

ADALYA

25 2022



AKMED

KOÇ UNIVERSITY

Suna & İnan Kırac

Research Center for

Mediterranean Civilizations

25 2022

ISSN 1301-2746

ADALYA

The Annual of the Koç University Suna & İnan Kıraç Research Center
for Mediterranean Civilizations

(OFFPRINT)



ADALYA

The Annual of the Koç University Suna & İnan Kırac Research Center
for Mediterranean Civilizations (AKMED)

Adalya, a peer reviewed publication, is indexed in the A&HCI (Arts & Humanities Citation Index) – CC / A&H (Current Contents / Arts & Humanities), Social Sciences and Humanities Database of TÜBİTAK / ULAKBİM Tr index, ERIH PLUS (European Reference Index for the Humanities and Social Sciences), Scopus, SOBIAD, and Index Copernicus.

<i>Mode of publication</i>	Worldwide periodical
<i>Publisher certificate number</i>	18318
ISSN	1301-2746
<i>Publisher management</i>	Koç University Rumelifeneri Yolu, 34450 Sarıyer / İstanbul
<i>Publisher</i>	Umran Savaş İnan, President, on behalf of Koç University
<i>Editor-in-chief</i>	Oğuz Tekin
<i>Editors</i>	Tarkan Kahya and Arif Yacı
<i>English copyediting</i>	Mark Wilson
<i>Editorial advisory board</i>	(Members serve for a period of five years) Mustafa Adak, Akdeniz University (2018-2022) Engin Akyürek, Koç University (2018-2022) Emanuela Borgia, Università di Roma Sapienza (2021-2025) Nicholas D. Cahill, University of Wisconsin-Madison (2018-2022) Edhem Eldem, Boğaziçi University / Collège de France (2018-2022) C. Brian Rose, University of Pennsylvania (2018-2022) Christopher H. Roosevelt, Koç University (2021-2025) Charlotte Roueché, Emerita, King's College London (2019-2023)
©	Koç University AKMED, 2022
<i>Production</i>	Zero Production Ltd. Abdullah Sok. No. 17 Taksim 34433 İstanbul Tel: +90 (212) 244 75 21 • Fax: +90 (212) 244 32 09 info@zerobooksonline.com; www.zerobooksonline.com
<i>Printing</i>	Fotokitap Fotoğraf Ürünleri Paz. ve Tic. Ltd. Şti. Oruç Reis Mah. Tekstilkent B-5 Blok No. 10-AH111 Esenler - İstanbul / Türkiye Certificate number: 47448
<i>Mailing address</i>	Barbaros Mah. Kocatepe Sok. No. 22 Kaleiçi 07100 Antalya / Türkiye Tel: +90 (242) 243 42 74 • Fax: +90 (242) 243 80 13 https://akmed.ku.edu.tr
<i>E-mail address</i>	adalya@ku.edu.tr

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Late Antique Industry in the Urban Public and Private Spaces of Asia Minor

ELIZABETH A. MURPHY – INGE UYTTERHOEVEN*

Abstract

The ubiquity of industrial activities and their movement into what were once public buildings have been seen as defining features of late antique urban change. This paper presents a current synthesis on the material evidence of late antique (late third through seventh centuries AD) industry in Asia Minor, in both public and private contexts. Drawing together a dataset of over 100 production contexts in 39 cities, this article identifies large-scale trends in the archaeological record of urban industry in order to address some fundamental questions regarding: the degree to which this was a region-wide phenomenon, the phasing of this process in different building forms, and the evidence of different industries in this process. In so doing, it then considers the results of this study in relation to the wider debate concerning the slow and phased trends of continuity and change in late antique urbanism.

