on 1730 could imply an oracular deity.

[List of 48 inscriptions – his no. 48 is to be deleted = RIB 881, where Viti Vaci... seems to be taken as the name(s) of the dedicator of this altar to the mariibus Par(cis)?]

In the above texts we have clearly a Numen that was in some way an Old European one, which in prehistoric times must have been sexless. Only under Celtic, Germanic or Greco-Roman influence will it gradually have been specified as male/female and singular/plural; however, this process was not brought to a definite conclusion during the centuries in which provincial civilisation developed in Roman Britain. Originally the deity may have been a survival, strongly influenced by later influences, of a pre-Indo-European belief in a chief deity from the later palaeolithic period [refs. to German studies on stone age religion]

[Parallels for male/female deities, e.g. in Britain Brigantia/Brigantia, Hebrew El/Ilalat, and plural Elohim & Eloah – feminine Alath, etc.]

The initial consonants hv or vh do not occur in Old Celtic and rule out as completely impossible not only any Celtic interpretation of the name but also a number of other explanations that one might otherwise take seriously and which were put forward earlier. It is clear from the attested variations in spelling that an attempt was made in the Roman imperial period to identify the name, by interpretatio Romana, with the Latin word vetus, 'old'. [H. argues that this was not because it was a reaction to Christianity, since the evidence for it is earlier than the spread of Christianity.] We can infer that the provincials some generations after the conquest of northern England gained the impression that they had come across a very old-fashioned and ancient cult. This development into a partial romanisation is, to judge from the evidence available, one that took place before late antiquity.

The initial consonants hv and vh eliminate, further, any etymological connection between the name of this deity and the Germanic water (and Celtic wadron), 'water', or with the Indo-European vetru, 'young animal', such as has been plausibly supposed for the dedicator's name in 1048 (Viasadris) and for the Matres Veteraneae. The snake on 1805 cannot be interpreted on the basis of some supposedly recognisable similarity of sound to a Celtic or Germanic equivalent of the primeval Vira-snake in the Veda, which the god Indra fought fiercely. It is also etymologically impossible to think of any analogy with the ancient Veda god Tvaster, even though he had a son, Vishra-rupa, that 'took every shape', a bisexual being with three heads.

One previously extraordinarily popular and still sometimes discussed hypothetical Germanic origin for Hvitrir must also be rejected, for similar reasons. In the comparatively late period of the Skaldic we find for Odin the North German epithet viðhrir, in the genitive viðhris, i.e. the 'Weather God'. [H. cites inter al. for this view F. Haverfield, ArchJ 47 (1890) 261f.; R.G.Collingwood, AA4 2 (1926) 72; E.Birley, AA8 9 (1932) 233.] According to a well-known theory, Wodan in this period was often not a uniform deity but an individual spirit of the dead, either male or female, or, instead of this, the collective representative of the army of the dead, of both sexes and and very numerous, the 'raging host' of Germanic saga. All this could fit the evidence of the inscriptions very well. But the etymology is once again decisive. The v at the beginning of viðhrir cannot have developed from the
hv of Hvitr. Likewise, it is difficult to derive the th (Þ) in the middle of this North Germanic god’s epithet from the t of Hvitr.

As far as I can see, only three etymological derivations of the name which accord with the evidence of the inscriptions are possible and worthy of consideration:
1. One could recognize in Hvitr a known pre-Indo-European word for ‘foul’, attested in Etruscan Pud and Pelasgian and Attic hip-tonta. If that were right, Hv. would be an ancient European and pre-Indo-European ‘Fearsome deity’, i.e. by primitive man understood as ‘universal god’. One might compare Siva in the Veda and pre-Veda Indian tradition, a deity who not only embraced and incorporated many personalities but also both sexes in a single entity. The pre-Indo-European etymology for Hv. and the unique evidence of the inscriptions would thus complement one another extremely well. It is worth noting here, too, that the Indian Siva is in fact pre-Aryan and the woman the deity is portrayed in the Indus valley civilization of the Bronze Age shows remarkable affinities to the portrayal on the Gundestrup bowl.
2. To be sure, a Germanic interpretation of Hv. would be preferable, especially as Germanic auxiliary units are attested on Hadrian’s Wall, not least at Castlesteads, and the singular variation between vh-, hv- and v- at the beginning of the name exactly corresponds with the sound-change in Germanic in these centuries, during which the differentiation from Old German hv begins, which was to develop essentially into High German v and English wh. The evidence of the inscriptions permits one to think of one of several Germanic hermaproditic deities. [He refers to various German articles.]

The Hvitr in our inscriptions can without difficulty be understood as Old Nordic hvítr, ‘white, shining’. This epithet is, to be sure, frequently applied in the Edda only to Heimdall, Baldr and to goddesses, all deities which cannot be interpreted as bisexual. But in a debated passage in the Edda (Lokasenna 20,3) the epithet is also apparently applied to Loki, who was further in a position to give the first human white skin.

3. If Hv. was a Germanic deity, Loki is in my opinion the likeliest identification, a god who through the appearance of his counterpart and opponent Baldr is briefly described, indirectly, as both early and old. [Various references are given.] Loki is apparently a bisexual deity in Germanic mythology. He changes himself into a mare and as such gives birth to Wotan’s eight-legged stallion Sleipnir, at other times bears further demonic offspring, and is, in general, for a good part of his existence, female. The snake on 1895 could refer to the snake’s daughter, the snake of Mjöllnir. If a bird is shown on 1103, one could think of the hawk into which Loki often changed himself. Further, a toad? (1103), wild boar (1193, 1805), fiery star (1730), and sacrifice with fire (1335) would fit this Germanic deity extremely well. Besides which, Vóitr in 1458 can be explained as a partially mistaken adaptation of the vowels to Loki in both syllables.

Decisive is here, in my view, the fact that Loki in the Edda and later in Old Nordic literature has a main epithet, one which is often used for Oran, the hvetir-ung, ‘son of a giantess’, and derives from the word hvethra, ‘giantess’. [He gives various references.] In this epithet we have in my view an etymological connection between Hv. and Loki which is even more convincing than hvítr. To be sure, Odin also occasionally has the epithet ‘son of a giantess’, but this is seldom and by no means typical; the chief god of the Germans thus cannot be totally excluded as the origin of Hv., but this is difficult to take seriously, since one would in that case expect some reference to Mercury, who was regularly identified with Odin in the interpretatio Romana.

It would not be surprising if in the Hadrian’s Wall zone, which has produced so many pieces of early evidence for Germanic cults, especially for Ziu (Mars Thingus), Donar (Tanarus) and various female deities, Loki, too, in his pre-Edda form, were to pop up out of the shadows, Loki, the many-faced fire god of the Germans, for whom the epithets hvetir-ung and hvítr, whichever one is preferred, fit so well—since he was in a position to symbolise, as ‘gigantic’ and ‘shining’, not only the demonic power of volcanic eruptions and the forest fires but also the individual masculine role of smith, and, further, the power of the hearth, generally treated as female, all of which are found among the ancient peoples of Europe and the Indo-European peoples of Central and Northern Europe.

One might note in connection with this notion of Hvitr as a fire-god the altar to Vulcan dedicated by the vicani Vindolandenses, RIB 1700. Further, it is tempting to associate the meaning of hvítr in Old Norse as ‘white, shining’ with Vindo- in the name Vindolanda, which also means this in Celtic languages. However, Michael P. Speidel, in the Eric Birley lecture at Vindolanda in May 2002, cited Heinrich Beck (pers. comm.) for a different Germanic interpretation of the name, related to the verb hveta- (in Old Norse hvátta and Old High German wasan), meaning ‘thrust’, comparing the English ‘whet’, i.e. ‘sharpen’. Hvitr would then be the god of the spear- or sword-thrust.
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A third altar, 8836 context 02 7A, 80mm high, 130mm wide, broken off a little above the
base, was found near the other two and may well have been dedicated to the same deity. But
only the closing formula VSLM is preserved, inscribed on the base (cf. for VSLM in this
position RIB 1455, Chesters).

Fig. 46

In addition to the three inscribed altars, two more altars were found, but lacking inscriptions.
The larger of the two, illustrated below, was also found in the Severan well, close to no. 1
above, and the other, one of the smallest so far found at Vindolanda, lay amongst rubble
outside the south-east corner of Stone Fort 2.

Fig. 47  8633: context 02 22A
235mm high, 146mm
wide.

Fig. 48  8867: context 02 45A.
132mm high, 76mm

83
The quern 8383, period IV  Context V01 37A
The inscription, deeply incised, appears to read:

[ ]IDIII/1

It may be suggested that this is the name e.g. of a centurion or—given that it comes from a period IV context, in which the presence of the equites Varduli seems probable—a decurion, in the genitive, originally preceded by the sign, \textit{\textdagger}=centuria, or by D=decuria, and one more letter, both destroyed by the repair at this point. For short names in -dias, cf. Cidius, Didius (very common), Fidius, Lidius, Titius, Vitius. Cidius, found once (CIL XIII 6001, Upper Germany), might suit the traces best. But what follows the suggested [ ]IDIII could well have been CCI or SSI or even SCI, for the traces shown above as // in fact curve markedly (cf. drawing). There are further possible interpretations, if only the top half of the inscription is preserved, with the bottoms of the letters having been on the lower half of the handmill. In that case, what is read as D could have been a P; B and R seem to be excluded, unless the lower half began well below the break. This would give the following possible readings:

[---]IDIICCI, [---]IDIISSI, [---]PIPICCI, [---]PIIISII, [---]IDIISCI, [---]PIIISCIC.

This would result in a name ending either -idecci, -idesci, -idesssi or -ipecci, -ipesci, -ipessi in the genitive, on the assumption that the II represents an E; but the first I could have been preceded by another, giving -edecci, etc. Some names ending -eccus, -escus and -essus or -eccius, -escius and -essius are found, but none match the above: the attested Deccus, Deccius, Peccius and Desserus are too short, Perpessus too long. Some name which began Ed- or Ep- and ended -eccus or -eccius seems plausible. Any restoration has to remain tentative, but one might suggest the following: [D ]IDIICCI or [D I]PIPICCI, i.e. [d(ecuria)] Edecci or [d(ecuria)] Epecci, ‘decuria of Edecc(i)us or Epecc(i)us’.

It may be noted that a name beginning Ep- ought to be connected with the Celtic \textit{epos}=horse, cf. the goddess Epona, protectress of horses.
The writing tablet inventory, with preliminary report on the ink scripts, by Anthony and Robin Birley

The ground conditions in the pre-Hadrianic levels examined in 2001 and 2002 were not as sympathetic for the survival of writing tablets as they had been in many parts of the areas examined in 1973-1994. There was less laminated organic flooring in all floor levels, and much of the important period IV structure had been badly affected by the fire which destroyed it – and wood ash is probably the most damaging of all material for ink tablets. Even in the case of confronting sheets, the damp ash had usually penetrated between the leaves, with dire consequences for the scripts. However, the conditions were rather better in the sealed period I ditches, although the organic material there was more damp than usual. There were no major concentrations of tablets in any of the areas examined during 2001/2002, but small fragments were scattered on the floors, representing torn up scraps of old correspondence and documents.

It takes nine weeks for the tablets to complete their conservation in the laboratory, and a further week or two for the final cleaning and assembly, to make them ready for infra-red or other photography. But the number of legible ink scripts was not large, and it was felt to be highly desirable to be able to give a preliminary indication of their contents in the Report on the excavations in which they were found. The texts and translations that follow will, hopefully, be improved by further consideration from other specialists, who can at least study the photographs in this volume. The Trust has been most fortunate to secure once more the services of Alison Rutherford for that photography: she has now dealt with every ink text found since the discovery of the first in 1973, and those that have the task of attempting readings owe a great deal to her skills and patience. Inevitably, work on the stylus tablets will take much longer, but it should be emphasised that there appears to be some promising texts amongst them, although few bear any traces of an address on the reverse. It should be noted that the illustrations of stylus tablets have been obtained by scanning them directly onto the computer disc.

All the tablets have been conserved by Patricia Birley in the Vindolanda laboratory at Chesterholm Museum, and the ink tablets with traces of writing have been photographed there. They currently remain in the Museum while study of the texts continues, and in due course they will join the rest of the Vindolanda tablet collection, in the British Museum.

In the inventory that follows, the tablet number (with designation T 01 or T02 to indicate the year of discovery, and A for the general excavation area), is followed by the period of occupation in which it lay. If the tablet has been subjected to infra-red photography, the number of the negative is recorded. Where the tablet number is in bold type, a photograph and discussion of the text of ink tablet will be found in the preliminary report that follows: but unless there is an ink inscription on the rim, the stylus examples are not analysed. In some cases it will be observed that a wooden strip was found not to be a tablet, either after cleaning in the laboratory or on inspection after conservation. That is always the situation, as the excavators took the greatest care not to remove any of the encrusting matter on site, and it was not always easy to be absolutely certain whether or not a thin sliver of wood was tablet material. In the case of the ink leaf tablets, it should be emphasised that in only one (T02 13A) was ink writing visible to the naked eye in the excavation trenches, although in a few (such as T01 34 and 39, and T02 16A, 19A and 25A) the presence of V notches and/or tie-holes made identification certain. To complicate matters further, the tablets made of oak did not exhibit the same distinctive oily sheen to be seen on birch and alder examples, and the presence of considerable quantities of carpenters’ off-cuts and planings added to the difficulties.
The inventory:
Note that the inventory numbers for 2001 are prefixed T01, followed by the identification number, and the period of occupation.

T01 1A  IV. Two joining fragments of a thin mini-stylus tablet, heavily burned, and with faint traces of ink script on one side. 110 x 46 mm, including the rims. VA 0294-16.
T01 2A  Not a tablet.
T01 3A  III. A single thin strip of an ink tablet, with no trace of script. 93 x 9 mm.
T01 4A  III. Two joining fragments of an ink tablet, with no trace of a script. 89 x 21 (max) mm.
T01 5A  III. Three non-joining fragments of an ink tablet, with no trace of script. The largest fragment has a half-moon notch. The largest fragment is 98 x 28 mm.
T01 6A  III. A small fragment of an ink tablet, with traces of five lines of text, written across the grain, and therefore likely to be a part of an account. 44 x 18 mm. VA 0294-28.
T01 7A  III. Two joining fragments from the corner of a single sided stylus tablet, with some text and part of an address visible. No trace of ink script on the rim. 141 wide x 37 mm max wide, and 4 mm thick on the writing surface.
T01 8A  VIA. A thin strip of an ink tablet, with no trace of a script. 96 x 7 mm
T01 9A  II/III. Three fragments of an ink tablet, probably joining to make 93 x 52 mm, with very faint traces of text. VA 0294-17.
T01 10A  II/III. A fragment of a burned ink tablet, with traces of text on one side. 83 x 13 mm. VA 0294-14.
T01 10iA  II/III. Three joining fragments of an ink tablet, without traces of script. 81 x 17 mm. VA 0294-14.
T01 11A  II/III. A slice across the centre of a single-sided stylus tablet, with one rim surviving. Minor traces of text and address. 121 x 33 mm and only 3 mm thick (writing surface).
T01 12A  II/III. Half a sheet of a double-sided stylus tablet, with sealing strip and with an ink text on the rim. Good traces of script on both sides, and two tie holes. 135 x 55 mm x 4 mm thick (writing surface). VA 0294-15 (M) for the rim.
T01 13A  Not a writing tablet.
T01 14A  II. Two small non-joining strips of a stylus tablet, with minimal traces of text. Largest fragment is 106 x 12 m and 4 mm thick, and burnt.
T01 15A  I. Three joining fragments from the centre of an ink tablet, with two V notches and two tie holes. 105 x 39 mm. VA 0294-8 and 9 (for the reverse), and VA 0294-15.
T01 16A  I. A small fragment of a thick ink tablet, without trace of a script. 47 x 13 mm.
T01 17A  I. A fragment of a double-sided stylus tablet. Clear text on both sides. 51 x 26 mm. Rim 7 mm thick and 8 mm wide.
T01 18A  I. Three joining fragments of a very thin ink tablet, with minimal ink traces. 47 x 26 mm. VA 0294-27.
T01 19A  I. Fragment of an ink tablet, with faded script. 53 x 37 mm. VA 0294-22.
T01 20A  I. Fragment from the centre of a single-sided stylus tablet, with minimal traces of script. 148 x 30 mm, and rim 6 mm thick.
T01 21A  I. Possibly a fragment of a stylus tablet, without trace of script. 112 x 7 mm.
T01 22A  I. Two joining fragments of an ink tablet, without trace of script. 100 x 28 mm.
T01 23A  I. Two joining fragments of an ink tablet, without trace of script. 73 x 30 mm.
T01 24A  VIA. Small fragment of a single-sided stylus tablet, with very thin rim. Traces of script on both sides. 65 x 21 mm, and rim only 3 mm wide and 5 mm thick.
T01 25A  IV. A single sheet of an ink tablet, of irregular thickness, but with traces of V notches. Possibly faint script on one side. 70 x 43 mm.
T01 26A  IV. Two joining fragments of an ink tablet, with faint traces of one line of text on one side. 83 x 13 mm. VA 0294-18.
T01 26iA  IV. One fragment of an ink tablet, without text. 78 x 20 mm.
T01 27A  IV. A fragment from the corner of a single-sided stylus tablet, with minor traces of script on one side. 93 x 33 mm. There are four score marks on the rim.
T01 28A. IV. Square fragment from the centre of a single-sided stylus tablet, missing the rim. Traces of text on both sides. 51 x 36 mm, and 4.5 mm thick.

T01 29A. IV. Small fragment from the centre of a stylus tablet, with deep score marks on one side. 39 x 18 mm.

T01 30A. IV. Five joining fragments from a thin double-sided stylus tablet, with traces of script. 51 x 53 mm, and 3.5 mm thick.

T01 31A. IV. Three small fragments of an ink tablet, with part of a V notch surviving, but no trace of script. 47 x 31 mm (largest piece).

T01 32A. IV. A large part of a single-sided stylus tablet, with seven lines of clear script, and signs suggesting that it was an account. 142 x 69 (max) mm, with the rim 8 mm thick. No address on the reverse, or ink text on the rim.

T01 33A. II/III. 90 x 45 mm. VA 0294-6 and 7 (for the reverse). Half of a ink tablet written along the grain, in a neat, legible hand.

T01 34A. IV. Ink tablet, 81 x 37 mm. VA 0294-10 and 11 (for the reverse). The tablet has been made of oak.

T01 35A, 36A and 37A Not writing tablets.

T01 38A. IV. Thin strip of an ink tablet, with faint traces of script on one side. 87 x 19 mm. VA 0294-19.

T01 39A. IV. Almost complete confronting ink tablet, with significant account. 210 x 80 mm. VA 0294-1 and 2.

T01 40A. II/III. Small fragment of an ink tablet, with two or three lines of faded text visible. 59 x 19 mm. VA 0294-25

T01 41A. Not a tablet.

T01 42A. I. A strip from the centre of an ink tablet, with writing along the grain, and the greater part of a tie-hole surviving. 108 x 13 mm. VA 0294-12.

T01 42iiA. I. A small fragment of an ink tablet, with six ink letters on one side. 30 x 6 mm. VA 0294-12.

T01 42iiA. I. Fragment of an ink tablet, with ink script in a hand different to the two above, and with traces of an address on the reverse. 41 x 16 mm. VA 0294-12 and 13 (reverse).

T01 42ivA. I. A blank ink tablet, 50 x 14 mm.

T01 43A. I. 9 fragments of a thin ink tablet, of which five join to make 80 x 22 mm. No trace of a script.

T01 44A. I. Small fragment of an ink tablet, with no trace of script. 43 x 17 mm.

T01 45A and 46A Not tablets.

T01 47A. I. An unusually thick ink tablet – just over 2 mm. 176 x 82 mm. VA 0294-3 and 4, with 5 (reverse).

T01 48A. Not a tablet.

T01 49A. VIA. A fragment of a double-sided stylus tablet, with script visible on both sides. 86 x 30 mm, and with rim 8 mm thick.

T01 50A. VIA. Small fragment of an ink tablet, from the centre of a sheet, with part of a V notch surviving. A single word has been written across the grain. 43 x 10 mm.

T01 51A. I. Small fragment of an ink tablet, with three or four lines of abraded text on one side, along the grain. 51 x 28 mm.

T01 52A. Not a tablet.

T01 53A. I. Four joining pieces of a complete one sided stylus tablet, but without traces of script. Notches in the centre of top and bottom rim, and with two tie-holes at one end. 143 x 113 mm. Unique small rectangular panel inset on one corner of the reverse, 58 x 20 mm, presumably for seal or address.

T01 54A. I. Rectangular slice of an ink tablet, with no trace of text. 88 x 25 mm.

T01 55A. I. Two non-joining fragments, 5 x 28 and 42 x 10 mm, from a letter, written across the grain: the smaller fragment has part of two lines, the larger rather more from six lines of text on one side and part of an address on the reverse. 5.0 x 28 and 42 x 10 mm. VA 0294-23 and 24 (reverse).

T01 56A. I. Three joining fragments, making half a sheet, of an ink tablet, with V notch and two tie holes, in a wood with a strong grain (similar to that of the Strength Report). No
trace of script on either side. 113 x 36 mm, and 1.5 mm thick. Dr Jon Hather has confirmed that this tablet was made of oak, like several from the period a ditch found in the 1980’s.

T01 57A. Not a tablet.

T01 58A. III. Four joining fragments of a single-sided stylus tablet, making some two thirds of the sheet. Clear traces of script. 144 x 96 mm, and 4mm thick (writing surface). The reverse is blank.

T01 59A. Not a writing tablet.

**WRITING TABLETS 2002** All the following tablets are prefixed **T02**.

**T02 1A- VIB** 2, non-joining frags of a single sided stylus tablet, with traces of address on both. 85 x 23mm; ii) 76 x 22 mm.

**T02 2A and 2B** not tablets

**T02 3A - VIB** 5 small frags of a single sided stylus tablet – largest 76 x 17mm.

**T02 4A** Not a tablet

**T02 5A - IV** Frag single-sided stylus tablet, with part side rim. 89 x 18mm.

**T02 6A - IV** 5 fragments, not all joining, of a double sided stylus tablet (on reverse, the remains of a sealing strip in the centre), with good script. Largest frag 119 x 35mm.

**T02 7A - II/III** Frag double sided stylus tablet, 59 x 18mm.

**T02 8A** Not a tablet.

**T02 9A - II/III** 2 frags ink tablet, largest 51 x 9mm. Faint traces of script.

**T02 10A – 12A** Not tablets.

**T02 13A – II/III** i. Three frags of a very thin and pale ink tablet. Two largest frags join to make 77 x 28mm – but note that there is normal script on the reverse.

ii. Two frags of an oak tablet – but no script. Largest frag 44 x 27mm.

**T02 14A** Not a tablet

**T02 15A – II/III** Ink tablet with faint address script one side. 39 x 29mm.

**T02 16A – II/III** VK/0295-16 Small frag ink tablet, with remains of V notch and one tie hole – script along the grain – 67 x 20mm. Two columns of writing -4 lines.

**T02 17A – II/III** Frag ink tablet, 40 x 22mm, without trace of script.

**T02 18A** Not a tablet.

**T02 19A – II/III** Half of a sheet of an ink tablet, with V notch and tie hole, but no trace of script at all on either side. 82 x 35 mm

**T02 20A – II/III** VK/0295 – 20 Four joining frags of an ink tablet, with very faint traces of script – largest frag 36 x 16mm.

**T02 21A** Not a tablet.

**T02 22A – II/III** Half a sheet of a single-sided stylus tablet – 139 (missing one end rim) x 51mm

– plenty of script on both sides. Note that the reverse has had both an address script and normal text.

**T02 23A - IV** 3 joining frags of ink tablet, 105 x 18mm, without trace of script.

**T02 24A – II/III** UV/0295 – 25 Thin sliver from the centre of an ink tablet, with traces of both tie holes. 107 x 14mm. Three or four words of one line visible.

**T02 25A – II/III** VK/0295-1 and 2(R) Almost complete sheet of an oak tablet, in four pieces, with up to 16 lines of text across the grain. 113 x 93mm.

**T02 26A and 27A** Not tablets

**T02 28A** II/III Frag ink tablet, with part of V-notch. 92 x 22 mm, no writing.

**T02 29A – 31A** Not tablets

**T02 32A – II/III** VK/0295 – 15 3 joining frags of ink tablet, 90 x 30mm. No trace script.

**T02 33A – II/III** VK/0295-17 and 18 (R) Ink tablet, 63 x 26mm, with address script one side and 4 lines along grain on the other.

**T02 34A- II/III** i. VK/0295 – 5 and 6 (R) Six small fragments of ink tablets, three of which have writing on the reverse. ii. Small fragment of a stylus tablet.

**T02 35A - IV** Half sheet of a single-sided stylus tablet – 137 x 65mm – with good script on one side and a single line of normal script on the reverse.

**T02 36A** Not a tablet

**T02 37A- IV** 5 small fragments of a double-sided stylus tablet.
T02 38A - II/III VK/0295-3 and 4 (R) 6 small fragments of ink tablets, most with scripts on both sides (not address scripts). Largest 60 x 14mm Two separate tablets.

T02 39A - 40A Not tablets
T02 41A - II/III Thin strip ink tablet, with script across grain on one side. 70 x 6mm.
T02 42A Not a tablet
T02 43A - II/III Frag from centre of a stylus tablet, 89 x 13mm.
T02 44A - II/III VK/0295-9 and 10 (R) Two fragments, probably from the same tablet, with two lines of writing on each – 82 x 18mm and 81 x 14mm. No trace of script on R.
T02 45A- II/III VK/0295-7 3 joining frags and two others of an ink tablet, with script across the grain. 69 x 19mm
T02 46A- II/III Small frag from centre of stylus tablet, 37 x 13mm.
T02 47A- II/III VK/0295 – 8 4 frags that probably join: Largest 78 x 21mm, but with only the faintest traces of three lines of ink writing.
T02 48A- II/III 4 frags of an ink tablet, largest 43 x 13mm, with very faint traces of script.
T02 49A - II/III 11 small frags ink tablet, largest 50 x 14mm.
T02 50A - II/III Frag single-sided stylus tablet, with part rim. 88 x 15mm.
T02 51A - II/III Half of stylus tablet, 146 x 50mm, single sided and probably multiple script. Possibly scratched inscription on rim.
T02 52A - II/III VK/0295 – 21 Frag ink tablet, 35 x 30mm, address script one side.
T02 53A - IV Half a sheet of a single sided stylus tablet, without trace of ink on the rim. 146 x 46mm. Two lines of address on the reverse.
T02 54A Not a tablet
T02 55A - VIB i) Frag of a very battered and worm-eaten single sided stylus tablet, 80 x 25.
ii) Frag double-sided stylus tablet with part of sealing strip. 83 x 21mm.
T02 56A - VIA 3 joining frags of a small and very thin single-sided stylus tablet, 67 x 40mm.
T02 57A - VLA UV/0295 – 13A 14 frags of a very thin ink tablet, of which few can be joined. A document with writing across the grain. Largest frag 40 x 22mm, with parts of 6 lines of text.
T02 58A – VIA Not a tablet.

As far as it can be determined at the moment, there were 62 ink tablets and 35 stylus tablets, broken down by periods as:

- Period I (ditches): 17 ink and 5 stylus
- Periods II and III: 32 ink and 12 stylus
- Period IV: 9 ink and 11 stylus
- Period V: 1 ink
- Period VI: no tablets; VIA 3 ink & 3 stylus; VIB 4 stylus

Report on the writing-tablets

This report is largely confined to those tablets of which some reading is possible, naturally at this stage provisional; and only brief commentary is added. With some exceptions—Inv. 01-33, parts of 01-39 and the unfortunately fragmentary 02-13A and 02-38A—the preservation of the ink on most of the new finds was extremely poor. Readings of some are therefore not even attempted, particularly where only a few isolated letters survive; but photographs are supplied. 02-38A, with a new Virgil quotation, is unquestionably the most important single find. It is hoped that the provisional readings that are here offered, together with the photographs, will enable those interested to gain a clearer impression of these tablets. Reference is made repeatedly to TV II and in a few places to TV III (which it is hoped will appear in 2003). Uncertain or only partly preserved letters are underlined (the equivalent of dotted letters in TV II); estimated but illegible letters are shown as - -.
The tablets from 2001

T 01-12 Period II or III, half of a sheet of a double-sided stylus tablet, with sealing-strip and with an ink text on the rim. Good traces of script on both sides, and two tie-holes. 135 x 55 mm, 4 mm thick.

Ink rim inscription:
- XXVILSTI*NETM - IR - *E - (followed by abraded traces)

Commentary The XX (preceded by a horizontal stroke) at the beginning, considerably larger than the other letters, might perhaps = 20. Given that what follows is VI, one might suppose that the number is XXVI, 26, although the VI is smaller than the XX. But no obvious sense can be made of what follows, whether one takes VI with XX or not. VII seems clear, then a slightly uncertain S; a G might also be possible; IN is clear enough, but the letter read as E following this really only has two horizontal strokes above each other and the next letter is also a little uncertain as T; what follows could be MVR rather than M-IR; and the last letter, read as a possible E, is of course uncertain. Names beginning Vil- are found, cf. Lőrincz 2002: 170, but nothing resembling what is read above. If the reading is anywhere near correct, one may perhaps wonder if abbreviations of some kind are in question here.

T 01-15 From one of the newly found outer Period I ditches, 3 joining fragments from the centre to right hand side of an ink tablet, with two V notches and two tie-holes. More than 15 lines of text had been written across the grain, on one side only, 105 x 39 mm. Several pieces are broken off from the right-hand side. On the left there is a clean break, and what is lost on the left amounts to between 6 and 10 letters from the beginning of each line. Part
of another strength report, written evidently by the same scribe as TV II 154, and showing the Tungrrians again, with the same prefect and with the same number of singulares, 46, absent, but not, apparently, the 336 men away at Coria.

Front
1 [---]k lamuarias(?) -
2 [coh i Tungrorum cui praest]
3 [Julius Ver]ecundus praef
4 [ ] in is 7 (=centuriones) vi
5 [ex eis absen]tes
6 [?singulares le]g xvi -
7 [?offic]io ------
8 [?Londinio] 7 i
9 [ ] --
10 [ ] - i
11 [ ] -- ii (?7 i)
12 [ ] ----a lvii 7 i
13 [ ] -----
14 [ ] ------
15 [ ] xxxi
16 [?summa eor]rum ----
17 [ ] xxx[ ]
18 [ ] --[ ]

Fig. 51

Back:
There are certainly traces, which show that the back was also used, but no reading seemed worth attempting here.

Commentary Enough is preserved to show that this is another strength report of cohors I Tungrorum, almost certainly written by the same scribe as the previously published, much more complete example, TV II 154, found in the innermost Period I ditch. The fact that the new report was found in another Period I ditch is helpful confirmation of the date. Cf. A.R. Birley 2002: 169f. n. 9, against TV II p. 91 (where Period II is preferred).

In line 1, the date seems to be one in the second half of December, since the slanting stroke at the very left ought to belong to k, i.e. k(alendas), which, to judge from the estimated space available, would have been preceded by a numeral. The letters ia that follow are fairly clear, but the rest is largely guessed. The ink traces suggest that the rest of line 1 would only have had room for an abbreviated term such as n p = n(umerus) p(urus), as read in TV II 154, line 1. One may take this as meaning e.g. ‘complete strength’. The title of the cohort will then have begun in line 2, allowing one to supply the missing part: only orum is preserved, but the restoration [coh i Tungrorum] is justified by what follows. The rest of line 2 has a very clear c and faint traces which suit the expected cui praest. Line 3 may be restored as [Julius Ver]ecundus praef: ecundus praef is clear, the last two letters are very faint. Line 4 will have begun with the figure for the total number of men, which in the other report was dcclii, 752. The space available here suggests that the number may have been different on this occasion, requiring a few more letters to write, e.g. dcxxiviiiii, 749. What actually survives of this line, in is 7 vi, ‘among them six centurions’, is unambiguous, exactly matching TV II 154 line 3. This suggests that one
may restore in the next line *ex eis absen*îtes, even though only the right-hand tip of the *t* is preserved before *es*. Below this, at the left hand edge only traces of one or two letters respectively are preserved from lines 6 and 7, but to the right, in larger lettering—which means that, while it is written alongside line 6, it almost reaches down to line 7—the numeral XL is very clear; and the traces after this are compatible with VI, giving the same number of men as in TV II 154 line 5, which reads *singulares leg XLVI*: '46 guards of the legate'. It may be therefore that one can restore *singulares le* [g here in line 6, although the letter read as *g* is not quite like the equivalent *g* in TV II 154. A further problem is that unlike in 154, line 5, there seem to be traces of lettering here after the numeral. No reading is attempted above. In line 7 the reading *io* looks possible; but whether this should be expanded to *offic*io as in 154 line 6 or *Londin*io as there in line 9 must remain undecided. But in favour of *offic*io in line 7 here is the reading *7 i* in line 8, cf. 154 line 9, with 1 centurion at London: in other words, in this new example *Londinio* may have come in line 8. At any rate, there is no trace here of the entry in TV II 154, lines 7-8, the 337 men and one centurion *Coria*, at Coria. Either the men were back or they had not yet been sent away. Not much else can usefully be said about the remainder. Even the numerals in lines 9ff. are uncertain or quite illegible. In line 16 the expression restored here is based on that in TV II 154, line 25.

A final observation: although so little survives, it seems possible that the same scribe wrote this report as was responsible for TV II 154.

**T 01-19** Period I ditch. Fragment of an ink tablet, with some 10 or 11 lines written across the grain on one side, clearly the lower half of an account, although the ink is badly preserved and not much is legible. A little may be missing from the right hand edge, and from the left hand side at the bottom. 53 x 26 mm.

```
1      ------- --/
2                   \- 
3       clar - d---vrt/  f
4       c - ad -        
5       --es fa         -
       space of one line
6       g - a - i part-s-- 
7       sip - ---
8       s - l - as u - s- 
9       ad n- - - - -listi
10      caligas
11      ------- (it is uncertain whether anything was really written here)
```

Commentary A possible interpretation is that some lines name soldiers, while the remainder could refer to the items for which they were charged. At present only *f* (= *sextarius*) at the end of line 3, *ad* in line 9 (and perhaps in line 4) and *caligas* (?), boots, in line 10 seem to make sense, but the latter is difficult, since the *i* is very faint and there is hardly space for it, while the gap between *g* and *a* is rather large.

**T 01-32** Period IV Stylus tablet with relatively clear script. 142 x 69mm, and a rim 8mm thick. No address script on the reverse, and no ink on the rim.
T 01-33 Period II or III level, half of a tablet written along the grain, in a neat, legible hand, 90 x 45 mm. It is clearly—from its content—the end of sheet 2 of a letter, with an unusual closing greeting and there is indeed part of an address on the back, but here the ink is very faded.
tails of a few letters

tum subscriptor eris usque

quo res exegerit bene

vale frater karissime tuo

Secundo

'[...if or when] you have signed [the document?], to the extent to which the matter required.

Farewell, brother, most dear to your Secundus'.

Commentary  The reading seems almost certain, but one may note the following points. The first word could theoretically be cum rather than tum, but the first letter looks much more like T than C. In that case it would most probably be the end of a substantive beginning in the previous line, rather than tum = 'at that time'. (Cum would have given excellent sense with the perfect subjunctive which follows.) One can probably understand the verb as governed by e.g. si or cum in the line above. In line 3 tuo could be read as tui, but the last letter is surely a rather flattened O; Secundo looks a little like secundo and the d is also slightly odd. There are no spaces between words apart from a slight one between exegerit and bene in line 2; and no punctuation points; the second I in karissime is an I longa.

The first six words are presumably the end of a sentence referring to some business or property transaction requiring the recipient's signature. usque quo in this sense, 'to what extent', seems not to be found in classical Latin. For the equivalent quo usque in a similar sense cf. Digest 20.3.1: facti tamen est quaestio, quo usque eis permissum videatur peculum administrare, 'it is however a question of fact to what extent it appears that they have been given permission to administer the property'.

The closing greeting has not occurred in this form in previous tablets and is certainly not common elsewhere. One may compare a letter of Marcus Aurelius as Caesar to his teacher Cornelius Fronto: desiderantissime homo et tuo Vero carissime, consul amplissime [i.e. AD 142], magister dulcisissime, vale mi semper anima dulcisissima (Fronto, Ad M. Caesarem ii 10.3, p. 30 van den Hout), and two letters to Fronto written about twenty years later by Marcus' adopted brother Lucius, by then emperor and also called Verus: vale mi magister, Vero tuo dulcisissime et carissime (Ad Verum imp. 1.10.2, 114 v.d.H.) and vale mi magister, Vero tuo carissime (1.11.2, 115 v.d.H). The writer was thus called Secundus, unfortunately such a common name that no identification is possible: Kajanto 1965: 29f. registered 2,684 examples, making it the second commonest of all Latin cognomina (after Felix with 3,716).

On the reverse, one can judge approximately what the traces should belong to by the fact that the surviving part is from the lower half of the tablet. The place-name, normally at the very top, is of course gone. The tails of letters at the top of what survives are probably from the name of the recipient. Beneath these are further traces, of which the first two letters appear to be PR; and what follows would not be incompatible with the reading PRAEFECT, in other words the rank of the recipient. The name of the writer preceded by a or ab would be expected below this but there are no legible traces.

T 01-34 Period IV. Half a sheet of an ink tablet, with large and crude script on both sides. 81 x 37 mm.
'Front', written in lettering large enough to be part of an address, which is, however, on the 'reverse'. It is possible that the letter was on both sides of another sheet and that the address was written on a second sheet, with part on each side. What is here described as the 'front' could have the name of the writer of the letter, especially as the first line is slanting diagonally upwards from left to right, and evidently begins a. The bottoms of the letters on left hand side of the second line are broken away.

1. A VETTIo
2. SEVERO

Fig. 56

'Back':
1. SCILlo VSA[ ]
2. C- - - -
3. tops of letters only

Commentary. For a Vettius Severus, possibly a prefect, who received a letter at Vindolanda in Period II, see TV II 305. Both names are common and several other Vettii Severi are known, cf. VRR II 30. It seems difficult to read the first part as anything but Scilio. The nominen Scilius is apparently not recorded, but cf. the Illyrian name Scilius (CIL III 4377). For the incomplete second name cf. Usaius, found once each in Narbonensis (Usaia) and Pannonia (Usaius [sic: also female]) see Lörincz 2002: 188. Given that there is an apparent cross-stroke halfway up the first letter, this might perhaps be an F and the second letter could be an L rather than C, making it tempting to see an abbreviated Fl(avius). The small size of the O, which better suits the end of a gentilicium in the dative, makes this implausible, however, and the implied cognomen starting Iliousa[ ] which would then follow Fl. is also difficult, though for II(I)iomarus cf. Lörincz 1999: 192.

T 01-39 Period IV. Multiple fragments of an almost complete confronting ink tablet with two V-notches and two tie-holes at each end, 210 x 80 mm. The text is written along the grain, as is normally found for letters rather than accounts, but in 3 columns. It is heavily abraded at the left- and right-hand sides. The account has repeated mentions of lanceas in the second and third columns, with sums of money alongside. Some other items are also registered. In the left-hand margin before the names in column 2, lines 6, 8, 12 and 14 and column 3, lines 3 and 6, there occurs a d, presumably d(uplicarius). Any possible such marks in the left-hand margin of column 1 are too faint to read. Before the name Tagomias in line 10 of column 2, there is a sign resembling a j with a slanting stroke on the top, \, joined at the bottom to the right hand of the horizontal of the ‘J’. It might just possibly be an abbreviation formed by a v of which the right hand stroke has been continued upwards.

95
and given a horizontal cross stroke, i.e. \(v(e)x(illarius)\)—which is, after all, the rank with which this man is labelled after his name, written out in full, cf. below.

---

Sheet 1, column 1:

1  - - k Ianuarias
2   Crescens scuta
3   - - - as ii -X is
4   - - - ic - tu - [ ]
5   traces
6   traces s
7   traces us
8   traces s
9   traces
10  traces is
11  traces -X ii
12  geui - - s
13  cu - - a - -X is
14   - - dat - -
15   - - labra - -X - -

Commentary A date in December seems clear from line 1. The \(k\) and the final \(a\) are very faint, and the \(s\) is not visible at all. In line 2 scuta is preceded by a soldier’s name, clearly the very common Crescens, even if the first letter is almost completely abraded. Line 3 ends with the sum of money, ‘one and a half denarii,’ but what precedes is not clear. In columns 2 and 3 the names of the soldiers are followed by items for which they are charged, which are put on the line below, but after two names, Tagomos and Victor, are added the labels vexillarius and venator respectively. Hence it is probable that in line 2 here scuta is an abbreviation for scuta(rius), ‘shield-maker’, for which cf. TV II 160, 184, to distinguish the bearer of the common name Crescens from homonyms. It is just possible that the word was written out in full, even though the traces after scuta are too faint for certainty. In lines 4-15, almost all the ink is gone and only a few isolated letters are legible. It is not even clear how far to the left the writing starts. Probably another six soldiers were named in this column, in lines 4, 6, 8, 10, 12 and 14, with in each case an item and the price in the line below. But, of course, if any of the men in this column were charged for two or more items, as with the man in column 2, lines 3-5, the number of men would be less than seven in column 1. In line 4 a name such as Extricatus is possible, and in line 14 - - dat - - could be a name such as Mandatus. Possible items charged are might be in line 13 cucuma(m), kettle, and in line 15 perhaps dolabra(m), axe.
Sheet 1, column 2:

1. *Aetr[e]ctus*  
2. *lance[ea]s* -X ii  
3. *G - um[-f-]ys*  
4. *men[---=-]* -X ii  
5. *lan[cea]s* -X i  
6. *d* *Alb[in]us*  
7. *lan[ceas]* -X is  
8. *d* *Lib[er]-[-f-]g*  
9. *sogum* -X ii  
10. *ve(e)x(?)* *Tagomas vexellarius*  
   the last letter, s, is on the next sheet  
11. *lanceas* -X i  
12. *d* *Victor venator*  
13. *lanceas* -X v  
14. *d* *Exomnius*  
15. *--- - - - - - -* -X -  

Sheet 2, column 3:

1. *Necalames*  
2. *sagaltia ii* -X ii  
3. *d* *Ateso*  
4. *lancea[s]* -X i  
5. *Tullio*  
6. *d* *sudariu[m]* -X i  

space for at least 5 lines, which appears to be blank  
7. *sum* -X xxixs

Commentary: *Tagomas vexellarius* in column 2 recalls TV II 181, lines 14-15, *contubernalis* *Tagamatis vexellarii*, which there immediately follows the entry *equites Vardulli*, line 13. The latter clearly refers to the cavalry section of the *cohors I fida Vardullorum equitata* c.R., attested on British diplomas from AD 98 onwards; it was a military cohort at latest in AD 122 (see Jarrett 1994: 50f., who was not yet aware of TV II 181). Some if not necessarily all of the Vardullian cavalry—240 men in 8 *turreae* in a military cohort—had presumably been detached to Vindolanda, to make up for the absence of cavalry in the First Cohort of Tungrians, back at Vindolanda in Period IV. *Tagomas* is confirmed as the man’s own preferred spelling of his name by an amphora handle, Dressel 20, found nearby (context 49A) with TAGOMAS inscribed in large letters. The available evidence from elsewhere suggests that the *vexillarius* (as the title is ‘normally’ spelled), ‘flag-bearer’, was an NCO in the cavalry, whether in the *equites* of a legion, or the Guards or *auxilia*. He was junior in rank to the *turma*-commander, *decurio*: Breeze 1974: 279-283, cf. table, 281. (Hence it is hard to see how the *vexillarius* could be ‘in charge of the Vardullian cavalry detached..to Vindolanda’, as the editors of TV II 181 write, p. 131.) Cf. also S.S. Frere, commentary to RIB II 2501.14. The name Tagomas seems not to be attested elsewhere: for names beginning *Tag-*, presumably Celtic, cf. Lörinez 2002: 105; but names known to Mócsy 1983: 341 ending *-mas* seem to be Greek or eastern. Pliny the Elder places the Vardulli, who were no doubt of Celtic origin, in northern Spain, west of the Vescones and east of the Cantabri: *Nat. Hist.* iv 110 (cf. Strabo iii 7, 156; iv 12, 162; Pomponius Mela iii 15; Ptolemy ii 6.65). The repeated mention of lances, taken to be principally a cavalry weapon, would support the interpretation that the men here are from the *equites Vardulli*, cf. Tomlin 1998: 55ff., publishing a Carlisle writing-tablet (Tab.
Luguval. 16), a letter from a decurion, presumed to be of the *ala Gallorum Sebsosiana*, reporting to his prefect on missing lances.

The description of the man whose name follows Tagomas, Victor, as *venator*, ‘huntsman’, is welcome further evidence for hunting at Vindolanda. Cf. TV III 615 (Inv. 93-1453) for Flavius Cerialis, in a draft letter, referring to ‘my huntsmen’, *venatores mei*, ibid. 593 (Inv. 93-1462) for various hunting nets, ibid. 594 (Inv. 93-1475) for hunting hounds, discussed by Birley 2002: 147ff. with further references. Victor is no doubt called *venator* here simply to distinguish him from other bearers of this very common name (cf. TV II 180, 182, III 608, 670; Lörincz 2002: 167f. has well over 300 examples).

Some further comments on details in other lines.

Sheet 1, column 2:

lines 3-5. The name in line 3 begins with a G and the reading *Gymn-[j]us* seems more likely than *Grum[i]us*, although the former name is not attested (cf. below). This man seems to be charged for two items, *men[ ]* and *lan[ce]s*. The second is clear enough, but *men[ ]* is hard to interpret. Hardly more than two letters are missing: *men[sa]*, table, is the obvious expansion; *m[a]ten[a]*, sprat or small fish, or *men[t]*, mint, seem unlikely.

lines 8-9. The soldier’s name is damaged by a crack through the first three letters, while the tops of the next two are missing, then a gap and a trace, perhaps *g*. The name might just be *Liber[al]ius*, but this expansion may be too long; *Liber[i]us* is perhaps preferable. The item for which he is charged is clearly a *sagum*. Cf. for this TV II 192, 207, 255, TV III 596 (*saga corticia*).

lines 14-15. The name *Exomn[ius]* seems clear, but in line 15 the item for which he is charged, is completely abraded; only *–X* is legible.

