some useful information from the catalogue. But the book is frankly not useful for classicists or archaeologists looking for more general information, and it is totally unsuitable for the general reader.

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The Carlisle Millennium Project, Excavations in Carlisle, 1998–2001, Volume 1: Stratigraphy. By J. Zant. *Volume 2: The Finds*. By C. Howard-Davis. Oxford Archaeology North, Lancaster, 2009. Pp. 1037, figs 818, tables 79; DVD-ROM: pp. 606, figs 131, tables 70. Price: £50.00 (both volumes). ISBN 987 0 904220 56 8 (Vol. 1); 987 0 904220 57 5 (Vol. 2).

The discovery of Roman Carlisle is remarkable. In 1978, Dorothy Charlesworth summarised existing knowledge in an article of only 22 pages. Her subsequent discovery of the remains of the fort in Annetwell Street marked the beginning of a new chapter of research and has been followed by an explosion of information. These latest well-structured reports are the most lavish and informative. The excavations were undertaken in advance of a Millennium project to improve access into Carlisle Castle. Here lay the southern part of the fort, an area mainly occupied by barrack-blocks, though the excavated areas clipped part of the central range. The standard of survival of organic material is remarkable and illuminating.

Volume 1 starts with a summary and chapters on the archaeology and history of Carlisle through to the twentieth century, earlier work, and the site before the Romans. The structural evidence is then dealt with stratigraphically, each descriptive section being followed by interpretation of the structures and their date, with wider interpretation at the end. Volume 2 synthesizes the structural evidence, a model of its kind, followed by chapters on all the finds and the palaeoecological evidence. The basic information for these reports is contained in 16 appendices on the DVD. All sections are accompanied by clear illustrations and there is appropriate cross-referencing between the various sections. Each volume has its own bibliography.

What new have we learnt? We now have a structural sequence for the fort from its inception in A.D. 72/3 through to the end of Roman Britain and can relate some of the phases to specific units. The structural sequence has been known for over 20 years, since the excavations by Ian Caruana in the area of the south gate discovered by Charlesworth, but his report, completed in about 1990, has languished in publishing limbo from which it needs to be rescued. It was Caruana's excavation which produced the date of the start of Roman Carlisle when he uncovered timbers felled in the winter of A.D. 72/3. The more recent excavations have furnished more dates.

The first fort lasted 11 years, though some timbers have dendrochronological dates of A.D. 77, probably 78 and 78/9, suggesting amendments to buildings during its life. The second phase of this fort used timbers felled in A.D. 84/5 and the third timbers cut in A.D. 92. This is high-precision dating. Precision also lies in the planning of the first fort in standard measurement units.

The second fort on the site, also of timber, appears to have been abandoned by *c.* A.D. 150. It is therefore attractive to link its abandonment to the occupation of the Antonine Wall in the early A.D. 140s. For the whole of the second half of the second century the area examined was not used as a normal fort. A new fort was then built in stone: in one location its walls survived eight courses high. The preferred date for its construction is the early third century, though the excavator acknowledges that both earlier and later dates have been suggested. Coins and pottery indicate occupation continuing into the A.D. 370s. Later activity, it is suggested, carries occupation into the late fourth or early fifth century. We can now see that Carlisle falls into the pattern being recognised elsewhere along the Stanegate, with some forts on this line in occupation at the same time as those on Hadrian's Wall and not abandoned as had previously been supposed. Another link with forts along the Wall is the suggestion that the pattern of coin loss points to the existence of a cash-based market at Carlisle in the second half of the fourth century as has been postulated for Newcastle and Wallsend.

The writing-tablets found during Caruana's excavations on Annetwell Street provided important evidence for the units based at Carlisle. They reveal the presence of the *ala Gallorum Sebosiana* in the early fort, while inscriptions long known indicate the later presence of cavalry. Legionaries are also attested from the late first into the third century. The Millennium Project excavations allow us for the first time to estimate the size of the fort at 3.2 ha (7.9 acres), appropriate for cavalry, though also of course for a composite force.

The second volume describes 'the life of the soldiers of the fort'. The buildings, arms and armour, clothing, personal objects and food are traced through each period, leading to a consideration of 'health and happiness'. Significant statements here affect our preconceptions of life in a Roman fort. 'Some features seem to have accumulated human cess and/or animal waste on a fairly casual basis, along with moss, frequently used for personal cleaning.' Soldiers did not make it to the latrine on time, or just chose to defecate elsewhere, as the exhortations on the walls of Pompeii imply happened within that city. And, 'environmental evidence suggests that large numbers of flies and other insects breeding in what appear to have been puddles of rotting waste in some parts of the site, could have been significant vectors in the spread of disease … the two commonest, the house fly … and the stable fly … can spread salmonella, typhoid, diarrhoea, and possibly even poliomyelitis'. What a challenge to our view of Roman cleanliness created by the Housesteads latrine!

This report not only offers valuable evidence about the *raison d'etre* of Roman Carlisle, the fort, but also aids our understanding of the activities beyond its walls. The existence of a school of sculptors at Carlisle has long been known, but now we have evidence for other industrial activities, not least pottery production and metalworking in the town, no doubt with the military market in mind.

The report has been produced only eight years after the excavation. Archaeological reports are not normally retailed as cheaply as this, but it is certainly worth every penny.

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