# Latrinae

## Roman Toilets in the Northwestern Provinces of the Roman Empire

edited by

**Stefanie Hoss**

Archaeopress Roman Archaeology 31

ARCHAEOPRESS PUBLISHING LTD
Gordon House
276 Banbury Road
Oxford OX2 7ED

www.archaeopress.com

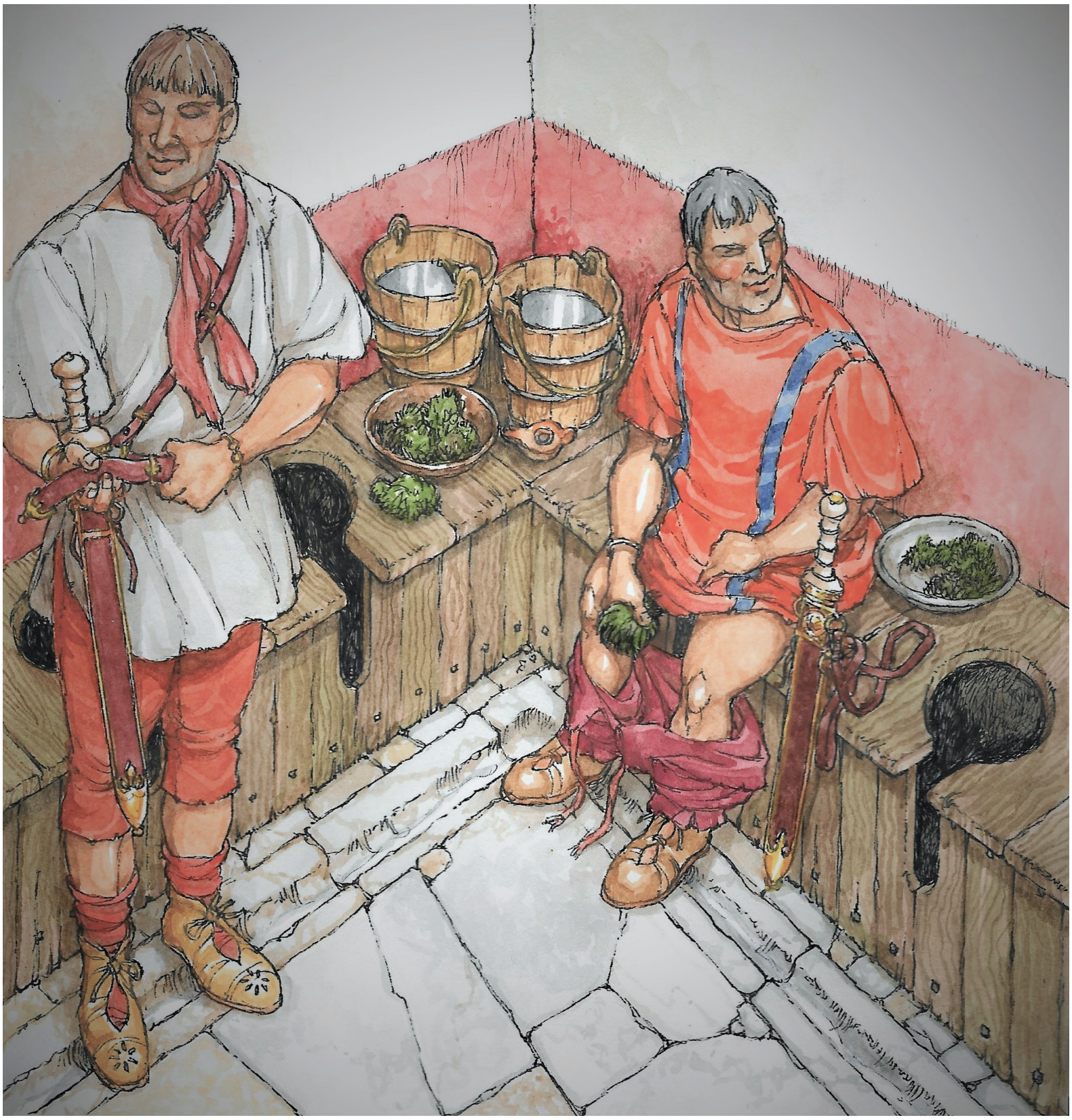
ISBN 978 1 78491 725 8
ISBN 978 1 78491 726 5 (e-Pdf)