Sheet 2:

lines 1-2. The name begins *Necala*, and probably ends *–s*, but the remainder is very uncertain. A probable reading must be *Necalames*, on which cf. below. The item for which he is charged evidently begins *sagelli*-., followed by three letters, of which the last two are pretty clearly *ii*. One inevitably thinks of a word derived from *sagum*. The obvious reading must therefore be *sagellia ii*, ‘two little cloaks’.* sagellium* is not previously attested as a diminutive of *sagum*. J.P. Wild kindly comments that ‘it may or may not have any connection with *sagum*, but the context certainly leads one to think that it should, though it is not clear what it means: perhaps “*sagum*-related sc. garment”, rather than “small/inferior *sagum*”. It is half the price of the *sagum* in column 2, line 9. Though the sums of money look suspiciously standardised, it is interesting that a *sagellium* cost the same as a *sudarium*, which I think is the name of the wool scarf which swathed the necks of soldiers on military tombstones. It may have been of comparable size and simplicity.’

lines 3-4. Although it is tempting to read *At[eco]*, which is apparently attested once, as the name in line 3, the penultimate letter can hardly be *c*. Rather one must read *Ate[co], Ates[co] or just possibly *At[ho]*. Of these *Ate[co]* seems most plausible.

lines 5-6. The *d* has been placed in the margin between these lines, but clearly goes with the name, of which the reading is certain. The item he is charged for, a *sudarium*, napkin, towel or sweat-cloth, is known from TV II 184 and 187. In the former, where the item occurs four times, it cost 2 denarii in two cases, 1 denarius in another.

For Tagomas and Victor, cf. above. For the other legible or partly legible names (references for names already found at Vindolanda are confined to TV II-III): *Alb[in]us*: TV II 161, III 594. One could also restore *Alb[an]us*. This name is attested as the addressee of a Vindolanda stylus tablet, Inv. 88.836, and is very common: Lörincz & Redö 1994: over 70 examples.

*Atres[ec]tus*: TV II 182
Crescens: TV II 127-8, 148, 169 (all these the same centurion), 180, 187(?), 217, 551(?); and at least six more examples in TV III
Escomiuss: TV II 182, III 575 (a centurion of the Batavians)
G - ung[ jus]: cf. Lörincz 1999: 171, Grumius (CIL II 3024, Spain); cf. also Gumattius, ibid. 172 (CIL XIII 8806)
Liber[al]s: there is probably not enough space for a name longer than this; cf. Lörincz 2000: 25, three specimens as nomen in Belgica and the Germanies, one as cogomem in Spain; just possible is the fairly common Liber[al]s (over fifty examples in Lörincz; ibid., including three in Britain) or the rarer Liber[al]s (seven examples in Lörincz: ibid., four in Spain, three in Gaul)
Necalame: RIB 1793-4, 1801, Carvoran; a similar name occurs in one of the fragments of TV III 594. Lörincz 2000: 97 also cites Negalus (CIL II 5714)
Tullio: TV II 184, 312

T 01-42 – three small scraps from letters in three different hands, from a Period I ditch.
i, 108 x 13 mm
   m - - - tempus esse - - - e
   intelleges me magnam
   [ ] that it is time [ ] that you may I understand that I [ ] a great [ ]

ii, 30 x 6 mm
   io rogo
   [ ] - - I ask

iii, 41 x 16 mm, the bottom right hand corner of the second page of a letter, as shown from the farewell in line 2.
   [ jesse qui sic - - -
   [ ] - it vale
   [ ] ] geas (?)
The reading of line 3 is very uncertain

Back:
   traces
   [ ] LITES

This is presumably part of the name of the recipient, in the dative case, but no suggestions can be offered to restore it.

T 01-47 A letter, from one of the new Period I ditches, with two sheets, complete except for a triangular slice off the left of sheet 1, removing the beginning of the writer's name. What remains of it and of the recipient's name is largely illegible at the moment; and sheet 2 has lost an almost identical triangular slice from the right-hand side, again larger at the
top than the bottom, where only a couple of letters at most are gone. Unusually thick, just over 2 mm; 82 x 176 mm. Of the address on the back of sheet 2, the writer’s rank, written diagonally at the bottom left, is clear, decurione, but nothing else is really legible. The following reading is very provisional: so far it is hard to find much more than—apparently—names, some of a pretty unRoman type.

Sheet 1:
1    [ ]varisius - denti su[ ]
2    salutem                   faint but unmistakable
3-7 virtually illegible except for one or two letters here and there
8    iubes carta - - - the rest is pretty well abraded
9    quid te far - - u[ ]i - the rest is pretty well abraded
10   - - - candidi hale - -
11   advent - - rindens    there is no trace of ink at all before advent
12-13 only traces

Sheet 2:
14   - - u - e - - - od-b[ ]
15   - - - - - - - til[m - - - [ ]
16   b me - - - - - - [ ]
17   difusius catar - - [ ]
18   cetvernus - - - [ ]
19   cet u[ ]enus - - [ ]
20   -e-do - vacat
21   -abelos vedruhis vacat
22   nevassius minconi
    space for 2 lines not used
23   bene vale mihi frater
24   traccs e [ ]

b may be the end of a word of sheet 1

Fig. 63

The reverse of sheet 2, with a single legible word
Commentary The name of the writer evidently ends -arisius or -arasius. The letter preceding this might be not i but h, in which case [C]harisius is a possible restoration, or c, which might permit the reading Carasius. For the latter see Lörincz 1999: 35, three examples in CIL XIII, also other names beginning Caris- and Caras-. Of the recipient’s name, -denti seems a possible ending, but the traces which precede it, two letters at most, are difficult to reconcile with the only feasible names with the right termination, Audens, Fidens, both very rare, or Pudens, which is extremely common. Of the expected suo, only s and the left-hand stroke of the u are legible.

It is difficult to see any real sense in much of what can be read at present, apart from the closing greeting. In line 8, ibues, ‘you order’ may be followed by carta meaning ‘letter’. Perhaps ‘you order’ may give a clue to the recipient being a prefect. In line 9 quid and ulla, ‘what’ and ‘any’, are not very informative. candidi in line 10 is probably the very common Latin name Candidus in the genitive. advent- in line 11 could either be the name Adventius or the word adventus, ‘arrival’, or part of advenio; -rindens might be a present participle, but no suggestion can be offered. On the second sheet even less Latin can be detected, apart from the closing greeting, me in line 16 and perhaps diffusius in line 17, for the more usual diffusius, ‘more widespread’? There is a large space before the break in line 20 and a shorter one in line 21. In line 22 one might suggest nesu, meaning ‘and not’, Vassius Minconius, since Vassius is attested as a nomen: Lörincz 2002: 149. But this seems unlikely. More probable is that Nevassius is a name, although it is not otherwise attested, as is also the case with Minconius; but for Minconius cf. Lörincz 2000: 82 (one example). Lines 21-22 might both give personal name and patronymic, viz. -belos Vedrulnis and Nevassius Mincon, and there may be more such names in the lines above. For Useus in line 19, cf. Lörincz 2002: 188 (preferring the reading Usienus in the single known example); for Vernus in line 18, ibid. 159 (ten examples).

In line 23, the closing greeting, mihi seems a certain reading and this can perhaps be rendered ‘farewell for me’. As Jim Adams kindly points out, mi in the formula found e.g. in Fronto (quoted above on Inv. 01-33) vale mi semper anima dulcissima, is a contraction of mihi, rather than the masculine vocative of meas, ‘my’ (in that case feminine mea would be required to go with anima); and there are further examples of the usage in other Vindolanda tablets. What follows mihi is probably frater, although only f is really clear, the other letters being partly abraded and the last one partly cut off. The e in the last line might be all that remains of /karissime/, of which a few other faint traces can be seen by the eye of faith.

Back:
Any place-name would presumably have been at the top left, which is broken off. Much of what remains has been abraded: there are only traces of the recipient’s and writer’s names, but at least the latter’s rank, decurione, is very clear, written at a diagonal slant, upwards from left to right, as often in such addresses.
T 01-53  Period I.  Four fragments, joining to make a complete stylus tablet, with unique small rectangular panel on the reverse. 143x113mm. Panel on reverse (not illustrated) is 58x20mm.

Inv. 01-55 Period I level. Two non-joining fragments, 5 x 28 and 42 x 10 mm, from what is evidently sheet 2 of a letter, in view of the address script on the back. It is written across the grain. The smaller fragment has a few letters from the beginning of two lines, the larger one has rather longer portions of six lines.

Front:
Left-hand fragment
\[my\]
\[cui\] ego de - [ ]

Commentary The suggesting reading of the traces in the first line is naturally uncertain. In line 2, the last letter, shaped like rather like Greek \( p i \) (II), might be an N; but it is possible that two separate letters are joined here, e.g. CI, PI or SI.

Right-hand fragment
The diagonal break is means that more is lost at the top than at the bottom. Further, the abrasion or washing away of the ink means that some of it is too faint to read.
1 [ ]dari iam ce
2 [ ]-cilem et pen
3 [ ]- -a- -eum quod
4 [ ]cas mihi in ma
5 [ ]-domine - - -
6 [ ]- bene valeas

**Commentary** Given their position at the end of the letter, lines 5-6 ought to have had a closing greeting and the one word which is more or less clearly legible, *domine*, suggests that this greeting might have read e.g. *opto domine bene valeas*. But after *domine* there are traces of three letters. A possible reading might be *felicissimus*. The traces in the last line are compatible with *bene valeas* - - - - -. Cf. TV II 260: *opto domine frater felicissimus bene valeas.*

**Fig. 66**

Back
At the top of the larger fragment, in the position where the place-name generally comes, in the locative or pseudo-locative, the ink has been seriously abraded, but the following can be read:

*a - - as - [*

The second *a* has a very pronounced top stroke, for which one may compare the last letter in line 4 of the letter itself. That may also be the case with the first *a*, although this is less certain: a different letter could indeed be read, perhaps indeed *ta* is possible. At all events, the name cannot be *Vindolanda*. There follow the typical much larger spindly letters which must be the name of the recipient, which is incompletely preserved:

CAMMI[O].

For a slightly later officer of this name in Britain cf. RIB 827-9, Maryport, L. Camnius Maximus, prefect of *coh. I Hispanorum eq.* The smaller fragment has traces of five or six letters, none complete, the first two and the last two being uprights: they could be part of the *cognomen* of the recipient, or perhaps his rank, PRAEF; the last two letters are compatible with *EF*, and the tentative reading - *PRAEF* seems possible.
The Tablets from 2002

T 02-13A Period II or III, three fragments of a very thin and pale tablet, of which the two largest together measure 77 x 28 mm.

i
1   [- - ]us Donatus Candido
2   [   ?collega]e suo saltem
3   [   ] - - -

ii
1   [   ] ix k luni
2   [as] s et rogo     Fig. 67

Back

i
only a few traces visible     Fig. 68

ii
1   [   ] eius lon  c. 7 letters
2   [   ] - c - t bi - - usa - d - ios

Commentary

Candidus is a well attested name at Vindolanda: TV II 146, 148 (an optio, Period III), 180 (Period IV), 181 (Period IV), 183 (Period III), 301 (Period II, a slave of Flavius Genialis), 312 (Period III), 343 (Period IV), as well as in at least two tablets in TV III. Donatus, not previously recorded here, is very common elsewhere: Kajanto 298 counted 832 epigraphic examples, 368 of them in North Africa; Lörincz 1999: 107 lists 103 occurrences in the European Latin provinces and N. Italy, 13 of them in Belgica and the Germanies. This Donatus was evidently a citizen, or at any rate had a gentilicium, of which only -us is preserved. Too little of the remaining content of the tablet is preserved to make lengthy comment necessary. But it should be noted that it is unusual to find suo as well as saltem (of which the last four letters are very faint) in the second line; and that this is preceded by the top of one letter, indicating that Donatus had added a word to Candidus’ name. The restoration [collega]e is of course uncertain, but an E fits the trace well; also possible would be [friar]i. In fragment ii, the date, ix K luni[as], 24 May, is clear. For dates in Vindolanda letters, cf. TV II 234, 263, 291, 295, 300, 343, 349. On the back, nothing more than traces can be seen on i. On ii, the opening [ ] eius lon ... could be part of a name, with gentilicium and cognomen, such as [ ] eius Lon[gus etc.].

T 02-16A Period II or III, small fragment of tablet with remains of V notch and one tic hole, 67 X 20 mm; three lines of writing along the grain in each of two columns.

Column one
1   [   ] haragus        or triagus? or -dragus or {ver}tragus? see commentary
2   [   ] - cit off
3   [icio? ] Proculus
Column two
1  Pagonix or Iagonix or Lagonix or Tagomax
2  f - ticlis or f - ticlus or s - ticlis or s - ticlus
3  Attius Iustus
4  tops of three letters

Fig. 69
Commentary Column one. Although this is in letter format, along the grain, it is hardly a letter: there appear to be mainly names here, of which Proculus in line 3 can be read clearly; although it should be noted that the second U has been badly written, so that it looks more like P or T. Lines 1 and 2 are hard to read. In line 1 only the last four letters, -agus, seem certain. Mócsy lists thirteen names ending -agus in his reverse index, but none seems to match these traces. It could begin P, followed by E; but the cross-stroke of the possible P could belong to what follows, making a T; and the top part of the possible E could go with what follows that, which could then be either D or R. The remaining letter, preceding -agus, is especially odd, a long down stroke with cross stroke to the right at the top and to the left at the bottom. If the bottom cross stroke is ignored, this letter could easily be an R. It is tempting to read [ver]tragus, giving the word for hunting-dog already attested at Vindolanda (Inv. 93-1475=TV III 594). But in that case the long down stroke between R and A must be dismissed as a slip of the pen. In line 2 there is a mark at the left which must be part of an otherwise missing letter, followed by -cit-. Assuming that this might be a name and taking the last letter as S, which is possible, it would be necessary to read the penultimate letter as E or I, which is very difficult, and the letter before that as T. This could then be a name ending -citates or -cittis, for which, however, Mócsy offers no examples in his reverse index. The remaining three letters might alternatively be read as off, with a very small O, made hard to distinguish because of a diagonal mark above it. The two last letters can plausibly be read as ff. In that case, it is possible that we have words rather than a name in this line, e.g. [ - - ]- cit off/[icio - - ], with -cit representing the end of a verb in the third person singular or some abbreviated word, e.g. [a]rcit(ectus) or [exe]rcit(ator).

Column two
In line 1 only the second, third and fourth letters, -ago-, are completely clear. The reading Tagomax is certainly possible, the name of the vexillarius in Inv. 01-39 (cf. above), which is also a list written along the grain, even though that tablet was found in a Period IV level. However, the first letter here has no cross stroke and looks more like I or L or perhaps P, of which the latter is the most plausible, since at the top there is a trace of a downwards diagonal to the right, similar to the P in Proculus in column one. The last three letters are
obscured by a stain across the top. -nix seems a preferable reading to -nus, although known names ending -nix seem to be confined to Pernix and Phoenix.

The last letter of line 2 is clearly an S and what should, by the spacing, be the fourth letter is a T. The remainder is uncertain. The first letter could be either F or S, but the faint traces of the next two letters that follow it could be almost anything. F - - ticles, F - - ticles, s - - ticles or s - - ticles seem possible readings, although the penultimate letter is almost totally abraded, so that an O is also possible. A name or word ending -ticles might have been shortened to -ticles, here possibly, if a word rather than a name, masculine accusative plural, -tiles, but no known name or word appears to match.

Line 3 surely ends -justus, even though the two middle letters are very faint. What precedes this could perhaps be Attius, giving the plausible name combination Attius Justus, but it must be conceded that the postulated -us of Attius is difficult. For a man called Justus, who received two letters at Vindolanda in this period, cf. no. 38A below.

T02 19A  Period II or III. Half a sheet of an ink tablet, with tie hole and V notch, 82 x 35mm, but with no trace of ink on either side.

![Fig. 70](image)

T 02-20A  Period II or III. Four fragments, with writing along the grain. Writing is visible only on the largest, 36 x 16 mm, from the right hand side of a sheet.

![Fig. 71](image)

Commentary. It should be noted that in line 1 ro could be read instead of ad.

T02 22A  Period II or III. 139 x 51mm. Half a sheet of a single-sided stylus tablet, with script on both sides (the reverse has traces of both normal script and address script).

![Fig. 72](image)
T 02-24A Period II or III, thin sliver from the centre of an ink tablet, with traces of both tie holes, 107 x 14 mm. Part of one line preserved.

--- uduinecos --- f ---

Fig. 73

T 02-25A Period II or III, almost complete sheet of an oak tablet, four joining pieces, 113 x 93 mm, written across the grain, some 13 lines of script, mostly very difficult to read

1 xii k Maj[a]s [ ] Babylon?
2 -- opus fabricae
3. --- m c 5 abue-us
4 [ ] -- faber ---
5 - gmalus - -asus - runi -
6 -- lac -- p -- a -- us -- xviii
7 - kvellidus faber
8 traces
9 Sanctus - - a - sas -
10 - te - - erar - - [ ] traces
11 aty traces as traces
12 traces
13 --- mas traces

Fig. 74

Commentary Because of the grain of the wood, most of the surviving lettering is particularly difficult to read. In line 1, the date, 19 April, seems clear, although only the M of Maj[a]s is really legible. In the rest of the line, the reading Babylon?] is very uncertain. In line 2 it seems that opus fabricae can be read, even though the O and R are very faint. This would give the purpose of the list. The traces to the left might permit the restoration ad opus fabricae. The most legible line, 7, evidently gives a man’s name followed by faber, and in line 4 the traces might fit the reading faber; so this may be a list similar to TV II 160 (Period V), where faber occurs four times. Line 3 seems to end abue-us, perhaps a name: for those beginning Abu- see Lörmecz & Redő 1994: 5f. (but none are known beginning Abue-). It would be tempting to read Adventus, a well attested, if not very common name (Lörmecz & Redő 1994: 28f. list 12 examples), since there is just enough space for NT; but the second letter is more like a B. At the beginning of line 5, the reading - gmalus seems secure: only the first letter, partly broken off, and the second, a little faint at the left, are doubtful. This would give either a known name, Camalus
(Lörincz 1999: 49 examples, all from Spain), or e.g. Gamalus, Samalus (neither actually attested). Line 6 is very faint: lac soon after the beginning could be part of a name and xviii at the end, if read correctly, is presumably a numeral. The name in line 7 can be read in great part. Probably only one or two letters are missing at the beginning and we would then have a man whose name ended -hveltitus, manifestly Germanic because of the sequence hv. Only the D is a little uncertain. After this name, the reading faber seems virtually certain, with only the B being obscured by the break running through it from top to bottom. Only traces can be seen in line 8. In line 9 the reading Sanctus seems acceptable, although it is true that there are diagonal marks above the T, here disregarded. The name is already attested at Vindolanda in this period, TV II 182, and probably occurs in two unpublished tablets from the 1990s, as well as in 02-38A, below; Lörincz 2002: 47 gives 25 cases, 12 from Belgica and the Germanies. In line 10 it is tempting to read tesserarius, but the space between te and erar is probably too wide for just ss. So little is visible in the remaining lines that no commentary can be offered.

T 02-33A Period II or III, part of sheet two of a letter, 63 x 26 mm.

Front

1 traces
2 traces
3 -- -- -- -- -- t --
4 -- -- -- vale

In line 3 about thirteen letters may be assumed, of which none can be read with any confidence. This may well be part of a lengthier closing greeting, after which comes vale in line 4.

Back, address script

VITALIo -- E --

Fig. 76.

The o is not really visible, so it is possible that what follows VITALI is a word referring to the man’s rank. The reading is very uncertain and no firm suggestion can be offered. Just possible, if the first two marks are the tops of a V, might be VET(erno). For men called Vitalis in published tablets see TV II 181, 543? and 263? (a decurion).
**T 02-34A** Period II or III, six small fragments, 2 joining, with very faint ink lettering, written along the grain. No reading can be attempted.

![Image of T 02-34A fragments](image)

**T02 35A** Period IV. Half a sheet of a single-sided stylus tablet, 137 x 65mm, with potentially readable script.

![Image of T02 35A tablet](image)

**Inv. 02-38A** Period II or III, six fragments, from two or three separate letters, two to a man called Justus, one perhaps from a prefect called Verecundus. They include one, or possibly two, lines of Virgil: d, front is clearly from *Georgics* I.125, complete bar two letters; b, front, might well be part of *Aeneid* 7.373. Further, a third possible quotation appears at the top of d, back, although it cannot at present be identified and the reading can no doubt be improved. See TV II 118 (found in 1985), clearly a writing exercise ‘in a bilinear capital script’, of a line from the *Aeneid*, IX 473. Further, TV II 121, a doodle drawing with lettering below, can be interpreted as ‘another Virgilian effort’ (see below, commentary on b, front). Subsequently the editors have re-read TV II 452 (found in 1986), which turns out to be from the opening line of the *Aeneid*: *arma virumque cano*, *Troiae qui primus ab oris*, written on both back and front (see Addenda & Corrigenda to TV II, in TV III: information from Prof. J.D. Thomas). At all events, the new find and new reading bring the total of Virgilian quotations at Vindolanda to at least three, if not four or five.

![Image of Inv. 02-38A fragments](image)

109
Fig. 79
Front
1 missi tibi fra[ter]
2 vacat Sanctum [ ]

Fig. 80
Back, in address script
[ ] IVSTo vacat

(b) not certainly from the same letter as (a)

Front
1 [ ] -ERTALAT[I ]
2 [ ] e - e - - -

Back
1 [ ] Verecund[ ]
2 [ ] praef [ ]

Fig. 81

(c) a small scrap

Front
1 [ ] o cu[ ]
2 [ ] a(2-3)as

Back
1 d-i-f
2 traces [ ]

Fig. 82

(d) three joining fragments, i giving line 1 up to subi, ii the rest of line 1, iii lines 2-3
1 ante Iovem nulli subigebais
2 arva coloni in - [ ]
3 [-c. 7]-[-]-[-]s[-]a[ ]

Fig. 83

Fig. 84

Fig. 85
II. Commentary

(a) missi tibi frater suggests, though it does not prove, that this is a letter from one officer to another. The recipient was called Justus, as shown by the name in the dative on the back. Cf. TV II 252, per equitem ad te misi (Caecilius September to Flavius Cerialis), 259, misi tibi frater notam ex qua [ ] (us Pastor to Cerialis), 268 comm[ ] tibi missi [ ]equitem et [ ] (to Cerialis from unknown), 318 ex cohorte cui praesum misii ad te (unknown cohort-commander to unknown), 345 [pe][r] A[ ]ionem decurionem misii tibi (Celianus Justus to unknown prefect); also 309 missi tibi materias (Metto to A[ ]ectus). The case for Justus being an officer is perhaps further strengthened by the nature of (d), also addressed to him, cf. below. For the name Sanctus cf. above on 02-25A.

(b) If the reading of line 2 of what is assumed to be the back is correct, this should be the name of the writer, from the bottom of the back of sheet two of a letter: one could restore e.g. [a Iuliou]Verecundo/ praef. See TV II 154, 210-212, 313 for a prefect of this name at Vindolanda, commander of coh. I Tungrorum.

Line 1 on the front is in capital script, and one is tempted to see a verse quotation here, especially as what can be read forms a dactyl and a spondee, suitable for the end of a hexameter. The reading seems almost certain, although the upright stroke of the E is missing and the last letter could theoretically be E or T rather than I. To the left of the first letter there is a stroke at the top, which could belong to a C, P or S. This would give e.g. certa, incerta, etc.; certa, deserta, etc.; experta, reperta, etc. A preliminary search has produced only the following, from Virgil, Aeneid 7.373f.:

his ubi nequiquam dictis experta Latinum/ contra stare videt etc.

‘When, having tried in vain (to persuade him) by these words, she saw that Latinus stood firm against her...’

The lines refer to the reaction of Queen Amata, after she realised that her appeal to her husband King Latinus had been in vain. This must remain rather hypothetical at present. It seems almost certain that this, as indeed the one definite, d front, and the other possible quotation, d, back, were added afterwards. In other words, the letters were used as scrap paper for writing-exercises, as was the case with TV II 118, written on the back of a draft letter, ibid. 331. Another consideration on this possible quotation may be mentioned. It was previously suggested, in VRR II 38, that TV II 121 might be a doodle representing the ‘Gates of War’, i.e. of the Temple of Janus, with an attempt to write belli portae/ clauduntur, ‘the Gates of War are closed’, from Aeneid 1.294, claudentur Belli portae, underneath it. The editors of TV II suggest instead reading belli regna, from Aeneid 12.567, causam belli regna ipsa Latin. For the record, the Gates of War crop up again not long after the present possible quotation from Aeneid 7, viz. at 7.607f., beginning sunt geminae Belli portae (sic nomine dicunt)/ religione sacrar. This might slightly strengthen the likelihood that the new tablet is another writing-exercise, from Aeneid 7, although,
unlike TV II 118 (and 121), it may be suggested that this line was written by a more practised, adult hand, perhaps that of the tutor.

c) too little is preserved to allow any comment.

d) Line 1 is made up of 1, as far as subi-, while ii, which joins, supplies -geba[ant]. The third fragment joins these below. This is a quotation from Virgil, Georgics 1.125: ante Iovem nulli subigebant arva coloni, ‘before Jupiter [i.e. in the Golden Age of Saturn] no husbandmen used to till the fields’. Unlike TV II 118, which was in rather crude capitals, and was evidently a child’s writing-exercise, the line in this tablet is in a normal script, of good quality. The letters following coloni, iuf J, cannot belong to the same quotation, which continues ne signare quidem aut partiri limite campum! fas erat. Of course, a different quotation might have followed, perhaps beginning Iup[riter] (cf. e.g. Aen. 4.206ff.: Iuppiter omnipotens, cui nunc Maurusia pictis/ gens epulata toris Leneaeum libat honorem, aspicis haec? and 12.725f.: Iuppiter ipse duas aequato examine lances/ sustinet et fata imponit diversa duorum). Alternatively, the writer, perhaps a tutor, may have added some comment about Jupiter to explain ante Iovem.

The back presents a particular problem. Line 1 is in a different and much inferior hand to that in the letter on the other side. What are taken to be Ts are written without a cross stroke at the top and the presumed Bs are also unusual, with a cross stroke only in the middle. From its position, it might be assumed to be part of the address, and indeed lines 2-3 are in address script, cf. below. But as there are some 26 (perhaps 27) letters in all, this must be much more detailed than is usual in the address, and indeed what can be read can hardly belong to an address. Rather, it looks like another quotation, at least because of the last word, which can possibly be read as Thebae, if the second letter is taken as H and the fourth letter as a B that is very flattened at the bottom. Thebae at once suggests poetry. However, if merentem is the correct reading of what precedes it, these words cannot be from a hexameter. Attempts to find the source of this presumed quotation have so far borne no fruit. A possible reading is: [1] -[it res cultum merentem Thebae. cultum merentem, in the accusative, could mean ‘a person deserving reverence’. Thebae ought properly to be the beginning of a new sentence, since it is plural—although, whereas the adjectival form of Boeotian Thebes is Thebanus, that of Egyptian Thebes is Thebaeus: theoretically the word might have continued on the next line, giving Thebae[forum]. The explanation that this is a child’s writing-exercise seems very plausible, given the crude quality of the hand. But see below for another, remote possibility.

An alternative reading of the last word might conceivably be Veledae, taking the first letter to be V, following by EL rather than H, and taking the third last letter to be D rather than B. The German prophetess or priestess Veleda, who played a key role on the rebel side in the Batavian Revolt, is mentioned several times by Tacitus, Germ. 8.2 and Hist. IV 61.2, 65.3-4, V 22.3, 24.1 (also by Dio 67.5.3), was captured by Rutilius Gallicus c. 76-78, as recorded by the poet Statius (Silvae I 4.89f.). A Greek verse inscription found at Ardea, south of Rome, revealed that Vespasian consulted an oracle about how to deal with ‘Veleda, ... the tall virgin worshipped by the Rhine-drinkers’: the response was that she should be a temple-cleaner (Supplementum Epigraphicum Graecum XVI 592). Tacitus also claims (Germ. 8.2) that she was treated by the Germans as a deity (numinis loco), which might slightly support the possible reading of this fragment as cultum merentem Veledae.

The left-hand part of line 2 is completely missing and of the rest there is preserved only the top of an E, F, S or C, followed by a gap of one letter, finally traces of the top of one uncertain letter and what look like the tops of VS. This is presumably part of the cognomen of the writer, followed in line 3, after a large gap, certainly large enough to have been filled by a gentilicum, by the cognomen of the recipient, in the dative, clearly the same as that on the back of (a), Justo, but in a different hand. For persons called Justus

112
cf. TV II 180, Period IV, Macr. Justus in the ratio frumenti; 345, Period II, Celonius Justus, colleague and correspondent of a Vindolanda prefect, and perhaps 490, Period II, [?]Justus, correspondent of Ma[ _]. Devijver lists numerous equestrian officers called Justus, but, apart from Celonius Justus, only his C 148, P. Claudius Justus, prefect of coh. I Theb(aeorum) in Egypt in AD 98 or 99, is from the right period. It is probably only be a curious coincidence that the possible reading Thebae recalls the coh. I Thebaeorum. But it must at least be asked if this line referred to his having received this post. mero or mereor can indeed mean 'be worthy of' an appointment. At any rate, in view of the quotation from Virgil in the letter, Justus is likely to be an educated man, i.e. an equestrian officer, and the text in the other fragmentary letter to Justus, with the words missi tibi fra[ter], also suggests a letter to an officer—unless, of course, Justus were himself the tutor.

T 02-44A Period II or III, two fragments, 82 x 18 mm and 81 x 14 mm, each with two lines in rather faint lettering, probably from the same tablet

1. -- alat d --
2. a - tui me
3. tops of letters

ii
1. bottoms of letters
2. vale frater

Fig. 87

Commentary: It should be noted that the Es in me, vale and frater are written, as they often are in stylus tablets, with two parallel strokes.

T 02-45A Period II or III, 6 fragments, two, or perhaps three, of which join; written across the grain. A reading is offered only of the largest part, two joining fragments.

1. [] -- es
   vacat (?)
2. --
3. [] - est -
4. [] - ia
5. [] paria
6. [] id est y
7. [] ae pilli

Fig. 88

113
Commentary: Apart from paria, ‘pairs’, showing that this is an account, not much sense can be made of this. In line 6, as there is a space before ides, it can hardly be the end of a word such as [parops]ides (as in TV II 194), and one should probably read id est, although the presumed T is very faint. The same may have been written in line 3. It must be added that there also seems to be no trace of a letter before ae in line 7.

T 02-47A Period II or III, four fragments, with traces of address script on two. Largest frag. 78 x 21 mm. No reading can be attempted of these traces.

T 02-48A Period II or III, four fragments, written along the grain. A reading is offered only of the largest, 43 x 13 mm.

![Fig. 89](image)

1 / J\text{\textada} - m - a tu --
2 / J\text{o\textos} li - ata --

Commentary: In line 1, the first surviving letter, if an S, was probably from the end of a word, followed by either ad or a word beginning adm-. A possible reading in line 2 might be ligata, from ligō, ‘bind’, ‘tie’, ‘harness’. If this is right, the G is perhaps a correction for another letter, of which a diagonal stroke can be seen. There is a space between J\text{o\textos} and ligata.

T02 51A Period II or III. Half sheet of a single-sided stylus tablet, 146 x 50 mm, with multiple scripts.

![Fig. 90](image)
T 02-57A Period VI A, sixteen fragments. A reading is offered only of the largest fragment, 40 x 22 mm.

1  [   ] - riā
2  [   ] ā
3  [ ] brāssicas
4  [ ] ū
5  [ ] fīls -
6  [ ] jūra
7  [ ] ĕ
8  [ ] ge - s [ ]

Fig. 91

Commentary. Only brāssicas, 'cabbages', in line 3 is clear. This word has not occurred in the Vindolanda texts hitherto, but a large cabbage-stalk was found by E. Birley in the well of the stone fort principia in the 1930s (R. Birley 1970: 145). In line 1 one might restore in/jūra, 'fish-sauce', for which cf. TV II 190, 202, 302. But it is impossible to say whether this list was confined to food items. For jūra in line 6, cf. clausura, vectura, velatura, all to appear in TV III. In line 8, ge - s might be [fa]gcis, the genitive of faex, 'wine-lees', cf. TV II 185, where it occurs in the dative.

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TV III  eid., forthcoming, will cover the tablets found 1991-1994
The graffiti

1. 8487 Period IV, context 01 49A. Dressel 20 amphora handle, with deeply scored graffiti, cut after firing, running the length of the handle, in letters some 20mm high:
**TAGOMAS**. The ink writing tablet (T001 39) found some four metres to the south, in the same layer, contained a reference to **TAGOMAS VEXELLARIUS**, as did Vin. Tab. 181, found in 1988 some 45 metres to the south-east, and also in a period IV context. Coh. I Tungrorum formed the garrison in this period, but it is known that other troops, including legionaries, were also present at some time.

2. 8320 Period VIA, context 01 29A. Silvered pewter plate, diam. 19.4 cms, with graffiti inscribed near the circular ring in the centre, in letters 0.8 cms high:
   a. on the rim: **X** (This may be just idle scratching).
   b. between rim and inner circle: **M** (This was possibly an initial attempt to write the name below).
   c. Round the outside of the circle, on opposite side of it to the above: **ANNIVS MARTIALIS**

   The two Ns are very faint, but the reading is otherwise clear. Both names are common: Lörincz and Redo 1994: 119ff. list 321 Anni and Lörincz 2000: 60f. has 195 Martiales. Note also the centurion of the Tungrians, T. Annuius? - - - (?), buried at Vindolanda (Britannia 29 (1998): 299-306) and some Vindolanda graffiti: **Martialis** on a Period III jug, VRR II 99 no.9=RIB II.8, 2503.46; **Marc** / on an unstratified coarse pottery fragment from Vicus Building XI, RIB II.1, 2503.328; **Jalis** on a bowl from the stone fort ditch, RIB II.8, 2503.473. For the record one may add other items not considered by Lörincz: more Anni and Martiales in RIB II (cf. index; some of these are the makers of objects); note also M. Annius M.f. Quir. Martialis, a former centurion, who died in the reign of Trajan, CIL VII 2354=ILS 305, Tingad and Annius Martial(is), *armorum custos* at Lambaesis, AD 200, AE 1902.10.

3. 8564, context 01 2A period VIB: graffiti on a fragment of Dr. 37 (Central Gaulish), cut immediately below the decoration, in well formed letters some 7 mm high:
   **ANDANCIV[S]**

   Andancius seems not to be attested, but compare the numerous names beginning AND- in Lörincz & Redo 1994: 108ff. The closest seems to be Andangianius, recorded once, in Lugdunensis (CIL XIII 3097).

4. 8511 Period IV, context 01 48A. Fragment of side wall of a Dressel 20 amphora, with a single letter deeply cut after firing, 6.6 cms high: **P**

5. 8197 Period VIA, context 01 2A. Scratched on the side wall of a Dr 27, in letters 0.8cms high: **II A T I S**.

6. 8436 Period VIB (Severan), context 01 29A. Scratched underneath the base of a Dr 18, stamped CAVPIRIRAM, in letters 1.5 cms high, **D E**.

7. 8168 ?Period III, context 01 18A. On the base of a Dr 18 stamped **TTIN**, in letters 1.3 cms high, **S S I M**.
The Sixth Legion brick stamps from Vindolanda by Robin Birley

The recovery of another probable Sixth Legion brick stamp during the 2001 excavations (no. 1 on fig 000), and the subsequent search through the records to establish whether it was of a previously known type, revealed a number of problems. Richard Wright's analysis of Sixth Legion stamps found in Britain (Britannia VII, 1976, 224-235) listed seventeen Vindolanda stamps (one on a tegula and 16 on bricks), but following his normal custom, he did not record the Museum acquisition number for any of the items. This was the accepted practice for all inscriptions and graffiti in the records published in both the Journal of Roman Studies and subsequently in Britannia, and it has created considerable problems for those who have substantial collections of written and inscribed material. The problems are at their most acute when the published readings by Richard Wright or his successors are not immediately recognizable to searchers who perhaps lack their special expertise. In the case of this most recent examination of the tile stamp archive, twenty two bricks, one imbrex and possibly one tegula bearing the full or partial stamps of the Sixth Legion were identified in the stores, but it was impossible to discover which of them had been included in the two published records (in Britannia VII and in RIB II, Fasc IV). The illustrations provided in Britannia VII, published at the unique scale of 2:5, included only one certain Vindolanda brick.

In his Britannia study of all the stamps from Britain, Richard Wright aimed to produce 'a catalogue of the various dies which can be identified', and rightly drew attention to the possibilities of dating the various dies, according to the variants in the style, size and lettering. Unfortunately, he did not provide the details of those classifications. Many of them were perhaps too obvious to waste space on such a description, especially when the addition of various legionary titles was concerned, but in the case of the stamps from the northern frontier, the bulk of them involved no more than very minor differences in size or shape of letters of dies which all bore the same legend - LEG VI. It is also clear that some of the variations in the shape of the letters and even in the size of the die impression had been caused by the manner in which the die had been applied to the surface of the damp clay before firing. Some had been stamped at an angle to the horizontal, and others had been applied when the brick was too dry to take the full impression. In other cases the die itself had obviously been damaged or had become very worn. There are nevertheless certain clear differences in the dies. The spacing between the letters LEG in numbers 2 and 7 and the width of the final V (especially obvious in nos. 5 and 6 compared with no. 11) are notable. But variants in the central bar of the E's - and there are many - can in most cases be attributed to the action of the man doing the stamping. In the case of no. 10, on a complete brick, the die had been applied when the clay was too dry to take the impression.

It has to be emphasized that the vast majority of bricks - and both tegulae and imbreces - were not stamped at all, and it is impossible to know what system the army used for the stamps. A ratio of stamped to un stamped may have been anything from 1:10 to 1:100 in manufacturing processes where stamps were used. In the case of the pre-Hadrianic baths at Vindolanda, amongst many thousands of complete and broken tiles and bricks, there were no stamps at all.

The recovery of legionary tile stamps at a site has often suggested to the excavators that legionary builders had been at work, and this claim has been made for the early third century military bath house at Vindolanda. But the three dies which Richard Wright identified amongst the Vindolanda collection are also found at one or more of several sites on the northern frontier, including Carrawburgh, Corbridge, Chesters, Wallsend, Netherby, High Rochester and Elashere. This strongly suggests that the Sixth legion had a kiln site somewhere in the region, and from thence supplied a number of forts with the produce, and not necessarily with masons to undertake any building work. The absence of most western Wall sites from the list probably indicates a site for those kilns in the eastern half of the frontier, and Corbridge is the most likely candidate, both because of its known legionary compound and for the long tradition of ceramic activity nearby. Even so, the transport of the thousands of bricks necessary for even a single military bath house was a substantial undertaking.

When the tons of bricks recovered from the pre-Hadrianic bath house were examined (see Vindolanda 2001, Andrew Birley), well over 200 of them were found to have imprints of a variety of animals which had walked or run over them during the pre-kiln drying process. But none of the
batch from the later military house had any animal imprints, which suggested that the Sixth Legion tilerly detachment had a large and secure area close to the kilns, to which animals were not able to gain access. This can only have been achieved by the erection of a substantial wattled fence.

The tile stamp catalogue
1. 8431 On a fragment of a brick 48mm thick from the VIB or Severan occupation level in the 2001 excavations, LEG [ The central bar of the E is missing, and there is a strange lump at the back of the G. Without the plentiful evidence of Sixth Legion brick stamps from the immediately succeeding period of occupation, this stamp could not be assigned to the Sixth Legion.
2. 8553 On a complete brick, 269 x 273 x 42mm thick, with a die measuring 125mm x 33mm. LEG V/IV. The brick was built into the main furnace flue of the third century military bath house (next to the caldarium).
3. 8547 Stamped with a broken die, on a fragment of brick 42mm thick in the above bath house - LEG V [4
4. 8558 On a complete brick, 257 x 267 x 39mm thick in the furnace flue (near 8553 above), LEG V/IV.
5. 8556 Complete brick, 272 x 271 x 34mm thick, also in the furnace flue above, LEG VIV.
6. 8546 On a fragment of brick 37mm thick, from the same bath house, and an impression from a very worn die - J V/IV.
7. 8554 Almost complete stamp from a brick 42mm thick, from the same bath house - LEG V/IV.
8. 8555 A very faint impression of the full stamp from a complete brick, 260 x 274 x 41mm thick, from the same bath house - LE V/IV.
9. 217 A brick fragment from the same bath house, in the latrine sewer, and too damaged to give its thickness - J VI [.
10. 2127 From a vicus site to the east of the bath house, a complete small brick, 196 x 222 x 36mm thick, stamped when it was too dry to take the impression properly - LEG .....
11. 8545 A very worn brick, 44mm thick, from the bath house - L ] EG VIV.
12. 8549 On a broken fragment from the vicus to the south of the bath house, LEG V/.
13. 8547 On a brick fragment 42mm thick, found in the bath house, and from a broken die, LEG V/.
14. 8553 On a brick fragment found in the vicus to the east of the bath house, 39mm thick, LEG [....
15. 1332 From the rubble of demolition above the floor of the Severan praetorium LE [...
16. 374 From the Severan floor level below vicus site XXVII, a brick fragment with the partial stamp LEG [...
17. 8551 On a brick 37mm thick, from the bath house, LE [....
18. 1333 On a brick fragment, 40mm thick, found in the bath house - LE [....
19. 8550 A small brick fragment from the bath house, 42mm thick - L [...,
20. 15 A 38mm thick brick fragment from the bath house - ] VIV.
21. 8548 A 42mm thick brick fragment from the bath house - ] IV.
22. Bidwell A small brick fragment from a post AD 370 level inside the stone fort - ] VI [.
23. VI 13 Fragment of an imbrex from the vicus to the east of the bath house, with the partial stamp LE [. The die used here was larger than any of the other examples.
24. V8 28mm thick, and possibly part of a tegula, with a die 35mm high, ]IV.
25. V18 On a brick from the bath house, 35mm thick, and with a die only 31.5mm high,
The Vindolanda stamped bricks (with one imbræx and one tegula)

Scale 1:2

Fig. 92

1. LEC
2. LECVIV
3. LEV
4. LECVIV
5. LECVIV VIV
6. LECVIV
7. LEV VIV
8. VI
9. L
10. LECVIV
11. LECV
12. LEC
13. LEC
14. LEC
15. L
16. L
17. LE
18. LE
19. VIV
20. IV
21. IV
22.
23. LE
24. VIV
25. IV
The Coins, by Richard Brickstock

Vindolanda excavation reports since 1997 have included summary coin lists of a slightly preliminary nature, lists that therefore did not include the all-important catalogue references. Full catalogues for 1997-99 have already been included in the database of Vindolanda Coins 1930-99 (cd, Vindolanda Trust, 2000) and are therefore available to interested scholars. Full catalogues for AD 2000-2002 finds will, of course, be added to that database, but in the meantime I take the opportunity to repeat the summary listings for 2000 and 2001 (C456-C507) with the addition of full catalogue references (Table 1).

Table 1: AD 2000 and 2001 coin list ordered by small find number.

<table>
<thead>
<tr>
<th>Cat.No.</th>
<th>Issuer</th>
<th>Date</th>
<th>Context</th>
<th>Type</th>
<th>Mint</th>
<th>Wear</th>
<th>Reference</th>
</tr>
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<tbody>
<tr>
<td>C456</td>
<td>CONSTANTINE II, CAESAR</td>
<td>330-35</td>
<td>w/x</td>
<td>ANT</td>
<td>SW/SW</td>
<td>238</td>
<td>as 7LG</td>
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<tr>
<td>C457</td>
<td>probably RADIATE (but possibly C4th)</td>
<td>260-73</td>
<td>10</td>
<td>RM</td>
<td>C/C</td>
<td>354b</td>
<td></td>
</tr>
<tr>
<td>C458</td>
<td>VESPASIAN</td>
<td>71-79</td>
<td>11</td>
<td>SELT</td>
<td>SW/SW</td>
<td>600c</td>
<td></td>
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<td>DOMITIAN</td>
<td>85-90</td>
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<td>RM</td>
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<td>DP</td>
<td>RM</td>
<td>as 65</td>
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<td>119-21</td>
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<td>RM</td>
<td>SW/SW</td>
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<td>DP</td>
<td>RM</td>
<td>605</td>
<td></td>
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<tr>
<td>C463</td>
<td>JULIAN AUGUSTUS</td>
<td>360-61</td>
<td>35</td>
<td>SILQ</td>
<td>SW/SW</td>
<td>295</td>
<td></td>
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<td>C464</td>
<td>RADIATE COPY</td>
<td>260-73</td>
<td>35</td>
<td>ANT</td>
<td>C/C</td>
<td>as 69</td>
<td></td>
</tr>
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<td>TRAJAN</td>
<td>114-17</td>
<td>36</td>
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<td>RM</td>
<td>A. Plus 1171</td>
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<td>FAUSTINA I, POSTH.</td>
<td>141+</td>
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<td>DP</td>
<td>RM</td>
<td>as 66</td>
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<td>P.CREPIUS</td>
<td>82 BC</td>
<td>43</td>
<td>DEN</td>
<td>RM</td>
<td>473 vtr.</td>
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<td>DP</td>
<td>RM</td>
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<td>473 vtr.</td>
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<tr>
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<td>SW</td>
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<td>16469</td>
<td>1A</td>
<td>SELT</td>
<td>SW/W</td>
<td>M. Aurel, 1779</td>
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<td>7B</td>
<td>AS</td>
<td>RM</td>
<td>M. Aurel, 1746</td>
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<td>4B</td>
<td>DP</td>
<td>AS</td>
<td>-</td>
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<td>DEN</td>
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<td>-</td>
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<td>DEN</td>
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<td>DEN</td>
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<td>DEN</td>
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<td>RM</td>
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<td>200-38</td>
<td>12B</td>
<td>DEN</td>
<td>RM</td>
<td>290</td>
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<td>C495</td>
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<td>16A</td>
<td>DP</td>
<td>RM</td>
<td>290</td>
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<tr>
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<td>TRAJAN</td>
<td>103-11</td>
<td>16A</td>
<td>DP</td>
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<td>DEN</td>
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<td>16B</td>
<td>SELT</td>
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<td>TRAJAN</td>
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<td>23A</td>
<td>AS</td>
<td>RM</td>
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<td>24B</td>
<td>DEN</td>
<td>RM</td>
<td>290</td>
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<td>117-38</td>
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<td>RM</td>
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<td>DEN</td>
<td>RM</td>
<td>290</td>
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<td>27B</td>
<td>5d</td>
<td>-</td>
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<td>1890</td>
<td>1B</td>
<td>Id</td>
<td>-</td>
<td>40/141</td>
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The excavations in 2002 produced a further 26 coins (C508-C533), summarized in Table 2 (ordered according to small finds number) and again in Table 3 (ordered by date of issue). As usual, the archaeological implications of these finds are discussed in the main body of
the text, but there are also a few items of more general and numismatic interest to be mentioned here.

Table 2: AD 2002 coin list ordered by small find number.