Keywords: ancient industry, Asia Minor, late antiquity, urban development, ancient housing

Öz

Geç Antik Dönem'deki kentsel değişimin belirleyici özellikleri arasında endüstriyel faaliyetlerin yaygınlığı ve bu faaliyetlerin bir zamanlar kamu binaları olan yapılarda yürütüldüğü görülmektedir. Bu makale, Küçük Asya'daki Geç Antik Dönem (MS 3. yüzyıl sonu ve 7. yüzyıl arasında) endüstrisinin hem kamusal hem de özel bağlamdaki maddi kanıtları üzerine güncel bir sentez sunmayı amaçlamaktadır. Makalede 39'dan fazla şehirde bulunan 100'ün üzerindeki üretim bağlamından oluşan veri kümesi tasvir edilmektedir. Bir araya getirilen veri kümesi ile birlikte bu eğilimlerin bölge çapında bir fenomen olma derecesi, farklı yapı tiplerindeki bu gelişimin aşamaları ve farklı endüstrilerin bu süreçteki kanıtları ile ilişkili bazı temel sorunları ele alabilmek için kentsel endüstrinin arkeoloji kayıtlarındaki büyük ölçekli eğilimleri belirlenecektir. Bahsedilen verilerin ışığında, bu çalışmanın sonuçları Geç Antik Dönem şehirciliğinde yavaş ve aşamalı süreklilik eğilimleri ile ilgili daha geniş tartışmalarla değerlendirilecektir.

Anahtar Kelimeler: antik endüstri, Küçük Asya, Geç Antik Dönem, kentsel gelişim, antik konutlar

Introduction

The appearance of workshops encroaching upon streets and agorae, ceramic kilns established in public bathhouses, and press installations in what were once luxurious urban mansions, in the cities of Asia Minor between the late third and seventh centuries AD, all have been seen

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as typical features of the changing cityscapes of late antiquity and have been cited on various sides of the late antique urban resilience versus decline debate.¹ Often having received limited attention compared to other types of interventions related more directly to imperial, civic, military, or Church institutions,² the ever-growing corpus of workplaces associated with the daily lives of trades and craftspeople in late antiquity is nonetheless beginning to receive closer inspection in several regions of the Mediterranean world, and is drawing these small-scale archaeological contexts into more nuanced debates on urban development of the period.³ Especially in the last three decades, scholars have demonstrated a growing interest in the non-monumental aspects of late antique urban life, paying attention to the sub-elite sections of ancient society and thus offering insights into the daily activities of late antique city dwellers of all socio-economic standing.⁴

Whether the processes of spreading industry and craft activity index urban decline, stagnation, or growth, however, is far from clear and almost certainly not so simply classified.⁵ Among some scholars, the presence of industry in the heart of the city has been seen as exemplifying the breakdown of urban life, as weakened civic institutions lacked the political will or means to enforce zoning rules and public property rights.⁶ According to others, industry and its continued presence in cities has been viewed as being supported by traditional institutions - either as a strategic means by which civic authorities attempted to exact rents or as an expression of their encouragement of urban economic investment through professional associations.⁷ On all sides of these debates concerning urban change, the appearance of industry within the former civic hearts of cities has associated spatial reorganization of economic activity with the changing character of late antique urban life.

The difficulties of easily characterizing late antique urban development is likewise paralleled in the literature on economic performance and development of the period. Traditionally, the time had been characterized as one of economic difficulty - affected by various crises and the breakdown of large-scale, long-distance trade networks. However, it is increasingly clear that the economic prospects of different regions underwent highly heterogeneous processes of economic development, and many regions, particularly in the eastern Mediterranean, experienced periods of relative prosperity from the fourth through sixth centuries AD.⁸ In the urban contexts of Asia Minor, like other regions of the eastern Mediterranean, there also is recognition for an increase in the number and visibility of small shops and workshops, and this phenomenon has been used to evidence a vibrant local economy.⁹ Indeed, scholars have emphasized that the presence of so much industry seemingly maintained by full-time, specialized craftspeople should be interpreted as evidence for the persistence of thriving urban economies and even a growing commercial and industrial character of these late antique cities.¹⁰

¹ For this debate and further references, see Grig 2013; Lavan 2020a, 1-4.

² Ward-Perkins 1999.

³ Dark 2004.

⁴ Bes 2007 (with further references). See also Lavan 2020a, 4-5.

⁵ This section is not intended to be a literature review on late antique urbanism in Asia Minor, but rather a brief introduction to the ways that industry has been interpreted within the framework of urban change.

⁶ Haldon 1999, 9; Liebeschuetz 2001, 297-98.

⁷ Ward-Perkins 1999, 242-43; Saradi 2006, 166-68.

⁸ Giardina 2007, 745-48.

⁹ Lavan 2012.

¹⁰ Alston 2002; Carrié 2002, 322-24; Brogiolo 2006, 272; Zanini 2006, 403-4.

