Assessment of the Mortar, Plaster and similar materials from Wickham Gardens, Lincoln (LWGE08)

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A small quantity of mortar and plaster, and some material which may be either poor mortar or fired clay, was submitted for identification and assessment. With the exception of an unusual polygonal cone-shaped object all are likely to be of Roman date and consistent with the site's location in the Upper City.

Description

Ceramic Building Material

Context 120 produced a polygonal cone-shaped object which cannot be identified with certainly. It is probably related to a series of ceramic cones, some of which are clearly of post-medieval or early modern date, since they are made from stoneware, but on first principles, this particular object could be of any date from the Roman period onwards.

The object is six-sided with a flat base and broken top. Originally, the object had a base diameter of 62 mm and probably a height of 72 mm. The sides are coated in a moulding sand n a red matrix darker in colour than the groundmass and this, together with air pockets and laminae in the fabric, indicate that the object was produced in a sanded mould. The broken tip is quite heavily abraded whilst the base, when examined in a glancing light, shows no signs of the cutting lines which would originally have been present when the excess clay was removed using a "bow" (a piece of catgut held taut in a metal holder).

The fabric contains abundant rounded quartz sand whose grain size distribution and surface appearance is consistent with a local origin in a Witham or Trent Valley terrace and the light brown core indicates a low iron content, which is consistent with the use of the Lower Estuarine Beds of the Middle Jurassic which outcrop just below the top of the Jurassic scarp and were utilised in the Roman period at South Carlton, Lincoln Technical College and in the 4th century at Swanpool. Similar low iron clays, but poorly mixed, were used in the post-medieval period at North Hykeham, where the use of moulding sand parallels that in the Wickham Gardens cone.

Similar sized cones, but with conical sides rather than polygonal ones, are rare but consistent finds. Circumstantial evidence points to a post-medieval or modern date for many of these and this may tip the balance in favour of a late date for the Wickham Gardens cone too.

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http://www.postex.demon.co.uk/index.html

A copy of this report is archived online at
http://www.avac.uklinux.net/potcat/pdfs/avac2008102.pdf

Fired Clay/Low Grade Mortar

Three fragments of a soft-fired material were recorded from context 114. They vary in colour from cream to pink are identified tentatively as being cob made from the subsoil which exists immediately above natural limestone on the Lincoln edge. The material reacts with 10% Hydrochloric Acid but the colour suggests that it has a much higher clay fraction that standard lime mortar. At x20 magnification, abundant subangular fragments of limestone are present. These range up to 40mm across. No quartz sand is present, also an argument against the material being lime mortar. The difference in colour suggests that this material may have been burnt, albeit at a low temperature.

Given these characteristics, there are three possibilities: a) that the material is a lime mortar but a very low-grade one; b) that the material is naturally occurring marl used in place of mortar to bone a stone wall or c) that the material comes from mud bricks. Certainly, a fourth option, that the material is from a wattle and daub structure, can be discounted by the lack of wattle impressions on any of the pieces. Mud bricks were used in the early Roman period as walling (Perring and Roskams S 1991.

Mortar

A fragment of mortar from context 114 was identified as being of *Opus Signinum*. It has a flat surface wit traces of a broad trowel (or similar) stroke and numerous almost parallel grooves, made with a tool with a rounded tip about 1.0mm in diameter. The fragment is about 19mm thick and the flat back suggests that this is the full thickness, and that it was attached to another material, such as wood, tile or stone.

At x20 magnification abundant angular fragments of tile up to 10mm across are visible. About half of these are oxidized red or brown and the other half a reduced, blue grey. No rounded quartz sand was seen and any quartz present is therefore less than c.0.1mm across. The groundmass is a light brown mortar. Opus Signinum, unlike normal lime mortars is a pozzolanic mortar in which the mortar is formed mostly or entirely of calcium silicate. This reaction takes place in the presence of pozzolans, of which powdered tile is the most common in the Roman period. Not only can this mortar set underwater but it is impermeable, unlike lime mortar. This mortar was therefore specifically made for use in situations where water might be expected, such as hypocausts, baths, fountains, baptismal fonts (as at Richborough, Cunliffe 1968) and aqueducts. The flat surface of the Wickham Gardens fragment suggests that it came from a structure, whilst the lack of wear on the surface indicates that it cannot have come from a floor. Similarly, the lack of calcium-rich deposits on the surface suggests that the material was not actually under water. Most probably, it comes from the wall of a heated room from a bath block such as a calidarium, sudatorium or laconium. Such a room could have been present in a high status private dwelling but is more likely to have been in a public baths.

Plaster

A small fragment of wall plaster was recovered from context 114. The plaster contains abundant rounded quartz sand in a lime mortar groundmass. The surface is smooth and covered with a dark blue or black paint. At x20 magnification numerous crystals, with their faces parallel to the plaster surface, are present. Without further analysis it is not possible to identify these, but they might be Egyptian blue pigment or perhaps sparry calcite, which was certainly added to some Roman wall plasters to enhance the sparkling appearance of the surface. Either interpretation suggests that the plaster came from a high status structure.

Assessment

The objects in context 114 are all of Roman date and include material which comes from high status structures. The object from context 120 cannot be positively identified and could be of Roman or Post-medieval or later date.

Further Work

If the wall plaster came from a known structure then the identify of the crystalline material in its surface should be determined, using thin section and chemical analyses. However, context 114 appears to have been related to the back of the Roman rampart and therefore materials on it or incorporated in it are likely to be unrelated to the specific site.

Retention

All of the finds should be retained for future study.

Bibliography

Cunliffe, B W (1968) Fifth Report on the excavations of the Roman Fort at Richborough, Kent. Rep Res Comm Soc Antiq London 23

Perring, D and Roskams S (1991) Early development of Roman London west of the Walbrook. CBA Research Reports 70 York, CBA

Appendix 1 Catalogue of Finds

Context	class	Cname	Subfabric	Form	Part	Nosh	NoV	Weight	Description	Condition	Use	REFNO
114	MORTAR	MORTAR	ABUNDANT RQ;THIN SKIM OF PLASTER	WALL PLASTER	BS	1	1	6	BLACK/VERY DARK BLUE PAINT ALL OVER SURFACE;CRYSTALS UP TO 0.2MM ACROSS VISIBLE IN SURFACE; 9MM THICK			
114	MORTAR	MORTAR	ABUNDANT ANGULAR LIMESTONE UP TO 20MM;GROUNDMASS PROBABLY MARL RATHER THAN LIME?		BS	4	4	161	NO SURFACES			SF07
114	MORTAR	MORTAR	OP SIG;ABUNDANT ANGULAR TILE FRAGS		BS	1	1	0	FLAT SURFACE; BACK SURFACE PROBABLY ORIGINAL		PARALLEL THIN ROUNDED GROOVES BROAD TROWEL? SMOOTH	SF09
120	CBM	CBM	LIGHT BROWN GROUNDMASS WITH ABUNDANT RQ	SUPPORT	BS	1	1	112	19MM THICK		TOP MISSING AND ABRADED;SLIGHT WEAR ON BASE	SF10