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<tr>
<th>Cat.No.</th>
<th>Issuer</th>
<th>Date</th>
<th>Context</th>
<th>Type</th>
<th>Mint</th>
<th>Wear</th>
<th>Reference</th>
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<td>TRAJAN</td>
<td>103-14</td>
<td>B-5</td>
<td>BST</td>
<td>RM</td>
<td>1/SW</td>
<td>503/592</td>
</tr>
<tr>
<td>C509</td>
<td>TRAJAN</td>
<td>103-14</td>
<td>B-5</td>
<td>BST</td>
<td>RM</td>
<td>C/C</td>
<td>as 624</td>
</tr>
<tr>
<td>C510</td>
<td>&quot;SEPTIMUS SEVERUS&quot;</td>
<td>194-97+</td>
<td>B-7</td>
<td>DEpl</td>
<td>RM</td>
<td>1/W</td>
<td>c.o.f. 37/54/89</td>
</tr>
<tr>
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<td>TRAJAN (obv. die linked with C513)</td>
<td>103-11</td>
<td>A-3</td>
<td>BST</td>
<td>RM</td>
<td>UW/UW</td>
<td>560</td>
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<tr>
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<td>c.193-238+</td>
<td>B-10</td>
<td>DEpl</td>
<td>-</td>
<td>C/SW</td>
<td>c.as   -</td>
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<tr>
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<td>TRAJAN (obv. die linked with C511)</td>
<td>103-11</td>
<td>A-14</td>
<td>BST</td>
<td>RM</td>
<td>UW/UW</td>
<td>560</td>
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<td>A-14</td>
<td>BST</td>
<td>RM</td>
<td>1/SW</td>
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<td>80-81</td>
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<td>RM</td>
<td>EW/EW</td>
<td>Titus 143/4</td>
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<tr>
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<td>probably HADRIAN</td>
<td>117-382 (98-138)</td>
<td>B-19</td>
<td>DP/AS</td>
<td>RM</td>
<td>C/C</td>
<td>-</td>
</tr>
<tr>
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<td>possibly TRAJAN (VESPI-HADRIAN)</td>
<td>98-117? (69-138)</td>
<td>B-24</td>
<td>DP/AS</td>
<td>RM</td>
<td>C/C</td>
<td>-</td>
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<tr>
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<td>A-25</td>
<td>BST</td>
<td>RM</td>
<td>UW/SW</td>
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<td>A-16</td>
<td>DEp</td>
<td>RM</td>
<td>1/SW</td>
<td>299</td>
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<tr>
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<td>A-16</td>
<td>DP</td>
<td>RM</td>
<td>W/W</td>
<td>757c</td>
</tr>
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<td>A-16</td>
<td>DP</td>
<td>LG</td>
<td>W/W</td>
<td>757c</td>
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<td>A-1</td>
<td>BST</td>
<td>RM</td>
<td>SW/SW</td>
<td>757c</td>
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<tr>
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<td>RM</td>
<td>C/C</td>
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<td>LG</td>
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<td>B-23</td>
<td>AS</td>
<td>RM</td>
<td>1/SW</td>
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<td>RM</td>
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Table 3: AD 2002 coin list ordered by date of issue.

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<td>117-387 (98-138)</td>
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<td>RM</td>
<td>C/C</td>
<td>-</td>
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<td>117-617 (C2/2nd)</td>
<td>B-42</td>
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<td>C/C</td>
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<td>B-24</td>
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<td>RM</td>
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<tr>
<td>22</td>
<td>C525</td>
<td>MARCUS AURELIUS</td>
<td>161-62</td>
<td>B-31</td>
<td>DEp</td>
<td>RM</td>
<td>UW/SW</td>
<td>48</td>
</tr>
<tr>
<td>23</td>
<td>C529</td>
<td>ILLEGIBLE</td>
<td>C2nd</td>
<td>A-2</td>
<td>BST</td>
<td>RM</td>
<td>C/C</td>
<td>as A. Pius 758</td>
</tr>
<tr>
<td>24</td>
<td>C512</td>
<td>ILLEGIBLE/COUNTERFEIT</td>
<td>c.193-238+</td>
<td>B-10</td>
<td>DEpl</td>
<td>-</td>
<td>C/SW</td>
<td>c.as   -</td>
</tr>
<tr>
<td>25</td>
<td>C510</td>
<td>&quot;SEPTIMUS SEVERUS&quot;</td>
<td>&quot;194-97+&quot;</td>
<td>B-7</td>
<td>DEpl</td>
<td>RM</td>
<td>W/W</td>
<td>c.o.f. 37/54/89</td>
</tr>
<tr>
<td>26</td>
<td>C526</td>
<td>ELAGABALUS</td>
<td>218-22</td>
<td>B-31</td>
<td>ANT</td>
<td>RM</td>
<td>1/SW</td>
<td>129</td>
</tr>
</tbody>
</table>

Notes:
1. C511 and C513 are almost certainly obverse die-linked (though the reverses, despite being of the same type, are not die-linked).
2. C518: attribution almost certain, but reverse of coin barely legible (and obverse completely illegible).
4. C517: dates from Vespasian to Antoninus Pius (69-161); possibly Trajan (98-117).
5. C523: 1st or 2nd century, possibly Antoninus Pius; pierced for suspension. Obverse: head r., pierced behind the head, at '9 o'clock'. Reverse: standing figure, l., pierced at '3 o'clock'.

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6. C531: 2\textsuperscript{nd} century, probably Hadrian or Antoninus Pius, but possibly slightly later, i.e. Marcus Aurelius (161-80).

7. Wear statistics: a question mark implies uncertainty due to corrosion products; conventions are as outlined in previous volumes; fuller explanation may be found in the author’s English Heritage Guidance Note, The Production, Analysis and Standardization of Romano-British Coin Reports, forthcoming 2003.

8. Catalogue references are to The Roman Imperial Coinage (RIC), vols. 1-10, edd. Mattingly et al., 1926-1994, unless otherwise stated. CRAW (see C467) = Roman Republican Coinage, M. Crawford, 1974.

9. XRF analysis: as ever, I am grateful to Mr. Jennifer Jones of the Department of Archaeology, Durham, for XRF analyses of the denarii. This technique of surface analysis is useful in identifying/confirming counterfeit status.

As often seems to be the case with Vindolanda finds, many of this season’s coins are in a superb state of preservation (unlike those recovered from virtually any other site in the region). As a result, full attributions can be made and a reasonable assessment made of the degree of circulation wear exhibited by individual coins. A substantial minority, however, are less well-preserved, with the result that a full identification has sometimes not been possible: areas of uncertainty are indicated in the notes to the catalogue. In addition, corrosion products sometimes make a reliable estimate of wear all but impossible (and the question marks within the catalogue reflect those cases of uncertainty).

The general spread of coin finds is markedly similar to that of 2001, beginning with relatively worn issues of Vespasian and ending with early-third-century silver. Last year I commented on the gradual replacement of smaller denominations by larger, a reflection of the gradual inflation of the 1\textsuperscript{st} and 2\textsuperscript{nd} centuries AD: this phenomenon is still more visible in this year’s sample, a glance at the ‘Type’ column of Table 3 amply demonstrating the increasing dominance of sestertii and then denarii in place of dupondii and asses.

XRF surface analysis of the silver coins once again yielded some interesting results: of the five coins (four denarii and one ‘antoninianus’) three appeared to be regular, and a fourth possibly so. Analysis of the denarius of Hadrian (C519) and Marcus Aurelius (C525) confirmed the presence of high-grade silver as expected, while the silver peak for the ‘antoninianus’ of Elagabalus (C526) was, if anything, rather higher than expected (given that by the 220s the systematic debasement of the silver currency was well underway). Very little silver was detected on the surface of either of the two remaining ‘silver’ coins: that was not particularly surprising for C512, which appears to be the copper core of a previously-plated counterfeit denarius; but C510 is a worn, but superficially regular, issue of Septimius Severus with a supposed mint-date within the period 194-97. Its colour is perhaps not quite right for a silver coin, though it could well have passed un-noticed alongside the genuine article – but analysis suggests that at least its surface layers are made up of copper, tin and little else.

Amongst the lesser denominations, there is one very badly corroded as that appears to have been pierced for suspension (C523); It is virtually illegible but may be, I think, an issue of Antoninus Pius (though it may actually belong virtually anywhere in the 1st or 2nd centuries). Much of the interest in such objects lies in the type of coin that someone might choose to wear for ornament or perhaps as a lucky charm. Unfortunately, although this example appears to have been pierced with some care so as to miss both the obverse and reverse types, its types are largely illegible, so little more can be gleaned from its study.

Finally, the most exciting discovery amongst the 2002 finds is the probable obverse die-linkage between two beautifully-preserved sestertii (C511 and C513, recovered from two widely-separate contexts). They are unworn issues of Trajan, minted in the period when
the emperor was Cos. V, i.e. AD 103-11. The obverse type is a common one (a laureate Trajan facing right with the lengthy legend IMP CAES NERVAE TRAIANO AVG GER DAC PM TRP COS V PP). They both carry the reverse legend and type SPQR OPTIMO PRINCIPI with Dacia seated in front of a trophy, a type clearly celebrating Rome’s victories over the Dacians (RIC 560) - but it is the obverses rather than the reverses of these coins that appear to have been struck from the same die (plate 000). The presence at Vindolanda of two sestertii apparently from the same batch of freshly-minted coin provides a snippet of very useful evidence about the supply and circulation of Roman coinage in northern Britain, strongly indicating, I think, that at least some of the fractional coinage was transported directly to the fort from the mint (in this case Rome itself).

It has always seemed to me a logical assumption that the vast majority of the precious metal coinage to enter northern Roman Britain did so as payment for the army and so is likely to have been delivered directly to the garrisoned locations before passing into more general circulation (an argument recently rehearsed in some detail elsewhere; Brickstock, 2003, forthcoming). The base metal coinage could well have been supplied by the state in the same way and to the same locations, though a proportion of it perhaps arrived courtesy of independent moneychangers, who would also, one would imagine, gravitate towards those (soldiers and others) who had precious metal coin to exchange.

However, the scarcity of hoards of precious metal coinage in our region (perhaps in part because the strong rooms of the forts obviated the need for hoarding elsewhere) makes it difficult to test this theory, and we have to turn to the fractional coinage for our evidence. Die-linkages are rarely reported from amongst northern assemblages, perhaps because they are not often there to be found, but perhaps also because they have hitherto passed unobserved. It is to be hoped that the latter situation may be rectified by the more general availability of imaging software, allowing simple and cheap recording and circulation of coin images in site databases such as that produced by the Vindolanda Trust.

Reference:
Barrels and amphorae at Vindolanda: English summary

by Anthony Birley

The barrels

Most remains of ancient barrels in Europe are of those re-used, complete or almost complete, in the inside of wells. No examples of this kind are found at Vindolanda, where the barrels had mostly been recycled as floor-boards. All the same, the Vindolanda barrel-staves can be identified as belonging to three of the five types in Marlière 2002: a) type 1, small barrels or casks (Fr. tonnelets), nos 1-44; b) type 2 (three staves only, from two barrels), (nos. 45,46), barrels (Fr. barriques) up to c. 100 cm in height; c) type 5 (86 fragments, nos. 47-74), from massive barrels (Fr. fûts) originally more than 2 m in height. Further there are several fragments, d), of indeterminate type (nos. 75, 76). The barrel-pieces at Vindolanda were found in levels from period I to period VIB. The barrels were probably imported in the late 1st and early 2nd century and survive in later periods because of recycling, first perhaps to transport local produce, then sawn through to make tubs some 30-40 cm high and finally as floor-boards. The middle part of the barrels was probably used as firewood, only the tops and bottoms being used for making tubs. A minimum total of pieces from up to 28 or 29 separate barrels makes the Vindolanda finds one of the most important groups so far known.

The wood from which the 249 Vindolanda fragments were made, as analysed by Jon Hather and Rob Sands, comprised 113 fragments of fir (ABIES ALBA) or larch (LARIX DECIDUA), often used together in single containers, larch outnumbering fir 5:1; 1 of ash (FRAXINUS EXCELSIOR) (no. 24); 13 of oak (QUERCUS); and 1 of yew (TAXUS BACCATA). The fragments found in period I and II levels were all of fir or larch; oak is found only in period III. Continental evidence indicates that fir and larch is not found there in barrels later than the early 2nd century, when oak began to be used, becoming the exclusive wood from the 3rd century. The first point underlines the conclusion from the stratigraphy that many of the Vindolanda examples were re-used over a long period. No parallels are known for ash being used in barrels, which makes the Vindolanda barrel-base, of that is what is really is (no. 24), unique at present. The yew (listed under no. 76) is also unique, although the Elder Pliny (Nat. Hist. XVI 50) mentions a case of poisoning in Gaul, caused by drinking from travelling containers (vasa viatoria) made of yew.

Estimates of the size of the original containers are: the diameter, from the surviving bases, between 12 and 23 cm (nos.1.2 and 13); the height from the staves, seven of which were complete, two being just over 53 cm (nos 3,4); other staves, which had probably been cut in half, confirm an original height of c. 50 cm for some, others rather less, the range being between 25 and 58.5 cm. The bungs (Fr. bônes) had a diameter of between 1.4 and 2.7 cm, the spigot holes between 0.3 and 0.6 cm. No wooden hoops have been preserved, but they were probably made of hazelnut (CORYLUS AVELLANA). The 38 inscriptions were either struck with a sharp instrument (Fr. hache dite 'marteau'); branded; or scratched as graffiati. The first two categories clearly go back to the manufacturing stage, whereas the third can be associated with Vindolanda itself.

The fact that fir and larch are found together only in the foothills of the Alps and that the technique of striking an inscription with a sharp implement is known only in the Rhône and Rhône valleys, leads to the conclusion that the containers made of these woods were used to ship wine – or sour wine (acetum) – probably from the Rhône valley, to the army.

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1 It may be mentioned here that French has a much larger vocabulary for barrels than English: barrique, foudre, fût, faiolle, tonneau and, for small barrels, tonnelet. Further, a word used repeatedly in this report, jable, is not in most French-English dictionaries: it means the groove hollowed out to take the base or lid of the barrel.
As oak is much more widely found, the source of the oak barrels cannot be decided, especially as these have no inscriptions.

III. The amphorae

This is a provisional report, based on research begun in summer 2002 and not yet concluded, dealing with finds made between 1990 and 2001, a total of 2033 pieces, out of which a minimum number of 98 separate amphorae can be identified.

4.1% are from Italy (fig. 15). The Dressel 2/4 wine amphorae are from the west coast of the peninsula, made of dark red clay with numerous fragments of black volcanic rock, resembling Campanian products. They have an average capacity of 25 litres and weight of 15 kg, giving a ratio of contents to weight of 1.68 litres per kg. The fragments indicate at least two separate amphorae of this type, perhaps as many as four or five to judge from the raw material. Another Italian wine amphora type is known at Vindolanda, with a flat base, from the baths and temple excavations (period VII). The Lipari amphorae (previously called Richborough 527 before the discovery of their place of manufacture) were for the transport of alum, used for dying. Their distribution in the western Mediterranean and NW of the Empire spans the period from the second quarter of the 1st to the end of the 3rd century. Nine pieces have been found at Vindolanda, from periods II, III and VI, particularly in the Vicus.

84.8% are from Baetica, having contained wine, sauce and, above all, olive oil. Two separate amphorae of the Haltern 70 type (fig. 16), made of similar clay to Dressel 20, have been found, one in period II, the other, clearly residual, in period VIA. They contained 'boiled' wine (sapa and defrutum), in which olives were sometimes conserved. The Dressel 20 olive oil amphorae (figs. 17 and 18) were produced in the Guadalquivir valley between Seville and Cordova, and can be dated to the period from the late 1st to late 3rd centuries. They contained 70 litres and weighed 30 kg, a ratio of 2.33 litres per kg. These form 81.7% of the Vindolanda finds, underlining the importance of Baetican oil supplies to the fort. Only one example of Dressel 38 (fig. 16, also called Beltran II A2), which contained fish-sauce, attests to this being consumed at Vindolanda, in period V.

7.1% are from Gaul, all from Narbonensis, Augst 21 and Gauloise 4 types. An almost complete example of Augst 21, from period IV, found in 2002 (fig. 19), had contained 'white' olives conserved in defrutum, 'boiled' wine, as shown by the inscription, OL (iva) AL (ba) and LLLVCIII and LCH, probably the names of the producer and the merchant. Gauloise 4 amphorae (fig. 20), produced in Languedoc and Provence, contained Aminneum wine, a fine Greek variety, imported first to Italy then probably to Gaul, Picatum, resinated wine, Massiliense, from Marseille and Passum, made from sun-dried raisins. They circulated from the mid-1st to the end of the 3rd century. At Vindolanda they appear in periods II-VII.

The Eastern Mediterranean is also represented, albeit modestly, with 3%. The Kapitän II type (fig. 21), from the Aegean, were in use between the late 2nd and the 4th century. The sole Vindolanda example is from period VII. The 'carrot' or Schöne-Mann XV type, derived from N. Africa, Egypt or the Syria-Palestine area, the earliest examples being from the early 1st century; they continued to circulate until at least the early 2nd. The Vindolanda fragment was unstratified. A third amphora from the E. Mediterranean, type not definable, was found in period IV.
Olive oil amphorae from Baetica thus form 81.7% of the total, wine amphorae at 14.3% being not only less numerous but from varied origins: Campania, Baetica, Narbonensis and the Aegean. Fish-sauce amphorae are represented by a tiny quantity, no doubt because the troops at Vindolanda were from a region (N. Gaul and the Rhineland) where this condiment – unlike olive oil – does not seem to have enjoyed much success. It is the more surprising that only one carrot amphora has been found at Vindolanda, since this type, which contained dates, is mainly attested in military contexts. The 73 stamps on Dressel 20 amphorae are discussed in an appendix.

Conclusion
It is noted that good wine would not travel well in wooden barrels, which probably contained sour wine, acetum, mixed with water to prepare the soldiers’ drink posca (when they were not drinking beer). The wine in amphorae was no doubt reserved for the officers; likewise the amphorae with fish-sauce, olives, spices etc. would be for them.
Tonneaux et amphores à Vindolanda :
contribution à la connaissance de l’approvisionnement
des troupes stationnées sur la frontière Nord de l’Empire

Elise Marière

Le fort de Vindolanda est un site exceptionnel à bien des égards, et en particulier pour la
recherche sur l’approvisionnement de l’armée, puisqu’il offre l’opportunité rare, sinon unique, d’étudier
simultanément amphores, tonneaux et compots d’approvisionnement. Le domaine qui nous intéresse
ici, et qui concerne les emballages, porte sur environ deux cent soixante-dix fragments de tonneaux et
sur plus de deux mille tessons d’amphores.

I - Les tonneaux

La plupart des vestiges de tonneaux antiques mis au jour en Europe ont été découverts
complets ou presque dans des pits à l’intérieur desquels ils avaient été remployés en tant que
cuvelage. Cette pratique très répandue dans les camps militaires, notamment ceux du Rhin, permet en
effet de concevoir assez rapidement des points d’eau potable avec des emballages acheminés en masse
afin d’abreuver les troupes en vins et en bière. Mais à Vindolanda, aussi surprenant que cela puisse
paraître, cela n’était pas le cas : les fouilles n’ont livré aucun pits à tonneaux. Le mobilier disponible
n’en est pas pour autant moins abondant : les fûts importés à Vindolanda ont en effet pu être en grande
partie préservés grâce à leur ultime recyclage, en lattes de plancher. Toutefois, si cette réutilisation
originale leur a permis de nous parvenir dans un état de conservation excellent, elle implique évidemment le démontage et le débitage de chacune des barriques1, ce qui ne facilite pas leur étude.
Malgré la fragmentation du matériel, et grâce à la mise en parallèle avec les exemplaires
archéologiquement complets de Bretagne, de Gaule et du times rhénan, les fragments de Vindolanda
ont pu être répartis dans trois des cinq groupes de la typologie récemment proposée2. Une partie du
mobilier s’insère en effet dans le groupe 1, celui des tonnelets, deux douilles dans le groupe 2, celui
des barriques hautes de 100 cm environ, et le reste dans le groupe 5, qui renvoie à de grands fûts dont
la hauteur peut atteindre plus de 2 m, mis au jour presque exclusivement en contexte militaire.

En ce qui concerne la chronologie, les fragments étudiés proviennent des périodes I (environ
85 à 94 de notre ère) à VIB (200-212). L’existence de “recollages” au niveau des bouches, comme pour
les fragments W1054 (période 5 : 120-140) et W1058 (période 6), ou encore W399 (période 2 : 94-97)
W905-2 (période 6), semble cependant indiquer que les tonneaux ont pour la plupart été importés à
la fin du 1er siècle et au début du 2e siècle, et que leur résilience dans les niveaux postérieurs est due
to leurs réutilisations successives.

Il semble en effet qu’entamer une nouvelle existence comme latte de plancher, les
barriques de Vindolanda, qui ont par ailleurs pu dans un premier temps être réutilisées telles quelles
pour le transport de denrées locales, aient subi quelques modifications. Les extrémités des grandes
pièces du groupe 5 ont visiblement été sciées afin de servir de bacs de 30 à 40 cm de haut, pratique
déjà connue en Bretagne, puisque cela a déjà été proposé pour un fragment de douille de Mélide de
Caernarvon (Segontium), découpée à 31 cm de l’extrémité et portant des traces de cerclage en bois3. À
Vindolanda, on peut en outre remarquer une forte usure du côté de la découpe, très comparable à celle
qu’un cheval ou une vache peut faire sur une mangeoire. La quasi-inexistence des découvertes de

1 Je souhaite remercier ici Patrice et Robin Birley pour m’avoir si chaleureusement accueilli au cours des étés
2001 et 2002, pour m’avoir ouvert les collections de Vindolanda, mais aussi pour avoir apporté toutes les petites
difficultés que l’on peut rencontrer au cours d’une mission à l’étranger. Merci également à Barbara et Andrew
Birley, Fiona Watson, Natasha Marriott, ainsi qu’à tout le personnel du musée, pour leur aide, leur gentillesse et
leur disponibilité. Ma gratitude va également à Fanette Laubenthal et au Groupe de Recherche 2138 du
CNRS qu’elle dirige, intitulé “Les denrées en Gaule romaine. Production, consommation, échanges. Le
témoignage des emballages”, sans le soutien desquels cette étude n’aurait pu voir le jour.
2 Ce qui explique qu’aucun fragment de cerclage en bois n’ait été retrouvé.
4 Boon 1975, p. 52-58.
fragments sans jable" indique que la partie médiane des douelles de ces grands fûts a certainement été reconvertis en bois de chauffage. Plus difficiles à comprendre, trois extrémités de douelles du groupe 5 (en quatre fragments) présentent non pas un jable, mais deux (fig. 9, n°54 et 64). Le jable originel semble être le plus éloigné de l'extrémité : il est plus profond et plus régulier que le second. On aurait pu imaginer qu'après avoir retiré un des fonds pour une raison quelconque, on ait voulu en remettre un pour réutiliser le tonneau, mais comme c'est le fond qui est taillé en fonction de la dimension du jable et non le contraire, cela ne peut pas expliquer la présence de ce deuxième jable.

Quant aux exemplaires du groupe 1, les traces relevées indiquent l'existence de deux types de reconversion. Si certains tonnelets semblent avoir été simplement divisés en deux récipients ouverts, d'autres montrent les signes d'un aménagement plus soigneusement planifié : de nombreux fragments présentent en effet un nouveau jable du côté de la coupure. Il s'agit probablement de tonnelets que l'on a découverts sur lesquels on a réalisé un nouveau jable et adapté un couvercle au niveau du bouge.

Le meilleur exemple de ce type de remploi est l'ensemble de douelles W1069-1 (fig. 3, n°19), daté, comme d'ailleurs tous les fragments qui montrent des traces de ce type de remploi, de la période 5 (120-140). La douelle n°4 présente une prise d'air, ce qui prouve bien qu'il s'agissait à l'origine d'un tonneau. De plus, la découpe effectuée au moment du remploi a été très maladroite et décalée, tandis que le jable est moins profond et moins régulier que le jable du tonneau lui-même. En revanche, l'extrémité originelle est usée par les frottements dus aux déplacements du tonneau en position verticale.

1 - Étude typologique

La longueur initiale des douelles nous étant inconnue dans la plupart des cas, les deux paramètres retenus pour tenter de réaliser un premier tri des fragments sont l'épaisseur mesurée à l'extrémité et la distance entre l'extrémité et le jable. La largeur des douelles ne paraît pas fiable pour tenter de rassembler les douelles d'un même tonneau et n'a donc pas été retenue, en premier lieu parce que les douelles sont souvent incomplètes en largeur, et ensuite parce qu'un même tonneau possède souvent des douelles de largeurs différentes.

Le catalogue qui suit présente les fragments classés selon les groupes de la typologie (1, 2 et 5), puis par essences (uniquement pour le groupe 1, qui en présente plusieurs). Sont inventoriés d'abord les fonds, puis les douelles, par ensembles pouvant appartenir à une même extrémité de tonneau ou de tonneau.

a - Les tonnelets du groupe 1

Au groupe 1, qui rassemble les douelles dont l'épaisseur est comprise entre 0,4 cm et 1,4 cm, et la distance entre l'extrémité et le jable entre 1,1 cm et 2,6 cm, on peut attribuer 134 fragments : des douelles complètes, des douelles cassées et des douelles sciées, parfois avec un jable secondaire aménagé du côté de la coupure. Plusieurs essences ont été déterminées pour ce groupe : parmi les fragments, cent treize sont en Sapin argenté ou en Mélèze d'Europe, un en Frêne et treize en Chêne. On ignore les essences mises en œuvre pour des fonds monoblocs et une planche de fond.

Pour ce qui est des tonnelets qui mélangent le Sapin argenté et le Mélèze, nous possédons deux petits fonds monoblocs d'un diamètre de 13 cm (n°2) et de 13,6 cm (n°1), ainsi qu'une planche provenant d'un fond de 25 cm de diamètre (n°13). Nous pouvons donc estimer le diamètre aux extrémités des tonnelets dont ils proviennent à environ 12 cm-13 cm pour les deux premiers, et autour de 23 cm pour le troisième. En ce qui concerne les douelles, au nombre de cent dix, la question de leur...
longueur ne pose pas de problème quand elles ont été retrouvées intactes, ce qui est le cas pour sept d'entre elles, longues de 53,8 cm (n°3) et de 58,5 cm (n°4), ou quand elles sont conservées sur plus de la moitié, ce que l'on peut constater grâce à leur forme "en double flèche". En revanche, l'affaire se corse pour les douelles incomplètes présentant une extrémité et elle devient insoluble pour les vingt-cinq fragments n'offrant aucune extrémité. On remarque cependant que si l'on multiplie par deux la longueur conservée des douelles sciées qui possèdent une épaisseur et une distance extrémité/jable comparable à celles des douelles complètes (entre 0,9 cm et 1,2 cm pour l'épaisseur et entre 2,1 cm et 2,6 cm pour la distance extrémité/jable), on arrive à des mesures similaires, autour de 50 cm. Il semble donc que ces tonnelets ont tout simplement été découps en deux au moment de la réutilisation. Le même phénomène étant tout à fait envisageable pour les plus petites pièces, on peut ainsi avoir une idée de la hauteur de la plupart des tonnelets. On obtient alors des hauteurs restituées de 25 cm (n°10), 30 cm (n°5), 32 cm (n°6), 35 cm (n°7 et n°17), 38 cm (n°11), 41 cm (n°18 et n°19), 47 cm (n°20), 48 cm (n°12 et n°13), 50 cm (n°14), 52 cm (n°8, n°15, n°16 et n°21) et 54 cm (n°22).

Le seul élément en Frêne, un fond monobloc de 11,7 cm de diamètre et de 0,6 à 0,9 cm d'épaisseur (n°24), s'il s'agit réellement d'un fond de tonneau, s'intègre parfaitement dans ce premier groupe.

Il en est de même pour les neuf fonds et quatre douelles incomplètes en Chêne : les fonds monoblocs étudiés offrent des diamètres de 9 cm (n°25), 13,2 cm (n°26) et 14 cm (n°27), et la douelle une longueur conservée de 42 cm (n°34).

Enfin, les fonds dont l'essence n'a pas été déterminée possèdent des diamètres de 12,5 cm (n°38), 15,6 cm (n°39), 17,5 cm (n°40), 20,8 cm (n°41), 22 cm (n°42) et de 24,4 cm (n°43) pour les fonds monoblocs, et de 24 cm (n°44) pour ceux qui sont constitués de planches.

Il s'agit donc de tonnelets à la hauteur comprise entre 25 cm et 58,5 cm, dont les fonds sont monoblocs pour les plus petits exemplaires, et composés de plusieurs planches pour les plus grands. Pour comparaison, nous évoquons le tonneau du 1er siècle mis au jour à Grenoble (France), haut de 24,3 cm, avec un diamètre au bouge de 15,3 cm et un diamètre aux extrémités de 11 cm, pour une capacité de 2,5 à 3 litres", et celui du 1er siècle découvert à Bar Hill (Grande-Bretagne), composé de quatorze douelles en Chêne, haut de 35 cm, avec un diamètre au bouge de 22 cm, un diamètre aux extrémités estimé à 16 cm, et dont la capacité atteignait 8 litres environ.11

Quant aux ouvertures de ces tonnelets, les fonds comportent des bondes d'un diamètre de 1,4 cm (n°1), 2,4 cm (n°2 et n°27), et 2,7 cm (n°42) et des trous de fausset de 0,3 cm (n°27) et 0,6 cm de diamètre (n°2), tandis que la bonde et la prise d'air relevées sur les douelles présentent des diamètres respectifs de 3,4 cm, à 10,8 cm de l'extrémité (n°15) et de 0,8 cm, à 14,6 cm de l'extrémité (n°19).

Il est impossible de connaître le nombre exact de tonnelets, mais quelques calculs permettent de proposer un nombre minimum d'individus (NMI). En effet, pour les exemplaires en Sapin et Mélèze, on compte vingt types d'extrémités de douelles différents ; si l'on divise ce chiffre par deux, en supposant que la distance extrémité/jable peut varier légèrement d'une extrémité à l'autre, on obtient donc un NMI de 10. De plus, onze hauteurs différentes sont connues, et si l'on ajoute aux trois diamètres de fonds différents les fonds dont l'essence est inconnue, on obtient un total de onze fonds, dont neuf diamètres différents. On peut donc estimer le NMI des tonnelets du groupe 1 faits de Mélèze et de Sapin à 10 ou 11. A cela s'ajoute un individu en Frêne, et cinq en Chêne (pour neuf fonds dont on ne connaît pas toujours le diamètre), soit un NMI de 16 ou 17 pour l'ensemble des tonnelets.
Sapin argenté (Abies alba) et/ou Mélèze d'Europe (Larix decidua)

1 - Fond
Inv. W609.
Description : Fragment de fond de tonnelet monobloc pourvu d'une bonne.
- diamètre : 13,6 cm.
- épaisseur : 0,5 à 0,9 cm.
- diamètre de la bonne : 1,4 cm.

Paramètre restitué :
- d : environ 13 cm.
Essence : Sapin argenté.
Datation : Période II ou III.

2 - Fond
Inv. W612.
Description : Fragment de fond de tonnelet monobloc pourvu d'une bonne et de deux trous de fausset.
- diamètre : 13 cm.
- épaisseur : 1 à 1,1 cm.
- diamètre de la bonne : 2,4 cm.
- diamètre des trous de fausset : 0,6 cm.

Paramètre restitué :
- d : environ 12 cm.
Essence : Mélèze
Datation : Période III.

3 - Douelles complètes
Inv. W661, W722 et W759.
Description : Cinq douelles complètes.
- longueur : 53,8 cm.
- épaisseur aux extrémités : 1,1-1,2 cm.
- largeur aux extrémités : 5,2 à 6,8 cm.
- épaisseur au milieu : 1,1-1,2 cm.
- largeur au milieu : 6,4 à 8,9 cm.
- profondeur des jables : 0,2 cm.
- largeur des jables : 0,3 cm.
- distances extrémités/jables : 2,6 cm.

Paramètre restitué :
- H : 54 cm.
Essences : Deux douelles en Sapin argenté et trois en Mélèze.
Datation : Période II (W661 et W722) et III (W759).

4 - Douelles complètes
Inv. W916.
Description : Deux douelles, l'une complète et l'autre presque.
- longueur : 58,5 cm.
- épaisseur à l'extrémité : 0,9 cm.
- largeur à l'extrémité : 4 cm et 4,9 cm.
- épaisseur au milieu : 1 cm.
- largeur au milieu : 5,8 cm.
- profondeur des jables : 0,2 cm.
- largeur des jables : 0,2 cm.
- distances extrémités/jables : 1,9 et 2,1 cm.

Paramètre restitué :
- H : 58,5 cm.
Essence : Mélèze.
Datation : Période III.

5 - Douelle brisée
Inv. W1096.
Description : Extrémité de douelle avec un jable.
- longueur maximale conservée : 15 cm.
- épaisseur à l'extrémité : 0,5 cm.
- largeur à l'extrémité : 2,8 cm.
- profondeur du jable : 0,2 cm.
- largeur du jable : 0,3 cm.
- distance extrémité/jable : 2,1 cm.
- épaisseur à la découpe : 0,6 cm.
- largeur à la découpe : 4 cm.

Paramètres restitués :
- H : 30 cm au minimum.
Essence : Mélèze.
Datation : Période VI.

6 - Douelle brisée
Inv. W304.
Description : Douelle incomplète avec un jable.
- longueur maximale conservée : 16 cm.
- épaisseur aux extrémités : 0,8 cm.
- largeur aux extrémités : 3,3 cm.
- profondeur du jable : 0,2 cm.
- largeur du jable : 0,2 cm.
- distance extrémité/jable : 1,5 cm.
- épaisseur à la découpe : 0,7 cm.
- largeur à la découpe : 4,2 cm.

Paramètre restitué :
- H : 32 cm au minimum.
Essences : Mélèze
Datation : Période VI.

7 - Douelles brisées
Description : Six fragments de douelles brisées dont le plus long (W426) semble avoir atteint et légèrement dépassé le milieu.
- longueur maximale conservée : 20 cm.
- épaisseur aux extrémités : 0,6 cm.
- largeur aux extrémités : 2 à 3,5 cm.
- profondeur du jable : 0,2 cm.
- largeur du jable : 0,2 cm.
- distance extrémité/jable : 1,9 cm.

**Paramètres restitués :**
- **H** : environ 35 cm.

**Essence** : Mélèze.

**Datation** : Périodes I (W1080), II (W1105) et VI (W426, W516, W904 et W1057).

### 8 - Douelles brisées

Inv. W1271 et W1276.

**Description** : Deux douelles incomplètes ; il ne manque qu'une partie extrémité/jable à la mieux conservée (W1276).

- longueur maximale conservée : 46,7 cm.
- épaisseur à l'extrémité : 0,8 cm.
- largeur à l'extrémité : 4,7 cm (W1271) et 5 cm (W1276).
- épaisseur au milieu : 0,8 cm.
- largeur au milieu : 6 cm (W1276).
- profondeur du jable : 0,3 cm.
- largeur du jable : 0,3 cm.
- distance extrémité/jable : 2,5 cm.

**Paramètre restitué** :
- **H** : 52 cm environ.

**Essences** : Sapin argenté (W1271) et Mélèze (W1276).

**Datation** : Périodes II ou III (W1271) et V (W1276).

### 9 - Douelle brisée

Inv. W757.

**Description** : Extrémité de douelle avec un jable.

- longueur maximale conservée : 9 cm.
- épaisseur aux extrémités : 0,5 cm.
- largeur aux extrémités : 3,5 cm.
- profondeur du jable : 0,1 cm.
- largeur du jable : 0,1 cm.
- distance extrémité/jable : 1,6 cm.

**Essence** : Mélèze.

**Datation** : Période II.

### 10 - Douelle sciée

Inv. W644.

**Description** : Extrémité de douelle sciée avec un jable.

- longueur maximale conservée : 12,3 cm.
- épaisseur à l'extrémité : 0,6 cm.
- largeur à l'extrémité : 3,5 cm.
- profondeur du jable : 0,1 cm.
- largeur du jable : 0,2 cm.
- distance extrémité/jable : 1,2 cm.
- épaisseur à la découpe : 0,7 cm.

- largeur à la découpe : 4,4 cm.

**Paramètres restitués** :
- **H** : 25 cm au minimum.

**Essence** : Mélèze.

**Datation** : Période III.

### 11 - Douelle sciée

Inv. W1282.

**Description** : Extrémité de douelle sciée avec jable.

- longueur maximale conservée : 19 cm.
- épaisseur aux extrémités : 0,6 cm.
- largeur aux extrémités : 3 cm.
- profondeur du jable : 0,1 cm.
- largeur du jable : 0,2 cm.
- distance extrémité/jable : 1,4 cm.
- épaisseur à la découpe : 0,8 cm.
- largeur à la découpe : 3,8 cm.

**Paramètre restitué** :
- **H** : 38 cm au minimum.

**Essence** : Mélèze.

**Datation** : Période V.

### 12 - Douelle sciée

Inv. W1024.

**Description** : Douelle sciée avec un jable.

- longueur maximale conservée : 23,4 cm.
- épaisseur à l'extrémité : 0,9 cm.
- largeur à l'extrémité : 4,5 cm.
- profondeur du jable : 0,2 cm.
- largeur du jable : 0,2 cm.
- distance extrémité/jable : 1,5 cm.

**Paramètre restitué** :
- **H** : 48 cm environ.

**Essence** : Sapin argenté.

**Datation** : Période III (W1024).

### 13 - Douelles sciées et planche de fond

Inv. W987.

**Description** : Quatre douelles sciées avec un jable et une planche de fond.

- Douelles :
  - longueur maximale conservée : 23,8 cm.
  - épaisseur à l'extrémité : 1,1 cm.
  - largeur à l'extrémité : 3,1 à 4,2 cm.
  - profondeur du jable : 0,1 cm.
  - largeur du jable : 0,1 cm.
  - distance extrémité/jable : 2 cm.
  - épaisseur à la découpe : 1 cm.
- largeur à la découpe : 3,7 à 5 cm.
  - Planché de fond :
    - diamètre de la planche de fond : 25 cm.
    - épaisseur de la planche de fond : 1 cm.

**Paramètre restitué :**
- H : 48 cm au minimum.
- d : environ 23 cm.

**Essences** : 1 douelle en Sapin argenté, 3 douelles et 1 planche de fond en Mélèze.

**Datation** : Période IV.

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**14 - Douelle sciée**

Inv. W141.

**Description** : Douelle sciée avec un jable.
- longueur maximale conservée : 24,2 cm.
  - épaisseur à l'extrémité : 1,4 cm.
  - largeur à l'extrémité : 3 cm.
  - épaisseur à la découpe : 1,4 cm.
  - largeur à la découpe : 4 cm.
  - profondeur des jables : 0,2 cm.
  - largeur des jables : 0,3 cm.
  - distances extrémités/jables : 1,8 cm.

**Paramètre restitué :**
- H : 50 cm environ.

**Essence** : Mélèze.

**Datation** : Période VIB.

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**15 - Douelles sciées**


**Description** : Vingt-et-un fragments de douelles sciées avec un jable. La présence d'une bonde a été remarquée, percée "à cheval" sur deux douelles (W905-2 et W399), à 10,8 cm de l'extrémité du tonneau.
- longueur maximale conservée : 25,8 cm.
  - épaisseur à l'extrémité : 1,1 à 1,2 cm.
  - largeur à l'extrémité : 4,5 à 5,5 cm.
  - profondeur du jable : 0,2 cm.
  - largeur du jable : 0,3 cm.
  - distances extrémités/jables : 1,6 cm.
  - diamètre de la bonde : 3,4 cm.

**Paramètre restitué :**
- H : 52 cm au minimum.

**Essences** : Trois douelles en Sapin argenté et dix-huit douelles en Mélèze.

**Datation** : Périodes I (W629), II (W399, W1018 et, W1035), III (W436 et W910), IV (W589) et VI (W905 et W1106).

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**16 - Douelles sciées**


**Description** : Vingt fragments de douelles sciées avec un jable.
- longueur maximale conservée : 26 cm.
  - épaisseur à l'extrémité : 1 à 1,1 cm.
  - largeur à l'extrémité : 4 à 5 cm.
  - profondeur du jable : 0,2 cm.
  - largeur du jable : 0,3 cm.
  - distances extrémités/jables : 2,2 cm.

**Paramètre restitué :**
- H : 52 cm au minimum.

**Essences** : Six douelles en Sapin argenté et quatorze en Mélèze.


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**17 - Douelles de "demi-tonneau fermé"**

Inv. W1068, W910, W1104 et W1107.

**Description** : Six extrémités de douelles provenant d'un tonneau scié et doté d'un nouveau jable au niveau de la découpe.
- longueur maximale conservée : 16,9 cm.
  - épaisseur : 0,4 cm.
  - largeur à l'extrémité originale : 3,7 à 4,2 cm.
  - distance extrémité/jable : 1,5 cm.
  - largeur à la découpe : 4 à 4,8 cm.
  - distance jable secondaire/découpe : 1,6 cm.
  - profondeur des jables : 0,1 cm.
  - largeur des jables : 0,1 cm.

**Paramètres restitués :**
- H : environ 55 cm.

**Essence** : Sapin argenté.

**Datation** : Période V10.

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**18 - Douelle de "demi-tonneau fermé"**

Inv. W1126.

**Description** : Extémité de douelle provenant d'un tonneau scié et doté d'un nouveau jable au niveau de la découpe.
- longueur maximale conservée : 20,4 cm.
  - épaisseur : 0,9 cm.

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10 Rappel de la périodisation du site de Vin dolanda :
- largeur à l’extrémité : 3,8 cm.
- distance extrémité/jable : 2,1 cm.
- épaisseur à la découpe : 1 cm.
- largeur à la découpe : 4,5 cm.
- distance découpe/jable : 2,6 cm.
- profondeur des jables : 0,2 cm.
- largeur des jables : 0,1 cm.

Paramètre restitué :
- \( H \) : 41 cm environ.

Essence : Mélèze.

Datation : Période V.

19 - Douelles de "demi-tonneau fermé"
Inv. W1069-1.

Description : Sept extrémités de douelles provenant d’un tonneau scié et doté d’un nouveau jable au niveau de la découpe. Présence d’une prise d’air encore pourvue de son bouchon, à 14,6 cm de l’extrémité du tonneau, sur la douelle n°4.
- longueur maximale conservée : 22 cm.
- épaisseur : 1,3 à 1,4 cm.
- largeur à l’extrémité : 4,2 à 5,6 cm.
- distance extrémité/jable : 2,5 cm.
- épaisseur à la découpe : 0,9 à 1,1 cm.
- largeur à la découpe : 4,7 à 6,9 cm.
- distance découpe/jable : 2,2 cm.
- profondeur des jables : 0,2 cm.
- largeur des jables : 0,2 cm.
- diamètre de la prise d’air : 0,8 cm.

Paramètre restitué :
- \( H \) : 41 cm environ.

Essence : Mélèze.

Datation : Période V.

20 - Douelles de "demi-tonneau fermé"
Inv. W1069-2.

Description : Deux extrémités de douelles provenant d’un tonneau scié et doté d’un nouveau jable au niveau de la découpe.
- longueur maximale conservée : 23,2 cm.
- épaisseur : 0,5 cm.
- largeur à l’extrémité originale : 5 cm.
- distance extrémité/jable : 1,1 cm.
- largeur à la découpe : 5,5 cm.
- distance jable secondaire/découpe : 1,6 cm.
- profondeur des jables : 0,1 cm.
- largeur des jables : 0,1 cm.

Paramètres restitués :
- \( H \) : 47 cm au minimum.

Essence : Mélèze.

Datation : Période V.

21 - Douelle de "demi-tonneau fermé"
Inv. W973-2.

Description : Extrémité de douelle provenant d’un tonneau scié et doté d’un nouveau jable au niveau de la découpe.
- longueur maximale conservée : 26 cm.
- épaisseur : 1,1 cm.
- largeur à l’extrémité : 4,1 cm.
- distance extrémité/jable : 1,9 cm.
- épaisseur à la découpe : 1,1 cm.
- largeur à la découpe : 4,7 cm.
- distance découpe/jable : 2,4 cm.
- profondeur des jables : 0,2 cm.
- largeur des jables : 0,2 cm.

Paramètre restitué :
- \( H \) : 52 cm environ.

Essence : Mélèze.

Datation : Période V.

22 - Douelle de "demi-tonneau fermé"
Inv. W1152.

Description : Extrémité de douelle provenant d’un tonneau scié et doté d’un nouveau jable au niveau de la découpe.
- longueur maximale conservée : 26,3 cm.
- épaisseur : 1,2 cm.
- largeur à l’extrémité : 3 cm.
- distance extrémité/jable : 1,6 cm.
- épaisseur à la découpe : 1,2 cm.
- largeur à la découpe : 3,5 cm.
- distance découpe/jable : 2,2 cm.
- profondeur des jables : 0,1 cm.
- largeur des jables : 0,1 cm.

Paramètre restitué :
- \( H \) : 54 cm environ.

Essence : Mélèze.

Datation : Période V.

23 - Parties médianes de douelles

Description : Vingt-cinq fragments de douelles sans jable pouvant appartenir à différents tonnelets. L’un des fragments présente une bonde (W396).
- longueur maximale conservée : 32 cm.
- largeurs : 3 à 6,5 cm.
- diamètre de la bonde : 3,5 cm.

Essences : Sapin argenté et en Mélèze.

Datation : Période II (W396, W456 et W744), III (W585, W1303 et W1359), IV (W541, W542, W1306 et W1360) et VI (W787).
Frêne (*Fraxinus excelsior*)

24 - Fond
Inv. W1167.
**Description** : Fond de tonneaulet monobloc sans bonde ni trou de fausset.
- diamètre : 11,7 cm.
- épaisseur : 0,6 à 0,9 cm.
**Paramètre restitué** :
- **d** : 11 cm environ.
**Datation** : Période VIA.

Chêne (*Quercus*)

25 - Fond
Inv. W1192.
**Description** : Fond de tonneaulet monobloc sans bonde ni trou de fausset.
- diamètre : 9 cm.
- épaisseur : 1 cm.
**Paramètre restitué** :
- **d** : 8 cm.
**Datation** : Période V.

26 - Fond
Inv. W1064.
**Description** : Fond de tonneaulet monobloc sans bonde ni trou de fausset.
- diamètre : 13,2 cm.
- épaisseur : 0,8 cm.
**Paramètre restitué** :
- **d** : 12,5 cm.
**Datation** : Période IV.

27 - Fond
Inv. W387.
**Description** : Fragment de fond de tonneaulet monobloc pourvu d'une bonde et d'un trou de fausset.
- diamètre : 14 cm.
- épaisseur : 0,8 cm.
- diamètre de la bonde : 2,4 cm.
- diamètre du trou de fausset : 0,3 cm.
**Paramètre restitué** :
- **d** : 13 cm.
**Datation** : Période V.

28 - Fond
Inv. ?
**Description** : Fond de tonneaulet (non vu).

29 - Fond
Inv. W58.

**Description** : Fond de tonneaulet (non vu).

30 - Fond
Inv. W547.
**Description** : Fond de tonneaulet (non vu).

31 - Fond
Inv. W1037.
**Description** : Fond de tonneaulet (non vu).

32 - Fond
Inv. W1262.
**Description** : Fond de tonneaulet (non vu).

33 - Fond
Inv. W1229.
**Description** : Fond de tonneaulet (non vu).

34 - Douelle
Inv. W494.
**Description** : Fragment de douelle sans jable.
- longueur conservée : 42 cm.
- largeur : 9 à 10 cm.
- épaisseur : 1,2 à 1,5 cm.
**Datation** : Période III.

35 - Douelle
Inv. W318.
**Description** : Douelle de tonneaulet (non vue).