The cover image was inspired by the wooden toilet seat excavated in Vindolanda in August 2014 (see www.vindolanda.com). It is believed to be the only surviving wooden seat in the Roman Empire, but it is also probably the only known toilet seat with a hole that is oval, not round. According to the excavator, Dr Andrew Birley, the Vindolanda seat had been used for quite some time and then was decommissioned and discarded amongst the rubbish left behind in the final fort at the site (before the construction of Hadrian's Wall started in the early second century), where it was preserved in the anaerobic, oxygen free, conditions.



Printed in England by Oxuniprint, Oxford
This book is available direct from Archaeopress or from our website www.archaeopress.com



An artist’s impression of the inside of the latrine at Bearsden with a soldier holding moss prior to cleaning himself. Drawing by Michael J. Moore

# Contents

# Introduction

Stefanie Hoss

Buildings can be classed into two groups: one – very large – group that can be termed multi-purpose and that is used with little difference in design for the many and quite variable tasks of living and working and another, smaller group of buildings that are built for a specific purpose clearly defined through their form or installations. This of course does not exclude the use of these buildings for other functions, but is an indication of their main intended use. In the Roman period, examples of this group include many technical buildings, such as aqueducts, harbour installations and defensive walls, but also buildings used by humans every day, such as bath buildings and toilets. While the technical buildings were mainly functional, bath buildings were hubs of the social life of a settlement and toilets also must have seen social exchanges.

During the last four decades, the interest in the social activities that make up the experience of daily life in the Roman Empire has increased both in archaeological scholarship as well as the general public. This had also boosted the interest in Roman toilets.

Before the latter part of the 20th century, Roman toilets and their infrastructure had often been overlooked, and during the 19th century they were occasionally even misinterpreted. This was a result of both the inclination of early archaeologists to focus on the high art of the Roman period and leave daily life unexplored, and the taboos of the age, which inhibited writing about bodily functions. This changed in the 20th century and Roman toilets were recognized and described for what they were. Still, the descriptions of the installations often were very superficial ('a latrine with the usual installations,) and toilets were not analysed systematically.

When Gemma Jansen started her research on the water supply of Herculaneum in 1989, it quickly emerged that the many and well preserved toilets of this city and of its neighbour Pompeii had never been studied thoroughly and she realised that she had found a whole new research area.

One would expect that in these modern times, the taboo around Roman toilets would have vanished, but in a surreptitious manner it seems to still influence research. This is proven by the giggly reactions of many colleagues when we organised a conference on Roman Toilets in the Northwestern provinces of the Roman Empire and sent around a 'Call for Papers'. It also is present in the obvious distaste for the subject exhibited by some eminent archaeologists and the gleeful coverage of the conference in the press.

Fortunately, this attitude seems to change with a growing interest in the 'grittier aspects' (Draycott 2012; Thüry 2001) of daily life in the Roman world, which has sparked a wealth of new research into dirt, pollution and sanitation as well as waste management and disposal (Bradley 2012; Hobson 2009; Koloski-Ostrow 2015; Magness 2011; Magness 2012; Neudecker 1994; Raventós and Remolà 2000; Scobie 1986; Thüry, 2001).

A sign of these new times was the first conference on Roman toilets and sanitation, organized 2007 in Rome by Gemma C.M. Jansen, Ann Olga Koloski-Ostrow and Eric. M. Moorman (Jansen *et al.* 2011). The conference was very stimulating and satisfying in many aspects, but it was focused on the Roman toilets in the Mediterranean. Because my own research focus lies in the Northwestern provinces of the Roman Empire, I knew that many interesting examples of multi-seater channel toilets from that region were still either unpublished or relatively unknown among archaeologists. Elly Heirbaut, who had just led an excavation of a part of *oppidum Batavorom* in Nijmegen with lots of cesspit toilets was in a similar situation with regard to cesspit toilets, and we decided on the spot that we would organise our own conference - something that we can (now) heartily recommend for other researchers in a similar situation.

