

Late Antique Urban Industry in Asia Minor: Industry Occupation of Public Buildings and the Work Organization of Limeburning

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The Late Antique cities of Asia Minor underwent major reorganizations from the fourth through the seventh centuries AD. Changing uses of classical building types, redefinitions of city space (with the construction of new city walls), and shifting social and ritual topographies driven by new church construction, have all been seen as characteristic of these urban transitions.¹ Whether these processes index decline, resilience, stagnation, or growth, however, is far from clear, and defies simple classification. Notwithstanding, industry has played a central role in many of these debates. Perhaps most outstandingly, the appearance of productive spaces in once-public buildings has come to be understood as a defining feature of Late Antique urban communities. Indeed, Late Antique workshops and industrial infrastructure appearing in bath complexes, *agorai*, and theaters have all been regularly observed in cities of the region.

Given the central role of industry in the scholarly literature on dynamism in Late Antique urbanism, this paper evaluates evidence used in the construction of these narratives to better understand the contribution of regional difference and local economic organizations to this process. It considers the unique methodological challenges associated with studying the archaeological contexts of this period. General trends are outlined from Asia Minor and compared with a broader regional study in order to assess the extent to which these trends (a) might be characterized as part of wider Late Antique patterns and (b) are more locally and regionally specific. While these region-wide discussions are useful in understanding the generalities of this process, this analysis will then be complemented with a smaller-scale evaluation of this urban phenomenon in terms of industry organization and scale of production. Therefore, in the second part of this paper, the organizational diversity of a single industry (limeburning) will be discussed in detail to demonstrate the economic organization of cities was founded on diversified organizational structures.

Late Antique Urban Industry: Methodological Challenges

The majority of the scholarly literature which traces the urban distribution of workshops and industry has employed urban case studies from the western Mediterranean during the Roman period.² Applying these approaches to Late Antique sites, however, is problematic, as cluster analysis requires large area excavations of cities and consistently systematic documentation methods. As concerns the latter, one of the long-standing challenges in systematically evaluating archaeological evidence of this period concerns

the legacy of earlier archaeological work—and particularly documentation and research design of such work, which long undervalued workshop and industry contexts. This is of course changing, and in recent years there has been a more concerted effort to document the archaeological remains of later occupational phases at urban Anatolian sites. As concerns the scale of open-area excavation, many projects have focused excavation efforts in urban areas that contained monumental Roman-period public buildings. This interest in the city-centers has had interpretive consequences, however; namely, the movement of industry activities into these once-public Roman period buildings has resulted in their accidental discovery and documentation, rather than as a consequence of any systematic research design and analysis. While providing a large and growing dataset, this means that other industry contexts are lesser represented.

Together, these two factors have resulted in a dataset with particular biases, not least a high rate of discovery for the Late Antique production contexts yet with sometimes minimal documentation. While these circumstances undeniably are changing, there remain limitations that necessitate an alternative methodological approach which attempts to integrate datasets of variable location and of variable quality. In response, a regionally-focused study – that draws together published evidence of worksites in order to track where workshops were situated, when they were occupied, and what, if any, building renovations were necessary – was performed. The dataset – compiled from a range of annual journals (*Kazı Sonuçları Toplantısı* and *ANMED Anadolu Akdenizi Arkeoloji Haberleri*) and site publications – contains information on over 100 published production contexts representing over a dozen industries, dating from the late third through the seventh century AD.³ These derive from 31 cities, with western and southern Anatolia better represented (due to regional research biases).

Urban Workshops: Understanding Patterns in Changing Economic Cityscapes

What is immediately clear from synthesizing evidence of workshops sites is that there are general trends in the dataset.⁴ First, it is clear that industry's appearance in monumental buildings is exceedingly common in the region, and all sorts of industries appear to be involved in these re-occupations (ceramics, metals, glass, limeburning). Second, *agorai* and bath complexes are the most commonly occupied, with notable examples of *agorai* at Ephesus⁵ and Hierapolis,⁶ and of bath complexes at Sardis,⁷ Anemourion,⁸ and Sagalassos. Third, these two building types also tend to be occupied by industry at different times. *Agorai* begin to be renovated for industry beginning in the late fourth / early fifth century AD,⁹ and public bath complexes begin to be converted for industrial use in the mid to late sixth century AD. These trends appear across the region, regardless of city status or geographical location.

Studies of similar Late Antique urban worksites have been performed elsewhere, notably in North Africa¹⁰ and Britain.¹¹ Rogers' study of Late Roman Britain provides

the closest parallel analysis to that performed for Asia Minor.¹² Therefore, if we compare the Asia Minor and British results, telling similarities and differences can be observed—particularly as concerns the timing of this process, representation by different industries, and the nature of renovations that take place within the context of local and regional urban and building traditions. That is, the public building most commonly occupied by industry is the ‘Forum-Basilica Complex’.¹³ Metallurgy is overwhelmingly observed in cases where industry appears in once-public buildings,¹⁴ and these occupations by industry in most building types typically begin in the fourth century AD.¹⁵

While it is perhaps not surprising that divergent patterns are observable in different regions, it does highlight how similar narratives of urban decline have been read from the presence of these worksites in reused buildings. Yet, in interrogating these trends more closely, it is clear that these are undeniably local stories, drawing upon local public building forms that variably become available for use by locally significant industries.