36 - Douelle
Inv. W1271-2.
**Description** : Douelle de tonneaulet (non vue).

37 - Douelle
Inv. W1194.
**Description** : Douelle de tonneaulet (non vue).
**Datation** : Période V ou VI.

Essence indéterminée

38 - Fond
Inv. W290.
**Description** : Fragment de fond (non vu)\(^4\).
- diamètre : 12,5 cm.
- graffite interne\(^5\) III.
**Paramètre restitué** :
- **d** : environ 11 cm.

\(^4\) Certains fragments aujourd'hui disparus ont été heureusement publiés par R. Birley en 1993, ce qui nous permet de les intégrer à cette étude.

\(^5\) On peut distinguer les surfaces interne et externe d'un fond, la surface externe étant celle dont le chanfrein est le plus large.

135
Datation : Période VI.

39 - Fond
Inv. W416.
Description : Fragment de fond pourvu d'une boîte et d'un trou de fautset encore pourvu de son bouchon (non vu).
- diamètre : 15,6 cm.
- graffe interne XIXIII.
Paramètre restitué :
- d : 14-15 cm.
Datation : Période IV.

40 - Fond
Inv. W477.
Description : Fragment de fond de tonnelet pourvu d'une boîte et de deux trous de fautset (non vu).
- diamètre : 17,5 cm.
- épaisseur : 0,6 cm.
- graffe inscrite autour du fond : DOLVLI.
Paramètre restitué :
- d : environ 16 cm.
Datation : Période IV.

41 - Fond
Inv. W827.
Description : Fragment de fond ou planche de fond de tonnelet (non vu).
- diamètre : 20,8 cm.
- marque au fer rouge AELCB.
Paramètre restitué :
- d : environ 20 cm.
Datation : Période V.

Bibliographie : Birley 1993, p. 82, fig. 7.

42 - Fond
Inv. W473.
Description : Fragment de fond de tonnelet pourvu d'une boîte (non vu).
- diamètre : 22 cm.
- épaisseur : 1,1 cm.
- diamètre de la boîte : 2,7 cm.
- graffe DAPOVASIS.
Paramètre restitué :
- d : environ 20 cm.
Datation : Période III.

43 - Fond
Inv. W468.
Description : Fragment de fond ou planche de fond de tonnelet (non vu).
- diamètre : 24,4 cm.
- sur une face, marque au fer rouge incomplète VR, imprimée deux fois.
- sur l'autre face, graffe IX.
Paramètre restitué :
- d : environ 23 cm.
Datation : Période V.
Bibliographie : Birley 1993, p. 83, fig. 7.

44 - Planche de fond
Inv. W86-155.
Description : Planche de fond incomplète.
- diamètre : 25 cm.
- épaisseur : 1,1 à 1,2 cm.
Paramètre restitué :
- d : environ 23 cm.
Datation : Période III (99-105).

b - Les barriques du groupe 2

Ce groupe n'est représenté que par trois douelles incomplètes en Mélèze pourvues d'une extrémité, mais comme pour les tonnelets du groupe 1 et les fûts du groupe 5, il est clair que ces barriques associaient le Sapin à cette essence. L'épaisseur des douelles va de 1,2 cm à 1,5 cm aux extrémités pour atteindre 2,2 cm au milieu, et les distances extrémité/jaule sont de 2,5 cm et 3 cm. Grâce aux douelles du n°45, conservées sur une bonne longueur, il est possible d'estimer la hauteur de la barrique à laquelle elles appartenaient à un minimum de 90 cm.

Leur NMI est estimé à 2, les épaisseurs mesurées au niveau des découpes étant trop différentes pour appartenir à la même barrique. La faible proportion d'exemplaires attribués à ce type n'est pas étonnante, puisque sur les deux cent cinquante-sept futailles inventoriées avant la présente étude, seules deux se rattachaient au groupe 2 : l'une provenant d'Avenches (Suisse), dans un contexte daté de 70 à 150 de notre ère, et l'autre d'Oberaden (Allemagne), camp occupé de 11 à 8 ou 7 avant notre ère. La première mesure 80 cm de haut, et la seconde 105 cm.

45 - Douelles
Inv. W983 et W984.
Description : Douelles sciées avec un jable (le milieu de la douelle n’est pas dépassé).
- longueur maximale conservée : 45 cm.
- épaisseur aux extrémités : 1,5 cm.
- largeur aux extrémités : 6,5 cm.
- épaisseur à la découpe : 2,2 cm.
- largeur à la découpe : 8 cm.
- profondeur des jables : 0,2 cm.
- largeur des jables : 0,2 cm.
- distances extrémités/jable : 3 cm.

Paramètre restitué :
- H : 90 cm au minimum.

Essence : Mélèze.
Datation : Période IV.

46 - Douelle
Inv. W745.
Description : Extrémité de douelle sciée avec un jable.
- longueur maximale conservée : 28 cm.
- épaisseur à l’extrémité : 1,2 cm.
- largeur à l’extrémité : 8 cm.
- épaisseur à la découpe : 0,9 cm.
- largeur à la découpe : 9,4 cm.
- profondeur des jables : 0,2 cm.
- largeur des jables : 0,2 cm.
- distances extrémités/jable : 2,5 cm.

Essence : Mélèze
Datation : Période II.

c. - Les foudres du groupe 5

Les quatre-vingt-six fragments attribués au cinquième groupe de la typologie se déclinent en cinq planches de fonds, soixante-deux douelles incomplètes avec une extrémité (dont vingt-sept comportent un chanfrein), quatorze parties médianes de douelles et quatre éléments non vus pouvant être des douelles ou des planches de fond. Tous les éléments analysés sont faits de Sapin argente ou de Mélèze.

Les planches de fonds présentent, dans leur épaisseur, des cavités de 0,8 cm de côté et environ 4 cm de profondeur dans lesquelles étaient insérés les gougeons qui permettaient de les maintenir ensemble. D’une épaisseur comprise entre 2 cm et 3,5 cm, elles fournissent des diamètres de 80 cm (W2002 45A), 81,4 cm (W599) et 87 cm (W453), soit des diamètres restitués aux extrémités de 78 cm, 80 cm et 84 cm environ.

Les douelles, elles, possèdent une épaisseur aux extrémités de 1,6 cm à 3,2 cm et une distance extrémités/jable de 3,6 à 7 cm. Elles se caractérisent également par une largeur de 11,7 cm à 18,5 cm aux extrémités et de 13 cm à 19,5 cm au milieu. La longueur des plus longues douelles, dont la découpe intervient peu avant le dépassement du milieu, a pu être restituée (il s’agit donc de hautes minimales) : 173 cm (et n°58), 176 cm (n°60), 180 cm (n°61) et 184 cm (n°63).

Si l’on cherche des parallèles à ces grands fûts de Sapin et de Mélèze dont le diamètre aux extrémités est compris entre 78 et 84 cm, et la hauteur minimum entre 173 cm et 184 cm, le choix est si vaste que l’on peut se permettre de ne prendre que les deux meilleurs exemples, ceux qui regroupent toutes les qualités requises : l’un mis au jour dans un puits comblé dans la seconde moitié du 1er siècle ou au début du IIe siècle à Harelbeke (Belgique), de 200 cm de haut, avec des diamètres de 106 cm au bouge et de 84 cm aux extrémités, pour une contenance de 1330 litres environ, et l’autre provenant d’un puits comblé au milieu du 1er siècle à Xanten (Allemagne), haut de 197 cm, d’un diamètre de 104 cm au bouge et de 80,5 cm aux extrémités, et d’une capacité d’environ 1000 litres.

Aucune planche de fond comportant une bonne ou un trou de fassett n’a été conservée, seules les planches pleines semblant avoir été réutilisées. Les douelles, en revanche, ont livré cinq bondes, de 3,5 cm à 6,1 cm de diamètre, et situées de 14 cm à 38,5 cm de l’extrémité, ainsi que deux prises d’air, de 1 et 1,5 cm de diamètre, à 19 et 81 cm de l’extrémité. Un bouchon de bondé isolé de 6,4 cm de diamètre et de 2,1 cm d’épaisseur a par ailleurs été enregistré (n°74). Il est également à noter que

certaines bondes (sur les douelles W1098 et W1330 par exemple) présentent, à la périphérie, une braise circulaire, probable conséquence de l'opération de perçage.

Le NMI, quant à lui, s'élève à 9, puisque l'on dénombre quinze types d'extrémités différents, et que l'un d'entre eux (n°51) présente trois bondes.

47 - Planches deonds
Inv. W2002 45A et 48A.
Description : Deux planches sans connexion mais appartenant visiblement au même fond.
- diamètre du fond : 80 cm.
- largeur des planches : de 13,8 à 15,6 cm (W2002 45A) et de 17,5 à 18,5 cm (W2002 48A).
- épaisseur des planches : de 2 à 3,5 cm.
- trou de goutte de 0,8 cm de large et de 4,1 m de profondeur : deux de chaque côté pour la planche W2002 45A et deux d'un côté et trois de l'autre pour la planche W2002 48A.
- graffite externe : XXV (W2002 45A).
Paramètre restitué :
- d : 78 cm environ.

48 - Planche de fond
Inv. W544.
Description : Planche de fond avec deux trous de goutte de chaque côté, à 14,5 cm des extrémités (non vue).
- longueur : 77 cm.
- largeur : 12,3 cm.
- épaisseur : 2,6 cm.
- marques au fer rouge, perpendiculaires aux fibres du bois : JCOTAN, Q et QEBBM (ou RN).
- cercle brûlé de 8 cm de diamètre.
- graffite, dans le sens des fibres : A1ONI SECOVRIO.
Datation : Période III.

49 - Planche de fond
Inv. W599.
Description : Planche de fond médiane.
- diamètre du fond : 81,4 cm.
- largeur de la planche : de 18 cm.
- épaisseur de la planche : de 3,2 cm.
- marque au fer rouge externe INGENVMATER (perpendiculairement aux fibres).
- graffite externe BOLANIVS DIVIORVS (dans le sens des fibres).
Paramètre restitué :
- d : 80 cm environ.
Datation : Période IV.

50 - Planche de fond
Inv. W453.
Description : Planche de fond présentant deux trous de goutte de chaque côté, à 15 cm des extrémités.
- diamètre du fond : 86 cm.
- largeur de la planche : de 15,5 cm.
- épaisseur de la planche : de 2,4 cm.
- marques au fer rouge externes BROC et JDS (perpendiculairement aux fibres).
- graffite externe ASPIS MXXXIII (dans le sens des fibres).
Paramètre restitué :
- d : 84 cm environ.
Datation : Période III.
Bibliographie : Birley 1993, p. 78-79, fig. 7.

51 - Douelles scies (avec chanfrein)
Description : Vingt-deux extrémités de douelles avec jable et chanfrein. Trois bondes encore munies de leur bouchon (W551, W1054-1058 et W1098) ont été remarquées, ainsi qu'une prise d'air (W557-559).
- longueur maximale conservée : de 35 à 39 cm et 48 cm (W1208).
- épaisseur à l'extrémité : 2 à 2,5 cm.
- largeur à l'extrémité : 13 à 17 cm.
- épaisseur à la découpe : 2 à 3 cm.
- largeur à la découpe : 13,5 à 17 cm.
- profondeur du jable : 0,6 cm.
- largeur du jable : 0,6 cm.
- distance extrémité/jable : 5 à 5,2 cm.
- diamètres des bondes : 3,5 cm (W1054-1058), 3,9 cm (W551) et 6,1 (W1098).
- distances extrémité/bonde : 14 cm (W1054-1058), 19,4 cm (W551) et 19,2 cm (W1098).
- diamètre de la prise d'air : 1 cm.
- distance extrémité/prise d'air : 19 cm.
- marque au fer rouge interne QVE ou QVF (W557-559).
- marque au fer rouge sur la boîte ADMI...JESECMJ (W551).
- marque au fer rouge sur la prise d'air [F]COBRSABI, marque frappée externe JC.V, griffée externe en forme de triangle et trace de brûlure circulaire autour de la boîte (W1098).


**52 - Douelle sciée (avec chanfrein)**
Inv. W586.

**Description** : Extrémité de douelle sciée et incomplète en largeur, avec jable et chanfrein.
- longueur maximale conservée : 15,6 cm.
- épaisseur à l'extrémité : 2,5 cm.
- épaisseur à la découpe : 2,6 cm.
- profondeur du jable : 0,6 cm.
- largeur du jable : 0,8 cm.
- distance extrémité/jable : 4,5 cm.

**Essence** : Mélèze.

**Datation** : Période III.

**53 - Douelles sciées (avec chanfrein)**
Inv. W1274 et W1362.

**Description** : Deux extrémités de douelles avec jable et chanfrein, incomplètes en largeur.
- longueur maximale conservée : 30,4 cm.
- épaisseur à l'extrémité : 2 cm.
- épaisseur à la découpe : 2,8 cm.
- profondeur du jable : 0,9 cm.
- largeur du jable : 0,9 cm.
- distance extrémité/jable : 5,5 cm.

**Essence** : Mélèze.

**Datation** : Période V.

**54 - Douelles sciées avec deux jables (avec chanfrein)**
Inv. W1173, W1199 et W1202.

**Description** : Deux extrémités de douelles sciées, avec chanfrein, avec deux jables, à 1,5 cm de distance, l'une en deux fragments (W1199 et W1202) et l'autre incompète en largeur (W1173). Plus profond et de facture plus soignée, le jable le plus éloigné de l'extrémité semble être le jable original. Le second, situé à la limite du chanfrein, paraît avoir été effectué au moment de la réutilisation du tonneau.
- longueur maximale conservée : 30,4 cm.
- épaisseur à l'extrémité : 2 cm.
- largeur à l'extrémité : 14 cm.
- épaisseur à la découpe : 3 cm.
- largeur à la découpe : 15,3 cm.
- profondeur du jable original : 0,4 cm.
- largeur du jable original : 0,4 cm.
- distance extrémité/jable original : 5,6 cm.
- profondeur du jable secondaire : 0,3 cm.
- largeur du jable secondaire : 0,5 cm.
- distance extrémité/jable secondaire : 1,8 cm.

**Essence** : Mélèze.

**Datation** : Périodes III (W1173 et W1199) et IV (W1202).

**55 - Douelles sciées (sans chanfrein)**

**Description** : Vingt-et-une extrémités de douelles avec jable, sans chanfrein. Dans l'espace compris entre l'extrémité et le jable, une des douelles (W908) présente le reste d'un élément métallique fixé par des pointes en bronze : un sceau ?
- longueur maximale conservée : 28 à 39 cm.
- épaisseur à l'extrémité : 2 à 2,5 cm.
- largeur à l'extrémité : 13 à 17,5 cm.
- épaisseur à la découpe : 2,5 à 3 cm.
- largeur à la découpe : 13,5 à 19 cm.
- profondeur du jable : 0,6 cm.
- largeur du jable : 0,6 cm.
- distance extrémité/jable : 5 cm.
- marque frappée interne C (W1342).

Datation : Périodes II (W746 et W869), III
(W749, W856, W896, W908 et W1023), IV
(W859, W981, W982, W1001, W1302,
W1307, W1335, W1339, W1340, W1341 et
W1342) et V (W971 et W1089).

56 - Douelle sciée (sans chanfrein)
Inv. W836.
Description : Douelle sciée et incomplète et
en largeur avec un jable, sans chanfrein.
    - longueur maximale conservée : 50
      cm.
    - épaisseur à l'extrémité : 1,6 cm.
    - épaisseur à la découpe : 2,6 cm.
    - profondeur du jable : 0,5 cm.
    - largeur du jable : 0,5 cm.
    - distance extrémité/jable : 3,8 cm.
Essence : Méleze.
Datation : Période V.

57 - Douelle sciée (sans chanfrein)
Inv. W1330.
Description : Extrémité de douelle sciée, sans
chanfrein, avec un jable et une bonde.
    - longueur maximale conservée : 32,2
      cm.
    - épaisseur à l'extrémité : 3 cm.
    - largeur à l'extrémité : 18,5 cm.
    - épaisseur à la découpe : 3,5 cm.
    - largeur à la découpe : 19 cm.
    - profondeur du jable : 0,8 cm.
    - largeur du jable : 0,7 cm.
    - distance extrémité/jable : 4,1 cm.
    - diamètre de la bonde : 6 cm.
    - cercle brûlé autour de la bonde.
    - distance extrémité/bonde : 29,1 cm.
    - marque frappée externe : L.L.
    - graffe externe en forme de triangle
      près de la bonde.
Essence : Méleze.
Datation : Période V.

58 - Douelles sciées (sans chanfrein)
Description : Deux douelles incomplètes avec
jable, sans chanfrein, usées au niveau de la
découpe, l'une pourvue d'une bonde (W2002
44A-1), et l'autre d'une prise d'air (W2002
44A-2).
    - longueur maximale conservée : 86,5
      cm (les deux).
    - épaisseur à l'extrémité : 2cm et 2,6
      cm.
    - largeur à l'extrémité : 13,8 cm.
    - épaisseur à la découpe : 3,2 cm et 3,6
      cm.
    - largeur à la découpe : 17,4 cm et 18,2
      cm.
    - profondeur du jable : 0,5 cm.
    - largeur du jable : 0,3 cm.
    - distance extrémité/jable : 4,5 cm.
    - diamètre de la bonde : 4 cm.
    - distance extrémité/bonde : 38,3 cm.
    - diamètre de la prise d'air : 1,5 cm.
    - distance extrémité/prise d'air : 81 cm.
Paramètre restitué :
    - H : 173 cm au minimum (si le fût a
      été scié en deux parties de dimensions
      égales).

59 - Douelles sciées (sans chanfrein)
Inv. W715 et W1066.
Description : Deux douelles incomplètes avec
un jable, sans chanfrein.
    - longueur maximale conservée : 65
      cm.
    - épaisseur à l'extrémité : 2 cm.
    - largeur à l'extrémité : 11,7 (W1066)
      et 17 cm (W715).
    - épaisseur à la découpe : 2,5 cm.
    - largeur à la découpe : 14,5 (W1066)
      et 18 cm (W715).
    - profondeur du jable : 0,3 cm.
    - largeur du jable : 0,5 cm.
    - distance extrémité/jable : 5 cm.
Essence : Méleze.
Datation : Période IV.

60 - Douelle sciée (sans chanfrein)
Inv. W829.
Description : Douelle incomplète en longueur
(le milieu de la douelle n'est pas dépassé) et
brisée à l'extrémité, avec un jable, sans
chanfrein.
    - longueur maximale conservée : 87,6
      cm.
    - épaisseur à l'extrémité : 2,3 cm.
    - épaisseur à la découpe : 2,9 cm.
    - largeur à la découpe : 17,8 cm.
    - profondeur du jable : 0,5 cm.
    - largeur du jable : 0,4 cm.
    - distance extrémité/jable : 5,6 cm.
    - graffe externe XV ou IX IV.
Paramètre restitué :
    - H : 176 cm au minimum.
Essence : Méleze.
Datation : Période IV.

61 - Douelle sciée (sans chanfrein)
Inv. W1045.
Description : Douelle sciée, au niveau du
bouge ou peu avant, extrémité brisée, avec
jable, sans chanfrein.
- longueur maximale conservée : 90 cm.
- épaisseur à l'extrémité : 3,2 cm.
- épaisseur à la découpe : 2 cm.
- largeur à la découpe : 19,5 cm.
- profondeur du jable : 0,5 cm.
- largeur du jable : 0,6 cm.
- distance extrémité/jable : 5,9 cm.
- graffe interne MONIMVS/MVS, dans le sens des fibres du bois.

**Paramètre restitué :**
- H : 180 cm au minimum.

**Essence :** Mélèze.

**Datation :** Période III.

62 - Douelle sciée (sans chanfrein)
Inv. W1007.

**Description :** Extrémité de douelle avec jable, sans chanfrein.
- longueur maximale conservée : 35,7 cm.
- épaisseur à l'extrémité : 3 cm.
- largeur à l'extrémité : 9,5 cm.
- épaisseur à la découpe : 3,5 cm.
- largeur à la découpe : 11 cm.
- profondeur du jable : 0,3 cm.
- largeur du jable : 0,4 cm.
- distance extrémité/jable : 5,5 cm.

**Essence :** Mélèze.

**Datation :** Période IV.

63 - Douelle sciée (sans chanfrein)
Inv.W755.

**Description :** Douelle incomplète en largeur sciée au niveau du bouge ou peu avant, avec jable, sans chanfrein.
- longueur maximale conservée : 91,7 cm.
- épaisseur à l'extrémité : 2,1 cm.
- épaisseur à la découpe : 3,4 cm.
- profondeur du jable : 0,4 cm.
- largeur du jable : 0,5 cm.
- distance extrémité/jable : 6,1 cm.

**Paramètre restitué :**
- H : 184 cm au minimum.

**Essence :** Mélèze.

**Datation :** Période III.

64 - Douelle sciée avec deux jables (sans chanfrein)
Inv. W833.

**Description :** Extrémité de douelle sciée, sans chanfrein, avec deux jables, à 1,5 cm de distance ; le plus proche de l'extrémité, moins régulier, moins large et moins profond, semble avoir été réalisé en vue d'une réutilisation du tonneau.
- longueur maximale conservée : 30,5 cm.
- épaisseur à l'extrémité : 1,7 cm.
- largeur à l'extrémité : 14 cm.
- épaisseur à la découpe : 2,2 cm.
- largeur à la découpe : 15 cm.
- profondeur du jable original : 0,8 cm.
- largeur du jable original : 0,6 cm.
- distance extrémité/jable original : 4 cm.
- profondeur du jable secondaire : 0,6 cm.
- largeur du jable secondaire : 0,4 cm.
- distance extrémité/jable secondaire : 2,1 cm.

**Essence :** Mélèze.

**Datation :** Période V.

65 - Douelle de "demi-tonneau fermé" (sans chanfrein)
Inv. W834.

**Description :** Douelle provenant d’un fût découpé auquel on a ajouté un nouveau fond.
- longueur maximale conservée : 69,2 cm.
- épaisseur à l'extrémité originale : 2,1 cm.
- largeur à l'extrémité : 17 cm.
- épaisseur à la découpe : 2,5 cm.
- profondeur du jable original : 0,4 cm.
- largeur du jable original : 0,6 cm.
- distance extrémité/jable : 5,2 cm.
- largeur à la découpe : 17,5 cm.
- profondeur du jable secondaire : 0,6 cm.
- largeur du jable original : 0,6 cm.
- distance découpe/jable secondaire : 4,3 cm.

**Essence :** Mélèze.

**Datation :** Période V.

66 - Douelle
Inv. W511.

**Description :** Douelle incomplète, non vue, qui se rattache au groupe 5 d'après les mesures.
- longueur conservée : 75,3 cm.
- largeur : 16,2 cm.
- épaisseur : 2,3 cm.
- bords à 4,5 cm d'une des extrémités.
- marques : T.T et [-OÉJ][QA[-].

**Datation :** Période III.

**Bibliographie :** Birley 1993, p. 80-81.

67 - Douelle
Inv. W456.

**Description** : Douelle sciée, non vue, qui se rattache au groupe 5 d’après les mesures.
- longueur conservée : 77,7 cm.
- largeur : 18,7 cm.
- épaisseur : 2,7 cm.
- marque interne : L.C.M.A.

**Datation** : Période II.

**Bibliographie** : Birley 1993, p. 78.

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68 - Douelle
Inv. W975.

**Essence** : Mélèze.

**Description** : Douelle incomplète, non vue, qui se rattache au groupe 5 d’après les mesures.
- marque externe C.

**Datation** : Période V.

**Bibliographie** : Birley 1993, p. 82.

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69 - Douelle ou planche de fond
Inv. W591.

**Description** : Douelle ou planche de fond non vue. D’après les mesures, elle se rattache au groupe 5.
- longueur conservée : 80,6 cm.
- largeur : 16,7 cm.
- épaisseur : 3,1 cm.
- marque perpendiculaire au sens des fibres du bois : ACMIM.
- partie supérieure d’une marque pour laquelle R. Birley propose la lecture BROC.

**Datation** : Période IV.

**Bibliographie** : Birley 1993, p. 78.

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70 - Douelle ou planche de fond
Inv. W882.

**Description** : Douelle ou planche de fond non vue. D’après les mesures, elle se rattache au groupe 5.
- longueur conservée : 80 cm.
- largeur : 7,5 cm.
- épaisseur : 2 cm.
- marques : PM et CODI.

**Datation** : Période IV.

**Bibliographie** : Birley 1993, p. 79-80.

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71 - Douelle ou planche de fond
Inv. W835.

**Description** : Douelle ou planche de fond non vue. D’après les mesures, elle se rattache au groupe 5.
- longueur conservée : 81 cm.
- largeur : 18,5 cm.
- épaisseur : 2,1 cm.
- marques : BPVI EI et STTOV.

**Datation** : Période V.

**Bibliographie** : Birley 1993, p. 80.

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72 - Douelle ou planche de fond
Inv. W1059.

**Description** : Douelle ou planche de fond non vue. D’après les mesures, elle se rattache au groupe 5.
- longueur conservée : 84 cm.
- largeur : 17,6 cm.
- épaisseur : 2,4 cm.
- marques : PTAC et M.

**Datation** : Période V.

**Bibliographie** : Birley 1993, p. 80.

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73 - Extrémités et fragments de douelles déformés ou sans jable

**Description** :
- longueur maximale conservée : de 11 à 30 cm.
- largeur : de 11 à 19 cm.
- distance extrémité/jable : 5 à 7 cm.

**Essences** : Sapin argenté (W269) et Mélèze.

**Datation** : Périodes III (W860), IV (W724, W757, W1000 et W1362), V (W506, W728, W733 et W850), VIA (W1170), VIB (W1044) et VIII (W269).

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74 - Bouchon de bonde isolé
Inv. W411.

**Description** : Fragment de bouchon de bonde.
- diamètre : 6,4 cm.
- épaisseur : 2,1 cm.
- marque au fer rouge incomplète

**Datation** : Période IV.

**Bibliographie** : Birley 1993, p. 83, fig. 7-4.

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**d - Groupe indéterminé**

Enfin, quelques fragments qui n’ont pas été retrouvés pour cette étude, mais qui apparaissent dans l’inventaire des objets en bois dressé par Jon Hather et Rob Sands, n’ont pas pu être répartis dans les groupes typologiques.
2 - Les essences

Les essences de deux cents quarante-neuf fragments de tonnelets et de tonneaux ont été déterminées par Jon Hather et Rob Sands. Ces analyses, combinées à l'étude typologique, révèlent la présence à *Vindolanda* de dix ou onze tonnelets, de deux barriques du groupe 2, et de neuf fûts du groupe 5 en Sapin argenté (*Abies alba*) et Mélèze (*Larix decidua*), de cinq tonnelets de Chêne (*Quercus*), d'un de Frêne (*Fraxinus excelsior*), et d'une futaille, dont le groupe typologique n'est pas défini, en If (*Taxus baccata*). Aucun cerclage n'a été conservé, mais tout porte à croire que comme pour la quasi-totalité des cerclages connus par ailleurs, ils étaient en Noisetier (*Corylus avellana*).

Si l'on se réfère au nombre de fragments, le mélange Sapin argenté et Mélèze totalise 93,2 %, le Frêne 0,4 %, le Chêne 5,2 % et l'If 1,2 %. Les chiffres diffèrent totalement si l'on exécute le calcul à partir des NMI : 75,9 % pour le mélange Sapin argenté et Mélèze, 3,4 % pour le Frêne, 17,3 % pour le Chêne et 3,4 % pour l'If.

Le Sapin argenté et le Mélèze croissent dans les forêts d'altitude d'Europe". Selon Pline, ce sont deux bois d'excellente qualité, résistants et imperméables, dont la particularité est de produire de la résine en abondance (*Histoire Naturelle*, XVI, 42 et 43), résine qui devait parfumer le vin contenu dans les tonneaux, et peut-être améliorer sa conservation. L'alliance de ces deux essences, bien connue par ailleurs, est ici attestée par un lot de cinq douelles issues d'un même tonneau, dont deux sont en Sapin et trois en Mélèze, ainsi que par deux fragments de douelles du groupe 5 en Sapin argenté, dotées de bouchons de bondes en Mélèze (W1098 et W1054/W1058). Ce qui singularise ce mélange à *Vindolanda* est la proportion du Sapin par rapport à celle du Mélèze, un fragment sur cinq à peine, tandis que pour les exemples connus en Gaule et sur le *times* rhénan, le Sapin est toujours largement majoritaire. L'emploi du Mélèze seul n'est attesté nulle part, pour le moment en tous les cas, à l'inverse de celui du Sapin argenté*.

En ce qui concerne la chronologie de l'association Sapin-Mélèze, des tonneaux découverts dans le reste de l'Europe, aucun n'est postérieur au début du IIe siècle. Se pose donc ici le problème de la résidualité des tonneaux de *Vindolanda*, qui ont manifestement été réutilisés pendant une longue période. Certains points sont tout de même notables quand on considère les datations : seuls des tonnelets et tonneaux de Sapin et de Mélèze sont représentés au cours des périodes I (85-94) et II (94-97), le Chêne n'apparaissant qu'à la période III (97-105). De fait, dans toute l'Europe occidentale, l'emploi du Chêne est attesté en tonnellerie dès le début du Ile siècle et cette essence semble devenir la seule utilisée dès le IIe siècle.

Le fond de Frêne (n°24) soulève des questions ; s'il renvoie réellement à un tonneau, il est pour le moment le seul que l'on connaisse qui soit réalisé dans ce bois.

Enfin, l'utilisation de l'If en tonnellerie n'était attestée jusqu'à présent que par un texte de Pline, à propos de tonneaux gaulois qui avaient entraîné la mort par empoisonnement des consommateurs du vin qu'ils contenaient (*Histoire Naturelle*, XVI, 42). L'histoire ne dit pas si des soldats de *Vindolanda*

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*Coombes 1993, p. 52.
ont subi le même sort, mais il est clair qu’au moins un tonneau ou tonnelet fait de bois d’if fut importé dans le fort, probablement de Gaule.

3 - Les inscriptions

Les vestiges de barriques ont livré trente-huit marques, chiffre relativement important en raison du nombre élevé de fonds et planches de fonds conservés, et qui en constituent le support principal. Trois types de marques ont été relevés : des marques frappées, effectuées avec une hache dite "marteau", dont le tranchant est constitué de lettres coupantes, des marques au fer rouge, réalisées à l’aide d’un signalatum, et des graffitis, gravés dans le bois à la pointe sèche. Aucune marque peinte n’a été détectée ; on ne connaît que deux exemplaires de ce type d’inscription très fragile, conservés sur un même fond à Obervaden. Comme l’a déjà remarqué R. Birley, les graffitis sont inscrits dans le sens des fibres du bois, tandis que les marques au fer rouge et frappées pour la plupart réalisées perpendicairement aux fibres, soit sur la largeur de la planche de fond ou de la douille.

Quatre graffitis et deux marques au fer rouge ont été relevés sur des fonds de tonneaux du groupe I, tandis que les trente-deux marques restantes concernent le cinquième groupe de la typologie : sept graffitis, dix inscriptions au fer rouge, trois marques frappées, et douze marques indéterminées, au fer rouge ou frappées.

Les inscriptions intérieures ne peuvent avoir été réalisées qu’à la tonnerie, avant le montage de la barrique et la mise en place des fonds. Les marques réalisées au fer rouge ou frappées (ces dernières paraissant être attribuables aux tonneliers uniquement) fournissent des tria nomina ou des duo nomina, comme QVE ou QVF (fig. 8, marque au fer rouge, n°51, W557 et W559), T.T et [-OEJQA[-] (n°66, W456), relevées sur la surface interne de douelles, et qui doivent désigner le propriétaire de l’atelier. Il se peut que la marque frappée C (fig. 9, n° 5, W1342) soit incomplète, et qu’il s’agisse des duo nomina frappés C. V, inscription dont l’existence est déjà attestée à Vindolanda sur la surface externe d’une autre douelle (fig. 7, n°51, W1098). Les noms au nominatif, comme le nom MONIMVS (fig. 12, n°61, W1045), gravés sur les douelles ou sur les fonds, semblent être quant à eux le fait de l’ouvrier qui a fabriqué la barrique. Enfin, les chiffres inscrits sur les fonds, III (n°38, W290), XIII (n°39, W416) et IX (n°43, W468) doivent être mis en relation avec le montage du fût.

La signification des inscriptions présentes sur la surface externe des douelles et des fonds est plus complexe. Elles peuvent d’une part avoir été réalisées à la tonnerie, comme la marque frappée C. V que nous venons d’évoquer, ou encore la marque frappée LIL (fig. 10, n°57, W1330), mais elles peuvent aussi avoir été exécutées plus tard, par différentes personnes : le producteur de la boisson, le négociant, l’administration militaire, ou encore les soldats eux-mêmes.

Ainsi, les marques au fer rouge sur douelles ACMIM et BROCY (n° 69, W591), BROCY et JDGS (n°50, W453), PM et CODI (n°70, W882), BPVI EI et STTOV (n°71, W835), PTAC et M (n°72, W1059), COTAN, Q, QEBBM ou QEBBL (n°48, W544), AELCB (n°41, W827) et INGENIVMATER (n°49, W1399) livrent-elles certainement les noms des producteurs et négociants attachés au ravitaillement de l’armée. Le gentilice fourni par cette dernière inscription, Materius, fait partie des noms découlant des lieux de parenté essentiellement illustrés dans l’aire celtique, tandis que la marque VR (n°43, W468) peut être rapprochée de celle qui fut trouvée dans la Saône à Lyon, imprimée sur un bouchon de boire en Sapin argenté, VRTTI PH. Trois marques au fer rouge sur bouchons ont été mises au jour : ADIVT[FLOR]ESC.MI (fig. 7, n°51, W551), le nom incomplet

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25. Lors de la réutilisation des tonneaux dans les puits, action dont résulte la préservation de quasi tous les exemplaires mis au jour, les fonds sont généralement retirés.
28. On peut également rattacher à cette marque la lettre C, frappée ou réalisée au fer rouge (W975, n°68, non retrouvée).
29. Un certain C. AELIUS BROCCHUS est connu sur le site par une tablette (Inv. 598) qui nous apprend qu’au cours de la période III, ce personnage aurait fourni au préfet de la neuvième cohorte de Bataves, Florius Cerialis, des vivres et des vêtements pour les soldats. Peut-être s’agit-il d’un officier responsable de l’approvisionnement. R. Birley propose en outre la lecture AELI(iorum) C(…) (et) B(rochi) pour la marque au fer rouge AELCB (Birley 1993, p. 82-83).

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RSA, sur un bouchon de bonde isolé (n°74, W411), et les *tria nomina* au génitif [F]COBRSABl, imprimés deux fois en croix sur une prise d’air (fig. 7, n°51, W1098).

Les graffitis externes renvoient plutôt à la vie interne du camp : BOLANIVS DIVORVS (n°49, W599) pourrait être le nom du destinataire du tonnellet sur lequel il était inscrit, le gentilice appartenant, *Bolanus*, étant attesté à Rome*; DAPOVASIS (n°42, W473) peut indiquer, dans un latin cètes approximatifs, comme le fait remarquer R. Birley*, que le tonnellet qui le portait était un réciipient *(vas)* réservé à un banquet *(daps)*. Parmi les textes nébuleux, on peut encore citer ALIONI SECVRIO (n°48, W544), DOLVLVI (n°40, W477), ASPIS MXIIIBS (n°50, W453), et des chiffres, XXV sur un fond (fig. 6, n°47, W2002 45A) et XV ou IX IV sur une douille (fig. 12, n°60, W829). Enfin, deux graffitis en forme de triangle ont été relevés à proximité de bondes, la base orientée vers cette dernière (fig. 7, n°51, W1098 et fig.10, n°57, W1330).

Avec un minimum de vingt-huit ou vingt-neuf individus (seize ou dix-sept pour le groupe 1, deux pour le groupe 2, neuf pour le groupe 5 et un exemplaire en bois d’if dont on ignore les dimensions), la collection de *Vindolanda* constitue l’une des plus importantes connues à ce jour. De plus, pour la première fois, il nous est donné d’étudier un mobilier non conditionné par le remplissage dans les puits, qui nécessite un diamètre au bouge compris entre 80 et 110 cm environ. Ce matériel, qui provient de planchers pour lesquels la dimension des douelles n’avait pas vraiment d’importance, montre la supériorité numérique des petites pièces du groupe 1 de la typologie par rapport aux tonneaux du groupe 5 (presque deux pour un), alors que pour les deux cent cinquante-sept ouvrages de tonnelurer antique inventoriés jusqu’à présent, on ne comptait que huit tonnelets*. L’originalité du remplissage des barriques de *Vindolanda* permet donc pour la première fois d’apprécier la fréquence réelle des tonnelets, rarement conservés d’habitude.

L’étude conjointe des bois et des inscriptions nous renseigne quant à l’origine et à la chronologie de ces futailllés. Comme nous l’avons déjà remarqué, plus des trois quarts des tonneaux sont faits de Sapin argenté et de Mélèze, deux essences qui ne croissent ensemble que dans les Préalpes* et qui ne sont utilisées en tonellerie que jusqu’au début du 1e siècle. Ces tonneaux présentent des marques brûlées, mais aussi frappées. Or, si l’usage du *signaculum* est large, il s’avère que celui de la hache marteau se limite aux vallées du Rhône et de Rhône* et ne s’étend pas au-delà du 1er siècle* Il semble donc, par recoupement, que l’on ait des fûts provenant de la région de Lyon, à l’endroit même où, comme l’ont proposé S. Martin-Kilcher, A. Tchernia et A. Desbat, il semble que l’on ait conditionné dans ces emballages, bien plus rentables et faciles à faire voyager par voies terrestres et fluviales que les amphores, des vins régionaux (aucune production d’amphores n’est connue pour le vin des Allobroges), mais aussi probablement importés de Narbonnaise, de Péninsule ibérique et d’Italie, afin de les expédier aux troupeaux*. Sur le *times* rhéon, on a retrouvé en très grand nombre ces fûts de Sapin argenté et de Mélèze (ou d’Épicéa) portant des marques frappées, en particulier à la fin du 1er siècle avant J.-C. et au cours du 1er siècle. Le grand fût d’Harelbek est, comme ceux de *Vindolanda*, fait de Sapin argenté et de Mélèze, il porte des marques frappées, et la vallée du Rhône avait déjà été définie comme son lieu de provenance au vu des essences, et grâce à la présence sur ses douelles de noms attestés dans la région (*Gaulius, Seuerus et Vitalis*).6

En ce qui concerne les tonnelets de Chêne, on a vu qu’ils prenaient le relais, au moins au niveau de la chronologie, puisqu’ils apparaissent au 1er siècle. On ne peut en revanche pas dire grand chose de leur origine : la zone d’habitat de cet arbre est très vaste, et les fragments n’ont livré aucune marque qui aurait pu nous guider.

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* Kajanto 1965, p. 181.

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Fig. 1 : Groupe 1, Sapin argenté et Mélèze, n°1 (W609), n°2 (W612), n°3 (W661, W722 et W759), n°4 (W916) et n°13 (W987) (Ech. 1/5).

Fig. 94
Fig. 2 : Groupe 1. Sapin argenté et Mélèze, n°5 (W1096), n°6 (W304), n°7 (W426, W516, W904, W1057, W1080 et W1105), 10 (W644), n°13 (W987) et n°15 (W905 et W399) (Ech. 1/5).

Fig. 95
Fig. 3 : Groupe 1. Sapin argenté et Mélèze, n°16 (W763, W1048, W1074, W1093 et W1156), n°17 (W1090, W1104 et W1107), n°18 (W1126) et n°19 (W1069-1) (Éch. 1/5).

Fig. 96
Fig. 4 : Groupe 1, Frêne, n°24 (W1167) et Chêne, n°25 (W1192), n°26 (W1064) et n°27 (W387) (Ech. 1/5).

Fig. 97

Fig. 5 : Groupe 2, n°45 (W983 et W984) (Ech. 1/5).
Fig. 6 : Groupe S, n°47 (W2002.45A) (Éch. planche de fond 1/5, inscription 1/2).

Fig. 99
Fig. 7 : Groupe 5, n°51 (W1098 et W551) (Ech. douelles 1/5, inscriptions 1/2).

Fig. 100
Fig. 8 : Groupe 5, n° 51 (W1054-1058, W557-559 et W1005) (Ech. douelles 1/5, inscriptions 1/2).

Fig. 101
Fig. 9 : Groupe 5, n°54 (W1199-1202), n°64 (W833) et n°55 (W908, W1340 et W1342) (Ech. douelles 1/5, inscription 1/2).

Fig. 102
Fig. 10 : Groupe 5, n°57 (W1330) (Ech. douelle 1/5, inscriptions 1/2).

Fig. 103
Fig. 11: Groupe 5, n° 58 (W2002-44A) (Ech. 1/5).

Fig. 104
Fig. 12 : Groupe S, n. 60 (W829) et n. 61 (W1045) (Exh. 1/2).

Fig. 105
II - Les amphores

L'étude des amphores de Vindolanda a débuté au cours de l'été 2002 et n'est pas encore terminée. Il est toutefois possible de tirer quelques conclusions quant à leur importation sur le site. L'enregistrement des fragments a débuté par l'identification des argiles à la loupe. Cette opération, associée à l'étude des formes, permet de déterminer l'origine et le type de l'amphore. Ces critères une fois définis, les tessons ont été comptés par unité stratigraphique. Le nombre minimum d'individus (abrégé en "NMI") est calculé par type d'amphore après recollage des lèvres, des anses et des fonds. Le nombre le plus élevé de lèvres, d'anes (divisé par deux) ou de fonds détermine le NMI d'un type. Les fragments de panses sont trop nombreux pour être recollés et ils ne sont pas pris en compte pour le calcul du NMI, sauf si l'ensemble ne contient ni lèvre, ni anse, ni fond. Ils ne représentent alors qu'un seul individu, à moins que leur poids ne dépasse celui d'un individu complet.

Les comptages ont essentiellement porté sur le mobilier des fouilles menées des années 1990 à 2001 ; 2033 tessons ont été enregistrés, pour un NMI de 98. Les amphores proviennent d'Italie, de Péninsule ibérique, de Gaule et de Méditerranée orientale (fig. 13 et 14).

Les importations d'Italie (fig. 15) correspondent à 4,1 % du total des amphores. Les amphores à vin Dressel 2/4 italiens sont originaires de la côte tyrrhénienne. À Vindolanda, les fragments présentent en général une pâte rouge sombre, dure, avec de nombreuses petites inclusions de roche volcanique noire qui les rapprocheraient plutôt des productions campaniennes. Ces amphores, qui imitent les Dressel 2/4 de Cos, se caractérisent par une lèvre ronde, des anses verticales bifides, une épaupe carrée, une panse cylindrique et un fond en pointe. Leur capacité moyenne est de 25 l, d'un poids de 15 kg, pour un rapport contenance/poids est de 1,68 l/kg. Exportées dans tout l'Empire romain, bien qu'en petites quantités, les Dressel 2/4 italiens ont circulé du milieu du Ier siècle avant notre ère jusqu'au début du IIe siècle de notre ère. Un minimum de deux individus est comptabilisé à Vindolanda d'après les fragments, soit 2,1 %, mais d'après les différents type de pâte, le chiffre pourrait monter à quatre ou cinq individus.

Un autre type d'amphore vinaire italique est attesté sur le site, mais un fond plat et une panses seuls ayant été découverts, dans les fouilles des thermes et du temple (période VII), il est difficile d'être plus précis. La pâte peut être campanienne.

Les amphores de Lipari, autrefois appelées Richborough 527 (avant la découverte de vestiges de production dans les îles éoliennes), transportaient de l'alun, une substance utilisée par les teinturiers. Elles se caractérisent par une lèvre épaisse et ronde, des anses circulaires de section ovale, une panse cylindrique à stries horizontales, un fond en pointe, et surtout, par une pâte très grossière, de couleur gris verdâtre, remplie de grosses inclusions de roche volcanique. Leur diffusion, dirigée vers la Méditerranée occidentale et le Nord-Ouest de l'Empire romain, s'étend du second quart du Ier siècle avant notre ère jusqu'à la fin du IIe siècle. Neuf panses ont été enregistrées pour les périodes II, III et VI, notamment dans le vicus qui jouxte le fort.

De Bétique, dont proviennent 84,8 % des amphores, ont été importés du vin, des salsamenta, et par dessus tout, de l'huile d'olive.

Les amphores de type Haltern 70 (fig. 16), dont le contenu consistait en vins cuits (sapa et defrutum) dans lesquels étaient parfois conservées des olives, possèdent une lèvre évasée, de petites anses de section ovale à canal médian, une panse ovoïde et un petit fond en pointe. Leur pâte, dure et chargée de sable, est la même que celle des Dressel 20. Elles ont connu une large diffusion dans la partie occidentale de l'Empire romain, de la fin du Ier siècle avant notre ère au IIe siècle de notre ère. Deux individus ont été identifiés, l'un dans la période II, et l'autre, visiblement résiduel, dans la période VIA.

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Les amphores à huile d’olive Dressel 20 (fig. 17 et 18) sont produites dans la vallée du Guadalquivir, entre Séville et Cordoue. D’une contenance de 70 l et d’une masse à vide de 30 kg, leur rapport contenu/contenant de 2,33 l/kg est assez intéressant. Leur profil présente une lèvre de forme variable selon les époques, un col court, de grosses anses de section ronde, une grosse panse globulaire et un fond en bouton. La pâte est identifiable par sa dureté, sa texture rugueuse ; elle peut être grise et comporter de nombreuses inclusions de quartz ou être brun rouge à couverte blanche. Sa diffusion est extrêmement large et s’étend de la fin du Ier siècle avant notre ère à la fin de l’IIe siècle de notre ère 48. Leur proportion est frappante : elles constituent plus de 80 % du total des amphores. La typologie des lèvres témoigne de plus de l’importance constante d’huile d’olive de Bétique au cours de la période d’activité du camp.

Quant aux salaisons d’esturgeon, de maquereaux ou de thon, un seul exemplaire d’amphore de type Dressel 38 (fig. 16), ou Beltran IIA2, en atteste la consommation à Vindolanda au cours de la période V (120-140). Sa forme est très particulière, avec une lèvre très large et un col très évasé parfaitement adaptés au passage de gros morceaux de poisson, avec des anses longues de section ovale, une panse en forme de sac qui se réduit vers le bas, et une pointe creuse 49.