The planning of the conference took two years, some daunting grant applications and the encouragement and help of friendly mentors. Gemma Janssen and Eric Moorman were especially helpful and we would like to thank them here. We also greatly benefited from the practical help given to us for free by two (then) students of the Radboud University, Suzanne van der Liefvoort and Klaartje Huijben, who helped us during the preparations and took over many tasks throughout the conference. Both their cheerfulness and their problem-solving capacities seemed endless and it was a relief for us to be able to concentrate on the proceedings of the conference instead of the logistics.

We were lucky to gain the financial support of the municipality of Nijmegen (Gemeente Nijmegen), the Radboud University and the Gerda-Henkel-Stiftung Düsseldorf. Their generous financial aid and the logistical help of the Radboud University made it

possible for us invite lecturers, which greatly helped in attracting interesting papers. And having the possibility to offer everybody attending free coffee seems to have supported an animated exchange of ideas during the breaks.

The conference was focused on the toilets of the Northwestern provinces of the Roman Empire and consisted of two days with different structures and different participants. It took place at the campus of the Radboud University on the 1st and 2nd of May 2009. The first day was structured into sets of lectures and directed at archaeologists, archaeo-botanists and archaeo–zoologists as well as the interested public.

The proceedings were opened by a keynote lecture by Gemma Jansen, in which she contrasted channel toilets and cesspit toilets in the Mediterranean (see contribution Jansen in this volume). There followed fourteen case studies, grouped into four sessions, starting with the public channel toilets and military toilets in the morning and continuing with cesspit toilets, chamber pots and various scientific research methods in the afternoon. Collectively, the papers could unanimously show that the inhabitants of the Northwestern provinces used the whole bandwidth of possibilities for the collection and removal of human waste which had earlier been available in the Mediterranean: large multi-seater channel toilets, cesspit toilets and portable toilet bowls or chamber pots. Most contributions stimulated lively debate, which often spilled over into the coffee breaks. The day concluded with a nice dinner in town.

On the second day, a smaller group of excavators re-convened at the campus of the Radboud University to discuss cesspit toilets and public multi-seater toilets with channels in two workshops. The workshops concentrated on the manifold problems of excavating Roman toilets and were organized as round table discussions – with the plans of several excavations on the table. The idea was to gather practical hints and approaches for the quick identification and correct methods of excavation and sampling of Roman toilets.

During the very animated discussions, a variety of issues were debated. While the previous day had demonstrated the value of scientific analysis of waste to understand the food habits and diseases of the Roman users of the toilet, on the second day, questions on how to find the necessary expertise and financing for such investigations were raised. Another point was the necessity in modern excavations – especially developer-funded excavations – to have a quick and cheap method by which to differentiate the enormous amount of pits often found between 'mere' rubbish-pits to be excavated quickly (as their main interest is their content) and cesspits, which should be excavated with more care, in order to be able to evaluate not only the content, but also the manner of construction of the cesspit and possibly its superstructure.

The method suggested by Denis Henrotay was based on taking samples from the earth on the inside rim of the pit and mixing it with a little water. This solution is then tested with ph soil test strips easily available in garden centres. If the soil has a phosphorus level that is higher than that of the ambient soil, the pit had likely been filled with human waste.

Both the first day of lectures and the second day of workshops could not have taken place or been as stimulating without the contributions of all the participants of the conference, whether they presented a case study, contributed to the discussion in the workshops or simply asked a question and we are deeply appreciative of that.

Turning the conference into a book has been another long drawn-out challenge. Unfortunately, not all of the original contributors were able to submit articles, but during the long process, other researchers were approached and asked if they would be interested in submitting an article. These articles now make up a third of the book.

We owe thanks to all the contributing authors for their patience and fortitude in waiting for the publication for some years and also for enduring the long editing process that was entailed by the translation of the articles.

The case studies on Roman toilets presented in this book come from Austria, Belgium, Germany, Great Britain, the Netherlands and Switzerland. While some subjects have been published elsewhere – with the exception of the case study of Bearsden – they are presented in English for the first time.

