

# Scaffolding signatures: putlog holes and the identification of individual builders in two Ostian baths

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Putlog holes, the holes used for attaching scaffolding that are visible in so many Roman walls, can provide important information on the construction process of a building. Features such as their pattern, shape, size, and finishing were highly susceptible to the personal preferences of the *structor* or mason. From the aspects of some of these construction details, it may be possible to distinguish areas of different workmanship within one building and, more generally, to dissect construction to the level of individual builders so as to uncover their responsibilities on site. In order to test this hypothesis, four bath-buildings at Ostia were investigated, and the results of two, the Baths of Buticosus and the Baths of the Six Columns, will be presented in this paper.<sup>1</sup>

### *General remarks on scaffolding*

Walls with a facing of either brick or mixed brick and reticulate are typical for Italy of the early 2nd c. A.D. Those facings, on either side of the wall, were put up before layers of concrete<sup>2</sup> were placed in the space between. It is assumed that in most cases this happened without the support of planks (shuttering), which implies that the facing could be built only up to about one foot at a time. As a result, the process of constructing a wall happened in stages, of which bonding courses are one indication, amongst others, one of their functions being to “provide a ‘benchmark’ level to which all walls were brought before proceeding”.<sup>3</sup> Once the height that a man could easily reach was exceeded, it was necessary to erect scaffolding. The holes to fasten the scaffolding to the wall, the “putlog holes”, are empty spaces between bricks which were reserved by the masons while laying the bricks (see below).

Various methods existed for putting up scaffolding (*machinae scansoriae*). A first type, a mobile trestle scaffolding, was fully freestanding and is said to have been used up to 1.5 m (5 feet).<sup>4</sup> If the structure needed to be higher, a scaffolding of one or more levels was required which was either independent (freestanding) or attached to the wall (socketed or engaged). Use of the latter type can still be recognised today by the putlog holes. For most walls in 2nd-c. Ostia, socketed scaffolding was used, perhaps to economise on wood, since it needed less. It could be built in two ways. After the holes had been reserved in the facing, putlogs were inserted before the concrete was laid, hence the round shape in the concrete that formed around it. Subsequently, either one row of standards (the scaffolding’s vertical poles) was put up to “ensure the support of the outer end of the putlogs” (instead of two rows, used for the independent type), or cantilevered scaffolding was used, for which no standards were needed but where the wall itself supported the scaffolding frame.<sup>5</sup> The latter was the obvious way to continue construction above a large opening or at a great height, where the use of standards became risky. Sometimes, to increase stability, lateral poles were attached to scaffolding. It seems plausible that one particular workshop would use the same technique in all its projects. Since few or no traces of scaffolding survive today, the only hint for its use consists of putlog holes.

1 The Baths of Buticosus (Terme del bagnino Buticosus, I.xiv.8) and the Baths of the Six Columns (Terme delle Sei Colonne, IV.v.11) were chosen because of their similarities in size and construction date (within 10 years of each other) and because of the good preservation of their original phases.

2 “Concrete” is here used to refer to Roman concrete, more commonly known as *opus caementicium*.

3 L. C. Lancaster, “Building Trajan’s Markets,” *AJA* 102 (1998) 283-308, esp. 291.

4 At least in the 19th c.: A. G. H. Thatcher, *Scaffolding: a treatise on the design and erection of scaffolds, gantries and stagings* (London 1907) 21; J.-P. Adam (*Roman building: material and techniques* [London 1995] 85) reckons that walls of 3 m height could be constructed with it. Most of the terminology used here follows the English translation of his book.

5 Adam *ibid.* 85-86, fig. 190.