Les amphores gauloises (7,1 %) proviennent exclusivement de Narbonnaise : il s’agit des types Augst 21 et Gauloise 4. Les premières, produites dans la moyenne vallée du Rhône, ont circulé pendant tout le Ier siècle et le début du IIe siècle de notre ère. Leur forme présente une lèvre généralement ronde, un col légèrement évasé vers le haut, des anses verticales à sillon médian, une panse fuselée et un fond en pointe. Leur lèvre, très fine, est de couleur chamois clair 50. Quant à leur contenu, comme l’illustré l’exemplaire presque complet mis au jour sur le site (période IV, 105-120), il s’agissait d’olives "blanches" confites dans du defrutum, un vin cuit. Le titulus pictus découvert au cours de l’été 2002 (fig. 19) livre en effet l’inscription sur deux registres OL(iva) AL(ba), ainsi que des noms, vraisemblablement les producteurs et le négociant, rédigés verticalement, L( ) (et) L( ) LVC(II ) et L( ) C( ) H( )

Les Gauloise 4 (fig. 20), produites en Languedoc en Provence, présentent une lèvre ronde, un col court, des anses à sillon, une panse ovoïde et un fond plat ; elles offrent une capacité de 30 l pour une masse à vide 10 kg, soit un excellent rapport contenance/poids de 3 l/kg. Leur lèvre est fine, dure, de couleur crème à rose. La nature des vins transportés dans ces amphores est connue grâce aux marques généralement peintes sur l’épaupe : il est question d’Aminium, un très bon cépage grec importé en Italie puis probablement en Gaule, de Picatum, un vin poisson lors de la vinification, de Massilienne, le vin de Marseille, et de Passum, un vin de raisins séchés au soleil. Ce sont des amphores de grand commerce qui ont circulé du milieu du Ier siècle jusqu’à la fin du IIIe siècle 50. À Vindolanda, elles apparaissent dans les périodes II à VIII.

La Méditerranée orientale est elle aussi représentée, quoique modestement (3 %). Originaires de la Mer Egée, les amphores vinaires Kapitín II (fig. 21) ont circulé de la fin du Ier siècle au IVe siècle (l’exemplaire de Vindolanda est daté de la période VII). Elles présentent une lèvre étroite, un col haut et conique strié à l’extérieur, des anses larges, épaissses et très recourbées, une panse conique, une base creuse avec des sillons à l’extérieur. La lèvre est dure, rugueuse, de couleur rouge orange, souvent avec une pâte couverte grise, et comporte des inclusions de quartz 51.

Le type "carotte", ou Schöne-Mau XV, provient d’Afrique du Nord, d’Egypte ou de la région syro-palestinienne. Il se caractérise par une lèvre ronde, par l’absence de col, de petites anses rondes recourbées, une petite panse conique à rayures horizontales. La lèvre de ces amphores est dure, rugueuse, très sableuse, souvent rouge brique, orange ou grise. Les premiers exemples du type semblent dater du début du Ier siècle et son utilisation est attestée, sans grande certitude, au moins jusqu’au milieu de la première moitié du IIe siècle. L’anse mise au jour à Vindolanda est malheureusement hors-stratigraphie. Il semble s’agir d’amphores de grand commerce dont la diffusion

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se fait essentiellement dans la partie occidentale de l'Empire romain et particulièrement dans les camps militaires. Le contenu de ces amphores semble avoir été le fruit du palmier doum, comme l'atteste une inscription, un produit de luxe.

Une troisième amphore de la partie orientale de la Méditerranée, dont le type n'a pas pu être déterminé, apparaît dans la période IV.

La principale caractéristique mise en lumière par l'étude de cet ensemble est la proportion considérable d'amphores à huile de Bétique (81,7 %), en regard des autres types importés. Les amphores vinaires sont peu nombreuses (14,3 %), mais il s'agit de vins fins d'origines variées (Campanie, Bétique, Narbonnaise et Mer Égée). Le fait que l'importation de préparations à base de poisson soit anecdotique est à mettre en relation avec l'origine des soldats stationnés à Vindolanda, le Nord de la Gaule, une région où ce type de condiment ne semble pas avoir remporté un énorme succès, contrairement à l'huile d'olive. La seule présence d'une amphore Carotte est en revanche plus étonnante, puisque ce type d'amphores contenant des dattes paraît principalement attesté en contexte militaire.

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<td>83</td>
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<td>1</td>
<td>3</td>
<td>6</td>
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<td>AUGST 21</td>
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<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>7</td>
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<td>GAULOISE 4</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>92</td>
<td>109</td>
<td>6</td>
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Fig. 13 : Tableau global des amphores de Vindolanda

---

45 Marière, à paraître.
Fig. 14 : Les amphores de Vindolanda secon les origines et les dures.

Fig. 107

Fig. 15 : Amphores italiques : 1-3 : Dressel 2/4 ; 4 : Amphore à fond plat (Ech. 1/5).

Fig. 108
Fig. 16 : Amphores de Bétique : 1 : Beltran IIA2 ; 2 : Haltern 70 (Ech. 1/5).

Fig. 109
Fig. 17 : Amphores à huile d'olive de Bétique de type Dressel 20 (Ech. 1/5).
Fig. 18: Amphores à huile d'olive de Bétique de type Dressel 20 (Ech. 1/5).

Fig. III
Fig. 19 : Amphore gauloise de type Augst 21 et sa marque peinte (Éch. amphore 1/5, Inscription 1/2).

Fig. 112
Fig. 20 : Amphores gauloises de type Gauloise 4 (Ech. 1/5).

Fig. 113
Fig. 21: Amphore Kapitän II (Ech. 1/5).
Annexe : les timbres sur amphores Dressel 20

Depuis les années 1970, le site de Vindolanda a fourni de très nombreuses marques sur Dressel 20. Les présenter toutes ici n’est pas possible, leur étude étant en cours. Nous nous proposons toutefois de présenter rapidement les timbres.

Soixante-treize timbres sur amphores à huile de Bétique Dressel 20 ont été comptabilisés, soixante-et-onze imprimés sur des anses, et deux sur des panses. Souvent résiduels, ils proviennent en majorité des périodes VI et VII (comme le timbre CANTQVIETI, daté de la seconde moitié du Ier siècle et qui apparaît ici jusque dans la période VI (140-180)). Ils fournissent des dua nominata et des tria nominata, simples (Q)C()C()C(), I()C()F(), L()F()O(), M()I()M(), P()N()N()... ou plus développés (Ser()M(), C()Ant(oni)Quireti, Tr()AilT(A)statici, L(I)IuniMelissi,PIduCr(n)spec...), qui désignent le propriétaire de la figurina ou du fundus, et même parfois l’association de plusieurs personnes, comme le timbre II IVNI MEIISSI ET MELISSE, un homme et une femme de la même famille, probablement. Il est parfois question des ateliers eux-mêmes (F(figl)ina) Sciminianorum ou encore de villes (P(or(m)us)Arva). A propos de la provenance des amphores timbrées dont on a pu déterminer l’atelier d’origine, plus de 70% d’entre elles ont été produites dans des ateliers situés dans la moyenne vallée du Guadalquivir, entre Alcolea del Rio (Ca,nana) et Penafior (Celti), dont 28% de l’atelier de La Catria seul, et le reste, c’est-à-dire presque 30%, de la vallée du Génil. Dans le catalogue qui suit, viennent en premier lieu les timbres lus, classés par ordre alphabétique du nomen, puis les timbres incomplets et de lecture difficile.

1 - CABI
C()A()B()I()
Inv. 8756.
Anse.
Timbre : Sur anse, cartouche ovale incomplet, ligature CA, point après le A.

2 - ACIRGI
ACIRGI (figlina)
Inv. 4876.
Col complet, pâte chamois.
Timbre : Sur anse, cartouche ovale.
Contexte : VF 60, période VII.

3 - [A]CIRGI
ACIRGI (figlina)
Inv. 488.
Anse, pâte chamois.
Timbre : Sur anse, cartouche ovale incomplet à gauche.
Contexte : Période VI.
Bibliographie : Funari 1996, 22f; Carreras, Funari 1998, 36r.
Documentation : Cf n°3.

4 - PANRI
P()AN(uni)R(uf)I
Inv. 1496.
Anse, pâte chamois à gros grains.

Timbre : Sur anse, cartouche rectangulaire incomplet à droite, probable ligature ANT.

5 - CANTQVIETI
C()ANT(oni)QVIETI
Inv. 4789.
Col complet, pâte gris-chamois.
Timbre : Sur anse, cartouche rectangulaire, pas de barre horizontale au A, ligatures ANT et T1.
Contexte : VR 46, période VI.

6 - CANTIQVI
C()ANT(oni)QVI(eti)
Inv. 8557.
Col et anse, pâte chamois.
Timbre : Sur anse, cartouche rectangulaire incomplet à droite, probable ligature ANT.
Contexte : Période III.
Documentation : Cf n°5.

7 - CANTQ[11]
C( ) ANT(oni) QVIE(ti)
Inv. 6458.
Anse, pâte chamois détrempée.
Timbre : Sur anse, cartouche rectangulaire incomplet à droite, pas de barre horizontale au A, ligatures ANT et ïE (probable).
Contexte : Période VI.
Documentation : Cf n°5.

8 - CANTQ
Inv. 4873.
Fragment d'anse
Timbre : Non vu.
Contexte : Hors stratigraphie.
Documentation : Cf. n°5.

9 - PARV[A]
P(oriu) ARVA
Inv. 8522.
Anse, pâte chamois foncé.
Timbre : Sur anse, cartouche rectangulaire incomplet à droite, ligature AR.
Contexte : Période VII.
Documentation : Timbre originaire d'Arva, daté de 220-224 au Monte Testaccio (Blasquez, Remesal 2001, 446).

10 - TATILIA
TT( ) ATILI A(siatici)
Inv. 4788.
Lèvre et anse, pâte chamois foncé.
Timbre : Sur anse, cartouche rectangulaire, nombreuses altérations, possible ligature TI, second A en partie intégré dans le bord du cartouche. Graffite SVLLO sur la lèvre.
Contexte : VR 46, période VI.
Documentation : Ce timbre provient de l'atelier de Cortijo de Tostoneras (Ponsich 1974, n°136, 191-192 et fig. 77) ; à Avenches, le timbre T ATILI ASIATICI a été mis au jour dans un contexte daté de 70-120 (Remesal 1986, 42).

11 - LAVGERN
L( ) AV( ) G(Er( ) N( )
Inv. 4788.
Lèvre et anse, pâte brune à couverture chamois.
Timbre : Sur anse, cartouche ovale incomplet
Contexte : VR 46, période VI.

Documentation : Le timbre LAVRGER, produit à Alcotrista (Bonsor 1931, p. 56), est daté de 100-150 à Avenches (Remesal 1997, 50).

12 - CA[-]VM
C( ) A( ) V( ) M( )
Inv. 7779.
Anse, pâte chamois.
Timbre : Sur anse, cartouche rectangulaire, lettres très érodées ; la lettre centrale pourrait être un T.
Contexte : Période VII.

13 - QCC
Q( ) C( ) C( )
Anse, pâte chamois.
Timbre : Sur anse, très érodé.
Contexte : V91 24.

14 - QCC
Q( ) C( ) C( )
Inv. 8541.
Anses, pâte chamois à gros grains.
Timbre : Sur anse, rétrograde, cartouche rectangulaire incomplet à gauche.
Contexte : Période VI.
Documentation : Cf n°13.

15 - L.C.F. corona
L( ) C( ) F( )
Inv. 1492.
Anse, pâte chamois à gros grains.
Timbre : Sur anse, cartouche rectangulaire mal imprimé dans la partie supérieure et brisé dans le coin supérieur droit, points après chaque lettre.
Contexte : VJ 51, période V.

16 - LCM
L( ) C( ) M( )
Inv. 8527.
Anse, pâte chamois.
Timbre : Sur anse, cartouche rectangulaire.
Contexte : Hors stratigraphie.
Documentation : Ce timbre, qui provient de La Catria, est daté du IIe siècle au Monte Testaccio (Remesal 1997, 73).
17 - [L]CM
L ( ) Cf ( ) M ( )
Inv. 8521.
Anse, pâte chamois à gros grains.

Timbre : Sur anse, cartouche rectangulaire dont la partie gauche n'a pas été imprimée dans l'argile.

Contexte : Période VII.

Documentation : Cf n°16.

18 - [LC]M
Inv. 8544.
Anse, pâte chamois à gros grains.

Timbre : Sur anse, cartouche rectangulaire brisé à gauche.

Contexte : VF43, période VII.

Documentation : Cf n°16.

19 - [Q]C[R]
Q ( ) Cf ( ) R ( )
Inv. 1230.
Anse, pâte chamois à gros grains.

Timbre : Sur anse, cartouche rectangulaire.

Contexte : Période V.

Documentation : Timbre daté de 40-90 à Avencnes (Remesal 1997, 76) et de 60-75 à Colchester (Carreras, Funari 1998, 130).

20 - [Q]COCL
Q ( ) CO ( ) CL ( )
Inv. 8543.
Anse, pâte chamois foncé.

Timbre : Sur anse, cartouche rectangulaire incomplet à gauche.

Contexte : Période IV.

Documentation : Sur le lineus rhénan, ce timbre est daté de 70-120 par la typologie (Remesal 1997, 86).

21 - [Q]COCAL
Q ( ) CO ( ) CL ( )
Inv. 8529.
Anse, pâte chamois.

Timbre : Sur anse, cartouche rectangulaire incomplets à gauche.

Contexte : VT 89, période V.

Documentation : Cf n°20.

22 - PORODV
POR(ri) O ( ) D ( ) V ( )
Inv. 8529.
Anse, pâte chamois.

Timbre : Sur anse, cartouche rectangulaire, timbre imprimé en profondeur dans l'argile.

Contexte : Période VII.

Documentation : Ce timbre du 1er siècle (Remesal 1997, 241, Carreras, Funari 1998, 355), plus répandu sous la forme POROCODV, connait de nombreux lieux de production, La Catría, Mochales, Cortijo del Guerra et Haza del Olivo (Ponsich 1979, p. 34, n°67 ; p. 40, n°73-75 ; p. 46, n°83).

23 - EVTVCIO
EVTVCIO
Inv. 8536.
Panse.

Timbre : Sur panse, cartouche rectangulaire, E à peine visible, Y de dimension plus réduite.

Contexte : VI 19, période VIB.

Documentation : Ce timbre, connu sous la forme EVYTCISF à Wroxeter (Carreras, Funari 1998, 179) et EVYTCI... à la Saalburg est daté du IIIe siècle par la typologie (Remesal 1997, 105).

24 - LFC
L ( ) F ( ) C ( )
Inv. 8769.
Anse, pâte chamois à gros grains.

Timbre : Sur anse, cartouche rectangulaire, petites lettres bien espacées.


25 - Q.F.G
Q ( ) F ( ) G ( )
Inv. 6513.
Anse, pâte chamois.

Timbre : Sur anse, cartouche rectangulaire, points après le Q et le F.

Contexte : Période IV.

Documentation : Timbre produit à Penafior (Ponsich 1979, p. 102, n°34), daté du milieu du IIIe siècle à St. Albans (Carreras, Funari 1998, 195).

26 - L.F.O
L ( ) F ( ) O ( )
Inv. 8537.
Anse, pâte chamois.

Timbre : Sur anse, cartouche rectangulaire brisé à gauche, hederae après le L et le F.

Contexte : VZ 283, période V.

Documentation : Le timbre LFO est originaire de la Catria et semble avoir été diffusé dans la
seconde moitié du 1er siècle (Martin-Kilcher 1987, ST 53).

27 - MIM

\[ M( ) \ I( ) \ M( ) \]

Inv. 1203.

Anse, pâte chamois à gros grains.

Timbre : Sur anse, cartouche ovale incomplet à gauche, barres du M non solidaires.

Contexte : Période VI.


28 - QIM

\[ Q( ) \ I( ) \ M( ) \]

Inv. 6047.

Anse, pâte chamois rosé assez fine.

Timbre : Sur anse, cartouche ovale, hederae après chaque lettre.

Contexte : Période VI.


29 - QIMMACR

\[ Q( ) \ I( ) \ M( ) \ MACR( ) \]

Inv. 8157.

Col, pâte chamois.

Timbre : Sur anse, cartouche ovale, rétrograde.

Contexte : Période VIA.

Documentation : Cf n°28.

30 - LIRTOR

\[ L( ) \ I( ) \ R( ) \ T( ) \ O( ) \ R( ) \]

Anse.

Timbre : Perdu.

Bibliographie : Callender 1965, 876.

31 - AELLIITALSEN

\[ AEII ITALI( ) SEN( ) \]

Inv. 6396.

Anse, pâte chamois.

Timbre : Sur anse, cartouche rectangulaire, points après le premier I et le second L, ligatures AE, TAL et SE.

Contexte : Période VI.

32 - PIVLICRISPIE

\[ P( ) \ IVLI( ) \ CRISP( ) \ E( ) \]

Inv. 8514.

Anse, pâte gris-chamois.

Timbre : Sur anse, cartouche ovale, lettres fines et très peu en relief, ligatures non visibles sur cet exemplaire érodé, mais attestées sur d'autres timbres : IVL et RI.

Contexte : V01 49A, période IV.

Documentation : Timbre daté de 50-100 à Avenches (Remesal 1997, 184).

33 - LIVNI.M.MELISSI.P

\[ L( ) \ IVNI \ MELISSI \ P( ) \]

Inv. 6555.

Anse, pâte orangée à cœur gris.

Timbre : Sur anse, cartouche rectangulaire, texte sur deux registres, points triangulaires après le premier L, le deuxième et le quatrième I.

Contexte : Période VII.

Documentation : Ce timbre, produit à Las Delicias (Ponsich 1991, n°25, p. 57-59), est associé à un titulus pictus datant des années 214-222 au Monte Testaccio (Remesal 1986, n°156).

34 - [L.]LIVNI.M.MELISSI.P

\[ L( ) \ IVNI \ MELISSI \ P( ) \]

Inv. 8531.

Anse, pâte chamois rosé assez fine.

Timbre : Sur anse, cartouche rectangulaire, texte sur deux registres, points triangulaires après le premier L, et le quatrième I.

Contexte : Période VII.

Documentation : Cf n°33.

35 - [L.]IVNI.[M./MELI][S][I]

\[ L( ) \ IVNI \ MELISI \ P( ) \]

Inv. 539.

Anse, pâte fine, chamois à cœur gris.

Timbre : Sur anse, cartouche rectangulaire incomplet à droite et mal imprimé à gauche, texte sur deux registres, point triangulaire après le I.

Contexte : Période VII.

Documentation : Cf n°33.

36 - [L.]IVNI.[M/[MELIS][S][I]

\[ L( ) \ IVNI \ MELISI \]

Inv. 8528.

Col, pâte rose à cœur gris assez fine.

Timbre : Sur anse, cartouche rectangulaire brisé, texte sur deux registres.

Contexte : Période VI.
37 - [I]VNI MELISSI/ET MELISSE
H (duorum) IVNI MELISSI ET MELISSE
Inv. 8524.
Anse, pâte chamois.
Timbre : Sur anse, cartouche rectangulaire mal imprimé dans la partie supérieure gauche, texte sur deux registres, ligature NI et ME, point après la dernière lettre.
Contexte : Période VII.

38 - PLFMANLR
P( ) L( ) F( ) MAN( ) L( ) R( ) ?
Inv. 6249.
Panse.
Timbre : Sur panse, cartouche ovale, ligatures PL et MANLR.
Contexte : Période IV.

39 - CLPV
C( ) L( ) PVDE( )
Inv. 7545.
Anse, pâte chamois.
Timbre : Sur anse, cartouche rectangulaire, peut-être incomplet à droite.
Contexte : Période VII.
Documentation : Ce timbre peu répandu, originaire de La Catrìa, est connu à Oost dans un niveau daté de 230-250 (Panella 1983, page 248, fig. 18), à Londres vers 180-250 (Funari 1996, n°142) et à Augst (Martin-Kilcher 1987, ST71).

40 - QMR
Q( ) M( ) R( )
Inv. 4873.
Anse, pâte chamois à gros grains.
Timbre : Sur anse, cartouche ovale, texte rétrograde, lecture de la dernière lettre incertaine.
Contexte : Hors stratigraphie.

41 - PNN
P( ) N( ) N( )
Inv. 8525.
Anse, pâte chamois.

Timbre : Sur anse, cartouche rectangulaire.
Contexte : VI. 17, période VII.

42 - A.P.CR
A( ) P( ) C( ) R( )
Inv. 4764.
Anse, pâte chamois foncé.
Timbre : Sur anse, cartouche ovale, points après les deux premières lettres.
Contexte : VT 72, période V.
Documentation : Les timbres de la famille APC, originaires de la Catria, sont datés de 70-120 par la typologie (Remesal 1997, 246) et de 50 à 150 à Augst (Martin-Kilcher 1987, ST84).

43 - A.P.H
A( ) P( ) H( )
Inv. 8167.
Anse, pâte chamois détrempée.
Timbre : Sur anse, cartouche ovale, points après les deux premières lettres.
Contexte : Période IV.
Documentation : Timbre originaire du Cortijo de Marchante (Ponsich 1979, p. 51, n°93), daté de 70-120 par la typologie sur le limes rhénan (Remesal 1986, 200).

44 - L.QS
L( ) Q( ) S( )
Inv. 8748.
Anse, pâte chamois à gros grains.
Timbre : Sur anse, cartouche rectangulaire, points triangulaires après le L et le Q.

45 - [L.]Q.S
L( ) Q( ) S( )
Inv. 8108.
Anse, pâte chamois à gros grains.
Timbre : Sur anse, cartouche rectangulaire brisé à gauche, point triangulaire après le Q.
Contexte : Période VIB.
Documentation : Cf n°44.

46 - PORTAR[
PORT(u) A( ) R( ) ( )
Inv. 6224.
Anse, pâte brune.
**Timbre** : Sur anse, cartouche rectangulaire, éclat dans la partie inférieure droite.
**Contexte** : Période VI.

47 - GRA/DOS
G( ) R( ) A( ) D( ) O( ) S( )
Inv. 3347.
Anse, pâte brune.
**Timbre** : Sur anse, texte sur deux registres séparés par une barre, partie inférieure droite mal imprimée.
**Contexte** : Période VI.
**Bibliographie** : Funari 1996, 196 ; Carreras, Funari 1998, 401g.
**Documentation** : Timbre produit au cortijo de Manuel Nieto (Ponsich 1979, p. 46, n°84).

52 - Q.S.[P]
Q( ) S( ) P( )
Inv. 4713.
Lèvre et anse, pâte gris chamois à courte beige.
**Timbre** : Sur anse, cartouche rectangulaire, point triangle après le Q.
**Contexte** : VT 91, période III.
**Documentation** : Cf n°50.

53 - [Q]SP
Q( ) S( ) P( )
Inv. 8519.
Anse, pâte chamois à gros grains détrempée.
**Timbre** : Sur anse, brisé à gauche.
**Contexte** : Période II.
**Documentation** : Cf n°50.

54 - HISP.SAENI corona
HISP(an) SAENI(ense)
Inv. 8484.
Anse, pâte gris chamois.
**Timbre** : Sur anse, cartouche rectangulaire, point après le P, ligatures AE et NI.
**Contexte** : Période IV.

55 - F.S.CIM/NIANO
F(iglina) SCIMINIANO(urn)
Inv. 489.
Lèvre et anse, pâte chamois rosé à cœur gris.
**Timbre** : Sur anse, cartouche rectangulaire mal imprimé, texte sur deux registres séparés par une barre, point triangulaire après le F.
**Contexte** : Période VII.
56 - C.SEMPLE
C( ) SEMP(roni) P(o)L(yclitis)
Inv. 4837.
Anse.
Timbre : Disparu.
Contexte : Période IV.
Bibliographie : Callender 1965, 472b.

57 - SER.M
SER( ) M( )
Inv. 8538.
Anse.
Timbre : Sur anse, cartouche ovale, point triangulaire après le R.
Contexte : VX 42, période V.

58 - {SER}VPORC
Q( ) SERV( ) POR(tu) C( )
Inv. 1491.
Anse, pâte chamois à gros grains.
Timbre : Sur anse, cartouche rectangulaire brisé à gauche, ligature VPOR.
Contexte : VT 51, période VI.
Bibliographie : Callender 1965, 9B1 ; Carreras, Funari 1998 513 (lu LVBC).

Timbres incomplets

59 - ]AHJ[  
Inv. 8532.
Anse, pâte gris chamois assez fine.
Timbre : Sur anse, cartouche ovale brisé à gauche, dernière lettre difficile à identifier (A ?).  
Contexte : Période VII.

60 - ]ALF  
Inv. 1496.
Anse, pâte chamois.
Timbre : Sur anse, brisé à gauche, point après le I.
Contexte : VI 58, période VI.

61 - C[ ou Q  
Inv. 8535.
Anse, pâte chamois.
Timbre : Sur anse, brisé à droite.
Contexte : Période VI.

62 - ]EL  
Anse.
Timbre : Perdu.
Contexte : Période VII.

63 - I[  
Inv. 4859.
Anse, pâte chamois rosé à couverte claire.
Timbre : Sur anse, cartouche rectangulaire brisé à gauche, rétrograde.
Contexte : Période IV.

64 - Q[  
Anse.
Timbre : Sur anse, éraflé.
Contexte : VO 37, période II ou III.

65 -Q[  
Inv. 8533.
Anse.
Timbre : Sur anse, brisé à droite.
Contexte : VI 57, période IV.

66 - SC ou ]BC  
Inv. 8523.
Anse, pâte chamois à gros grains.
Timbre : Sur anse, cartouche ovale brisé à gauche.
Contexte : Période VI.

Timbres de lecture difficile

67 - M[---]N[---]M[---]II[---]  
Inv. 8526.
Anse, pâte orangée savonneuse.
Timbre : Sur anse, cartouche rectangulaire, texte sur deux registres, lettres très érodées. Il se pourrait que ce timbre appartienne à la famille des timbres LIIVNIM/ELISSI ou II IVNI MELISSI/ET MELISSE.
Contexte : Période VII.

68 - Q[---]SEV  
Inv. 6385.
Anse, pâte chamois à gros grains.
Timbre : Sur anse, cartouche rectangulaire mal imprimé dans la partie inférieure, probable ligature SE.
Contexte : Période VI.

69 - ]GRA  
Inv. 8518.
Anse, pâte chamois assez fine.
Timbre : Sur anse, cartouche rectangulaire mal imprimé dans la partie supérieure gauche.
Contexxe : Hors stratigraphie.

70 - [ILJ]
Inv. 8530.
Anse, pâte rose à gros grains.
Timbre : Sur anse, très érodé à gauche et à droite.
Contexxe : Période VIB.

71 - [M.F.[-]A
Inv. 8736.
Anse, pâte chamois à gros grains.
Timbre : Sur anse, très érodé, cartouche rectangulaire mal imprimé.

72 - [N[ ]LIA
Inv. 8507.
Anse, pâte gris chamois.
Timbre : Mal imprimé en deux exemplaires sur le dessus de l'anse.
Contexxe : V01 19A, période III.

73 - QIF.C[-]OX
Inv. 5753.
Anse, pâte gris-chamois.
Timbre : Sur anse, cartouche ovale, antération après le C, point après la ligature IF.
Contexxe : Période VI.

Les fameux comptes d’approvisionnement sur tablettes de Vindolanda mentionnent les denrées acheminées vers le camp, mais pas leurs emballages. Elles appor tent en revanche beaucoup quant à l’ordinaire des hommes de troupe
t. La base de l’alimentation était le blé. Yann Le Bohec souligne qu’en six jours, une légion consommait 180 hectolitres de blé, soit la production de 8 hectares
t. Les termes *halica*, semoule (Tabl. II 193 et 233) et *frumentum* (Tabl. II 180, 185 et 191) reviennent en effet souvent dans les comptes. Pour ce qui est des importations de vins, on a vu que les bons vins d’Italie, de Gaule et de Grèce en amphores étaient rares, et vraisemblablement réservés aux officiers, et qu’à l’inverse, il y en avait beaucoup de moins bonne qualité conditionnés en barriques, pour le gros des troupes. De fait, à côté des termes vinum (Tabl. II 190 et 203), ou mulsum (Tabl. II 302), dont les arrivages sont liés aux jours de fêtes ou au praetorium, les tablettes font également mention d’acerum (Tabl. II 190 et 202), du vin piqué auquel on ajoutait de l’eau pour préparer la posca, la boisson réservée aux soldats, et qui n’entrivait pas. On peut imaginer que le vin piqué était acheminé en tonneaux, dont le cerclage en broutis de Châtaignier ou de Noisetier ne paraît pas avoir permis une étanchéité optimale.

On consommait donc du vin, mais il est clair que la boisson de base était la cerveoise, ce qui est en fait assez peu étonnant quand on considère que les soldats stationnés à Vindolanda étaient presque tous originaires du Nord de la Gaule (des Bataves et des Tongres). Les tablettes nous apprennent que la cerveoise était soit importée, soit brassée sur place : les comptes indiquent en effet à la fois des arrivages de cervesa (Tabl. II 190 et 186) et d’orge, hordeum (Tabl. II 185, 190 et 213). Un cervesarius, nommé Arectus, est de plus connu dans le camp en 111 de notre ère.

Pour le reste de la cuisine, les mentions d’oleum (Tabl. II 203) sur les tablettes renvoient bien sûr aux très nombreuses Dressel 20, mais les autres denrées sont moins habituelles, et comme le vin, elles sont généralement réservées aux officiers : de la maria, des olives, des huîtres, des pommes, des prunes, du miel, diverses viandes, des épices, des herbes, du beurre, du saumon, etc...
Fig. 22 : Timbres sur amphores Dressel 20 (Éch. 1/2).

Fig. 115
Fig. 23: Timbres sur amphores Dressel 20 (Ech. 1/2).

Fig. 116
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The Mercury vessel, basket lid, helmet crest and gryphon
by Patricia Birley

The Mercury vessel

Some 45% of a wheel-thrown vessel, in a fine orange fabric, was found amongst the dump of pottery immediately outside the western wall of the period IV structure, some ten metres from the north-western corner. The vessel had been broken into several pieces in antiquity, and so far none of the rim has been recovered.

A plain broad panel rises from the complete base of the vessel to a narrow band of repeating small rectangular blocks. Above this there is a second band, consisting of slightly curved narrow vertical plain strips laid over an underlying feathered pattern. This resulted in a design of alternating feathered and plain strips that was produced while the clay body was still wet.

At the top of the above band there is a narrow plain band. A highly ornate band of applied decoration then remains, as follows below.

A piece of clay has been applied to the belly of the vessel and curved, by hand, to form the shape of a handle. An applied design of the upper part of a dressed figure has then been fixed to the handle to form a bust-type feature. The accompanying head of the figure was broken off in antiquity.

That the figure undoubtedly represented the god Mercurius (Mercury) is substantiated by the rest of the remaining decoration, all of which is normally associated with that deity. To the right, as viewed, is part of a caduceus (a herald's staff with two entwined snakes). A tortoise has also been applied, and is a reference to Mercury's invention of the lyre from the shell of such an animal, and a direct identification of Mercury's association with the Greek god Hermes. Applied foliage then continues the decoration.

To the left of the figure a money bag can be seen, which signified Mercury as a god of trade and commercial activity. Further to the left there is part of a cockerel, which often accompanied Mercury as a herald of the new day. When complete, a second handle would have been present, and may have been a copy of that which is now visible, or instead might have incorporated other animals associated with the god, such as the fertility symbols of the goat or ram.

The archaeological evidence demonstrated that the building had perished by fire, and signs of severe burning are visible on the outer surface of the vessel. A clear band of yellowish discolouration, at approximately handle height and some 3 cm thick, is present on the inside of the vessel, which may indicate an original liquid content with an oily or scum surface.

The surviving handle is still firmly fixed, but it was obviously the weakest part of the vessel, and therefore the most likely to suffer breakage. Given these circumstances, it seems probable that the face of the god was deliberately removed in antiquity.

The percentage of the vessel that has survived suggests a rim diameter probably slightly smaller than the base, and it is tempting to consider the possibility of an ornate lid.
The basket lid – context V02-43A  period I (ditch)

The almost complete lid of a small circular ‘wickerwork’ basket with a diameter of 20cms. The lid is flat and has a triple core border which acts as a flange. No handle is present.

The basket construction consisted of c.60 round reed stakes of approximately 1.75mm diameter. Three simple weave effects were used on the main body of the lid. The basket maker began by weaving 2.5mm thickness rods over alternating two stake and three stake bundles. This formed a 4.5 cm diameter band and was then followed by a 4cm diameter band of single spoke weave using thinner 1.75mm rods which created a more tightly woven contrasting effect. A narrow .5cm band then used a 2.5mm thickness rod over a four stake bundle to create the third broad weave effect.

The lid was finished by means of an outer flange, with a depth of 2.5cm, consisting of three borders formed by making a core from 3mm thickness rods forming three hoops. The 2.5 thickness rods are then passed in front of four stakes, over the upper core and back through to the front until the whole core is covered. A pleasing chevron effect was produced by reversing the weave direction for the central core before reverting to the original weave direction for the final band of the flange.

The basket lid demonstrates a high level of basketry skills which no doubt reflected the quality of the main body of the basket, which sadly was not present. The complete basket would have formed a small but useful container capable of transporting or storing a wide range goods.
The Helmet Crest

This object was made from hair moss, a perennial species of *Ploytrichium Juniperum* which can still be found growing in the high, woody areas around the site at Vindolanda. The plant produces long, tough, slender ‘hairs’ which are flexible, reddish in colour and have the appearance of horse hair. Hair moss is an excellent weaving material and was used to produce the conical shaped hair piece (or hat) which was also found at Vindolanda (J.P. Wild in VRR Vol III, plate XIII & p.84).

It has been conserved as found after laboratory removal of supporting ditch debris and, due to its fragile nature, no attempt to unfold it has been made.

The presumed helmet crest was made from c. 1120 strands of hair moss which were folded in half to form an elongated U shape. Bundles of approximately ten of these folded ‘hairs’ or strands were then back stitched to adjacent bundles, at the folded end, using a four strand twist of hair moss which was pulled tightly to produce a rounded lower finish. When this first stage was complete the crest consisted of an approximately 58cm length of hair moss strands sewn together into a strong, rounded base.

The next stage was to fold the above length in half giving a 29cm curved length of c. 2240 strands which produced a more bushy effect. It appears that most strands were approximately 23 cm long at this stage and they were then trimmed with scissors or a very sharp knife, leaving longer strands standing proud in the centre of the crest, with graduated trimming to taper each side. The longest strands were left at 23cm with the shortest cut strands at the tapered edges being 10cm.

The strong sewn edge of the crest would have formed an excellent base for securing into a crest holder before attaching to a helmet. The crest shows no sewing at the tapered edges which might indicate that it was either unfinished, and therefore unused, or that it was in disrepair and discarded. The un-sewn bundles are tightly packed as though once sewn together, which may favour the latter hypothesis.

Fig.119
The gryphon-like statuette had been hollow cast from copper alloy, and the belly of the object was filled with lead, and then both ends were plugged with iron to cap the filling.

A gryphon was usually represented by the body of a lion, with an eagle’s head and wings, but in this example the order has been reversed, and the statuette has the talons of an eagle with the body and head of a lion. The wings are missing and appear to have been snapped off deliberately in antiquity. The statuette now stands 9 cms high.

The lion’s head is neatly represented with an open and menacing mouth, and traces of black pigmentation, to emphasise the pupils of the eyes, are still visible. The belly of the object is very pronounced, but would have been aesthetically counter balanced by the now missing wings.

When viewed face on, the belly is cupped by three plain petal shapes which are drawn into a circulating narrow band. A back view shows the belly joined to the hind quarters of a lion’s body, complete with tail. The base of the object is represented by a 3 cms diameter span of four stylized eagle’s talons, which serve to provide a broad base. This broad base, combined with the lead filling in the belly, provide an excellent weight and balance to the object, which enabled it to be completely free standing.

Through the fusion of the eagle and the lion the gryphon symbolized a strength and domination of both earth and sky. Associations of the gryphon with Apollo could therefore indicate a religious context for this statuette.
The tools, by Justin Blake

Introduction

For an excavation of primarily military buildings, a surprisingly large number of tools were found. There was a wide variety of carpentry, metalworking, masonry and leatherworking tools, which gave interesting insights into the types of work, by different artisans, taking place in the forts. The anaerobic conditions of preservation had meant that they had survived in much the same condition as their Roman owners had left them, a fact well illustrated by the plasterer’s trowel with mortar still adhering to it. What would have been extraordinary tools anyway, were made even more so by the preservation of wooden handles and the lack of any corrosion to blades and points.

The overwhelming impression was how little tool design has changed since Roman times. Many of the tools listed below would not look out of place on the shelf of a modern hardware store. The fire in the Period IV schola appears to have caught a team of builders by surprise. Their tools were left behind in situ and quite probably they never finished the job. The finding of numerous leather working tools in one room of a later building showed that at the very least, leather goods were being repaired, if not produced from scratch, on some scale, inside that fort.

In the catalogue that follows, each item is identified by its Small Finds number, followed by the context and the period of occupation. The last three objects were made entirely of wood, and appear in the relevant wood catalogue, with the numbers as listed. Where multiple periods of occupation are listed (viz. II/III), the excavators were uncertain which of the periods was involved.

Tools from period I

8345 01 30A  Period I  L 83mm. (not illustrated)
Bone handled awl. The square sectioned point has been worn down, or snapped off only 12mm away from the handle. The bone handle is cylindrical and tapers towards the point. It has wear marks near the awl point where it has repeatedly rubbed against a hard surface.

8500 01 45A  Period I  L 157mm. (fig. 123)
Manning type 7a knife. The blade is sharply down-turned with a steep back and a more gently S shaped cutting edge. It has an unusual diamond shaped plate tang.

8461 01 45A  Period I  L 94mm  W 66mm. (not illustrated)
Bone scraper. Made from an antler tine, this scraper has the characteristic scoop taken out of one side. There is a small hole drilled into the tool just off-centre, at the thick edge. The wear on the scraping edge has produced a shallow S pattern.

8450 01 33A  Period I  L 258mm  W 9mm. (not illustrated)
Rectangular sectioned iron rod. The rod has been hammered flat and narrows slightly at each end. It was likely to have been a carpenter’s file, although even with the anaerobic preservation conditions, the teeth on the file have now been lost.
8853 01 43A Period I  L 91mm  W 13mm  (fig. 122)
Bone knife handle plate. The plate is made from a long bone of a small animal. It is
flattened on its inside for attachment to the knife handle plate. Three rivets, the holes
for which measured 4mm in diameter, were spaced equally along the plate, attached
the bone plate to the knife handle. The outer side has been decorated with a series of
six panels, each of which has diagonal hatching.

W2001-110 01 45A Period I  L 72mm  W 80mm  Diam 74mm  (fig. 123)
Wooden mallet head. Only the head of this rectangular mallet has survived. The tool
only shows wear on one face. There is a centrally placed oval eye to accommodate a
handle. The tool is very similar to W2001. 45 below.

W2001-45 01 14A Period I/II/III  L 279mm  W 119mm  Depth 73mm  (fig. 122)
Complete wooden mallet. The mallet head is rectangular and tapers slightly to the
rear. The striking face shows some signs of wear. The 279mm long handle is almost
rectangular in section, and projects past the eye by 38mm. The mallet was a standard
tool for many of the Roman craftsmen such as carpenters, masons and sculptors. This
all-wooden mallet would have produced a soft blow, favourable for work where
hammer marks would be unsightly or where delicate chiselling was needed. It would
have been an ideal tool for a carpenter or sculptor.

Tools from period II

8139 01 9A Period II/III  L 85mm  W 32mm.  (not illustrated)
Possible fragment of an iron knife blade, snapped off before the tang and the point.

8156 01 14A Period II/III  L 138mm  D 11mm.  (fig. 124).
Iron spoon drill bit. This large drill bit has a pyramidal tang for insertion into a
wooden handle, and a circular stem. The stem is broken before the spoon. There are
three distinct worn grooves just under the tang. As large drills of this type were
operated with a bow, it is likely that these grooves represent wear patterns from the
bow chord. The point of fracture on the stem has been flattened out after breaking to
produce a small roll of iron. This suggests the tool was reused for a different function
during its later useful life.

8308 01 26A Period II/III  L 149mm  W 28mm.  (not illustrated)
Flat strip of iron with splayed end pieces. There is a small hole, 7mm in diameter,
pierced through one end. This object was probably a fitting from a larger wooden
object.

8319 01 26A Period II/III  L 172mm  W 19mm  (not illustrated)
Joiner’s dog. This example has been snapped at one end and the one remaining spike
has been bent backwards. This suggests the dog had been forcibly removed from the
timbers it was holding. It was likely during the removal that the damage took place.

8424 01 42A Period II/III  L 235mm  W 22mm  (fig. 123).
Iron plane blade. The blade is splayed slightly at its cutting edge. It then runs into a
rectangular section which culminates in a nail or rivet hole. From the rivet hole, the
blade curves upwards and over, tapering into a cylindrical tang.
8445 01 42A Period II/III  L 145mm  W 27mm  (fig. 121).
Small mason’s pick of Manning’s type 3. The pick has chisel edges at both sides and
a centrally placed, circular eye. There is considerably more wear on the left hand side
of each chisel blade.

8195 01 26A Period II/III  L 198mm  W 7mm.  (not illustrated).
Rectangular sectioned iron rod. Originally, the rod would have been straight, but it is
now bent at one end. It narrows at both ends where it has been cut during its
manufacture. Without clear indication of teeth, it is impossible to know for certain,
but the size and shape of the rod suggest this was a wood worker’s file.

8625 02 04A Period II/III  L 103mm  W 8mm  Weight 28g  (fig. 124).
Graving tool or punch. The head is rectangular with the four sides chamfered. The
stem changes from a square to a circular section midway down its length. It then
gradually tapers to a sharp point. Its solid head argues against its use as a
leatherworking awl, which were usually tanged and hafted. Similarly, the lack of any
striking marks around its head suggests it was struck very lightly. Rather than being
used for roughly punching metal, this tool seems to have been used for delicate work
such as punching decoration or dot patterns. Manning 1985, lists two similar tools,
Nos A34 and A35.

8662 02 19A Period II/III  L 205mm  W 22mm  (fig. 125).
High quality knife with maker’s stamp QUINCUS F. The blade is triangular with
both the cutting edge and back coming to a sharp point, level with the centre of the
handle. The handle is made from a flat rectangular plate, which has three centrally
placed holes of 3mm in diameter, holding copper rivets. The rivets must once have
secured two handle plates, now lost, which may well have been of the decorated bone
type, similar to example 8846 below. The end loop on this knife is unusual. It has
been manufactured to resemble a finger ring, complete with oval bezel. The similarity
to a finger ring is striking, and could perhaps be seen as more than coincidental. When
the end loop is worn as a finger ring, the knife blade lies along the inside of the wrist,
totally concealed from view. With a simple flick of the wrist, the blade rotates around
the finger and is ready for use as a weapon. The knife is only sharpened to an edge on
its lower side and must be classed as a knife rather than a dagger, however it is both
pointed, and sharp enough, to have made a very effective weapon.

8801 02 27A Period II/III  L 142mm  W 12mm  (fig. 125)
Knife or razor. The edge is straight and the back slopes down to the point. The handle
is solid with a rectangular section. There is an end loop of 14mm in diameter. The
knife is similar to Manning’s type 6b. (Manning 1985, page 111).

8839 01 16A Period II/III  L 223mm  W 87mm  Weight 270gms  (fig. 122).
Iron cleaver. The large blade is triangular with a straight cutting edge. The back
slopes downwards from a socket to the slightly rounded tip. There is a 15mm wide lug
along the rear of the blade which runs into the circular socket. Fragments of the
wooden handle are visible in the socket. There is a steep angle of 44° between the
back of the blade and the cutting edge.
W2001-91 01 42A  Period II/III  L 145mm  W 70mm  (not illustrated).
Wooden plasterer's float / handle. This flat piece of wood has a round-sectioned handle projecting from the rear and running down the full length of the long axis. It could have functioned as a plasterer's float, but seems small for that purpose. Plasterer's floats usually have a greater surface area with a more centrally placed handle, as in the other Vindolanda example (Blake 1999) or modern floats. The only other alternative identification for this object is as a door handle but the lack of any fixing points makes this function unlikely.

Tools from period III

8329 01 19A  Period III  L 109mm.  (fig. 123).
Manning type 7b knife. The blade shows a slightly concave back before it is snapped. The handle is made from bone and secured to the blade by a plate tang and two rivets. It is also decorated with three vertical bands and two diagonal cross hatches. The end loop, common on this type of knife, is broken.

Tools from Period IV

8129  01 4A  Period IV  L 180mm  W 20mm.  (fig. 124).
Iron file. The file is flat for most of its length and tapers at one end. This tapering could be part of a tang for attachment to a handle.

8165  01 16A  Period IV  L 135mm  W 16mm  (fig. 124).
Iron knife blade of Manning type 7a. The sloping part of the back of the blade is slightly convex and the cutting edge has a shallow curve. This type of knife usually has a flat handle with bone plates. This particular example is unusual in that it has a small rectangular sectioned tang, which rises away from the blade at quite a steep angle.

8370  01 36A  Period IV  L 175mm  W 45mm  (fig. 124).
Medium sized U-shaped spring shears. The shears have straight edges and gently curving backs. A slice of tree branch, the same thickness as the iron, had been placed at the U-spring to make the shears spring apart after each cut. This was perhaps a more common feature of this type of shear than is generally realised, because under most conditions of preservation the wooden bung would have decomposed. Manning 1985, notes that shears would have performed the same types of varied tasks as modern scissors, but that only rarely can they be given a precise function. The context in which this set of shears was found leaves no doubt that they were being used to cut leather. The tough nature of this material may also have been a factor in the necessity of a wooden bung to assist the natural spring of the iron.

8374  01 37A  Period IV  L 47mm  W 36mm  Weight 0.3kg  (fig. 123).
Lead plumb bob with a copper alloy wire loop.

8389  01 37A  Period IV  L 77mm  W 10mm  (fig. 125).
Manning type 3b leather working awl. The awl has a rectangular sectioned head with a conical tip. The point is longer, but takes the same form.
8401  01 37A  Period IV  L 246mm  W 113mm.  (fig. 124).
Manning type I plasterer's trowel. (Manning 1976). The trowel has a diamond shaped
blade with quite straight shoulders. It has a cranked tang and a relatively short
wooden handle. The trowel had obviously been in very recent use before it was
abandoned because a large amount of yellow mortar was stuck to its surface. The
mortar is spread from the trowel point right up to the base of the handle. The majority
of the mortar was stuck to the left hand side of the blade, which is suggestive of a
right-handed user.

8402  01 36A  Period IV  L 146mm  W 16mm.  (fig. 124).
Knife blade, broken at the point and tang. This Manning type 11 knife has a long
blade in comparison to its width. The blade and back are parallel, the tang slopes
gently down from the back.

8414  01 37A  Period IV  L 160mm  W 20mm.  (fig. 122).
Almost complete iron knife with bone handle. The blade has a concave back while the
dge is straight along its length. The blade runs into a plate tang with the bone handle
secured by two pairs of iron rivets. There was once an iron end loop, which has now
broken off. The bone handle plates are decorated with inscribed bands, the end bands
having oblique cross-hatching.

8407  01 38A  Period IV  L 110mm  W 11mm.  (not illustrated).
Square sectioned iron rod. The rod is shaped into a shallow S. It comes to a blunt
point at one end, and is beginning to flatten out at the opposing breakage point. This is
likely to have been a tang from a tool. The S shape would make it ideal as a trowel
handle.