The first paper is the only one not dealing with toilets in the Northwestern provinces, but with our expectations of Roman toilets in the Mediterranean. Jansen explains that those toilet we often deem 'typical' Roman toilets – namely stone channel toilets with underground sewer systems – were only one possible solution for the problem of waste removal in the Mediterranean, and the most expensive one at that. Wherever possible, the much cheaper and simpler cesspits were used, proving that this is as much a 'Roman' type of toilet as the channel toilets.

The second part of the book is made up of case studies of stone channel toilets. The contexts of these are quite mixed, from a smallish installation at in the fort of Bearsden on the Antonine Wall in Britain (Breeze), or two equally small outhouses in Bonn / Germany

(Andrikopoulou *et al.* and White) to a large installation in a public bathhouse Xanten (Zieling) and an installation unconnected to a bathhouse in Rottenburg (Hoss). While these papers all present a single toilet, two papers are overviews of a number of stone channel toilets in a single city (Schaub) or connected to the main house (*villa rustica*) of a farm (Dodt) in the province of Lower Germany.

The third part of the book is dedicated to the cesspit toilets, with case studies from Austria (Petznek), Germany (Dodt), Belgium (Henrotay), the Netherlands (Heirbaut) and Switzerland (Jauch). Whereas the first two of these only deal with a single cesspit, the latter three are all overviews of a number of cesspits found in various contexts within the settlements. These are especially interesting as the different placing of the toilets and their diverse manners of construction give a good indication of the variation that must have been normal among the outhouses in the Northwestern provinces.

The forth part of the book deals with 'portable' toilets; i.e. chamber pots and the like. While Petznek gives a general overview of the different types and uses of chamber pots, Bienert's paper deals with a specific form of pot used in a stool.

The last part on written sources just has one paper by Juntunen, on the use of the word 'stercus' – does it mean human or animal faeces?

It is obvious that at this point, it is impossible to write a definitive history of toilets and toilet-use in Roman times. Much more research is needed to get a clear view of all aspects surrounding human waste removal during the Roman period.

While the basics of the architectural aspects of Roman toilets are better known by now, other aspects have been only touched briefly yet, such as the apotropaic magic used on toilets (Jansen *et al.* 2011: 165-176) or the social implications of multi-seater toilets (Neudecker 1994).

The waste removal processes used in settlements on the countryside and in pre-Roman times are also unknown at the moment.

Therefore, we would like to express out hope that this conference was not the last on this subject in the Northwestern provinces, but just a start for this interesting research topic.

**Bibliography**


Bradley, M. (ed.) 2012. *Rome, Pollution and Propriety: Dirt, Disease and Hygiene in the Eternal City from Antiquity to Modernity*. Cambridge.

Draycott, J. 2012. *Review on Jansen et al., Roman Toilets: their Archaeology and Cultural History*. Bryn Mawr Classical Review 2012.03.34.

Hobson, B. 2009. *Latrinae et Foricae: Toilets in the Roman World*. London.

Jansen, G. M. C., Koloski-Ostrow, A. O. and Moormann E. M. (eds) 2011. *Roman Toilets: their Archaeology and Cultural History*. BABesch. Supplement, 19. Leuven.

Koloski-Ostrow, A. O. 2015. *The Archaeology of Sanitation in Roman Italy: Toilets, Sewers, and Water Systems*. Studies in the History of Greece and Rome. Chapel Hill, NC.

Magness, J. 2011. *Stone and Dung, Oil and Spit: Jewish Daily Life in the Time of Jesus.* Grand Rapids, MI.

Magness, J. 2012. 'What's the poop on ancient toilets and toilet habits?' *The Journal of Near Eastern Archaeology* 75 (2): 80-87.

Neudecker, R. 1994. *Die Pracht der Latrine: zum Wandel der öffentlichen Bedürfnisanstalten in der kaiserzeitlichen Stadt*. Munich.

Raventós, R X. D. and J-A. Remolà (eds) 2000. *Sordes Urbis: La Eliminación de Residuos en la Ciudad Romana.* Rome.

Scobie, A. 1986. 'Slums, Sanitation and Morality', *Klio*, 68 (2) 399-433.

Thüry, G. E. 2001, *Müll und Marmorsäulen. Siedlungshygiene in der römischen Antike* (Zaberns Bildbände zur Archäologie). Mainz.