Intra-Industry Organizational Diversity: The Case of Limeburning

If trends in industrial repurposing of public buildings offer some comments on the important place of worksites in urban reorganization across the region, looking closely at a single industry highlights variable contexts and organization in different localities. This organizational diversity is perhaps best demonstrated in the case of limeburning. Baldini Lippolis has described the close association between Imperial authorities and this industry, with particular mention of the special privileges afforded to lime producers in the dismemberment of public buildings,¹⁶ and Brogiolo has suggested that large-scale lime production was regulated by some sort of central authority.¹⁷ Occasional archaeological examples known from the cities of Asia Minor might very well be used to support this idea of a centralized organization of lime production, whether by imperial or local authority. In particular, this might be argued for the highly organized multi-crafting industries observed within the baths complex of Sagalassos, where limeburning was organized alongside copper alloy and lead recycling, or for the organized piles of stones discovered in the agora of Hierapolis, presumably in preparation for their transformation into lime.¹⁸

In general, however, the archaeological evidence from Asia Minor suggests a much more varied picture of limeburning activities. In fact, limeburning appeared in a particularly diverse range of contexts and was organized according to a great variety of work structures, when compared to other industries. As one of the best represented industrial activities documented for the period, lime burning is observed on streets surfaces, in private residences, and in public buildings; the kilns are not always clearly associated with major public building demolition, nor with new building projects (although such cases are also present in the archaeological record); and there are no

clear chronological trends in kilns' frequency or location. Lime slaking activities have also been inferred in private houses; for instance, a house of a large insula ('A Evi') at Laodikeia was the scene of limeburning in the early seventh century AD.¹⁹

Considering the degree of architectural investment in this activity, limeburning generally appears to have received noticeably less investment than other industries documented in the region – being either installed into already existing structures (with no major architectural additions) or standing independently of any built workspace whatsoever. If the lack of associated buildings reflects an overall lack of investment or a short-lived operation, examples at cities, such as Sagalassos and Sardis, are even more telling. In the case of Sagalassos, the repurposing of pottery workshops for limeburning has been documented, whereby a short-lived limeburning operation appears to have taken over the space without even clearing the discarded remains left by the potters, and the elevated floors of the pottery kilns were simply removed, leaving a straight shaft furnace for limeburning.²⁰ In a case at Sardis, a barrel-vaulted chamber, possibly an earlier cistern, was filled with a sixth-century AD limekiln.²¹

If we assume that much of this lime was used by building industries, this may represent a supply chain supported by highly variable types of labor group. Certainly, sometimes limeburning appears to have been centrally organized, and in some cases it is possible to attribute it to a particular public building project (e.g., North-East Gate of Sagalassos²²); but lime production also appeared outside of those contexts, and this contextual diversity may have future implications for our understanding of the building industries of this time. The building styles of this period, relying heavily on lime mortar to fix building tile and stone, may have helped drive this widespread production, even in non-specialized contexts. The diversity of context, scale of operations, and work organization for the production sites of lime highlight local responses by industry to meet demand for lime (presumably for building works). This suggests that while certain generalities can be posited concerning the appearance of industry in Late Antique cities, there are likewise local specificities in the expression of these urban phenomena.

Discussion

This paper has presented archaeological evidence of industrial worksites that is often used in discussions on Late Antique urban reorganization. By balancing a discussion on regional trends with observations from a single industry, two complementary perspectives have been presented which highlight the role of local communities in determining the organization of industry, as well as regional trends in the timing and occupation of industry in repurposed public buildings. While similar patterns in public building reuse have been observed in other regions, the specificities of these

urban processes speak to uniquely regional circumstances. These observations offer some degree of nuance to otherwise generalized narratives of Late Antique cities.

Notes

- ¹ Niewöhner 2017; Jacobs 2012; Saradi 2006; 1994.
² Wilson 2002; Goodman 2016.
³ This dataset was compiled with the help of Prof. Inge Uytterhoeven.
⁴ These trends were observed with the help of Prof. Inge Uytterhoeven, and are published in a comparable study of private contexts: Uytterhoeven 2019.
⁵ Czurda-Ruth 2005.
⁶ Arthur 2005.
⁷ Yegül 1986.
⁸ Russell 2002.
⁹ This pattern was also observed by Lavan 2006.
¹⁰ Leone 2007.
¹¹ Rogers 2011.
¹² Rogers 2011.
¹³ Rogers 2011, 130–134.
¹⁴ Rogers 2011, 130–138.
¹⁵ Rogers 2011, 130–148.
¹⁶ Baldini Lippolis 2007, 231–233.
¹⁷ Brogiolo 2006, 272.
¹⁸ Arthur 2006, 117 f.
¹⁹ Şimşek 2009, 415–417; Uytterhoeven 2019.
²⁰ Murphy – Poblome 2016, 189.
²¹ Greenewalt et al. 1988, 35 f.
²² Uleners – Altay 2009.

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