8613  02 04A  Period IV  L 52mm  W 54mm.  (not illustrated).
Possible fragment of an iron trowel. A flat plate with a curving edge, similar to the
angle of the rear part of a mason's trowel, is connected to a small tang. The tang
protrudes from the plate at around eighty degrees. This quickly slopes back away
from the plate at a shallower angle of fifty degrees. This may have been part of a
mason's trowel, however it could equally be described as an iron fitting.

Tools from period V

8347  01 29A  Period V/VIA  L 339mm  Diameter of head, 28mm.  (fig. 121).
Complete cross-paned hammer with wooden handle. The iron head has a circular
striking face set at a slight downward angle. The striking face is balanced by a small
cross-pane. There are two small lugs set on the upper sides of the central oval eye.
The wooden handle, also complete, projects 8mm past the top of the eye. At 339mm
in length, the handle is extraordinarily long for so small a head. The hammer was
found in what is thought to have been a leatherworking room. Its light head and small
striking face would give the user a great deal of control making it ideal for fine work
like hammering in hobnails.

8349  01 29A  Period V/VIA  L 264mm  W 32mm.  (fig. 122).
Manning type 17 knife. The knife has a long blade with the back and the blade
running parallel to each other except at the tip. Here the back slopes down in a rough
S shape to form the blunt point. Away from the point, the back of the knife has a
shallow groove, which stops at the square sectioned rod handle. The handle extends backwards and finishes with a down-turned loop.

8457 01 29A Period V/VIA L 83mm  W 18mm. (not illustrated).
Iron fitting. This fitting is an iron rod, which turns through 90 degrees. At one end it has been hammered flat to produce a plate. This plate has two small nail holes in it, one of which still retains the nail.

Tools from period VI/VIA

8466 01 34A Period VIA L 145mm  W 8mm. (fig. 123).
Iron spoon drill bit. This spoon drill bit is in near perfect condition. The large pyramidal tang runs into a square section, which has been hollowed out, to produce the gouge shaped point. The tool would have been powered by a bow and used to drill holes in wood. In this example the diameter of the holes would have been 9mm.

8846 02 40A Period VIA L 110mm  W 17mm (fig. 122).
Manning type 7 knife. The blade is snapped shortly after turning steeply downwards, and its edge is worn. The handle plates are attached to a flat tang by two rivets. Each of the bone plates has been decorated with three panels of cross-hatching, the centre panel having wider decoration than the ends. The characteristic end loop from such knives has in this case been snapped off.

Tools from the Severan period

8609 02 02A Severan L 134mm  W 25mms (fig. 123).
Fragment of a set of iron ‘U’ shaped spring shears. The blade is broken before the tip, and at the heel. The back of the blade runs flush with the handle, which is square in section but quickly flattens out to provide spring. This example is snapped in both of its weak spots, the tip and the area of the ‘U’ shaped spring, where most stress was placed on the metal.

8643 02 16A Severan L 230mm  W 44mm (fig. 125).
Fragment of an iron scythe blade. The blade is 45mm wide and the cutting edge is very worn. There is a small ridge just inside the outer edge.

Tools from period VII (vicus)

8106 01 1A Period VII L 160mm  W 40mm. (fig. 121).
Portable mower’s anvil. A heavy iron spike with two loops of iron passing through the stem roughly one third of the way down. One of the loops is broken off at the stem. The anvil is otherwise complete, although heavily corroded. This type of anvil was used to repair scythes and sickle blades in the field. The anvil was hammered into the ground up to the two loops and then the required work carried out on the small head.
The stylus pens

The 2001/2002 excavations produced more stylus tablets than pens, which was unusual for Vindolanda, but the pens were still the most common of finds apart from iron nails. As a group, the 19 pens formed a typical site collection, with perhaps rather more of the simple and inexpensive types 1 and 2 than normal (see VRR, NS, Vol IV Fasc IV, 1999 for the report on the Vindolanda collection, with details of the different types on page 18). There were none of the ornate type 4’s in this most recent collection.

8150 Context 01 12A Period IV. Type 2, 132mm long, weighing 11gms.
8180 Context 01 19A Period III. Type 5, 144mm long, slightly corroded, weighing 14gms.
8181 Context 01 19A Period III. Type 1, corroded, 123mm long, weighing 9gms.
8186 Context 01 19A Period III. Only the eraser end survived.
8309 Context 01 26A Period II/III. Type 1, 136mm long, weighing 16gms.
8326 Context 01 20A Period II. Type 5, 147mm long and weighing 18gms.
8340 Context 01 20A Period II. Type 2, 153mm long and weighing 8gms.
8394 Context 01 37A Period IV. Type 5, 128mm long and weighing 11gms.
8395 Context 01 37A Period IV. Type 3B, corroded, 135mm long, and with large eraser. Weight 12gms.

8415 Context 01 39A Period IV. Type 2, 152mm long, weighing 8gms.
8483 Context 01 49A Period IV. Type 5, 132mm long, weighing 15gms.
8503 Context 01 45A Period I. (still in conservation)
8393 Context 01 37A Period IV. Only the eraser end survived.
8657 Context 02 25A Period IV. A miniature Type 3 – surely the property of a child – 91mm long, weighing just 3gms.
8667 Context 02 25A Period IV. A corroded Type 5, 140mm long and weighing 17gms.
8690 Context 02 16A Period VIB. Missing its point, a Type 2, 121+mm long.
8691 Context 02 16A Period VIB. A Type 5, missing its eraser.
8802 Context 02 30A Period II/III. Type 2, 139mm long and weighing 13gms.
8820 Context 02 31A Period II. Type 2, 149mm long, weighing 8gms.

No. 8657, the miniature Type 3, from the Period IV (scholia) context, was clearly unsuitable for an adult, and would only be appropriate for a very young child. This is not the place to debate the subject, but suffice it to say that there has been evidence, in the shape of footwear, for non-military presence in many of the pre-Hadrianic buildings. However, it could not be proved that civilians were present at the same time as the soldiers.
Fig. 126  The stylus pens
The weapons


Arrow with tanged head
8475 Context 01 38A Period IV 69mm long, and weighing 6gms, the rectangular shaft has been slightly rounded. Like the previous Vindolanda examples, the object might have been a drill-bit.

Bulbous-nosed arrowheads
8146 Context 01 11A Period IV A Vindolanda category B arrowhead, 68mm overall, with 10mm diam. socket, and weight 18gms

8338 Context 01 20A Period II. Another category B arrowhead, 67mm overall, with socket diam. 9mm and weight 14gms.

8611 Context 02 3A Period IV. A very small example of the above type, 53mm overall, with socket diam. 8mm and weight just 9gms.

8480 Context 01 49A Period IV. A category A arrowhead, 98mm long, with 14mm diam. socket, which has a nail-hole 15mm from the end. This, and the example following, are the heaviest in the category so far with previous examples varying between 20 and 31gms.

8479 Context 01 49A Period IV. The same type as 8480 above, with the socket broken off at the nail-hole. 89mm+ long, and weighing 40gms.

8375 Context 01 38A Period IV. A damaged and corroded example of the two above.

Artillery bolt-heads.
8505 Context 01 19A Period III. Point and shaft somewhat battered, a pyramidal bolt-head 97mm overall, with head 47mm and socket diam. 14mm. Weight 31gms.

8440 Context 01 42A Period III. In perfect condition, pyramidal bolt-head 83mm overall, with head 42mm and diam. of socket 10mm. Weight 34gms.

8145 Context 01 11A Period IV or V. Slightly corroded, but overall length 98mm, with head 53mm, and diam. of socket 10mm. Weight 35gms.

8427 Context 01 43A Period III. A reject or unfinished bolt-head.

8670 Context 02 25A Period IV. Pyramidal bolt-head, overall 98mm, with head 52mm and diam. of socket 9mm. Weight 33gms.

8873 Context 02 6A Period VII. A heavily corroded pyramidal bolt-head. Overall length c. 86mm. Presumably a survivor from the pre-Hadrianic period.

Lance heads
8126 Context 01 4A Period IV. A very fine lance head, in almost perfect condition – overall length 240mm, with blade 140mm long and max. width of 24mm, with raised ridge on
both sides of the blade. A circular hole had been punched in the blade during manufacture, for some unknown purpose – diam. 8mm. Part of the fixing nail remained in the socket. Weight 102 gms.

8577 Context 02 5A Period IV. A small lance head, overall length 120mm, with socket diam. 11mm. Weight 26gms.

Javelin head
8441 Context 02 42A Period III. A small javelin head, overall length 122mm, with the head being 80mm by 20mm wide, with a rib in the centre of both sides. Shaft diam. 11mm, with the nail still in position. Weight 29gms.

Sword blade
8588 Context 02 2A Period VIB. The tip of a sword blade, 163mm long from tip to the break.

Sling shot
8875 Context 02 16A Period VIB. Small sandstone sling shot, weighing 20gms.

8397 Context 01 36A Period IV. Sandstone ball weighing 27gms.

Uncertain types
8382 Context 01 31A Period V. Looking like a spearhead with its tip broken off, with a shaft 63mm long, and diam. 18mm. Two circular holes drilled through the blade, 8mm and 16mm diameters. Its true function remains obscure.

8680 Context 02 18A Period VIB. Little more than a strong iron prong mounted on a shaft, which would have been an effective if unorthodox weapon – but it could equally have served as some sort of tool. Overall length 14.5cms, with shaft diam. 18mm.
Intaglios

Six intaglios in total were recovered from the 2001-2002 excavations, with four of those coming from the excavations undertaken by the author, two in 2001 & two in 2002. Intaglios are a relatively common find from Vindolanda, and from all periods of Roman occupation on the site.

SF8123, V01-07A, Period VII red jasper
A well - worn and slightly chipped red intaglio of Bonus Eventus, possibly holding a branch from a tree under the right arm. Oval in shape with a length of 12mm, width of 6mm and a depth of 3mm.

SF8474, V01-48A, Period IV red jasper
A slightly worn large red oval intaglio depicting the winged god Mercury. The god is situated on the right. In the middle is a tree, and on the left a barking dog, which is on its hind legs, but has turned to the right to face Mercury, as if it has just been called. The length of this intaglio measures at 18mm, and a maximum width of 14mm, depth 4mm.

SF8641, V02-16A, Period VIB cornelian
A well-worn and chipped red oval intaglio of Bonus Eventus, holding a patera and corn ears while facing left. The wear on this example indicated that is was lost or discarded some considerable time after manufacture. The intaglio is 15mm long and 12mm wide, with a depth of 3mm.

SF8649, V02-24A, Period II/III Blue/black glass
A fine black oval intaglio of a raven feeding its young, still set into a silver ring. The raven is on the right hand side and the chick is below on the left. Length 13mm, width 11mm.

Fig. 129

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1 The two other examples are published in Vol II of the Vindolanda research reports in 2003, by Justin Blake.
Lead die

During previous excavations of the Pre-Hadrianic levels (taking place from 1973 – 1994), four unusual lead objects were recovered, and after being interpreted as potential stamps, were published in 1993 under that heading. During the 2002 excavations two more of this type of unusual object were recovered (SF8605 & SF8809), and were then recognised as the imprints from pressing a Manning type 2 slide key into lead to form an impression of the arrangement of the teeth from a key. This would then be used to make a mould to manufacture a new key.

A re-examination of the earlier examples proved that they had most likely been used in a similar fashion, and to copy the impression of the same variety of key. Both examples from the 2002 excavations were recovered from the period IV schola.

SF8809 – V02-31A. Period II
Width, 15mm
Length, 80mm
Thin strip of lead with tapered handle/tang, imprint of a Manning type 2 slide key, with five teeth clearly visible. The lead is broken into two strips, and is less than 4mm thick.

SF8605 – V02-11A, period IV
Width, 20mm
Length, 55mm
Thin strip of lead with the imprint from three teeth from a Manning type 2 slide key. The imprint is light, and only three of the teeth from the key seem to have left a good impression. The lead is less than 4mm thick at the point of the impression.

Out of all the recorded items of this sort from Vindolanda, only one (SF5039), was recovered from a context where you might expect to find such an object. SF5039 came from a metal workshop, the ideal location for the manufacture of spare keys. It is likely that as a non-commissioned officer the armourer was himself a frequenter of the schola, and it is possible that he may have had lodgings somewhere within the building. This explanation would perhaps be preferable to the possibility that a member of the schola was involved in nefarious activities, although this cannot be ruled out altogether.

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The 2001/2002 footwear, and a purse

In the two seasons of excavation, over 200 items of footwear were recovered, the majority being in a fragmentary state. Amongst them there were no new types to add to Carol Van Driel Murray’s analysis (in VRR, NS, vol III, 1993), but there were several particularly good examples of known types, and a surprisingly large percentage had clearly been worn by women and children. This was especially true of the deposits in the filthy floors of the periods II and III structures, which had probably been barrack buildings. How such civilian items came to be discarded within forts cannot be answered, but we know enough from the writing tablets to appreciate that the bulk of the garrison may well have been absent for lengthy periods, leaving accommodation vacant – and perhaps accessible to their civilian dependents. Eleven of the more interesting examples are illustrated here, with one wooden bath-clog. The entire Vindolanda footwear collection, now numbering nearly 3,000 items, will be the subject of a separate report in due course.

The illustrated examples:
L01 55 Context 01 19A Period III. A typical male marching boot, 267mm long. The left side of the heel has been inscribed with the numeral IX. Although the majority of such boots were of adult size, a few had clearly been made for youths.

L01 46 Context 01 18A Period I. Only 210mm long, this was probably a child’s boot.

L01 32 Context 01 14A Period II/III. An orthodox female carbatina, 223mm long.

L01 79 Context 01 21A Period VIA. Another example of a female carbatina, 216mm long.

L01 80 Context 01 24A Period II/III. A child’s boot, just 130mm long, made from goat skin.

L01 199 Context 01 39A Period IV A child’s carbatina, 163mm long, very worn.

L01 52 Context 01 18A Period I A lady’s shoe, 234mm long, with unusually small studs, whose head had a diameter of just 4mm.

L01 14 Context 01 4A Period IV. A small male shoe, 234mm long, with 73 small studs.

L01 229 Context 01 25A Period V. Probably a large female shoe, 267mm long.

L01 15 Context 01 4A Period IV. 212mm long, once heavily studded, but only the small inner pattern remains.

W01 79 Context 01 38A Period IV Frag. Remains of a wooden clog – the only example.

L01 49 Context 01 18A Period I A very fine lady’s shoe, in the style favoured by Sulpicia Lepidina, 250mm long, with one of two small bronze discs surviving in the upper heel.

L01 158 Context 01 38A Period IV Probably lady’s shoe, 237mm long, with decorative stud pattern.

L01 85 Context 01 26A Period II/III Remains of a small draw-string purse, diam. 280mm.
Fig. 133
L01 49

The sole of the very fine female shoe, made of goat skin rather than cattle hide. The surface bears 16 brands, featuring ears of corn. Unusually, two bronze studs have adorned the heel of the shoe on the inside. A medical view suggested that this was to cure some inflammatory problem. The front of the sole is shaped like a foot, with the design curving around where you might expect to find the toes, in a style favoured by Sulpicia Lepidina in period III.

L01 85 Calf or goatskin purse. Diam. 280mm.
Objects made from wood that are not barrels or buckets

During the course of the 2001-2002 excavations a large quantity of well preserved wooden objects was recovered. Objects made from wood normally only survive from the earlier timber layers of the site, periods I – VI A, and as such there is little or no representation of wood working in the archaeological record of the site beyond the early third century. The majority are currently undergoing detailed study by Dr John Hather and Dr Rob Sands, as part of the wider collection of wooden objects recovered from previous excavations on the site. The re-used barrel parts, bungs etc are discussed by Dr Elise Marlière, in her report on the barrels and wooden containers⁴.

The objects chosen for illustration are therefore included to give an indication of the range of general artefacts that have survived. Many of the wooden artefacts recovered in 2002 are still undergoing conservation in the Vindolanda laboratories, and as a consequence the illustrated examples on fig 137 are concerned with those objects recovered in 2001.

W2002-41A, V02-43A, Period I fort ditch
Length 60mm, diameter 71mm,
A small round boxwood container with its lid still sealed. It was recovered from the bottom of a period I fort ditch and still retained its original contents when the lid was removed. The contents were sent to Durham University for analysis. Unfortunately the results of this research proved inconclusive, only able to prove that the material was organic. However, it is very likely that it had been valuable enough to warrant its own special container, and it is perhaps not too unlikely a possibility that the box could have been used to store a substance like pepper, or another condiment. It is difficult to speculate how such an object of worth could have found its way into a fort ditch, normally the preserve of unwanted rubbish, such as shoes, broken pottery and waste meat and bone.

Fig. 136 Before and after W2002-41A had its lid removed to show the small black ball of contents inside.

Many examples of this type of box have been recovered in the past, but none were complete, and no example has had a trace of the contents surviving until now. At a depth of over 5m from the surface, it is remarkable that the object should have survived without being crushed by the debris above.

⁴ For her report on barrels from the 2001 & 2002 (and earlier) excavations see pp 128-156.
W2001-08, V01-14A, Period II/III
Length 130mm, maximum width 26mm
A piece of wood tapered at both ends, widening in the middle with a hole bored through the centre. Signs of wear appear around the central hole indicating friction at this point. The object appears similar in shape to a mason's pick, but was likely used as a large toggle of some sort, or handle.

W2001-14, V01-19A, Period III
Length 46mm, width 19mm
A damaged wooden comb, classic design with a thin central spine and two sides of teeth, one more tightly packed than the other. The example is similar to a modern nit comb.

W2001-13, V01-19A, Period III
Length 162mm, maximum width 22mm
A toy sword, made from a thin oak plank of the sort used to clad the side of a timber building. Useless as a practice sword due to its flimsy nature.

W2001-16, V01-19A, Period III
Length 46mm, width 20mm
A well preserved comb, located next to W2001-14. Both sets of teeth seem to be in good condition although the left hand side of the comb is damaged.

W2001-29, V01-21A, Period VI A
Length 193mm, maximum width 34mm
A large scoop or wooden ladle. Made from pine and in a dagger motif. This variety of object would have been useful for extracting produce from an amphora.

W2001-31, V01-19A, Period III
Length 76mm, diameter 32mm
A large wooden bung, decorated with three thinly incised bands and with a wide top. Probably too ornate for mere storage purposes and more a bung for a flagon used at the table.

W2001-48, V01-30A, Period I
Length 51mm, width 52mm
Possibly a bung, more likely a handle of some sort. The object has been damaged in antiquity and is clearly separated from something else at its thin protruding base. A deep cut mark has been made across the object, which has been exaggerated by the start of decay.

W2001-53, V01-30A, Period I
Length 84mm, width 16mm
A small spindle, probably used in ornate furniture, although resembles a modern cricket bail!

W2001-70, V01-37A, Period IV
Length 150mm, width 18mm
A long thin spindle, of turned wood, almost triangular in section (which may have been caused by post use compression).

W2001-89, V01-42A, Period III
Length 201mm, maximum width 44mm
A wooden dagger made from oak, possibly another toy (see W2001-13), or perhaps a practice dagger, as the object is well made and relatively robust.
Fig. 137
APPENDIX I

SPECIALIST REPORT ON THE HUMAN SKULL (8658) FROM VINDOLANDA, NORTHUMBERLAND

by

Louise Loe

The Centre for Forensic Archaeology and Biological Anthropology, University of Bournemouth

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1.0 INTRODUCTION AND BACKGROUND

This report presents the findings of an anthropological and palaeopathological examination of the human skull (8658) that was recovered during recent excavations at Vindolanda. This work was undertaken at The Centre of Forensic Science, Technology and Law, Bournemouth University.

The skull was found in two pieces in the southern ditch that surrounds the Severan fort and it is believed to date between AD 200 and 213. In the same context was the articulated skeleton of a dog and disarticulated faunal remains. The ditch lies on sloping ground and although the conditions were not anaerobic, water flowed through it creating a damp environment.

An initial assessment of the skull, (Loe, 2002), determined a provisional sex and age and confirmed the presence of two broken regions. The breaks displayed characteristics of peri-mortem fracture, (i.e. fractures that occurred around the time of death). It was however readily apparent what agencies had caused these breaks although bladed and blunt forces were suggested. It was proposed that a programme of more detailed analysis involving macroscopic and microscopic techniques was carried out.

2.0 AIMS AND OBJECTIVES

The aims of the present analysis are to carry out a detailed anthropological and palaeopathological examination of the skull. Special attention will be given to recording whether there is any evidence to suggest what agencies caused the breaks, and when they might have occurred (e.g. before death, around the time of death, or after death).

The objectives of this analysis include;
- Assessment of biological sex and age at death,
- Assessment of racial affinity,
- Non-metrical analysis,
- Macroscopic and microscopic examination of the skull to assess the nature of the breaks and identify any modifications.
- Analysis of the mechanisms that caused the breaks, their timing and sequence.
- Comparison between surface features on the skull with those on the dog bones (8659) and a sample of the disarticulated faunal remains from the same context to explore the post-depositional history of the skull.
- Discuss parallels and further work.

3.0 DESCRIPTION, CONDITION AND COMPLETENESS OF THE SKULL

3.1 Methods

An inventory of the skull was made detailing which parts had survived. This was illustrated with accompanying diagrams. The condition of the bone was recorded with
particular reference to the presence of any abrasion, disintegration and fragmentation. The amount present was recorded as a percentage of 100.

3.2 Results

The skull was approximately 80% complete and was represented by facial, frontal, parietal, and occipital bones. The frontal, with the temporal bones joined, was detached along the suture from the remainder of the skull. The parietals and occipital bone were attached. The temporal bones had not survived and the sphenoid and basilar were largely incomplete. The lateral aspects of both parietals and the inferior aspect of the occipital bone were also missing. The upper jaw had survived in tact but all teeth had been lost post mortem except for the right and left first and second molars. No mandible was present.

The bones were judged to be in a good condition. They were robust, un-abraded, and their integral structure had been preserved. Tide marks had stained the entire length of the right frontal and right parietal bones. The marks were well established suggesting they had occurred in antiquity. These marks matched perfectly when the two bones were rejoined. This indicated that separation of the frontal and facial bone from the rest of the skull had occurred during the recent history of the skull’s deposition.

4.0 PREPARATION OF THE SKULL FOR ANALYSIS

The skull had been washed under gently running water at hand temperature by the Vindolanda Trust (P. Birley, pers comm.). No vigorous cleaning was undertaken in order to maximise the amount of information that could be collected. Reconstruction of the skull was necessary before any analysis could proceed and was undertaken by the author. The skull was re-joined using a solution of 40% Paraloid B72 and 60% acetone. This medium has good ageing properties and is reversible.

5.0 MORPHOLOGICAL AND ANTHROPOMETRIC ASSESSMENT OF ANCESTRY

5.1 Methods

In the present specimen, ancestry was assessed by examining certain morphological and anthropometric characteristics. Morphological features that may be examined are described in several standard texts (Bass, 1987; Byers, 2002; Gill, 1986; St. Huyne and Ican, 1989; and Stewart, 1979). In particular these relate to features of the nose, face, vault, jaws and teeth (Byers, 2002). Anthropometric assessment involves taking measurements at certain landmarks and applying these to the calculation of indices. The measurements and indices listed in Bass (1987) were employed in the present examination. Discriminant function analysis is another method that is employed by anthropologists to investigate ancestry (Giles and Elliot, 1962) but it was not possible to apply this technique to the present specimen because of missing landmarks.

It is claimed that assessing ancestry based on morphological features yields results with 80-88% accuracy (Giles and Elliot, 1962), and assessment based on anthropometric analysis yields results with 80-90% accuracy (Schulter-Ellis and Hayek, 1984).
5.2 Results

The breaks to the skull prohibited any detailed metrical analysis. It was only possible to take measurements that allowed the calculation of indices for the facial skeleton, (appendix II; Anthropometric Assessment). These reflect a face that is of average or medium breadth, a narrow nasal aperture, orbits that are an average or medium width, a long narrow external palate and an average of medium internal palate.

Examination of morphological traits, (appendix I; Morphological Assessment) identified predominantly ‘White’ traits. The facial shape was narrow, the vault displayed pronounced browridges and muscle markings, a convex sagittal region, (postbregma in appendix), and the nasal bone had a high bridge, sharp lower border with a distinct sill, and a narrow aperture. The root of the nose however showed only slight or moderate projection and had an indeterminate width, and the palate was rounded, characteristics that fall into the ‘Asian’ range of expression. Other traits bordered on ‘White’ and ‘Asian’ forms of expression; the face showed vertical to indeterminate projection, and the lower border of the orbit projected slightly forwards. Only one trait bordered on ‘White’ and ‘Black’ form of expression. This was the shape of the orbits which was angular to rectangular.

Morphological and anthropometric assessments indicate that this skull has features that most closely resemble those of a Caucsooid appearance. This analysis was however compromised by the incompleteness of the skull.

6.0 ESTIMATION OF BIOLOGICAL SEX

6.1 Methods

The skull is considered to be the second most sexually dimorphic part of the skeleton after the pelvis. The features that are commonly used are described in several standard texts (Buikstra and Ubelaker 1994; Brothwell 1981). These are broadly based on the difference in the areas of muscle attachment between males and females. Males tend to exhibit larger mastoids, squarer orbits, larger, blunter supra-orbital ridges, more pronounced chins and more pronounced muscle markings on the nuchal crests, temporal bones, temporal crest, and around the zygomatic roots. Females tend to retain a more juvenile shape with a more vertical forehead, more sharply defined orbital ridges and greater frontal bossing. Specialists have claimed 80% accuracy (St. Hoyme and Iscan 1989) for estimating sex from the adult cranium. If the mandible is included, this increases to 98% accuracy (Krogman and Iscan 1986).

Sexual characteristics in the skull are highly dependent upon when puberty occurs and its duration, and this can vary between individuals. Genetics, cultural practices, diet disease, and other such factors can also influence the development of features and this can mean that some skulls appear more robust than usual. Anthropologists have frequently encountered cases where the pelvis and the skull of the same individual suggest different sexes and this has raised doubt about the reliability of the latter since it is not as biologically controlled to the same degree as the former (Walker, 1995). Also, it is common for female skulls to become more masculine in appearance after the menopause. This is an area that has not been fully explored but is thought to have caused bias in the estimated sex ratios of some cemeteries (ibid).
Of particular relevance to the present case is the fact that skulls of young adult males tend to retain their gracile form post puberty, gradually becoming more obviously masculine with age. The exact timing of this and how this varies between individuals and populations is however not known and to date there have been no studies on samples of known sex that have explored this.

6.2 Results

Most features used to ascribe sex were available for examination, (table 1). All of these were well within the male range.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Present/Absent</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brow</td>
<td>present</td>
<td>Very pronounced</td>
</tr>
<tr>
<td>Orbits</td>
<td>present</td>
<td>Square with smooth, rounded margins</td>
</tr>
<tr>
<td>Occipital protuberance</td>
<td>present</td>
<td>Very pronounced</td>
</tr>
<tr>
<td>Mastoid process</td>
<td>absent</td>
<td></td>
</tr>
</tbody>
</table>

Table 1 Morphological assessment of sex

7.0 ESTIMATION OF BIOLOGICAL AGE

7.1 Methods

Standard anthropological techniques were employed to estimate the age of the skull (Buikstra and Ubelaker, 1994; Brothwell, 1981). These methods attempt to correlate ages estimated from non-linear biological changes with chronological age. They are based on observations of the development of bones and teeth in children and young adults, and degenerative changes that the skeleton undergoes after about 30 years. Adult age estimation is not as precise as estimating the age of children because degenerative changes take place in a less predictable way than developmental changes. Therefore it is standard practice to assign adults to age brackets of at least 10 years.

Techniques that relate to the skull include; the closure of the sutures, calcification and eruption of the 3rd molar (wisdom tooth), and dental attrition.

Cranial Suture Closure

Cranial suture closure is based on the principal that as age advances, the bones of the cranium fuse and eventually the sutures become obliterated at around 50 or 60 years. This method is far from satisfactory and should not be used on its own to assess age. This is because it is very subjective and studies on modern crania have noted considerable variability between individuals (Cox, 2000; Masset, 1989). Today, most specialists regard this method with extreme caution. In the present analysis the method devised by Meindl and Lovejoy (1985) was employed.
Eruption of the Third Molar

The stage of eruption of the third molar may be used to age young adults. This was done with reference to Ubelaker’s chart (1989) which indicates an eruption age of between about 18-25 years. Congenital absence and the late eruption of the third molar is however not uncommon and therefore absence could not be used to assign an age below 18-25 years.

Dental Attrition

Observing the amount of wear on the occlusal surface of the molars and assigning this to an age category is a technique that is widely employed by anthropologists. This technique works on the premise that destruction of the enamel and subsequent exposure of dentine is a phenomenon that occurs with increasing age due to continued mastication through life. Because of their different eruption times, each molar reflects different amounts of wear which relate to the length of time they have been in use. For example, the first molar (which erupts at about 6 years) shows greater wear than the second molar (which erupts at about 12 years) because it has been in use for longer.

The limitations of this technique relate to the fact that wear is population specific and is highly sensitive to individual variation in diet, the use of teeth as tools, pathology, malocclusion, and other such factors. This technique also assumes that rates of wear are constant across all populations. Ideally the amount of attrition for each population under study should be calibrated with age by examining its rate in the developing dentitions of juveniles (Miles, 1962).

In the present analysis, dental attrition was assessed using the method described by Brothwell (1981). This is a visual chart that correlates patterns of dentine exposure with age categories and it is applicable to populations which date between the Neolithic and Medieval period. Observations have established that rates of wear have not altered significantly between these periods (ibid), although it must be stressed that these observations rest on material of unknown age at death.

This technique is problematic because rates of wear become less distinct in older adults and therefore it can only be reliably used to assign ages up to 45+. It makes the assumption that rates of wear are uniform across social classes, and at an individual level, it has been argued that differences in enamel thickness result in different attrition rates (Whittaker, 2000). Skeletons also frequently present dentitions where there are no complete sets of occluding molars because some have been lost ante-mortem. This method was also developed on a sample comprising individuals from the Neolithic through to the Medieval period who were of unknown age at death.

7.2 Results

Very limited criteria had survived with which to estimate age. Only right first and left second maxillary molars were available for recording dental attrition. The amount of wear on the occlusal surfaces of these teeth suggested an age of approximately 20-30 years.
Although the teeth had not survived, the empty sockets indicated that the third molars had erupted suggesting an age of at least between 17-21 years.

The degree of ectocranial suture closure suggested that this individual was a young adult.

Overall it was concluded that this skeleton was at least 17 years and not older than 30 years.

8.0 NON-METRICAL ASSESSMENT

8.1 Methods

This refers to scoring the presence or absence of minor anomalies in the morphology of the skeleton. These anomalies, or non-metric traits, are of no pathological significance. They can be present as localised deficiencies of bone (such as extra blood vessel openings, or foramen), or as extra bone, (such as wormian bones in the cranial sutures), for example. Their manifestation is not fully understood but environmental factors and inheritance have been suggested (Brothwell, 1981). Although non-metric traits have been used to measure biological distance between skeletal groups their presence is not an indicator of ethnicity or relatedness between skeletons as has often been assumed (Tyrell, 2000). Since the cause of non-metrics is far from resolved their presence and absence must be regarded with caution (ibid).

Hundreds of non-metric traits have been described in the anthropological literature (Berry and Berry, 1967). For the present analysis the cranial traits that are listed in Brothwell (1981) were scored as either present, absent, or missing data.

8.2 Results

Out of a possible 20 traits, 2 were scored as present, 11 were scored as absent and 6 could not be recorded because the landmarks had not survived (Appendix II; Assessment of Non-Metric Cranial Traits).

The traits that were present include wormian bones on the lambda and parietal foramen on the right and left parietal bones. One of the wormian bones was very large (figure 1).

9.0 EXAMINATION OF THE DENTITION

9.1 Methods

A standard anthropological examination of the upper dentition was carried out (Brothwell, 1981). In particular this involved completing an inventory of what had survived, recording the presence or absence of dental calculus ('tartar') and any evidence for dental conditions (e.g. abscesses and periodontal disease).
9.2 Results

Out of a possible 16 teeth that could have survived, four were present, and 12 had been lost post-mortem. The four teeth that were present comprised right and left first and second molars. The right buccal surface of the right second molar had been chipped post-mortem. All teeth had moderate deposits of calculus.

10.0 EXAMINATION OF THE FRACTURES

10.1 Methods

Principals that have their roots in forensic pathology (Berryman and Haun, 1996; Knight, 1996) were employed in this examination. Much of this relates to how the skull breaks when exposed to different forces and how this is affected by variables such as whether the bone was living or not, the agent (e.g. a blade, a blunt instrument or soil compaction), the duration and magnitude of a blow, and biological age.

Each fracture was described, illustrated, interpreted and differential diagnoses were given. Where there was a relationship between one or more breaks, these were sequenced by observing the interaction between the edges. Particular attention was given to determining when the breaks were sustained, whether they were accidental or intentional, and what agents might have caused them.

Bone breakage can occur before death (ante-mortem), around the time of death (peri-mortem) and after death (post-mortem). Characteristics that can be observed to determine the timing of breaks are based on the principal that bone that has an intact organic matrix ('green' bone) will respond in a different way to bone that has a decayed organic matrix, (Wakely, 1997). The following criteria were employed in the present analysis;

1) If a break was accompanied by bony remodelling it was classified as ante-mortem.

2) A peri-mortem break was indicated if there was no remodelling, the edges were linear, smooth and, of less significance, were the same colour as the surrounding bone (Merbs, 1989; Sauer, 1998).

3) Post-mortem breaks were identified by their clean edges, which can be ragged or rough, non-linear, and may be associated with carnivore or rodent gnaw marks, staining, and other such post-depositional alterations, (Sauer, 1998; Villa and Mahieu, 1991; Bueschgen and Case, 1996).

Post-mortem breaks may be further divided into those that are recent (e.g. occurred during excavation, recovery, processing, and curation), and those that occurred after the organic matrix had decayed but sometime before recovery. Older post-mortem breaks are more difficult to distinguish from more recent post-mortem breaks, (unless colour differentiation is present), and the only criteria that really apply to these are the identification of accompanying alterations and attention to anatomical patterning, (Blumenschine and Selvaggio, 1988, 1991; Blumenschine et al., 1996).
Where possible, fractures were categorised according to weapon and/or type of force. These broadly fall into the categories of blunt, sharp, or projectile force trauma. Blunt force trauma is associated with falls or blows from a blunt instrument, sharp force trauma is associated with blade injuries which can cut, or stab, and projectile force trauma is associated with high velocity weapons (Merbs, 1989; Novak, 2000). Fractures that are associated with a blade are usually identified by their linearity, well-defined clean cut edges, one flaked up edge and one flat (often polished) surface and parallel striations, (Wakely, 1997:30). Bevelling and spalling, depressed fractures, and concentric or radiating fractures are associated with blunt force, (Frayer 1997; Hurlburt, 2000). Several different types of blunt force trauma are described in the literature (Boylston, 2000; Knight 1996) and these reflect the amount of force behind the blow. For example, a linear fracture is associated with moderate blunt force and comminuted fractures are associated with a blow of considerable force (ibid).

Distinguishing accidental from intentional trauma is straightforward if weapon signatures can be identified. Natural processes such as animal scavenging (Shipman and Rose, 1983), rock falls (Oliver, 1989), fluvial activity (Brooks and Brooks, 1997), and trampling (Haynes, 1986; Olsen and Shipman, 1988) can cause accidental fracturing and this may mimic breaks induced intentionally. In order to distinguish accidental trauma from intentional trauma, breaks were examined for the presence or absence of accompanying tool marks, (e.g. a weapon signature), animal tooth marks, and abrasion from sediments and stones (Blumenschine and Selvaggio, 1988, 1991; Blumenschine et al., 1996). The post-depositional environment and anatomical patterning of fractures were also considered (ibid).

Where possible, the direction of each fracture was assessed by employing the criteria described by Walker (1997; 2001). These criteria relate to the angulation of the fracture and whether it occurs on the anterior posterior or lateral aspect.

Where appropriate, breaks were examined using a stereo light microscope and scanning electron microscope (SEM). Replicas were prepared using Mikrosil casting putty. For SEM analysis these were sputter coated with gold-palladium and analysed using a Jeol 5300 SEM at a standard accelerating voltage of 10 KV. Images were obtained using an Oxford Instruments INCA tetra 4 quadrant back-scattered electron detector in topographical mode.

10.2 Results

The breaks observed in the present specimen constitute two large areas of apparent contiguous fracture on the right and left temporal and parietal regions and two fractures on the frontal bone. All of these breaks had penetrated the endocranium and had features that are consistent with a diagnosis of peri-mortem fracturing.

1) Soil matrix adhered to the edges of the breaks,
2) The edges were the same colour as the surrounding bone, and
3) The edges were straight.

The two large fractured-out areas presented a combination of linear and curvilinear margins. All of these margins were incomplete and fracture fragments from these
areas were missing. Therefore it was difficult to distinguish the number of separate fractures that these represented. In the present analysis they have been described as six different breaks (fractures 1 to 6).

Fracture 1 (figures 2 and 4)

This is a linear fracture on the lateral right parietal that runs obliquely from right-anterior to left-posterior. It begins at the back of the parietal (roughly at the same level as the right parietal foramen) and terminates at the lambdoid suture. It measures 38mm anterior to posterior and is approximately 5mm deep.

A flake of cortex has detached itself from along the ectocranial margin of the fracture and this has exposed the underlying diploe (figure 4). This area measures 3mm medial to lateral and 31mm anterior to posterior. Detachment of a flake from the ectocranial surface suggests an outward force from a weapon either being driven into and then out of the skull or being directed from another aspect and exiting at this site.

There is no bevelling around the endocranial margin. Approximately 6mm from the lambdoid suture the line of the break slightly changes course so that it runs off at an angle towards the left side. This angle is approximately 2 degrees from the line of the break. A small crack runs off at a right angle from the anterior end of the break.

This fracture fulfills 2 of the diagnostic criteria for a blade injury:

1) It is linear, and
2) it has well defined clear-cut edges

Although no flaking, or striations were observed the inferior edge of the fracture is missing.

A blade injury is the preferred diagnosis for this sharp force trauma. It is possible that this represents the exit wound of a blow that was delivered from the opposite side of the skull, but it is more likely that it was delivered from the right anterior aspect. This fracture is in approximate alignment with fracture 3. Although the alignment of these two breaks is not straight it is possible that they represent a single blade injury, the line of which was subsequently interrupted by fracture 2.

Fracture 2 (figure 2)

This break is the result of blunt force trauma to the right parietal and temporal region. Only the superior margin of the fracture has survived. This is represented by a curvilinear fracture that is in alignment with the temporal line. It is 31mm from the frontal suture and 37mm form the lambdoid suture. It measures approximately 55mm anterior to posterior and 4mm deep. The endocranial margin of the fracture is sharp and irregular. The anterior end runs into fracture 3 and the posterior end runs into fracture 1. There is bevelling on the endocranial margin and on the ectocranial surface a flake of cortex overlaps the margin on the posterior aspect.
Although the main impact area is missing, this break probably represents the outer margin of a depressed pond fracture or a depressed satellite fracture. This injury would have been administered from the right lateral aspect.

Fracture 3 (figure 2)

This is an anterior-posterior break that follows an oblique angle from the left-anterior to the right-posterior. It runs from the frontal suture and blends into fracture 2. The fracture measures approximately 31 mm anterior-posterior. There is no bevelling.

This fracture is linear and has well-defined clear-cut edges. No weapon signatures were observed such as striations or polishing and there was no flaking.

The preferred diagnosis for this break is a blade injury. This injury is also parallel to fracture 4 (figure 3) and therefore could represent the entry wound of a blade or sharp instrument that was driven into the skull on the left side and exited on the right side. Alternatively, since this fracture is also roughly in alignment with fracture 1 it may represent part of the same injury. This would have been dealt from the anterior aspect and is the preferred interpretation.

Fracture 4 (figures 3, 5, and 6)

This is a linear fracture that runs obliquely from the frontal suture in an anterior-posterior direction. It has a clean, straight margin and although other features, such as polishing and flaking are absent, it is probably a blade injury. It measures 37 mm anterior-posterior and is 2 mm deep. There is a de-laminated area of cortex along the fracture margin but this has not exposed the diplòe (figure 5). This area is approximately 8 mm wide medial to lateral. It has a clean appearance and an irregular margin which suggest that this is post-mortem damage.

At the junction of this fracture and the frontal suture, a radiating fracture runs off at approximately a 50 degree angle from the break (figure 6). This runs towards the radiating fracture associated with break 6 but does not join up with it. There is a crease in the bone that connects these 2 fractures. A small crack runs parallel 11 mm above this.

Fracture 4 terminates at fracture 5, (figure 5) indicating that 5 was delivered before 4. When viewed from above, this fracture appears to be parallel to fracture 3. Therefore it may represent the exit wound of a blade that was administered from the right lateral aspect (fracture 3). Alternatively, this fracture may represent a wound that was delivered to the left side of the head from the anterior aspect. This latter explanation is the preferred interpretation.

Fracture 5 (figures 3 and 5)

This is a large crushing injury to the left parietal and temporal region. A curvilinear fracture delineates the posterior margin and part of the superior and inferior margins of the fractured out area. This area is approximately 71 mm superior to inferior. The anterior margin has not survived and therefore it is not possible to measure the transverse diameter. The break stops somewhere before the frontal suture as it does
not involve it or go beyond it. The area between the frontal suture and the posterior margin of the fracture is 65mm.

A combination of endo and ectocranial bevelling is present around the fracture margin suggesting an in-out force. The blow would have been administered from the left lateral aspect and the margin suggests that this was caused a depressed pond or depressed satellite fracture.

Fracture 6 (figures, 6, 7, and 8)

This fracture affects the right lateral aspect of the frontal bone. It is a linear break that runs obliquely anterior-posterior from midway up the frontal bone back to the suture where it blends with fracture 3. Its anterior-posterior dimensions are; superior margin: 54mm and inferior margin: 52mm.

The left posterior margin has lifted so that it is elevated approximately 8mm above the right margin (Figure 8). This has created a ‘V’ shaped gap between the 2 margins of the break with the widest end being next to the suture. This area measures approximately 7mm medial-lateral. A small fracture runs at an oblique angle from the apex of the break towards the lateral aspect (see fracture 4). This terminates in a crease which blends with the radiating fracture associated with break 4 (figure 6).

10.3 Miscellaneous Breaks

Several additional smaller breaks were identified. These involved the delicate bones of the skull and in some cases had features that were less conspicuous and harder to interpret. In the absence of diagnostic features, interpretations are drawn from the day to day experience that that present author has had with handling archaeological bone.

Break 1 (figure 8)

The right side of the horizontal plate of the palatine bone has detached along the suture. There is an anterior/posterior fracture along the left aspect of the horizontal plate of the palatine bone. The fracture is straight and the margins are ragged. The bone to the right of the break has been forced up into the nasal cavity. The ragged edge of the fracture is not typical of peri-mortem fracturing. On the other hand, it is unusual for this region to become dislodged in this manner without more damage as the result of natural processes.

Break 2 (figure 8)

An oblique fracture runs from left anterior to right posterior across the right aspect of the horizontal plate of the palatine bone. The margins are straight and do not show any flaking. At the most anterior point of the fracture, a small area of the cortical bone is peeled. This is interpreted as a radiating fracture because of the linearity of the break and peeling and straight edges are associated with peri-mortem change.
Break 3

A fragment of the posterior portion of the left lacrimal bone has broken off. The fragment is present, although it does not rejoin to the rest of the skull comfortably. The line of the break is horizontal and runs across the entire width of the orbital bone. The edges of the break are ragged and there are 2 prominent flakes of bone along the edge that the fragment of bone has broken away from. The ragged edge suggests post-mortem breakage while the flakes suggest peri-mortem change. This might represent another radiating fracture that subsequently broke apart early on in the post-mortem period. The bones of the orbits are very thin and liable to break. If the flakes had not been present this would have been classed as a post-mortem break.

Breaks 4

Three fractures have separated a fragment of the occipital and pars basilaris from the rest of the skull. The first runs medial to lateral through the foramen magnum and the right pars lateralis. The fracture margins are sharp and irregular and a small area of bone around the foramen magnum has been removed. The fractures rejoin comfortably although the fragment of occipital and pars basilaris sit at a slight angle.

The second fracture is on the piece of pars lateralis and occipital. It runs obliquely across the left occipital condyle. The edge is sharp and ragged. Only a fraction of the condyle survives. A few small cracks run off this into the occipital bone.

The third fracture runs medial to lateral from the left margin of the foramen magnum to the lamboid suture edge. The most lateral aspect of the edge is smooth and straight and the rest is irregular.

These breaks probably represent a combination of peri- and post-mortem alterations. Because the basilar portion sits at an abnormal angle when it is rejoined, it is possible that it was pushed into the skull by an upward force creating the first break which subsequently became detached from the occipital in the post-mortem burial environment. The second and third breaks may represent post-mortem damage to radiating fractures that have now been lost. There is a cut or chop mark (section 11) that is associated with these features, suggesting further that they are the result of anthropogenic alterations to this area of the skull.

Other

The endocranial margin of the foramen magnum is abraded. The abraded surface has a weathered appearance (figure 11).

11.0 MODIFICATIONS

This refers to the taphonomic analysis of human remains. Taphonomy is the study of the different processes that alter bone during the peri and post-mortem period up until the time of recovery, (Efremov, 1940). Broadly, it aims to differentiate between geological (e.g. weathering), biological (e.g. scavenging by carnivores), and human
agents that can all act on bone. It is a useful approach for investigating the post depositional history of human bone.

11.1 Methods

Techniques used to identify modifications are described in the zooarchaeological and anthropological literature (e.g. Blumenschine et al. 1996; Shipman, 1981). Modifications are loosely referred to here as marks.

The skull was initially inspected macroscopically under a bright light. In order to maximise the identification of marks and associated features all parts of a surface were systematically examined at different angles with respect to the light. The same procedure was carried out with a hand held lens.

Initially, marks were determined ante-mortem, peri-mortem or post-mortem by employing the criteria described above. Marks were then broadly categorised as pits or striations. Criteria developed by Shipman, (1981), and Blumenschine et al. (1996) were employed to further categorise these marks according to whether they were the result of carnivore activity, other post depositional agents, or anthropogenic alteration.

Scanning electron microscope (SEM), and light microscope analysis were undertaken to explore the characteristics of the features by employing the same techniques described above.

11.2 Results

1. Two smooth flat-bottomed score marks are present on the right and left aspects of the frontal bone. These are aligned anterior-posterior and are approximately 28mm (right), and 18mm (left) above the orbital margins, and 13mm (right) and 10mm (left) from the temporal line. These have the classic appearance of blood vessel markings.

2. A single striation is present on the left occipital adjacent to the foramen magnum (figure 9). It is 12mm long, and 1mm wide. It has sharp, linear edges, cuts into the bone, and soil adheres to the internal matrix indicating that this is a peri-mortem modification. The features of this mark fulfil the criteria for identification of a chop mark because it is broad and 'V' shaped in cross section, and fragments of bone are crushed inwards at the nadir (Shipman, 1981).