# The latrine at the Roman fort on the Antonine Wall at Bearsden

David J Breeze

## The fort

The existence of a Roman fort on the Antonine Wall at Bearsden (Figure 1) was recognised in the 18th century. It was planned by William Roy in 1755. During the 19th century the fort was progressively submerged under the housing of the expanding Glasgow conurbation. About 1970, the four Victorian villas occupying the northern half of the fort were acquired for a new development. In 1973, I undertook an exploratory excavation on behalf of the predecessor of Historic Scotland in order to determine what, if anything, survived of the fort. The defences were located, together with internal buildings. One such building was the bath-house. Following preliminary excavation, this was covered over, to be reopened in 1979 prior to completion of excavation and consolidation as a publicly owned monument (Breeze 1984).

Excavations were undertaken within the area to be developed and within the grounds of a house south of the road so that a plan of the fort and its annexe could be interpolated (Breeze 2016). During the course of examination of the eastern defences, it was noted that the fill of the outer ditch (the inner ditch was inaccessible) smelt. It was not until a subsequent season that the reason was discovered through the location of the latrine. The drain from the latrine fed into the fort/annexe ditches.

The excavations were completed in 1982. It was determined that the fort was occupied during the middle years of the second century. The building of the Antonine Wall started in 142, but the fort at Bearsden was secondary and may not have been constructed until some years later. It is believed that the Antonine Wall was abandoned in the 160s.

## The latrine

The latrine lay to the south of the south-east corner of the bath-house within the annexe (Figure 2, see Breeze 2016: 70-2; 327-30). Various drains and a path led to the latrine from the bath-house. The gravel path was traced from the entrance to the bath-house round the exterior of the south side of the building to the south-east corner of the hot bath where it turned south to the entrance of the latrine. Here, it overlay the drain from the stoke-hole.

The latrine (Figure 3) measured 5 m by about 4.4 m: the south wall had been destroyed so a slight element of doubt surrounds the north-south measurement. The west face of the east rampart of the annexe formed the east side of the building, but the north wall extended 0.2-0.3 m over the rampart kerb. The latrine wall did not lie directly on the kerb stone, but on a layer of yellow/brown clay mixed with sandstone fragments 0.20 m thick which overlapped the edge of the kerb stone and

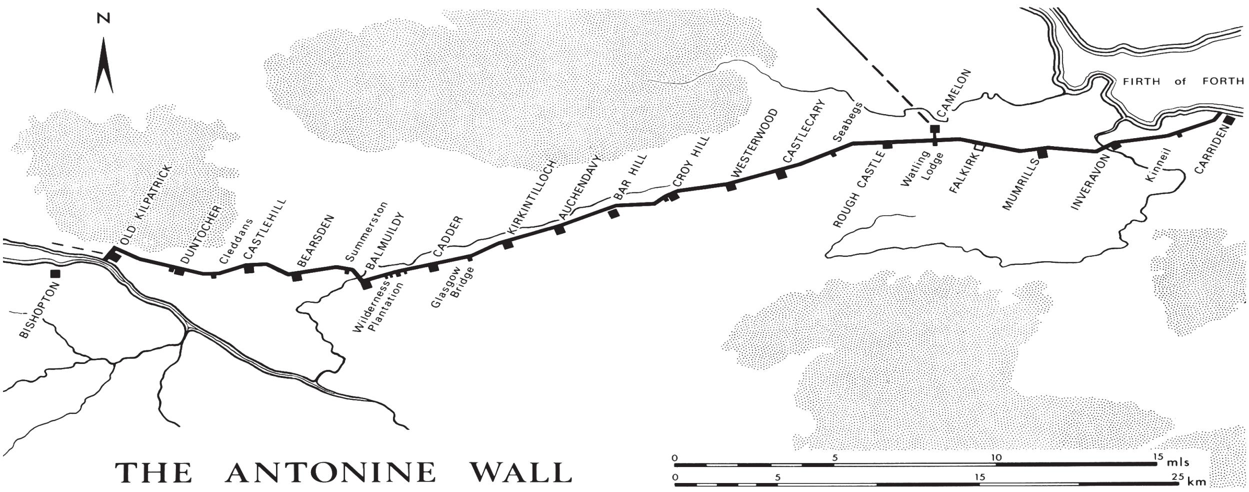



Figure 1. Plan of the Antonine Wall (after Breeze 2016, Illustration 1.1)