3. There is a series of closely packed short parallel and sub parallel striations on the posterior right frontal and anterior right parietal bones in the region of the frontal suture (figure 10). These measure approximately 3mm long and 0.5 mm wide and they run obliquely from left to right and from side to side. When the frontal and parietal bones are rejoined these striations match up perfectly suggesting that they are not recent and occurred before the frontal became detached from the parietal. Macroscopically these are narrow and some blend together so that they appear as
smears suggesting slippage of the bone or agent. SEM analysis indicates that some of these cut into the bone, have steep sides, but they have no readily identifiable nadir or point (figure 12). It is unlikely that these marks are intentional because:

a) they do not occur in an anatomically meaningful area (i.e. they are not in an area of muscle attachment),
b) they have removed very little of the surface of the bone,
c) they are too shallow for cut marks made by a knife and there are no multiple fine striations in the main groove that may occur with a stone tool,
d) They are too short for scrape marks,
e) most marks are relatively superficial, and
f) they are closely packed, and intersect with each other.

(Olsen and Shipman, 1988)

They are similar to the striations that have been identified on bone as the result of percussion (Blumenshine and Selvaggio, 1988) or as the result of abrasion with sandstone (Olsen and Shipman, 1988). Similar striations were also observed on a fragment of disarticulated faunal material from the same context.

4. Four nicks are present on the endocranium. These are approximately 4mm long and 2 mm wide. The first one is on the right parietal adjacent to the margin of break 2. The second is just posterior to the lambdoid suture. The third sits on the groove for the superior sagittal sinus of the occipital. The fourth is situated on the left lateral groove for the transverse sinus of the occipital bone. These nicks are perfectly aligned suggesting that they were caused by a single agent that was drawn across the endocranium. These modifications have not been discoloured by the soil and look very fresh indicating that they were caused very recently, possibly by a sharp instrument.

5. There is a single broad striation on the posterior left parietal adjacent to the lambdoid suture. It is 9mm long and 2mm wide. It is shallow and the base has striations running in the same direction as its long axis. The anterior margin of this score mark is straight and smooth while the posterior margin is irregular and curvilinear. This mark is not fresh and it does not resemble cut, chop, or scrape marks. Neither does it resemble marks that are associated with scavenging or other animal activity. This is probably an accidental modification that occurred in the burial environment but its identification remains inconclusive.

12.0 DISCUSSION AND CONCLUDING REMARKS

Examination of the Vindolanda skull has determined that this specimen represents a Caucasoid male aged at approximately 20 to 30 years. All of the surviving characteristics of this skull were distinctly male and therefore sex has been confidently assigned. Age was more problematical to determine because few indicators had survived and those that were present are not considered to be very reliable.
Although it has been said that this skull has Caucasian features it must be emphasised that there are no human skeletal indicators that adequately reflect geographic origin and that these are much more ambiguous than soft tissue features (Roberts 1996).

No pathology other than trauma was observed. The trauma is represented by a series of spectacular fractures that affect the right and left parietal bones and the frontal bone. All of these have characteristics of trauma that was incurred around the time of death when the bone was still fresh. The present study has examined these in order to establish their likely cause and the post depositional history of the skull. These will be discussed under the headings of fracture types and mechanisms, timing and sequence, post depositional history, and contemporary parallels.

Fracture types and mechanisms

The morphological appearance of the fractures indicates a combination of sharp and blunt force trauma. It is reasonable to assume that the linear fractures (1, 3, and 4) that are attributed to sharp trauma represent two oblique cuts delivered to either side of the skull by a bladed weapon. Fractures 1 and 3 are not in perfect alignment, and therefore it is possible that they represent two separate assaults. However, linearity may be altered by factors such as plastic deformation, holding position of the blade and the velocity of the blow (Gurdjian, Webster, and Lissner, 1950) and therefore a single cut is the preferred interpretation.

None of these sharp force injuries showed evidence for polishing and microscopic analysis did not identify any microstriaions, features that are diagnostic of blade injuries. All fracture margins were however incomplete and regardless of this, these and other features are not always identified in association with blade injuries (Wakely, 1997). Great variation is to be expected depending on the type of blade used, thickness of hair, size, shape, and velocity of the weapon (Gurdjian, Webster, and Lissner, 1950).

The blade injury on the right (fractures 1 and 3) resulted in a radiating fracture (fracture 6) that crossed the suture and ran into the frontal bone, suggesting that it was delivered with a significant force. One side of this radiating fracture had lifted, a change that has been described in several contexts of post-mortem modification (Buikstra and Ubelaker, 1994; Haglund and Sorg, 1997). In the present example the crease which accompanies the elevated area is suggestive of plastic deformation of fresh bone. It implies that the lifting occurred during the early post-mortem period and was probably caused by already weakened bone that was exposed to natural agents. It is likely that the small oblique fracture that runs from the apex of this break was caused when this lifting occurred.

The skull had separated into two parts along the frontal suture and although it is possible for trauma to cause this in the skull of a young person, (Crist et al., 1997), it is not thought that this was the case with the present specimen. Although the cranium was found in two pieces surface modifications indicate that in this case, the separation had occurred long after the traumatic assaults (see below).

No signatures that could associate the blunt trauma, (fractures 2 and 5), with a weapon were present and therefore whether this trauma was intentional or accidental remains
inconclusive. The excavator suggested that the skull may have ended up in the ditch because it had been transported there by fluvial action (A. Birley, pers comm.). Therefore it is possible that fluvial action had caused this damage. There are no features on the skull that would either confirm or rule this out. The effects of moving water on skulls are documented in the forensic and anthropological literature (Boaz and Behrensmeyer, 1976; O’Brien, 1997). This indicates that crania are highly transportable, move faster than any other skeletal elements, and are subject to gross destruction by obstacles within the environment.

Unless however, the current was strong and the water was very active (which is unlikely), damage to the Vindolanda skull as a result of fluvial action is unlikely. It would be most usual for damage as the result of fluvial, or indeed any other accidental cause, to affect both sides of the skull at almost the same level. Some evidence for sediment abrasion would also be expected, of which there is none at macroscopic and microscopic levels (Shipman and Rose, 1988). Therefore the most likely explanation is that the blunt force trauma to this skull was intentional and was the result of blows from a blunt instrument.

Some of the best examples of blunt weapon trauma that have been recovered from archaeological contexts come from some 40 medieval skeletons recovered from the Towton battlefield mass grave (AD 1461). A total of 113 wounds were identified on the crania of 27 individuals and of these 25% were attributable to blunt force (Novak, 2000). These were represented by crushing, depression, or radiating fractures and could be identified because, unlike the Vindolanda specimen, all fracture margins tended to survive and in some instances the dislodged pieces of bone could be refitted onto the fracture margins.

In addition to these blunt and bladed insults, smaller breaks were also identified on the skull, involving the palate, orbit, and foramen magnum. The location of these and their morphology suggest that they are peri-mortem modifications which may have resulted from a staff or a pole being driven up into the skull. This is suggested by the fact that the broken edges are weathered indicating that the missing pieces had broken away in antiquity. In addition, when the surviving fragments of the foramen magnum are rejoined, the bone is out of alignment. There is also peri-mortem abrasion around the endocranial margin of the foramen magnum (section 10.3) and this may be indicative of bevelling, a characteristic feature of a blunt force that has been driven from the outside in (White, 1992:134).

This interpretation is, however, far from conclusive since it rests on the assumption that the individual was beheaded. Decapitation may be identified in human bone by the presence of cut-marks that are usually on the upper cervical vertebrae (Waldron, 2001). Cut marks may also be observed on the back of the mandible, the first ribs, and sometimes the mastoid processes of the skull and clavicle (ibid; Boylston et al. 2000). Unfortunately none of these elements were available for examination, although a chop mark (section 11.2) was observed on the occipital adjacent to the foramen magnum. There are no known examples of decapitations that have caused this kind of damage, but it would not be beyond reason to associate this modification with such an activity.
Timing and sequence of fractures

If the individual had been beheaded, it is not possible to determine whether this occurred before or after the assaults. If however this occurred before, it has to be asked why a decapitated head would be subjected to such violent assaults. Therefore it is assumed that the fractures were inflicted first.

The absence of any bony remodelling or healing indicates that the fractures were inflicted around the time of death and that they led to the individual's death, if not immediately, a short time after they were delivered. All injuries had penetrated the endocranium, indicating trauma to the brain.

The incompleteness of the skull means that very limited information can be gained regarding the sequence in which the assaults were delivered. The absence of bony remodelling and healing indicates that all of the afflictions represent one or several closely timed traumatic episodes. Assuming that fractures 1 and 3 represent a single blade wound, the line of this has been interrupted by blunt force trauma (fracture 2), suggesting that it was delivered first. On the left side of the skull, the blade wound (fracture 4) terminates at the line of the blunt force trauma (fracture 5). This suggests that the blunt trauma was delivered first. Relating the sequences on both sides of the skull to each other becomes problematic in the absence of more evidence.

Therefore the suggested order is: fractures 1 and 3 (treated here as one injury) were delivered before fracture 2, fracture 5 was delivered before fracture 4. It is not possible to link these sequences further.

Enthographical accounts and archaeological examples suggest that fractures occurring on the fronto-parietal region of the skull are associated with a standard mode of violence in which a right handed assailant faces their victim (Wakely, 1997). The battle victims from Towton exhibited blunt force trauma that tended to occur on the left side of the head and face, and sharp force trauma that was predominantly located on the front and rear. Overall the patterns indicated ‘.... face-to-face combat with a right handed assailant’ (Novak, 2000:99).

Therefore a scenario might be possible in which the individual was involved in a face-to-face attack whereby the initial blow was delivered to the right parietal region by an assailant wielding a blade. A second blow was delivered with a blunt instrument to the left parietal region, perhaps as the victim had turned their head in response to the impact of the first blow. Blunt force trauma was subsequently delivered to the right side as the victim lay on the ground and a final blow was delivered to the left with a blade. Evidence does not rule out the possibility that finally the victim's head was cut off and mounted on a pole.

Post-depositional history

Reasons as to how and why the skull ended up in the Severan ditch are speculative but examination of surface modifications suggests the following:
1) Although found in two separate parts, the skull was joined until relatively recently. This is because long established tide marks on the vault match up perfectly when the parts are re-joined.

2) The striations on the cranial vault also match up perfectly when the skull is rejoined, indicating that these marks were made sometime before the skull was separated into two pieces. Their microscopic and macroscopic appearance is not characteristic of scalping or defleshing (Olsen and Shipman, 1988; Allen et al., 1985; Owsley et al., 1994; Steinbock, 1976) and there is nothing in the anatomy on this part of the skull (for example, this is not an area where muscle attaches to the bone), that would support an interpretation of intentionality. Therefore, it is concluded that these are the result of accidental abrasion. There are no features that suggest what agent caused these although it was noted that they share similarities with grooves that have resulted from slippage during percussion (such as during butchery). This does not necessarily mean that they are related to anthropogenic activity and may just as easily have been caused by something in the burial environment. The absence of evidence on the skull for associated animal activity, or sediment abrasion however is notable.

3) There were no similarities between the modifications on the dog skeleton and modifications on the skull. The dog skeleton exhibits evidence for peri-mortem modifications (skinning) but no post-mortem modifications, and this suggests that it was subjected to a relatively stable post depositional environment. The skull on the other hand, exhibits evidence for post-mortem modifications (striations) and these indicate that it may have been subjected to greater disturbance in its post-depositional environment.

4) There was no evidence for scavenging or other animal activity on the skull, indicating that it may not have been exposed for long before being buried (Wakely, 1997).

5) There were no cut marks on the vault that would indicate the skull had been de-fleshed or scalped. De-fleshing is represented by randomly orientated cut marks (Olsen and Shipman, 1994), and scalping is indicated by fewer, relatively horizontal, short, straight cuts that tend to follow the crown (Bueschgen and Case, 1996). The former is associated with retrieval of the skull itself while the latter is associated with retrieval of just the scalp (Bueschgen and Case, 1996). These have been interpreted as examples of trophy taking, (e.g. Liston and Baker, 1996) ritualised display (e.g. Green 1986) and other such activities. It is possible therefore that in the absence of cut marks such as these, such activities were not in the minds of assailants in the present case.

Contemporary Parallels

Modified skulls are relatively uncommon in the Roman period and few examples have been identified in Britain. Mays and Steele (1995) report on the skull of a male recovered from a 2nd century AD pit in Folly Lane, St Albans which exhibited cut marks and perforating trauma. Unlike the striations on the Vindolanda skull, the cut marks were widely distributed across the vault and cut deeper into the bone. They were interpreted as de-fleshing marks and it was suggested that the skull had been

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mounted onto a staff or pole because of ancient breaks that were present around the base of the skull.

Other examples of modified human skulls are decapitations such as those found at Poundbury (Farwell and Molleson, 1993) and Lankhills (Clarke, 1979) although these are largely a phenomenon of the later Romano-British period, (e.g. Boylston et al., 2000; Mckinley, 1993). There are few contexts where these occur on their own, and most have been recovered from the context of a grave along with the post cranial skeleton, (Philpott, 1991). Many different social and cultural factors might explain the significance of these. For example, in her discussion of 12 decapitations from the Romano-British cemetery in Kempston, Bedfordshire, Boylston (2000:248) includes mismanaged hanging, the result of armed assault in which the neck is the target, execution, collecting skulls as relics, bloodletting, and taking the skull as a trophy following a battle as some of the possibilities that led to these. She suggests that they may reflect a ‘...mortuary rite (that may have originated in the Roman period, or earlier) directed at individual corpses in imitation of a figurative association between the head and an after death existence or role.’ (ibid:253).

Concluding Remarks

It cannot be emphasised enough that much of this discussion rests on interpretations for which the evidence is inconclusive. Some of the more fully understood archaeological examples of peri-mortem trauma are those that have come from explicit contexts such as a mass grave on a battle field (e.g. Towton) and where specimens have survived relatively complete. Without this information the circumstances of traumatic episodes as evidenced in skeletal remains have to remain conjectural. The present evidence strongly suggests that the fractures were inflicted with a combination of sharp and blunt instruments but it is inconclusive as to whether this occurred before or after the individual died and whether the individual had been beheaded. The sequence in which these assaults were dealt is also not entirely clear due to the incompleteness of the specimen. Whatever the precise circumstances were, they seem to imply that this individual met a most violent death.

13.0 FURTHER WORK

Two areas of further work are proposed. They include analysis of oxygen and collagen isotopes and microscopic examination of the teeth.

13.1 Isotope Analysis

Isotope analysis can be undertaken to explore the following:

1) Childhood Residence

By analysing oxygen isotope values it might be possible to indicate the most likely environment in which the individual spent their childhood (Mays, 2000). Oxygen ratios in rainfall, and therefore drinking water, can vary depending on climate and temperature and this may be reflected in skeletal tissues. Dental enamel is the most
favourable part of the skeleton to sample for oxygen isotopes because it has a resilient structure and is therefore less likely to be altered through diagenesis (*ibid*). It is also preferable because of its delimited formation time which means that ratios only reflect the environment in which an individual lived when the tissue was formed (i.e. during childhood).

2) Diet

Nitrogen and carbon stable isotope ratios may be analysed in human bone collagen to explore the consumption profile of the individual. This may distinguish between predominantly marine, carnivorous or vegetarian diets. In life, the turnover rate of collagen takes approximately 10 to 30 years and therefore isotope ratios in an adult skeleton are a long term indication of diet (Bell *et al.* 2001; Mays, 1998;2000).

Although destructive, both of these analyses require very small samples.

**13.2 Dental Examination**

It has not been possible in the present analysis to confidently assign an age to this skeleton because of the reasons outlined above. In order to do this it is recommended that further analysis is undertaken at a microscopic level. Measuring of the amount of root dentine translucency is one such technique. This is considered to be the most accurate method currently available for determining age at death in archaeological specimens (Whittaker, 2000). It is claimed that if analysis is carried out by an experienced operator, estimations can be made to within plus or minus 8 years (*ibid*).

This technique requires sectioning a tooth and therefore the benefit of gaining a more accurate age estimation must be weighed against the damage to one tooth.
14.0 APPENDIX I

MORPHOLOGICAL AND ANTHROPOMETRIC ASSESSMENT OF ANCESTRY

Morphological Assessment

After Byers (2002:152-160)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nose</td>
<td></td>
</tr>
<tr>
<td>Root</td>
<td>Slight/moderate projection forward from the lower border of the orbit when viewed in profile. The width of the root is indeterminate when viewed from the front.</td>
</tr>
<tr>
<td>Bridge</td>
<td>High (‘A’ frame house)</td>
</tr>
<tr>
<td>Lower border</td>
<td>Sharp with a distinct sill</td>
</tr>
<tr>
<td>Spine</td>
<td>Damaged</td>
</tr>
<tr>
<td>Width</td>
<td>Narrow (isosceles triangle shape)</td>
</tr>
<tr>
<td>Face</td>
<td></td>
</tr>
<tr>
<td>Profile</td>
<td>Vertical to indeterminate projection</td>
</tr>
<tr>
<td>Shape</td>
<td>Narrow</td>
</tr>
<tr>
<td>Eye orbits</td>
<td>Angular/rectangular</td>
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<tr>
<td>Lower eye border</td>
<td>Slight projection forward of lower border</td>
</tr>
<tr>
<td>Vault</td>
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</tr>
<tr>
<td>Browridges</td>
<td>Pronounced</td>
</tr>
<tr>
<td>Muscle marks</td>
<td>Pronounced</td>
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<tr>
<td>Vault sutures</td>
<td>Simple</td>
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<tr>
<td>Postbregma</td>
<td>Convex</td>
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<td>Jaws and teeth</td>
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<tr>
<td>Jaws</td>
<td>Cannot be assessed without mandible</td>
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<tr>
<td>Palatal shape</td>
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<td>Upper incisors</td>
<td>None survive</td>
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Anthropometric Assessment


<table>
<thead>
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<th>Calculated Value</th>
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<td>Upper facial index</td>
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<td>Ratio of the external measurements of the palate</td>
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<td>Ratio of the internal measurements of the palate</td>
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Cranial and Facial Indices
APPENDIX II

ASSESSMENT OF NON-METRIC CRANIAL TRAITS

After Brothwell (1981)

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<tr>
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Frequency of non-metric cranial traits
APPENDIX III

ANNOTATED DIGITAL IMAGES

Figure 1 Wormian Bone

Figure 2. Right lateral view
Figure 3. Left lateral view

Figure 4. Close up view of fracture 1
Figure 5. Interaction between fractures 4 and 5

Interaction between fractures. The course of fracture 4 is interrupted by fracture 5. Therefore 5 came before 4.

Figure 6. Crease on frontal bone

Crease
Figure 7. Radiating fracture 6
Figure 8. Breaks 1 and 2 on palate

Figure 9. Chop mark
Figure 10. Striations on cranial vault

Figure 11. Abrasion around foramen magnum
Figure 12. SEM image of striations (in negative) on cranial vault (x 50 mag)
BIBLIOGRAPHY


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Bone Modification. Orono: University of Maine, Center for the Study of the first Americans. pp 73-98


Report on the remains of a dog (8659) from Vindolanda

Ellen Hambleton
School of Conservation Sciences
Bournemouth University

The remains of a dog skeleton were recovered from a ditch dating from c. AD200-213. Also recovered from the same ditch were other disarticulated and fragmented faunal remains (not made available for study) and a human skull.

Preservation
The skeleton was in an excellent state of preservation. Bones were largely complete and displayed very little recent fragmentation, although the more fragile skull had sustained some damage to the frontal and supra-orbital area. Despite the fact that small bones were also well preserved, many of the smaller elements such as carpals and phalanges were absent from the skeleton and may have been missed during excavation. All bones displayed good preservation of surface detail. The excellent condition and dark staining of the bones, some of which also have blue-ish surface concretions, is typical of preservation in a waterlogged context.

Skeletal element representation and butchery evidence
All parts of the body were represented with the exception of the hind feet; only one calcaneus and no other tarsals, metatarsals or hind phalanges were recovered. Although in general many small bones were missing, the presence of a radial carpal, front phalanges and a complete set of metacarpals attest to the presence of front feet. Given that the metatarsal bones are of similar size or larger than the metacarpals it is unlikely that they were missed during excavation and it may tentatively be concluded that the hind feet were not deposited with the rest of the skeleton. The butchery evidence supports this suggestion. Small horizontal knife cuts were present on the distal anterior shaft of the right tibia and the anterior/lateral surface of the right calcaneal tuber. Both these marks are consistent with the animal having been skinned, with disarticulation of the hind feet having been part of this process. The only other butchery mark on the skeleton was a small oblique knife cut on the lateral surface of a rib; this mark is not particularly diagnostic of carcass dismemberment or meat removal and may have occurred during skinning. The otherwise complete nature of the skeleton and the absence of any other butchery marks suggest that, other than skinning, no processing of the carcass took place and the animal was not butchered for meat. Butchery marks are generally infrequent occurrences on dog remains from Romano-British assemblages and there is no evidence for the widespread consumption of dog on Romano-British sites.

Ageing and Sexing
The skeleton is that of an adult individual. The presence of a baculum (os penis) indicates that the dog is male. All recovered long bones and vertebrae had fully fused epiphyses, including the sciatic tuberosity of the pelvis, which fuses by c. 2 years (Silver 1969). The permanent dentition was fully erupted with some light wear on the upper and lower incisors, carnassial and molar teeth, indicating that the dog was adult, probably between c. 1-2 years old and almost certainly younger than three years old (Horard-Herbin 2000).

Metrical data
It is possible to investigate the build and stature of the dog by taking measurements of the skull and limb bones (see Appendix 1, all measurements after Von den Driesch 1976). The greatest length measurements from the long bones and skull of the Vindolanda dog skeleton all fall well within the size ranges observed for other Romano-British dogs, but at the lower end of the size ranges given for Iron Age dogs (Harcourt 1974, Clark 2000). Studies by Harcourt (1974) and later by Clark (2000) suggest that there is a considerable increase in the diversity of dog sizes in the Romano-British period when compared to earlier prehistoric
periods. The suggestion is that the Romano-British period sees the introduction of new varieties of dogs, which include breeds both substantially smaller and those substantially larger than Iron Age dogs. The Vindolanda dog longbone greatest length measurements all fall below the mean values given by Harcourt (1974) for Romano-British dogs and suggest a fairly small dog, albeit not as small as the dwarf varieties or lapdogs that appear for the first time in Britain in the Roman period. However, the corresponding cranial length measurement (173mm) is slightly larger than average for Romano-British dogs. The shoulder height estimates (c.360-410mm) also suggest a little breed of dog, roughly equivalent in size to a fox terrier, although there is little merit in attempting to assign an archaeological specimen to a modern breed.

Slight differences in the size of bones from opposite sides of the skeleton are to be expected, due to laterality or “handedness”. However, it is apparent when comparing the greatest length measurements of the pelvis, scapulae and long bones that there is a considerable degree of asymmetry in the dog skeleton from Vindolanda. Comparing measurements from right and left sides reveals that the bones of the front left limb are consistently longer than their right hand equivalents, while the right hand pelvis and rear limb bones are larger than those on the left. This asymmetry is most pronounced in the ulnae where the left ulna is at least 7mm than the right and the estimated withers heights from each side differ by 20 mm. The fact that the larger bones are on opposite sides in the front and hind limbs corresponds to the dog’s quadrupedal gait whereby the diagonally opposite fore and hind limbs are moved together.

Skeletal abnormalities and pathology
Neither the ulnae nor any of the other complete limb bones exhibit any pathological changes and it must be concluded that the asymmetry in size of the limb bones is a congenital abnormality or developmental defect resulting from pronounced laterality in gait, perhaps due to a long period of compensation for an injury. Pathological indicators of trauma are present on at least two of the right hand ribs, which show evidence of healed fractures. It is probably unlikely that such an injury would have been sufficiently long lasting to result in the difference in size of the long bones. Further evidence of congenital skeletal asymmetry is present in the axial skeleton where there are 13 ribs present on the right hand side but only 12 ribs from the left. Proof of congenital absence of the 13th left rib is provided by the 13th thoracic vertebra, which has an articular facet for the dorsal end of a rib on the right but no such corresponding facet on the left. It is unlikely that there would have been any obvious deviation from normal gait or any other symptoms as a result of this asymmetry.

Summary
The dog bones recovered and made available for study from the Severan ditch represent the remains of a single adult male, which was aged approximately 2 years at death. Cut marks on the right calcaneum and tibia and the absence of both hind feet indicate that the animal was skinned, although there is no evidence for further processing or consumption of the dog. The dog is quite a small variety of below average stature for the Romano-British period, although by comparison the skull is larger and closer in size to the Romano-British average. There is evidence of healed trauma on the ribs and asymmetry of the skeleton.

It is difficult to interpret this find in isolation from the rest of the animal bone assemblage from the ditch, or indeed the rest of the fort. However, similar finds of complete dog skeletons from ditches and other deep features such as wells and pits are not uncommon on other Romano-British military and civilian sites and usually represent the disposal of noxious waste (e.g. complete carcasses) in a convenient location (Stallibrass 2000). Despite the recovery of human remains from the same feature, there is no evidence to suggest the dog burial had any special significance beyond that of the casual disposal of domestic refuse.
References


Appendix 1: Metrical data
All measurements in mm after Von den Driesch (1976)

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<th>Dp</th>
<th>GLP</th>
<th>LG</th>
<th>BG</th>
<th>SLC</th>
<th>DC</th>
<th>Bd</th>
<th>Dd</th>
<th>GL</th>
<th>GLC</th>
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Skull  Von den Driesch 1=173; 13=87.0; 23=65.0; 25=33.9; 29=61.8; 36=35.7

*Fig. 154*
withers height calculations (after Harcourt 1974)

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<tr>
<td>femur</td>
<td>Left</td>
<td>132.2</td>
</tr>
<tr>
<td>femur</td>
<td>Right</td>
<td>134.6</td>
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</tbody>
</table>

mean= 381.5
range= 360.7-409.7 =49mm
standard deviation= 16.6

skull indices (after Harcourt 1974)

Skull measurements in mm after Von den Driesch (1976) 1=173; 13=87.0; 23=65.0; 25=33.9; 29=81.8; 36=35.7; 30=estimate96

cephalic index= von den driesch30 *100/von den driesch1 estimated cephalic index =55.5

snout index= von den driesch13*100/von den driesch1 snout index =50.3

snout width index= von den driesch36 *100/von den driesch13 snout width index =1.0

Fig. 155
Fig. 156 The Vindolanda dog.

Fig. 157 Dog calcaneum
Fig. 158 Dog tibia

Fig. 158 Dog ribs.
Appendix III: Vindolanda: analysis of environmental samples.
1998 - 2002 excavations

J.P. Huntley

Bulk environmental samples were taken from a variety of features during excavations in the Praetorium, the temple to the west and the different phases of Stone Fort 2, its defences, bath-house and barracks. Initially the most appropriate contexts were sampled but in the more recent years only a selection of layers and fills were sampled following recommendations from the author. In the laboratory the material was floated unless it was highly organic in which case 1kg sub samples were wet sieved. All material was processed to 500μ.

Although the dataset was small, 30 contexts, multivariate analyses were carried out upon it to see if patterns could be teased out from, especially, the waterlogged anoxic samples. An ordination, DECORANA (Hill, 1979a), and classification, TWINSPAN (Hill, 1979b), were therefore performed. The first would produce axes of variation within the data whilst the latter would group together samples of similar botanical constituents.

The taxa recorded: charred remains

Seeds were present in 13 of the 30 contexts sampled, those preserved through being charred in 14 and those under anoxic conditions in only 12. The charred remains (table 1) were never abundant even in the hearth or oven deposits suggesting that these features were not in general receipt of domestic waste. This is somewhat surprising for hearths are convenient places into which to throw rubbish with the subsequent chance of some falling to the edges of the fire and simply being charred rather than ashed away. For ovens, however, it is less surprising unless the feature was a grain drying oven (unlikely with the confines of a military fort) since prepared food is more likely to have been cooked in it with little recognisable seeds therefore being present. Only 79 such charred seeds were recovered in total which is very low even given that many of the samples had only 5 litres or so processed. Hulled barley grains were the most common followed by those of spelt wheat. The latter showed clear impressions of glumes and had the parallel-sided bluntly rounded ends. Two rounded grains of probable bread wheat were recorded as was one rachis node from this species thus clearly attesting to its presence at least. Spelt glumes were present and many more in the waterlogged state. Some narrower and more acute waterlogged glume bases were possibly from emmer wheat although no charred remains of this species were recorded. Certainly the barley and spelt wheat are the most commonly recorded cereal from almost all Roman military sites in northern England and thus Vindolanda is not unusual in this respect. Bread wheat is much more rare although appeared in abundance in one of the granaries at the fort in South Shields (van der Veen, 1994). Occasional bread wheat grains and chaff occur elsewhere but insufficient to determine whether they were a crop/product in their own right or simply impurities in, for example, a spelt crop. Emmer wheat was present in some of the material from the Carlisle forts (Huntley, 1989) but is generally considered a species...
superseded by spelt sometime during the later Iron Age. However, in the east of northern
England it remained in cultivation for some centuries after the arrival of the Romans,
especially north of the River Tyne.

Other than the few chaff remains of wheat, culm nodes were recorded and these
indicate the presence of straw. The few weed seeds present are mostly of a similar size to
cereal grains and may therefore simply reflect an imperfectly cleaned product. Certainly
neither weed seeds nor chaff are in sufficient abundance to indicate presence of crop
processing residues. The cereals therefore probably reflect a cleaned product which is not
surprising given the context of a Roman fort. Whilst the militia may have controlled the local
farmers to a greater or lesser extent they will not themselves have grown the cereals that they
subsequently ate.

Although the occasional cereal grain or other fragment were recorded from anoxic
deposits most were from drier deposits either associated with the Praetorium or the area
excavated at the western edge of the vicus. These deposits were above or away from the
perched water table thus any organic material has decomposed over time and not survived.

Samples associated with the Praetorium demonstrated relatively clean floors and
disappointingly little in latrine or drain deposits, as indeed did those from the 1997
excavations in this area (Huntley, 1997). Again preservation is considered the main factor
here at least for lack of anoxic material although lack of charred material suggests general
cleanliness. The toilet drain in Room XXI (V98-141) produced quite a large flot in which there
was evidence for burnt peat as well as wood charcoal. This may well reflect fuel as does the
coal also present. Of interest here are the few fragments of fish bone. Although unidentifiable
they probably reflect an aspect of diet and as such are of interest. Even if large quantities of
sediment are processed few Roman forts produce fish, even those on the coast such as a
Lancaster. Is this a further aspect of high status diet in the Praetorium which would tie in well
with the moderate numbers of black grouse and post cranial red deer bones also found in this
area (Stallibrass pers comm). The charred plant remains indicate use of both spelt and bread
wheats. The few fragments of acid-etched small mammal bone clearly had passed through a
gut but whose remains unknown. Tiny comminuted fragments of mammal bone (probably
large mammal ie domestic stock) were also found in V98-sewer drain from Headquarters
Building and probably was eaten by humans. Whilst the south latrine sewer (V99-42)
produced moderate numbers of frog/toad bones these are considered to represent remains of
animals that lived and died in the drain after it fell into disuse rather than representing a rather
continental aspect of diet.

The “best” charred assemblage was produced from the floor of Room VIII (V98-158),
possibly early 4th century. Again twiggy charcoal was recorded along with wood charcoal and
coke and clinker - further suggesting a variety of fuels were being used, and that this had
continued for some centuries.

Pits associated with the Hadrianic bath-house on the south of the site likewise
produced little. V60-49 contained no seeds and V60-48 only one wheat grain. Charcoal was
the only evidence of fuel and a small amount of airfall spatter attests to smithing on-site but
not necessarily close by. Although some of the charcoal was chunks of wood there were a
few twigs present which could have been kindling or similar.
Ovens built into the ramparts of Stone Fort 1 likewise produced wood charcoal with a few twigs and heather remains but very little evidence for any food stuffs. Whilst there were also moderate amounts of mineral material - suggesting that the sample may also have contained some of the collapsed fabric of the oven, the lack of food probably simply means that prepared food was being cooked - bread and so on - thus seeds would not be expected. The lack of industrial debris of any sort strongly suggests that these ovens were being used to cook food and would have been in a safe place away from timber barrack or other flammable buildings.

Other charred assemblages came from area B in the west of the vicus where a temple was excavated. They were associated with possible burials and cremations in amphorae or tubuli (V01-B4) and produced very little material. Even calcined bone was rare suggesting that there may not have been deposition of the full cremation in the vessel but rather a ritual offering. The charcoal was very fragile and fallout spatter was present. This may derive from the cremation where high temperatures would have been reached and silica (sand) in the soils may have melted. This high temperature could account for lack of bone if most had actually ashed away leaving the calcined material, formed at ca. 6700 degrees C, towards the edges of the pyre. A few charred cereal grains were recorded in these samples but nothing to suggest more than a background assemblage.

In summary, the charred remains demonstrate at least the use of barley, spelt and bread wheats, and possibly emmer. Lack of seeds and chaff suggest that the grain was being brought to the fort fully processed and ready for use by the soldiers. Barley is most commonly recorded but numbers are so few that this cannot really be commented upon. Barley may have been eaten by the soldiers themselves or their horses - the former is indicated from literary evidence which declares that it was only eaten by the men as punishment rations (Davies, 1971). How applicable this rule is to the northern outskirts of the Empire, where barley grew well and easily, remains enigmatic.

The charcoal itself demonstrates use of a range of species all locally available and that twigs, round wood and large trunks produced the fuel. Heather was also burnt but may not have been a deliberate fuel and peat was probably burnt. This would have been another locally available resource. Coal was utilised as is normal for Roman sites in north-east England where seams would have been visible along cliffs and in river banks.
Table 1: the charred plant remains (numbers as counted)

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260
The taxa recorded: waterlogged remains

The waterlogged taxa are restricted to 12 samples (table 2) although Vin00-31 only contains a single fragment of bracken frond. Not even the occasional woody seed survived in the other contexts, irrespective of whether the material was floated or wet sieved thus probably indicating quite adverse burial conditions. It seems unlikely that these other contexts were initially sterile of any plant material.

Table 2: the waterlogged taxa. Values are scores (1=rare to 4=abundant); 2-letter code at start of column represents ecological habitat – a=arable weed, c=cereal grain, e=exotic/food, g=grassland, h=heathland, r=ruderal, s=straw, t=woodland, w=water ground, x=broad

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| wa | Aphanes arvensis | 1 |
| wa | Chenopodium album | 1 | 1 | 1 | 1 | 1 |
| wa | Fallopia convolvulus | 1 |
| wa | Galeopsis tetrahit | 1 | 1 |
| we | Polygonum aviculare | 1 | 2 | 1 |
| wa | Polygonum lapathypersicaria | 1 |
| wa | Polygonum lapathifolium | 1 | 1 |
| wa | Polygonum persicaria | 1 |
| wa | Stellaria media | 1 | 1 | 1 | 1 | 1 | 1 |
| wa | Urtica urens | 2 |
| va | Valeriana officinalis | 1 |
| wc | Cereal/intermediate Gramineae | 1 | 2 | 2 | 4 |
| wc | Triticum/Secale perlinum | 2 |
| we | Anethum graveolens | 1 |
| we | Coriandrum sativum | 1 |
| wg | Centaurea nigra | 1 |
| wg | Galium verum | 1 |
| wg | Gramineae 2-4mm | 1 | 3 | 4 | 1 |
| wg | Legume flower | 3 | 2 | 2 | 1 | 3 |
| wg | Leontodon autumnalis/hisp(p) | 2 | 1 |
| wg | Leontodon sp(p) | 1 |
| wg | Leontodon taraxacoides | 1 |
| wg | Linum catharticum | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| wg | Luzula multiflora/L. campestris | 1 | 2 |
| wg | Pastinaca sativa | 1 |
| wg | Potentilla erecta-type | 3 | 1 | 2 | 1 | 1 | 2 | 3 | 2 | 2 |
| wg | Rhinanthus minor agg | 2 | 1 | 2 | 3 | 3 | 2 |
| wg | Rumex acetosa | 1 |
| wg | Vicia/Lathyrus tendrils | 2 | 2 | 1 |
| wh | Calluna vulgaris flowers | 1 | 1 | 1 |
| wh | Calluna vulgaris shoots/twigs | 2 | 2 | 3 | 1 | 2 |
| wh | Erica tetralix leaf/shoot/flower | 1 |
| wh | Pteridium aquilinum -frond frag | 1 | 3 | 2 | 2 | 3 | 1 | 1 |
| wh | Vaccinium myrtillus | 1 |
| wr | Brassica campestris | 1 |
| wr | Brassica sp(p). | 1 | 1 | 2 |
| wr | Conium maculatum | 1 | 1 | 2 |
| wr | Hyoscyamus niger | 1 |
| wr | Raphanus raphanistrum pod frag. | 1 |
| wr | Rumex acetosella | 1 | 1 | 1 |
| wr | Rumex obtusifolius - perianth | 1 | 1 | 2 |
| wr | Rumex obtusifolius-type | 1 | 1 | 2 |
| wr | Sonchus asper | 1 |
| wr | Urtica dioica | 1 | 1 | 2 |
| ws | Triticum spelta glume | 2 | 2 | 3 | 2 |
| ws | Triticum glume | 2 | 2 | 2 | 3 | 2 |
| ws | Culm node | 1 | 1 | 1 | 1 |
| wt | Alinus glutinosus | 1 | 1 |
| wt | Corylus avellana nut fragment | 3 |
| wt | Malus/Pyrus | 1 |
| wt | Prunella vulgaris | 1 | 3 | 2 |
| wt | Rosa - thorn | 1 |
| wt | Rubus fruticosus | 1 | 1 | 1 | 1 |
| wt | Stellaria holostea | 1 |
| ww | Caltha palustris | 1 |
| ww | Carex (lenticular) | 1 | 1 | 2 | 2 | 2 | 1 |
| ww | Carex (trigonous) | 3 | 2 | 3 | 3 | 3 | 3 |
| ww | Eleocharis palustris | 1 | 1 |
| ww | Epilobium palustre | 1 |
| ww | Filipendula ulmaria | 1 | 1 | 2 | 4 |
| ww | Galium palustre | 1 |
| ww | Isoeipsis setacea | 1 |
| ww | Montia fontana ssp(p). chondr. | 1 |
| ww | Ranunculus flammula/ cf. flammula | 1 | 1 | 1 | 1 | 1 | 1 |
| ww | Ranunculus sceleratus | 1 |
| ww | Stellaria graminea | 1 | 1 | 1 | 1 |
| wx | Ajuga reptans | 1 |
| wx | Cerasium fontanum | 1 | 1 | 1 | 1 | 1 | 1 |
| wx | Cirsiun sp(p). | 1 | 1 | 1 | 1 |
| wx | Galium verum/palustre/mollugo | 1 |
| wx | Gramineae <2mm | 2 | 1 | 2 | 1 | 3 | 4 |
| wx | Hypericum sp(p). | 1 |
| wx | Juncus sp(p). | 1 |
| wx | Luzula sp(p) | 1 |
| wx | Ranunculus repens-type | 2 | 1 | 1 | 2 | 2 | 2 |
| wx | Viola sp(p) | 1 | 1 |

It is clear from the very limited numbers of exotic/food taxa that human refuse is not present in any of these features to any degree. One coriander (Coriandrum sativum) and one dill (Anethum graveolens) seed do not make a meal. Interestingly however, both are from Period 4 floors. Blackberries (Rubus fruticosus), hazel nutshell fragments (Corylus avellana) and apple/pear pips (Malus/Pyrus) are present in several contexts but again score only 1 hence are rare. In most instances there were only single occurrences anyway. They do, however, indicate some of the foodstuffs that were available to the Vindolanda troops.

Heathland was reasonably well represented by vegetative material - heather (Calluna vulgaris) flowers, shoots and wood and bracken (Pteridium aquilinum) frond fragments. Most of these are probably the remains of bedding/flooring or possibly roofing material. Heather
certainly has been used as a roofing material more recently in the "black thack" tradition of Northumberland and county Durham (Emery, 1986).

Arable weeds are present almost throughout but occurrences are in the "rare" category only except for the annual nettle (Urtica urens) in context V00-44 and a whole group of contexts containing moderate amounts of, mostly fragments, of corncockle (Agrostemma githago). Corncockle produces large seeds which tend to remain with the cereal grains throughout processing and thus may have been brought to the site with the grain. They were presumably hand picked out from the grain as they are quite poisonous (Grieve, 1998) although from the numbers of fragments typically found in many Roman deposits this poisoning effect may not have been that serious. In general these weedy taxa reflect cultivation on damp, nutrient-enriched soils typical of garden plots rather than the drier soils more typical of cereal cultivation.

The majority of the taxa belong to one of the ruderal, grassland or wet categories. All are clearly inter-related along axes of disturbance and water availability. Ruderals are plants of waste ground and link through to arable weeds on the one hand and to grasslands on the other. They are mostly biennials or perennials and include species such as docks (Rumex spp), sowthistles (Sonchus spp) and nettles (Urtica dioica). Although present in all of the waterlogged samples they are most common in V99-31, V00-44 and V00-A7. The first two are ditch fills and it may well be therefore that the ruderals represent vegetation growing around those ditches, perhaps during periods of less activity within the fort. V00-A7 is a laminated floor in the Severan Commander's house and if the house was in active use it seems unlikely that nettles and the like were deliberately spread upon the floor. However, values are not that high other than for Rumex species. V01-34 consisted of a complete head of spear thistle (Cirsium vulgare) - clearly a ruderal thistle. The identification was secured both from the shape of the involucral bracts and from measurements of the seeds themselves (figure 1).

The latter were compared with measurement from other likely Cirsium species from the author's reference collection. The majority of the seeds fitted well within the range for Cirsium vulgare although two were somewhat smaller and might have been from the welted thistle (Cirsium heterophyllum). However, as they all clearly came from the same head this is unlikely. Figure 2 is a photograph of the head itself and demonstrates the excellent state of preservation of typical Vindolanda material. The sample was taken from a dirty turf layer from demolition deposits associated with period 6A structures. Leather and other materials survived too. The thistle could have part of material dumped in here or, as it is a perennial hence needs a year or so to produce seed, could have been growing nearby if demolition continued for some time.
The grassland taxa represent damp to wet herb-rich communities and merge neatly into the sedge rich fen grasslands typical of the wet group. The meadowsweet (*Filipendula ulmaria*) and yellow rattle (*Rhinanthus minor*) are characteristic and common herbs of these groups. These are communities that might have been utilised to produce hay and almost certainly were grazed although heavy grazing would preclude many of the species form...
flowering or producing seed. More acidic grasslands are probably represented by the high values of tormentil (Potentilla erecta) and heath bedstraw (Galium verum). Such grasslands could also have been grazed. Soils under these acidic communities develop into podzols with well defined sandy layers and would also have been useful to cut as turves for making into ramparts etc. The heavy clay rich soils of the fen meadows would not have been as easy to cut and would have shrunk considerably as they dried thus potentially weakening any structure into which they had been introduced. However, they seem to be quite commonly represented in at least one possible turf deposit, that of V99-59.

Grass Caryophyllaceae unfortunately are not identifiable to species and are usually categorised into sizes only. Those here represent both the larger >4mm groups (including cereals) and the rather smaller ones from species of shorter swards rather than rank roadside verge species. Legume flowers and tendrils were abundant in many of the contexts and are probably from Lathyrus or Vicia species growing in the grasslands. Although not identifiable to species, and their seeds do not survive unless charred, it is tempting to suggest that they were also part of a hay crop. Whether this may be inferred as deliberate planting of a legume with grass is unclear although Roman agriculturists knew about the value of clover and other leguminous crops – “…for some spots are suited to hay, some to grain…. And so of forage crops, including clover, mixed forage, vetch, alfalfa.” Varro, I, XXIII and “Farrago, on the other hand, is so called from a crop where a mixture of barley, vetch, and legumes has been sowed for green feed……. It is with this that horses and other animals are purged and fattened in the spring” Varro, I, XXXI (Hooper, 1935). Sedges (Carex spp) likewise are normally not identified. However, the material here was so abundant and well preserved that it was felt worthwhile to attempt some further identification. Some have quite restricted ecological requirements thus can potentially provide information about quite precise communities represented in the archaeological assemblages. Photo micrographs were taken of reference material belonging to the author. This is reasonably comprehensive for northern England with Carex laevigata the only absent widespread species. This is a relatively lowland species of woodlands on heavy clay soils with a solid band of distribution across the Tyne-Solway gap. Where possible at least two accessions of reference material were used. Habitat and distribution information have all been extracted from Preston et al.. These were then compared with photographs of the Windolanda material and tentative identifications made, subsequently the nutlets themselves were compared with the reference material. Table 3 presents these results.
| Table 3: Identifications of Carex nutlets and their ecological preferences |
|---------------------------|---------|----------|---------|---------|
|                          | V01-45A| V99-59  | V01-19A| V01 sf. 8376 |
| Total sorted             | 112     | 66       | 13     | 10       |
| Carex lepidocarpa/C. hostiana - fens and calcareous mires/damp base-rich grasslands (ie similar) | 27   | 4        | 3      | 4        |
| Carex ovalis/C. caryophyllea/C. disticha - acidic upland grassland/ dry calcareous meadows and pastures/ base-rich wet fen meadows | 17   | 3        | 2      | 1        |
| Carex cf. pallescens - moist, mildy acidic-neutral, grasslands | 14   | 21       | 3      |          |
| Carex panicosa/C. sylvatica - marshy grasslands neutral to more acidic/ moist clay rich woodlands | 17   | 15       |        |          |
| Carex pilularifera - dry sites, base poor upland grass and moorland | 2    | 8        | 2      |          |
| Carex cf. bineuris - acidic wet to dry soils, lowland heath to Nardus grassland | 8    | 1        |        |          |
| Carex cf. bigelowii - well drained montane grassland | 4    | 1        |        |          |
| Carex nigra - fen meadows, wet grasslands, neutral | 2    | 1        |        |          |
| Carex cf. acuta - shallow water, unimproved meadows. Calcareous. | 2    | 1        |        |          |
| Carex cf. pendula - damp, base-rich heavy soils - woodlands, ditches, ponds | 4    |          |        |          |
| Carex cf. capillaris - base-rich upland grassland, short vegetation, flushes | 1    |          |        |          |
| Carex cf. lasiocarpa - nutrient poor, reed swamp, pond, river edges | 1    |          |        |          |
| Carex achinata - seasonal/permanent wet mires, heaths, flushed grassland. Acidic - base-rich | 1    |          |        |          |
| Carex hirta - damp grassland, rough, hayfields | 1    | 1        |        |          |
| Unclassified             | 18      | 7        | 2      | 3        |

V01-45 and V99-59 were particularly rich in sedges and there were clear differences between them even at the gross level. Lenticular nutlets of the Carex ovalis-type were common in the former but more or less absent from the latter whilst the trigonous Carex pilularifera was present, indeed common, in V99-59 with only two probable occurrences in V01-45. This is a species widespread on base-poor acidic grasslands in the uplands and hence is more likely to represent a grazed community rather than hay. Carex ovalis-type unfortunately includes species characteristic of basically wet grasslands but covering a wide range of soil types from acid podzols to base-rich habitats. Carex nigra, a further lenticular species, was present in V01-45 and is a rather ubiquitous species of neutral fens, fen meadows and wet grasslands. Of the other species suggested it seems that V01-45 has more of an upland acidic grassland component whilst V99-59 has more heavy clay soils and wet grassland taxa. This could well tie in very well with the former containing large quantities of what seems like more or less pure horse manure suggesting that animals were grazed in the upland grasslands in, for example, the area north of the site towards Housesteads fort or even north
of the Wall itself. V99-59 contains an abundance of mosses typical of heavy clay soils and these, too, lie in well with the sedge nutlet identification. These results indicate that further work on refining the identification of sedge nutlets is likely to be of value at least for Vindolanda. Although some of these are simply characterised as "types" there are apparent differences in the surface patterns of the nutlets and these should be investigated further.

Returning to the broader ecological groups, the wet ground group of taxa contains the sedges and meadowsweet as discussed above. Other herbaceous taxa which would have grown in such nutrient rich, fen meadow situations include willowherb (Epilobium palustre) and the bedstraw (Galium palustre). There is limited evidence for wetter communities such as grow on the edges of streams or ponds and taxa such as kingcups (Caltha palustris), water crowfoots (Ranunculus flammula and R. sceleratus) and blinks (Montia fontana) would be found here.

The classification results are presented as a dendrogram (figure 3). Each group may pivot around the black spot very much like an artistic mobile. Initially the analysis separated off two odd charred samples (group 9). At the next division the remaining samples containing only charred material were isolated from those with primarily waterlogged remains. Group 6 is characterised by the presence of charred wheat grains with groups 7 and 8 by having charred barley grains; the abundant hazel nut fragments in V98-106 caused it to be isolated as group 8. On the waterlogged side of the second division another "odd" sample was initially isolated - V99-112 as group 1. This contained charred culm nodes and spelt grain and clearly demonstrates the mobile effect of the dendrogram.

Waterlogged sedges were the indicator species for the remaining samples (groups 2-5). The presence of Agrostemma githago, Stellaria holostea, Stellaria media and charred spelt glumes formed the indicator group at the next division (groups 4 and 5) versus abundance of Potentilla erecta-type, Ranunculus repens-type with Rubus fruticosus and Urtica dioica (groups 2 and 3). Essentially these groups represent samples with more of the arable weed categories and more of damp ruderal communities respectively. Archaeologically they demonstrate some patterns too. Of the group 2 samples, V99-59 is an early turf rampart but whose assemblage clearly ties in better with the ditch fills of V89-31 and V00-44 as does the laminated floor of the Commandant's House, V00-A7. These clearly have quite mixed communities but with plenty of ruderal taxa (figure 4). As noted above the sedge nutlets in V99-59 also reflect heavy clay soils.

Group 3 samples, V01-49 and V01-37, are both floor deposits and are characterised by having a strong hay component. Although the hay component is also present in groups 4 and 5 it is not as abundant, they are of a more mixed nature and the two groups are separated upon the abundance of bracken frond fragments in group 5. The constituent samples of group 4 include V01-19, a period 3 floor, V01-4a, a period 4 floor and V02-6A, a dump behind a rampart. It seems that these are somewhat foul floors and probably include manure, bedding and fodder. They also preserve some of the limited remains of probable human food in the shape of coriander and apple pips. Group 5 is only subtly different. Its samples are V01-49, floor of a storage room and V01-37, a period 4 floor. It lacks the
abundant grass and cereal caryopses of group 4 and it may simply be that these floors have less manure or hay in them.

Comparing the groupings assigned by the classification and by eye from the pie charts there are clear similarities. TW2 samples were put together visually because of the moderate occurrence of ruderal taxa although V99-59 was put into a more varied group mainly because of its high heath component. The two samples with moderate representation of exotic taxa were visually similar although when it comes to absolute numbers of these types they are low. The fact that the data have been standardised clearly accounts for this. The same is true of the visually very different V01-45, laminations at the bottom of a ditch. It is quite species poor in fact and the taxa are mostly arable weed species but with a few broadly classified only. The arable taxa component ties it into TW group 5 though. The general lack of seeds suggest that the material was either a short grass sward or manure from animals grazed on such material.

The ordination produced no clear patterns of variation in the first 4 axes of variation which is unusual. Whilst it is normal for axes 1 and 2 to reflect the very odd samples (as indeed the first groupings in the classification) axes 3 and 4 typically provide useful information. It is most likely that for the Vindolanda samples there are more "different" samples simply because of the relatively small dataset.
Figure 4: Frequency of occurrence of habitat groups, standardised for number of taxa recorded in each group (waterlogged samples only - TWINSPLAN groups 2-5)
Figure 5: Individual taxa in waterlogged sample set

Arable weed

*Agrostemma githago*
*Sisymbrium officinale*
*Urtica urens*
*Polygonum aviculare*
*Polygonum lapathifolium*
*Polygonum persicaria*
*Galinsoga parviflora*
*Polygonum lapathifolium*
*Chenopodium album*
*Fallopia convolvulus*
*Asphodelus ramosus*
*Viola arvensis*
*Rumex obtusifolius*
*Raphanus raphanistrum*
*Psilostrophe vulgaris*
*Plantago lanceolata*
*Plantago major*
*Lamium amplexicaule*
*Lamium maculatum*
*Leontodon autumnalis*
*Leontodon autumnalis*
*Leguminosae*
*Artemisia herba-alba*
*Grassland*

Wet ground

*Carex (vulgaris)*
*Stellaria media*
*Carex nigra*
*Montia fontana*
*Potentilla erecta*
*Potentilla erecta*
*Galium palustre*
*Filipendula ulmaria*
*Epilobium palustre*
*Equisetum palustre*
*Ranunculus flammula*
*Ranunculus acer*
*Carex praireae*
*Urtica dioica*
*Urtica ciliata*
*Rumex altilis*
*Rumex crispus*
*Raphanus raphanistrum*
*Hyoscyamus niger*
*Chenopodium album*
*Brassica sp.*
*Brassica campestris*
*Ruderal*

Broad

*Vicia faba*
*Ranunculus repens*
*Larix sp.*
*Hyacinthus orientalis*
*Gramineae <2cm*
*Galium verum/polygonumbus*
*Cerinthus torquatus*
*Ajuga reptans*
Although the discussion has been largely at the level of the ecological groups there are some simple generalisations here given that each taxon is only ascribed to a single ecological group whereas many species will occur in several of such groups. For example, wet ground taxa such as the sedges readily occur in grassland communities. Figure 5 below presents the results of the individual taxa for each of the waterlogged samples discussed above with the height of the cones representing the scores achieved by each taxon. They show that for most groups there are a few more or less ubiquitous taxa with the remaining ones only occurring in one or two samples. For the arable weeds the comcokle (Agrostemma githago) is clearly the most abundant whereas tormentil (Potentilla erecta-type) is the dominant over the grassland herbs.

Looking at the taxa another way is to use the Ellenburg values for light, moisture and nutrient status. Only some of the taxa can be used for this as it requires identification to the species level which is not possible in many cases. Figure 6 presents these figures for the 58 species which can be scored in this way. It is clear that the majority of taxa favour relatively high light levels with a score of 7 - such species grow in grasslands, fields and open places away from the shade of trees or shrub. In terms of moisture the spread is skewed with the most scoring a mid-point 5 but with a strong tail towards the wetter end of maximum score 10. Nutrient level scores are remarkably uniform with a suggestion of lower nutrient status being slightly more common. This reflects the difference between the nutrient demanding arable weeds and the poorer grasslands and fen communities.

The various methods of analysis therefore all come to the same conclusion in terms of types of community represented in these samples namely ones of predominantly open herb-rich grasslands on soils of varying moisture content.

**Summary**

The samples analysed from various excavations at Vindolanda fall into two broad groups. Firstly those from areas where there is a low water table and hence minimal to no aerobic preservation. These contexts contain, if any plant remains, only charred material.
Whilst this consists of the expected cereal grains for a consumer site there are relatively few of such fragments suggesting that the contexts were largely kept clean. They do indicate that hulled barley was most frequent with spelt wheat next; bread wheat and possibly emmer wheats were also used however. The few arable weed seeds can be accounted for as contaminants in the crops being brought to the fort. These contexts give a hint that fish was being eaten as well from the few fragments of such bone surviving in the various latrine and drain samples. Of interest is the evidence for fuel in various contexts - this is almost certain to have been a mixture of wood, or charcoal itself, coal and peat.

Secondly, the samples from especially floors and ditches in areas where aerobic preservation allowed survival in excellent condition of seeds and vegetative material. Whilst the initial impression during excavation of “stable manure” - laminated organic material - is no doubt true at the broad level, investigation of the accompanying fruits and seeds allows us to tease out further interpretation. Bedding in the form of straw and bracken is abundant in some samples although less so in others which have a stronger component of hay meadow taxa. Lack of seeds in an otherwise grass stem rich matrix suggests material from heavily grazed grasslands and the sedge nutlets indicate that both acid grasslands of this type and of a more base-rich nature were being utilised. Thus some areas possibly even north of the Wall itself were being used - areas where acidic soils today allow Nardus-Agrostis grasslands to flourish. Nearer to Vindolanda the calcareous influence of the local limestones produces a richer, more floristically varied, calcareous to neutral grasslands. Cereals were being fed to the animals, presumably horses, at Vindolanda from the evidence of large grass/cereal caryopses in the deposits. Cattle and sheep, being ruminants, do not produce such material in their dung, it is thoroughly degraded after digestion. The herbs present strongly suggest that hay was being fed to the animals as well, they are unlikely to have been grazed to any extent in tall herb-rich flowering meadows, such grazing would soon have removed any flowering material at all. Thus there are implications for grassland management in terms of grazing and hay production. Human food remains are rare although the few present do give indications of a varied diet in the fort. What is lacking totally is the suite typical of Roman Carlisle - figs, grapes, olives (Huntley, 1989). Were the Vindolanda troops feeding differently or were their areas of disposal so discrete from the contexts sampled than nothing was dropped, even casually? Even Birdoswald has produced a few fig pips from one drain (Huntley, unpublished assessment note). The material from the ditches gives a satisfying account of plants growing along the edges of the ditches as well as of material dumped into them and suggest periods of lesser activity at times through the presence of perennial weed seeds.

What the plant remains do not do is say why these deposits built up so deeply. It seems unlikely that livestock would have remained housed in buildings whose floors had several feet of compacted bedding and manure on the floors. This would not have been good for horses’ feet. Even the crofters of the Scottish Islands cleaned out the byres in their blackhouses each spring and spread the material on fields, granted it was cattle housed in these buildings though. So are these floors simply the accumulation of the last year of occupation prior to a re-build or evacuation and hence represent a rather short snapshot of
material? It is also not possible to distinguish between hay as stored or hay as survives in dung after being eaten. The distinction is often made by looking at other taxa present and if a wide range of bedding type material is also present then it is assumed that the hay comes largely from dung or at least dropped food, horses being messy eaters. A stored hay product should have no mixture of bedding etc taxa. Further work looking for parasite eggs would be of possible value here.

Thus even looking at probable stable manure has provided a broader picture of management and acquisition of fodder for livestock at Vindolanda.

Jacqui Huntley
English Heritage NE Regional Advisor in Archaeological Science
Department of Archaeology
University of Durham
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References


Technical report: sample description

Praetorium and associated area

V98 106
Pre AD 125. Circular building A3, burning between clay layers. 4 litres 10YR 4/3 yellowish brown clay rich sand processed. Approx. 1 litre flot produced of which 200ml assessed. Flot consisted mostly of charcoal with a small amount of wood, very occasional fragment of bone and moss – Polytrichum commune. Charcoal mostly diffuse porous species (alder, birch, hazel etc) but a little oak. Good preservation. 1 fragment hulled barley grain and 2 fragments of hazelnut shell only. No further action (nfa.)

V98 112
Outside south west corner of praetorium. 9 litres of 10YR 5/4 yellow brown silt with clay processed. Residue contained small amount of pot and bone. Flot consisted of approx. 60ml bone fragments with a little charcoal and coal. Bone all highly comminuted. Charcoal included occasional heather fragments. 1 undiff barley grain and 1 well preserved Triticum spelta grain, with clear glume impressions, recorded. Sample completed.

V98 116
Room VII under the late Op. Sig. A clay floor under the late Op. Sig contained three clay ovens. 12 litres 10YR 3/2 dark yellow brown sandy clay processed. Op. sig., fired clay and mortar abundant in both flot and residue. Flot approx. 300ml mineral (mortar/op. sig) with some cinder charcoal. A little well preserved diffuse porous species charcoal. No seeds, sample completed.

V98 124
Flag-lined pit in NW corner of room X. 8 litres of 10YR 2/2 blackish brown sandy silt processed. Flot approx. 2 litres and consisted almost entirely of coal and cinder with a little charcoal and a few fragments mineral and bone. No seeds in approx. 80ml assessed. Nfa. Interpretation is that the deposit represents the remains of fuel – possibly relating to the hypocaust present in the room prior to c. AD 300.

V98 129
Roofing slate lined ?tank/burial/pit. 8 litres 10YR 5/8 yellow sandy loam processed. Flot consisted of a 150ml mat of modern roots with a small amount of crazed silty charcoal and mineral. Preservation poor. V.V occasional fragment of comminuted bone. 3 wheat grains. Completed.

V98 141
Room XXI toilet drain. 8 litres 10YR 5/4 yellow brown sandy silt with stones processed. Approx. 400ml flot of mineral, bone, charcoal and coal with some cinder and a very small amount of white industrial spatter. Very occasional fragment of fish bone - head and vertebrae; all bone highly comminuted; v.v. occasional fragment acid etched small mammal bone. Charcoal includes small amount of monocot rootstock type material such as remains of burnt sedge/rush/grass turves. One each of Galium aparine (goosegrass), wheat glume, spelt wheat glume base, broad wheat rachis node fragment and 2 Rumex (dock) nutlets. Although numbers likely to remain small and hence not statistically significant.

V98 158
Soot from floor of room VIII. ?early 4th century. A total of 9 litres 10YR 2/2 dark brown black silt processed. Flot consisted of approx. 600ml charcoal with a little coal and cinder. Moderate amounts of small branch/twiggy material were recorded but the majority of the charcoal was crazed and cinkery. A few heather shoots and flowers were recorded. The flot produced 2 fragments of inedt cereal grain, 12 grains of hulled barley, 1 possible grain of bread wheat, 1 culm node and 2 seeds of Brome grass. Presumably the material reflects debris from the hypocaust introduced at a secondary stage of activity of this room.
North west of courtyard. 12th century. 2 litres of yellow 10 YR 5/6 sandy clay were processed. Flot consisted of approx. 100ml wood fragments – mostly twigs and round bits, with very occasional fragments of charcoal and mineral material. No seeds. All scanned. Nfa.

Early 4th century drain in north yard XXIII. 8 litres 10 YR 5/3 yellow grey brown material processed. Approx. 60ml flot of clean charcoal and bright yellow iron stained soft mineral material produced. A little modern leaf debris was present. V.V. occasional fragments of industrial spatter. Charcoal and mixture of well preserved wood and very cindery fragile material. 40ml assessed, no seeds, nfa.

Drain material from the toilet of the Headquarters building. 7 litres 10 YR 6/4 pale yellow brown sandy silt processed. Flot consisted of approx. 80ml mineral concretions and large amounts of tiny comminuted bone fragments. Some charcoal and coal were present. All fairly small material. V.v. occasional small mammal long bone and a few bones had acid etched surfaces (most had no surface) indicating passage through a digestive system. No seeds though. No further action.

Stone Fort and area

Laminated turf material from the very bottom of the period 1 fort ditch (ditch number 5 (of 6) on the western approach to the fort. The deposit included a small oak dagger, some interesting leather (9 large tent panels) as well as hair moss and stable flies. Black brown more or less pure organic material with plenty of fly puparia. After processing some bracken remains with more heather shoots. Straw – including culm nodes, stem, glume bases and spikelet forks (some obviously from spelt; others more narrow and steeply angled and hence possibly emmer. A small amount of bracken and heather was charred. Oat periderms and those of other large grasses common. Bran fragments occurred occasionally. Seeds were rare despite the highly organic nature of the material. The overall nature of the material suggests stable debris or hay, probably the former given the straw, heather and bracken components. There are so few indications of seeds that it is concluded the material originated from grassland communities either late or early in the year prior to flowering/ seeding or from grasslands that were heavily grazed and therefore unable to flower and set seed.

Period 1 south ditch. 30 kg/10l floated; +500g wet sieved. 10 YR 3/1 dense moist organic material with streaks of grey clay and pale brown sand. Although only a relatively small flot was produced (ca. 150ml) it was highly organic and silty. Much of the original material clearly had rotted or being humified to such a fine extent that it washed through the sieves easily. Seeds therefore have been concentrated over time. There were plenty of moss fragments and periwinkles of docks with some miscellaneous stem and leaf fragments, bracken frond fragments, wood and some legume flowers. Dock seeds were also abundant as were those of hemlock, annual nettle, sow thistles, some knotweeds and tormentil. The general impression is of a ruderal assemblage and not that similar to many of the laminated deposits elsewhere. It may reflect some clearance phase of an area previously unused for a period or may represent the vegetation growing around the ditch but also in a period of non-intensive occupation. Otherwise, biennials and perennials such as these are unlikely to have become established and set seed.

EARLY turf rampart at a point just inside the SW corner of Stone fort 2, possibly relating to Stone Fort 1; possibly late 2nd century. 20kg 10 YR 5/2 mottled grey silty clay processed. Flot consisted of 2 litres highly organic material and much coarser than that of 31. Large quantities of moss remains including acrocarps and pleurocarps species and shoots of Mnium
**V99  42**
Latrine sewer at the south east corner of Stone Fort 2 which was deliberately backfilled with wall stones and thick grey clay. 2 litres 10YR 5/3 mid yellow brown silty loam processed. Approx. 15ml flot consisting of small fragments of charcoal. Most of this is wood but it does include the very occasional grass and heather stem. Some 10s of frog/toad bones were present. 1 dock nutlet was recorded. Completed. The sample is in accord with a backfill and clearly has little to indicate original function. The presence of the amphibian bones probably simply indicates a damp place favoured by frogs and toads.

**V99  31**
Ditch fill from western lip of Stone fort 2 ditch at its SW corner. A mixture of laminate, turg, clay and whinstone boulders. 11 litres 10YR 3/1 black grey, sandy silt processed. Approx. 1500ml flot of highly organic but generally fine, amorphous material. A small amount of charcoal and some wood fragments were present; the charcoal included a mixture of wood, heather and monocot rootstock type material. Moderate numbers although restricted types of waterlogged seeds mostly indicative of high nutrient enriched ruderal, especially nettles, and waste ground with a suggestion of wet ground. No insect remains were seen and other than a couple of blackberry pis no food debris was present.

**V00  A7**
Severan CO's residence, laminated flooring on top of Op. Sig floor. 9.5kg/5l floated and a further 400g wet sieved. 10YR 4/2 organic material with patches of grey clay. Flot of ca. 500ml remained very silty and basically lumps of dried organic debris, some charcoal and a little twig/woody material. Charcoal included roundwood <1cm. Occasional bracken frond fragments and moderate numbers of fly puparia, a few fragments of horse hair - reddish brown but that may be due to post deposition humic acids. Large numbers of sedge nutlets, tormentil, buttercups and docks; a variety of other herbaceous taxa were recorded although none of the latter was especially abundant.

**V00  49**
Pit 2 south of pre Hadrianic bath house 8kg/5l floated. 10YR 4/2 gritty earth with fibrous roots present. Relatively homogeneous. Small flot of charcoal and modern roots. Charcoal generally poorly preserved and a mixture of twigs and chunks. There is nothing to suggest function of the pit.
V00  48
Pit 1 south of pre Hadrianic bath house 7.2 kg/5l floated. 10 YR 3/3 highly organic and somewhat gritty material. A small flot was produced which consisted of lumps of soil with a small amount of charcoal and occasional fragments of bone. There was a little industrial spatter but this may easily have fallen in from nearby smithing activities. It is not enough to suggest disposal of such debris. 1 fragment of wheat grain was recovered.

V01  34A
Demolition of period 6A structures, a dirty turf layer with sporadic laminated inclusions, some burning of demolished timbers and plenty of leather surviving in good condition. “flower head” = Cirsium vulgare Seeds measured (Figure 1)

V01  37A
Period 4 building, in the corridor linking large oven room with small oven room. Finds spot for the complete mortaria (small find no. 8376). The sample analysed was from the small find although in character it is indistinguishable from other laminated organic deposits. It seems most likely that the mortaria simply filled in with the surrounding material.

V01  38A
From the floor of the small oven room in the period 4 commander’s house/Hadrianic Palace. Sample from fire pit of the small clay oven I the room, the dominant feature of the room. Charcoal with some organic material – occasional wood and twigs with bracken fronds. Wood consisted of short pieces with angled ends – wood chips being used as kindling? Charcoal generally amorphous but did include the occasional twig. Very occasional fragments of bone including 1 vertebra from a small fish. Waterlogged cereal straw fragments – culm nodes and wheat glumes – some moss stems and a little bran. Seeds plentiful and varied with a combination of grass/sedge and more herb-rich cultivated soil indications.

V01  42A
Below the floor in the corridor linking the small and large oven rooms. Sitting in a laminated carpet layer, probably from a barrack room floor. Small find No. 8446 - Dog turd? in small plastic pot at home

V01  49A
From what appears to have been a possible storage room immediately to the north of the small oven room (38A). Contained mostly broken amphorae, barrel staves and lids. Material more turf like than laminated, with a probable clay floor. Probably a non-lived in area. Creamy material gathered in small wooden lined drain that ran to the north of the room. The wet sieved samples consisted of bryophytes, some wood chips, legume flowers, bracken, cereal straw, occasional fly puparia with the finer fractions consisting almost entirely of large fragments of bran, other epidermis and large grass Caryopses, some clearly from oats. Hay taxa were dominant and the sample was generally very rich in seeds. The large amount of bran-like material strongly suggests faecal material and it could be that this material is more or less pure horse manure.

V01  B-4
5+1 tubs contents of amphora ?cremation burial under temple floor
All flots contain modern roots and black very cindersy charcoal. For the size of flot there are quite a few fragments of airfall spatter possibly relating to a nearby industrial process. Most flots have occasional fragments of calcined bone but nothing in such a concentration as to suggest a cremation burial.

- Tub 1 – no bone but plenty of mineral fragments. 2 charred culm nodes and 1 charred *Gallium aparine*.
- Tub 2 – 1 fragment each of calcined bone and bone
- Tub 3 – 3 hulled *Hordeum*, 1 CI, no bone
- Tub 4 occasional fragments of burnt and unburnt bone. 3 hulled *Hordeum*, 1 *Raphanus* pod fragments
• Tub 5 charcoal – large flot. Hulled *Hordeum* 3, cf. *Triticum* 1, *Bromus* 1 and *Plantago lanceolata* 1. For analysis all botanical remains amalgamated to context level.

**V01 B-4 8219**
1 tub fill from tubuli burial
Top layer: silty crazed charcoal and small chunks of wood. Organic remains include *Polytrichum* stems but leaves have not survived.
Middle layer: Very fragile and crazed charcoal with a little *Calluna* wood. No seeds.
Bottom layer: smaller fragments of charcoal than above – possibly a result of natural sorting and settling. Not twigs. 3 hulled *Hordeum* grains and 1 indet. cereal.

**V01 B-8**
2 tubs pit fill from inside temple doorway. Rather poorly preserved charcoal and still silty. 1 indet. cereal and 7 hulled *Hordeum* grains.

**V01-1A A**
Enviro hair. This was determined as horse hair and from the mane or tail, courtesy of reference material from Zulu. Such material was also found in V00-A7.

**V01 19A**
Period 3 flooring – laminated material. Very heterogeneous lumps. Wood bits and twigs predominate and lumps of greenish-yellow amorphous organic – horse droppings? Bracken common as are legume flowers and tendrils. Quite a few heather flowers although little wood and few shoots. Some cereal straw and speit glumes. A reasonable mix of taxa but nothing especially abundant. Grassland types are most common however. Other taxa probably relate to a heathland community and may have been imported with the bracken or heather.

**V01 04A**
Period 4 flooring and mixed turf. Highly humified lumps of organic silt with wood, twigs -- some heather, chips with chamfered ends -- possibly wood chip bedding? Occasional legume flowers and cereals periderrms, some straw, heather shoots and bracken fronds. 1 fragment calcined bone. A rather small variety of seeds was recorded -- sedges, corn cockle fragments, wheat glumes and other taxa of grasslands. 1 fragment of coriander provides minimal evidence for a probable aspect of human diet – a rarity for Vindolanda.

**V02 B-6**
From behind the rampart mound in the southern excavation area. Laminated organic material with fly puparia. Coarse fraction includes bracken, lots of moss, speit glumes, occasional fragments of charcoal, legume flowers and tendrils, plenty of grass caryopse, some bran -- mostly oat fragments and the very occasional leaf of *Sphagnum* moss. Grasses and grassland taxa abound and this seems most likely to have been a dump of stable manure.

**V02 B-41**
Oven material from structure in western end of trench. 5kg floated. The material consisted of a mixture of bright orange-red clay lumps and a blacker component. The impression is that at least of the oven fabric has been included in the sample. A small flot was produced reinforcing the idea that much of the sample was fabric - clay simply being washed through the sieves. The flot consisted of charred material although very little was clearly attributable to charcoal/wood. Much had the appearance of burnt highly humified peat and there was some coal too. Occasional fragments of honeycomb spatter were present as were a few fragments of calcined bone. One charred wheat grain was present. What the oven might have been used for is unclear although the last fuel seems to have been peat rather than wood.

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Introduction, by Robin Birley

Scheduled Monument Consent was received to undertake small-scale trial excavations at Carvoran, to determine the nature of masonry that might have survived the deliberate destruction of Roman remains by members of the Carrick farming family in the eighteenth and nineteenth centuries. Camden’s 1586 Britannia referred to the ‘great Ruines of the Castel of Cairvorein’, which Christopher Ridley, in 1572, correctly noted as belonging to ‘Mr William Blenkynsop’, the lord of Blenkinsopp Castle in the valley to the south of Carvoran. The surviving ruins of that castle contain numerous Carvoran stones, including inscriptions, and it is worth emphasizing that the Blenkinsopp’s only access to Roman masonry was at their Carvoran property. Thirlwall castle, closer at hand, used the nearby Hadrian’s Wall for its stone, and the Wall to the east was the quarry of the Ridleys of Walltown.

![Fig. 160 The ruinous Blenkinsopp Castle, in 1785](image)

The first eighteenth century account (Robert Smith in 1708) significantly spoke of the deep Vallum or trench surrounding the fort, but made no mention of fort walls, and John Horsley, in his posthumous Britannia Romana (1732) also referred to ‘conspicuous ramparts’ surrounding the fort, without speaking of fort walls. It is very likely that the bulk of the masonry from those walls had been removed several centuries earlier, when the lords of Blenkinsopp were constructing first their manor house and then their crenellated castle (the latter in 1344).

Whatever masonry was left was gradually being removed by the Carrick family, as they sought, in Hodgson’s words, to bring ‘the site of the station and its suburbs into a

1 Antiquarian references to Carvoran are conveniently listed in Robin Birley’s The Fort at the Rock, Magna and Carvoran on Hadrian’s Wall, 1998 Greenhead.
profitable state of bearing. In that endeavour they were greatly assisted by the builders of the adjacent Military Road in the 1750’s, whose appetite for easily won stone so angered the Northumbrian historian, John Wallis (1769). By the time of Hodgson’s 1830 visit to Carvoran, even the fort ditches were difficult to detect, so effective had the efforts of the farmers been to improve the land for the plough and thereby access Government grants to increase corn production.

Carvoran was acquired by the Claytons of Chesters in 1885. As was customary with the majority of that family’s Wall acquisitions, work was immediately put in hand to improve the drainage in the fields, and to construct a new farmhouse. The 1886 Wall Pilgrims visited Carvoran on June 30th, reaching the site at 5.50 pm after a walk from the Wall above Crag Lough, but they did little more than pass through the site, described as ‘almost obliterated’, although it was noted that Clayton had commenced excavations on the northern and eastern ramparts. There are no contemporary accounts of what was uncovered, but the only subsequent visible trace of the work was the remains of an angle turret in the north-west corner of the fort.

In the twentieth century, interest in Carvoran was stimulated by the accidental discovery of the famous modius, in a swamp just off the north-east corner of the fort, perhaps hinting at pre-Hadrianic occupation, but most attention was directed to the Vallum’s unusual diversion northwards, as though it was attempting to avoid some existing Roman works.

The Carvoran site was purchased by the Vindolanda Trust in 1972, in an effort to preserve it from further agricultural damage. The Vindolanda Trust conducted a brief examination of the remains of the northern gate in 1972, which revealed little but rubble core from what was believed to be the central spina of the gate. The construction of cottages attached to Carvoran House brought to light military ditches well to the east of the known fort site, and the pottery recovered suggested Trajanic occupation. Shortly afterwards, G.D.B. Jones drew attention to a possible ditch system extending well to the south of the presumed position of the fort’s southern wall, hinting at a previously larger fort. The battered field walls at the northern and eastern boundaries of the ‘Station’ field were removed by the Trust in 1981.

In the autumn of 1996 the Vindolanda Trust consolidated the by now very battered remains of the angle turret, and in 1999, as a potential aid to the prospective Carvoran Project, an extensive magnetometer survey was conducted by Timescape.

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2 The Pilgrimage of the Roman Wall, 1886, p 23
3 See F. Haverfield, in AA3 xiii, 85-120 and A.E. Berriman in AA4, xxxiv, 130
4 See especially Brenda Swann, in AA4, xxxi, 82-94.
5 Reported in Britannia IV, 1973, 275
6 See R. Birley in Britannia XVII, 1986, 381
7 For the plan and comments, see now G.D.B. Jones and D.J. Woolliscroft, Hadrian’s Wall from the air, 2001, 48-50.
8 A report on that work is deposited in the Museum Library at Vindolanda.
9 A proposal to excavate and reconstruct to full size the walls and gateways of Carvoran fort.
Archaeological Surveys, at the behest of the Vindolanda Trust and English Heritage, encompassing the fort site and much of the potential vicus area. 10.

**Fig 161**
The battered remains of the Clayton angle turret in the NW corner, exhibited to the Pilgrims in 1886 and untouched since then. There are now some doubts about its authenticity.

**Fig 162**
The re-excavated Clayton turret in 1996, before consolidation by the Vindolanda Trust. A doorway can be seen on the right hand side of the southern wall. Although the northern wall stood five courses high, there was no trace of any Roman mortar in its core.

It was the considered view of the Vindolanda Trust that little of the fort walls, gateways and angle turrets would have survived the centuries of abuse from neighbouring landowners, farmers and road-makers, but some doubted this interpretation based on the observations of respected antiquaries, regarding the evidence for destruction as purely anecdotal.

The work described in this following report was undertaken for the Vindolanda Trust by Andrew Birley, in October and November 2002. In the course of that time, the site was visited by both Dr David Sherlock and Mr Paul Austen, Inspectors of Ancient Monuments. The excavations trenches were backfilled on the completion of the work.

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The Timescape survey, plot and interpretation of data.

In 1999 Timescape Archaeological Surveys produced a geophysical survey of the Fort and Vicus at Carvoran\textsuperscript{11}. The survey was a resounding success in that it clearly showed that despite the lack of visible evidence on the ground (without excavation) to a large extent it was possible to infer the area that was covered by the later Roman remains. Fig. 163 below shows the greyscale magnetometry plot, and fig. 164 illustrates the interpretation of this data by Timescape Archaeological Surveys.

One of the advantages of the 2002 excavations was to thoroughly test the accuracy of such data in the limited time allowed under the constraints of the SMC. The results were interesting in the fact that they were varied in their consistency, showing that although geophysics is an excellent tool for the modern archaeologist, it can only be regarded as an accurate interpretation in conjunction with other methods, one of which is excavation.

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{carvoran_map}
\caption{Showing the greyscale magnetometer plot.}
\end{figure}

\textsuperscript{11} The report by J. Robinson, J. A. Biggins and D.J.A. Taylor.
In fig. 163 the fort's almost square shape is very clearly evident, as are a mass of anomalies surrounding the fort, which are taken to be various vicus structures or annexed military buildings. This plot was the first real indication that the minimal standing remains of the southern fort wall and gateway at Magna were perhaps up to 10-12m north of the field wall to the south. This was later to be proved correct in the excavations that commenced in 2002. The data was far less helpful in determining the location of the west and east walls, both of which looked as though they could be partially or wholly under their respective field boundaries. The north wall seems to link to the angle tower in the NW corner, but in fact what the data had picked up was the foundation to a field wall, and not the Roman fort wall to the north, which had been almost completely robbed out and is lying several metres to the north of the field boundary.

![Fig 164 showing the Timescape interpretation of their raw data and greyscale plots.](image)

With the hindsight of the 2002 excavation data, the geophysical information from the 1999 survey has occasionally been either misleading, or baffling in its inability to
pick up some major features on the site (thus underlying its status as an imperfect science). This in many parts is due to the huge amount of variables that exist in the gathering of this kind of data, human error, the weather, and the ground conditions themselves. All these can affect the quality and type of data recovered. In a perfect world several surveys would be conducted over the same ground, in many different conditions, times of year etc, but this in reality is either too time consuming, or more likely, too expensive to carry out.

**Location of the main features explored in 1996 & 2002.**

![Diagram showing Trenches 1, 2, 3, and 4, NW angle turret, and surrounding area.]

Fig 165 shows the location of the main four trenches that were excavated in the winter of 2002 and the location of the NW angle turret that was examined in 1886 by John Clayton's workmen, and then re-examined in 1996. Parch marks in the field to the south of the fort clearly show the presence of hidden remains, interpreted in the Timescape geophysical survey as probable Stanegate road and vicus buildings.¹²

The fort is effectively sandwiched between the Stanegate road and Hadrian's Wall, with commanding views in all directions, especially to the South and the West.

¹² See the previous pages for geophysical survey data, both raw and interpretation.
The 2002 EXCAVATION AT CARVORAN, by Andrew Birley

The Eastern Fort Wall (trench 1).

Despite earlier antiquarian references to the eastern fort wall’s location at Magna\textsuperscript{13}, it was still believed by some that the eastern wall could lie beneath the line taken by the much later field wall, the product of the local enclosure movement\textsuperscript{14}. The main reasoning behind this theory was the slight, yet clearly pronounced ridge that supported the field wall foundations. However, in 1999 the extensive magnetometer survey conducted by Timescape on behalf of The Vindolanda Trust and English Heritage, showed that perhaps the antiquarian description was indeed the correct one, and that in the case of the fort of Magna, earthworks that remained visible may be misleading.

As fig. 165 illustrates, the fort wall was near enough where some antiquarians had placed it, the outer face being 6.8m to the east of the later field wall. The wall survived at absolute foundation level only, protruding out from the ground to a maximum height of 13cm from its cobbled berm on its eastern side. The foundations of the eastern wall were approximately 163cm wide, and were bound with a dark red clay: no evidence of mortar were detected in the foundations\textsuperscript{15}. As shown in fig. 168, the remains of the fort wall lie approximately 90 cm below the level of the turf, and the berm on the eastern side gradually slopes down into a large and well-defined fort ditch, some 170cm from the outer face of the foundations.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{wall-section.png}
\caption{A plan and section drawing of the east wall at Magna fort, showing the wall, with rampart behind and rubble causeway dropping into a large defensive ditch.}
\end{figure}

\textsuperscript{13} Such as those observations made by Camden in the 1586.
\textsuperscript{14} Taking place circa 1800.
\textsuperscript{15} However, traces of the use of mortar were found elsewhere.
The absolute dimensions of the fort ditch were not ascertained in the excavation as the narrow width of the trench made deep exploration impracticable in the deteriorating weather conditions of October. However, it would appear that the ditch’s minimum dimensions would be something like 4-5m across and a maximum depth of 2m from the foundations of the fort wall. At a depth of only 45cm from the foundations of the fort wall, the side of the fort ditch turned into the natural dark red clay, having started as a light grey clay, which covers all uppermost levels of the site and seems to have been used extensively in the construction of the rampart mounds.¹⁶

A small section of ditch provided the only find of consequence from the entire excavation at Magna, a small lady’s shoe, in a poor state of repair. Several facing stones had managed to survive the pillaging of the fort wall, no doubt by falling into the ditch from an earlier time, and at least these gave some impression of how the eastern wall may have once looked. The stones were a mixture of lime and sandstone, and the smallest had a face dimension of 70cms x 40cms, more in keeping with the large masonry used in the construction of Hadrian’s Wall some 400m to the north. Both the size and quality of the masonry perhaps leaves little doubt as to the value of the fort of Magna as a resource for future generations of stone builders in the area, and helps to explain its probable rapid demise. A small quantity of grey wares and some BB1 was recovered from the ditch,

¹⁶ John Hodgson detected faint traces of two ditches outside this wall, but no attempt was made to test that claim in 2002.
stratified next to the lady's shoe - 8 sherds in total - and no evidence to support pre-Hadrianic occupation was recovered.

To the rear of the fort wall, some 40cms of rampart survived relatively intact, from which the method of construction using turf on turf, with bands of grey/white clay separating, could be clearly seen.

The Southern Fort Wall (trench 2).

A small section was placed through the probable location of the fort wall on the south eastern side of where the magnetometer survey had placed the south gate of Magna. Once again, it had been previously speculated that the location of this wall would prove to be near the line of the later field wall, and once more, this did not prove to be the case. The fort wall at this point lies some 10m north of the field wall, suggesting that the latter is either built upon the fort ditches or perhaps even the Stanegate road itself at this position.

Fig 6 shows the location of the fort wall and this trench to the other trenches and main features visible on the site today. The section below (fig 169) shows both the state of the remains at this point in the southern defences and other salient features that were uncovered, such as a small section of intervallum roadway.

Fig 169 A plan of the first trench revealing the southern wall and rampart at Magna fort.

The topography of this site was very different to that on the eastern side, with the rampart sloping down quite a steep gradient towards the back of the fort wall. The wall
itself is in much the same state of preservation as that discovered on the eastern side, standing one course of masonry high on the inner face, and reduced to below foundation level on the outer. The width of the foundations seems to be consistent with that of the eastern wall, measuring approximately 165cm wide. The bern on the south side is cobbled, as it was on the eastern side, and the main bonding agent in the fort wall was the dark red clay. The dark red clay marks a striking contrast to the black/grey of the rampart to the north and the grey/yellow cobbles to the south. The remains of the fort wall lie some 30cm below the turf at this point.

Rather than section a part of the ditch it was decided to attempt to ascertain the exact dimension of the rampart mound in at least one section. What was discovered was that the rampart stretched some 350cm to the north of the wall foundations, where it met a poorly paved roadway, which is a further 145cm wide (variable) running east to west. No trace of any internal structures beyond the roadway were uncovered. Once again, very little of significance in terms of artificial evidence was forthcoming from this trench - two segments of clay pipe (the smoking variety) and a dozen or so pieces of late second and third century pottery. No part of that trench uncovered an area that could have been described as truly stratified in a un-tampered Roman context.

![Fig 170](image)

*Fig 170*

The photograph on the left shows trench 2 looking north, with the remains of the fort wall in the foreground, with rampart behind and intervallum roadway at the rear of the trench. Perhaps what is most striking is the shallow depth of the remains. The poor state of preservation is testimony to both the financial value of Magna and the lengths that the landowner and his tenants went to clear the land for agricultural purposes.

The Western Wall Of Magna (trench 3)

Of all the probable locations for fort walls on the site of Magna, the western wall was thought to be the most obvious candidate to be found beneath a later field boundary. Apart from the boundary following an obvious embankment, it occupies the last relatively stable ground before the long steep drop off down Seven Darricks field to Glenwhelt and the modern village of Greenhead, with the Tipalt burn running through it.
Added to this, a small previously excavated section of the north west of the fort\(^\text{17}\) wall, still visible, clearly shows how it veers at this point towards the field boundary. The magnetometer survey conducted in 1999 also seemed to suggest that this was correct, so it came as a complete surprise to discover that this cannot be taken for granted.

As fig. 165 illustrates, the western fort wall could be some 7-8m to the east of the field boundary, where the possible foundations of the former lie some 3m in height above the foundations of the latter, or indeed the fort wall may well be further out in the field to the west, which to the naked eye resembles a well defined fort ditch. The section through trench 3 illustrated in fig. 173, shows that the foundations of the field wall are sitting on top of a mixture of topsoil earth and a collection of fallen wall stones and a fine grey silt which is often to be found at the bottom of Roman fort ditches in the wall area. These lead on to the hard natural grey and then dark red clay, so the fort wall to the west does not sit beneath the later field boundary.

**Fig 171** This photograph shows the dramatic views from the vicinity of the western wall of Magna, looking west towards the Cumbrian border, with a steep drop down into the valley where the modern village of Greenhead and the Carlisle - Newcastle railway are situated.

**Fig 172** The tell-tale red stain that normally marks the foundation of the fort walls at Magna, yet here it lies some 7-8m to the east of the field boundary. The white/grey clay to the left on the photograph is the subsoil clay at higher levels, the red, normally excavated from around 1m depth beneath the grey/white clay, probably came from the digging of the fort ditches through this layer. The red layer lies only 30cm beneath the turf.

\(^{17}\) Excavated under the direction of John Clayton in 1886 and re-examined in 1997 by the author.
The same distinctive foundations for the fort wall on the east and south sides are present on the west, a dark red clay used in bonding the foundations together, cutting a vivid line through the light grey/white clay & black turf of the rampart, and the cobbled berm of stones pressed into the grey/white clay. No masonry survived, merely the clay used in the foundations. It is possible that at this point the foundations for the intervallum road were similar to the fort walls, but this certainly was not the case in the construction of the same roadway excavated in trench two. Thus the evidence is lacking for conclusive proof of the western fort wall's survival in any form at this point. It is suggested that further trenches along the 'supposed line' of the wall should follow in the future, with the most sensible option (due to the impoverished state of the remains) being the tracing of the SW angle tower to examine whether or not it correlates with the already exposed NW tower.

![Diagram](image)

**Fig 173  A section through the possible west wall of the fort of Magna**

The Roman bank-side/ditch in the section above is far steeper than the modern topography, which is primarily made of topsoil, lying on top of the dark grey silt mixed with large fallen facing stones. A middle layer of disturbed grey/white clay and topsoil has been deposited directly on top of the Roman ditch/bank side and most likely is the result of the activities of the stone robbers' trenches through the rampart. A single piece of green glazed medieval pottery was recovered from this layer, giving a rough indication as to the possible time period for the destruction taking place. The majority of the topsoil can perhaps be attributed to the later levelling activities of the Carrick family, as suggested by the three segments of clay pipe recovered from the topsoil. Of Roman pottery only a handful of mixed sherds were recovered, including the neck of a second century drinking flagon.

**The South Gateway Of Magna Fort (trench 4).**

As part of the archaeological brief, it was decided that apart from trenches looking at the basic state and dimensions of the fort walls, a larger trench should be undertaken to explore what must have been some of the most impressive parts of the site, and therefore
most likely to leave a significant trace of its existence beyond the robbing activities of later centuries. The South gateway was chosen, as it would be expected to front onto the Stanegate road, and therefore be a likely candidate for special significance.

The gateway was located fairly quickly and at the first attempt, by selecting the middle point between the fort wall on the eastern side and the field wall (still thought to be constructed over the remains of the fort wall) at the west, corroborated by the geophysical survey conducted by Timescape, which showed a mass of disturbance at the centre point. The state of the remains at the south gateway proved to be a disappointment as the level of destruction due to stone robbing had taken place on a very large scale. As figs. 175-176 show, not much of either the fort walls or the gate towers remain (and barely a trace of the western tower in particular), bar the rubble core of the foundations. What is striking about the little that does remain is the fact that the walls of the eastern tower were exceptionally thick, some 2m on the gateway side, suggesting that multiple storey’s could easily be supported, giving fine views to the Alston Moors to the south, along the Maiden Way.

Fig 174  A plan of the southern gateway at the fort of Magna, in relation to the field wall 11.95m to its south.
Fig 175 The remains of the battered eastern tower flanking the south gate of Magna. This photograph is looking east, and the curtain wall can be seen in the back of the trench, with trench 2 just visible in the background. Only the wall core remains to show where the tower once stood.

Fig 176 A reverse view of the eastern tower to the fig. above: the small dividing wall inside the tower can be seen clearly, as can the red hue of the clay bonding and rubble used in the wall core. The location of a later field drain enabled the excavation to continue despite the waterlogging on the site.
The gateway is a single portal, with a large tower on either side, starting flush with the outer face of the fort wall, in keeping with the traditional build along the line of the Wall, and unlike the style of slightly protruding gateway towers found at Vindolanda. The causeway/roadway running through the gate is made of a roughly metalled surface, which is approximately 500cm wide with a slight camber sending the water to either side. On the berm to the south of the west tower/fort wall, a shallow ditch had been cut through the dark red clay subsoil (as seen in fig. 174), but with such a small section it would be impossible to discern if this was contemporary with the gateway or evidence of earlier occupation. No artifacts were recovered from this small shallow ditch section.

As with the other fort wall sections examined in this excavation, the main bonding agent appeared to be the dark red natural clay that covers the site of Magna. On a small section of fort wall to the east of the east gateway tower a single course of masonry survived for the length of three facing stones on the inside of the fort wall, two of which were bonded with a crumbling white mortar. During the excavation of the inside of the eastern tower, next to the foundations of a small dividing internal wall, three large segments of white wall plaster were recovered, still attached to approximately 2cm of white mortar. This suggests that perhaps the inside of the towers were fully coated in wall plaster.

Fig 177 shows the excavated (in black) and speculated shape of the south gateway of Magna fort, with its single gate and two towers.
The east side of the roadway had been damaged by the later construction of a 110cm deep field drain\(^8\), which surprisingly did not show on the geophysical survey of the fort, yet on closer inspection the line of which was still visible on the surface. The drain was well constructed and laid with small stones, with a width of 45cm in its channel, and flowed with water throughout the excavation. It is possible that the roadway may have once been flagged and the rough nature of the clay and cobbled surface and a lack of any obvious wagon ruts suggested that this may have been the case. However, such stonework would not have survived the attention of the stone robbers.

**Summary**

The 2002 excavations located both the eastern and southern walls of the fort, as well as the South Gate, but failed to find any trace of the western wall. The surviving remains were minimal, proving that the damage from stone robbing, modern road building and agricultural land clearance was even more severe than anticipated. The absence of a western wall beneath the current field wall must cast some suspicion on the Clayton NW angle turret, which had been 'displayed' for the benefit of the 1886 Wall Pilgrims. A further effort should be made to locate that western wall, if only to remove the doubts about the authenticity of some Clayton work. It should also be noted that at the southern end of the fort, there was no trace of any pre-Hadrianic activity.

It is also evident that the state of the remains is such that even after full excavation, consolidation for public display would be out of the question. The Carricks had made their point.

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\(^8\) The field drains were most likely inserted after the Claytons purchased the site in 1885, and traces of them effectively dissect the fort field into 9 or10 segments, all at a depth of over 1m.
Bibliography


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