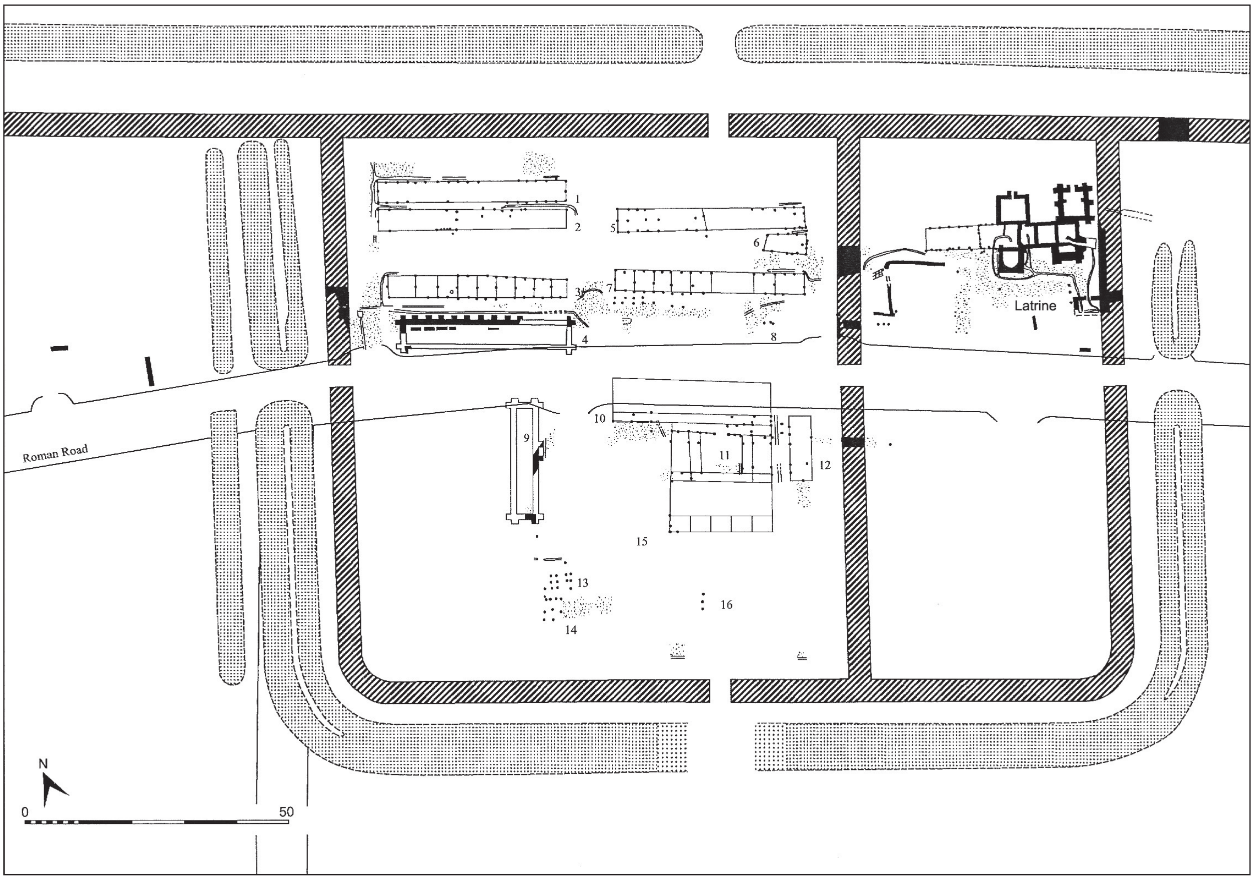



Figure 2. Plan of the fort and annexe at Bearsden; the latrine lies immediately inside the east rampart of the annex, south of the bath-house (after Breeze 2016, Illustration 3.2.1)

which in turn lay on top of the underlying grey clay into which the rampart kerb had been cut.

The walls of the latrine varied from 0.6 to 0.7 m thick. They were formed of roughly coursed rubble. The entrance into the building lay in the north wall. It was placed 1.5 m from the inside north-west corner and was 1 m wide. The threshold was formed of three flags (Figure 4).

The entrance led into a paved area measuring about 3 by 1.5 m. Between this paving and the west and south walls of the building lay two channels. Immediately inside the walls of the building lay the main channel. That on the west side was unusually shallow, only about 100 mm deep and a maximum of 400 mm wide, with a flagged floor. Although the south channel had been damaged by the modern sewer pipe, it could be determined that it also was shallow but was not flagged: the bottom was cut into the natural clay. This channel passed through the rampart in a well-constructed drain with a flagged bottom, sides two courses high supporting cap-stones.

Inside the sewage channel lay an open channel cut into a series of long stones. This was fed by the channel into which the five drains from the bath-house de-bouched. This channel passed through the north wall of the latrine. Beneath the end of the channel, on the inside of the north wall of the latrine, a tile had been positioned at an angle so as to throw water into the channel below. It would make sense if the tile had been supported by a device so that water could have been directed into the main sewage channel or the open channel.

The floor of the latrine lay on orange/brown clay, in which were embedded, on the south side, masons' chips. The drain leading south from the stoke-hole was cut through this clay. It entered the latrine under the door, crossed the building diagonally and sinuously to exit into the south-east corner of the main channel. This narrow drain, 120 mm deep, was roughly constructed mainly with water-worn stones or rough boulders. There were no cap-stones: the flags above appeared to have been bedded in clay laid over the top courses of the drain.

A thin layer of rubble covered the building, lying thicker to the west end than beside the rampart. This material contained charcoal up to 50mm in diameter, roundwood of alder, hazel and willow probably the

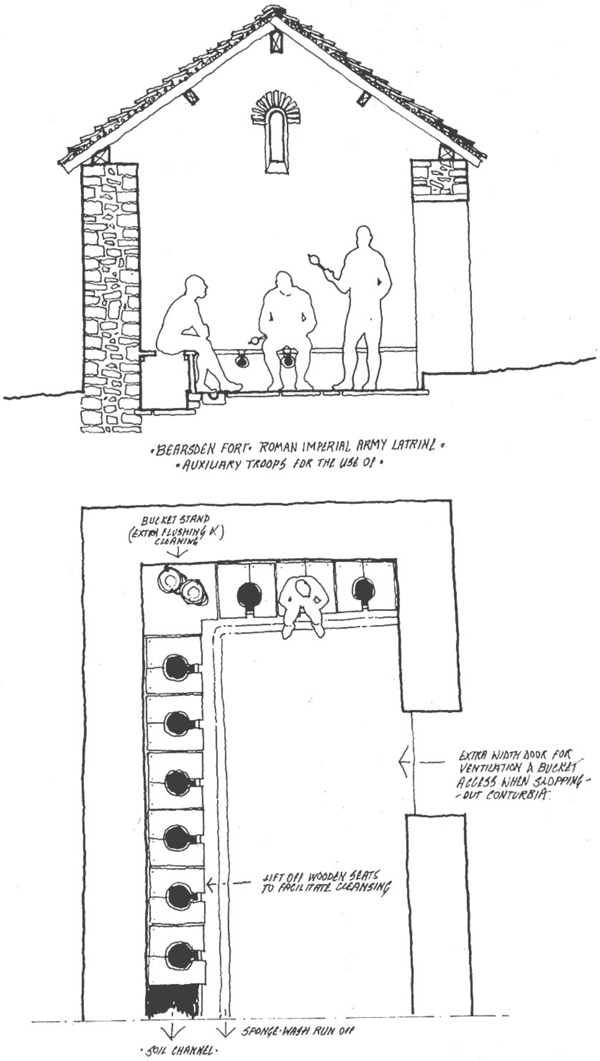



Figure 3. Plan and section of the latrine. Drawn by Michael J. Moore (after Breeze 2016, Illustration 21.10)

remains of wattles, and small fragments of mainly clay-covered burnt rushes, all presumably from the superstructure. The main channel contained gravel, the normal fill at the bottom of the drains. Here also were found numerous rush seeds, possibly from rush thatching on the roof (Dickson and Dickson 2016: 267).

### *The sewage*

The outer ditch of the annexe was sectioned at one point and a column sample taken of the contents. On analysis by Camilla Dickson at the Department of Botany in the University of Glasgow it was realised that this was sewage (Dickson and Dickson 2016: 223-8). Subsequent work was undertaken by Dr Brian Knights (Knights *et al* 1983).

Within the sewage, fragments of hulled wheats, probably from both emmer and spelt wheat, were identified, together with bran fragments from either wheat or rye: the bran formed about half the organic part of the ditch infilling. Rye and oats also appear, but may have been merely weeds in a wheat crop. In addition, the sewage contained barley grain fragments which had been ground with the wheat and also fragments which had been processed in a similar manner to pearl barley. The bulk of the grain would appear to be emmer and spelt with a little barley.

Figure 4. The latrine under excavation looking west (after Breeze 2016, Illustration 3.3.58)

It seems likely that the wheat was imported to Bearsden rather than grown locally, and this receives support from the presence of grain beetles in the sewage (Locke 2016: 289-97). The grain beetles could have either entered the ditch by the dumping there of contaminated grain, or through the soldiers eating contaminated grain. Isolated fragments of grain beetles were found elsewhere on the site and their presence in the sewage may be thought more likely to be the result of their being eaten rather than that this ditch was coincidentally used for the dumping of contaminated grain. The beetles may have been eaten within the pearl barley used to thicken soup (Breeze 2016: 369-70).

Other foods were found in the sewage. These include lentil, horse bean, linsead, fig, dill, coriander and opium poppy (Dickson and Dickson 2016: 231-2). Lentil may

Figure 5. The latrine following consolidation and presentation looking north (after Breeze 2016, Illustration 22.3)

have been imported to Bearsden from southern Britain and fig, dill, coriander and opium poppy from the continent. Wild plants eaten at Bearsden include wild celery, wild turnip, wild or cultivated radish, common mallow, bilberry, wild strawberry, blackberry, raspberry, hazel nuts and purging flax.

The biochemical analysis undertaken by Knights hinted that the soldiers had a mainly vegetarian diet (Knights *et al* 1983). This work was particularly important because, while it is known that Roman soldiers ate meat (Davies 1971: 126), the balance of meat within the diet was unknown. The work of Knights demonstrates that the vegetarian part of the diet was more important that meat. Unfortunately at Bearsden the ph level of the soil (5.6) had resulted in the destruction of all bone.

Finally, it may be noted that the soldiers had worms. Examples of both *trichuris trichiura* (whipworm) and *ascaris* were present in the sewage. A single example of a human flea was also recovered from the sewage (Jones and Maytom 2016).

**Comment**

It may be presumed that the main sewage channel would have been covered by the wooden seating and a deeper channel may therefore have been thought unnecessary. There was space for nine seats. The channels in the latrine were fed by water from the bath-house. The sewage channel passed through the rampart and emptied its contents into the annexe ditch. The discovery of fragments of mosses in the outer annexe ditch suggests that this material may have been used for personal cleanliness, being dipped into the open channel running round the interior of the latrine (Figure 5).

**Bibliography**

Breeze, D. J. 1984. The Roman fort on the Antonine Wall at Bearsden, In Breeze, D. J. (ed), *Studies in Scottish Antiquity*: 32-68. Edinburgh.

Breeze, D. J. 2016. *Bearsden: A Roman Fort on the Antonine Wall*. Edinburgh.

Davies, R. W. 1971. The Roman Military Diet, *Britannia* 2: 122-142.

Dickson, C. A. and Dickson, J. H. 2016. Plant remains, in Breeze 2016: 223-80.

Jones, A. K. G. and Maytom, J. 2016. Parasitological investigations of the east annexe ditch, in Breeze 2016: 301-3.

Knights, B. A., Dickson, C. A., Dickson, J. H. and Breeze, D. J. 1983. Evidence concerning the Roman Military Diet at Bearsden, Scotland, in the 2nd Century AD. *Journal Archaeological Science* 10: 139-152.

Locke, J. 2016. Insect remains, in Breeze 2016: 289-99.