Given the conspicuousness of industry in these economic processes, understanding their place and role in transforming urban building and economic lifeways is vital. Yet, while industry's widespread presence has been well-noted, most studies have tended to handle the spaces where it occurred in general terms, evaluating industry encroachment as a singular phenomenon (often lumped together with domestic 'squatter' contexts); focusing narrowly on its appearance in once public buildings, while overlooking private contexts (i.e., occupation in earlier shops, workshops, and houses);¹¹ and failing to appreciate the variable roles of different industries. Moreover, studies and archaeological reports paying attention to the role of industry in the late antique cityscape have focused on individual archaeological sites, without considering broader (regional or supra-regional) processes that may express large scale trends and developments.

This article presents the first comprehensive and systematic archaeological study (based on the current published record) of late antique industry in Asia Minor. Integrating the evidence of public and private contexts, it identifies general patterns in where, when, and by whom they were transformed and what this might have meant for urban lifeways. It also contributes to a growing body of regional studies of this sort that collectively evaluate change in urban building use at the regional scale for different parts of the late antique world. Such attempts at synthesis serve two purposes. First, they demonstrate patterns and help to identify outliers. While there have been several high quality studies that address changes in urban space in late antiquity (e.g., Kibyra,¹² Tripolis ad Maeandrum,¹³ Laodikeia,¹⁴ Sardis,¹⁵ Aphrodisias,¹⁶ Anemourion,¹⁷ Patara¹⁸), these might be understood as microhistories. By contrast, in the region of Asia Minor, there have been fewer attempts made that take a particular feature of those changes (i.e., the movement of industry into public and private urban spaces) and consider the wider patterns of that process. The latter is important because it helps to track broader trends, surpassing the individual site level, as well as identify local outliers.

Second, attempts at synthesis for Asia Minor provide a means of contextualizing the regional trends within the larger late antique world - highlighting regional specific features of this phenomenon as well as more general patterns. Indeed, similar observations of widespread industry movement into public and private buildings during late antiquity have been noted in several western provinces (i.e., Britain,¹⁹ North Africa,²⁰ Italy,²¹ Spain²²). This growing collection of regional studies increasingly highlights how different regions of the Mediterranean experienced variable trends in urban development during late antiquity²³ and is helping to nuance our understanding of these processes.²⁴

¹¹ This situation for late antique Asia Minor and the Near East notably contrasts recent work on household industries in classical Greece (Larsson Lovén 1998, 2013) and Roman Italy (Flohr 2012).

¹² Özüdoğru 2018.

¹³ Duman and Koçyiğit 2019.

¹⁴ Şimşek 2013; Şimşek and Bilgin 2018.

¹⁵ Rautman 2011.

¹⁶ Ratté 2001.

¹⁷ Russell 2002.

¹⁸ İşkan 2019.

¹⁹ Rogers 2011.

²⁰ Leone 1999; Stirling 2001; Leone 2007.

²¹ Christie 2006. For late antique baths in Italy, Northern Africa, and Palestine, see Maréchal 2020.

²² Kulikowski 2004.

²³ Potter 2011, 247-48.

²⁴ For examples, see Saradi 2006; Zanini 2006.

Such regional studies demonstrate that these urban changes were not exclusive to any region, yet each underwent a regionally specific process. Fitting Asia Minor into these wider trends is extremely important, as it is a region with a long history of urbanism as well as an extended research tradition. Having been among the most urbanized regions of the Roman Empire²⁵ and having hosted some of the preeminent cities of the classical and late antique worlds (e.g., Ephesos, Pergamon, Miletos, Perge, Side), Asia Minor²⁶ provides an important, large, and chronologically robust archaeological dataset with which to investigate industry's urban place during the Late Antique period.²⁷ Furthermore, the archaeological record of late antique urban industry has been attracting greater attention in recent years with a tangible upswing in the number of archaeological projects across Turkey reporting on late antique production contexts, particularly at smaller regional centers,²⁸ and affording a relatively robust dataset. Similarly, the increasing focus on ancient housing studies in the region has revealed new information on late antique domestic architecture and private living practices, revealing that industry and crafts were frequently integrated in house contexts. Alongside the better known upper class residences that have recently been investigated (e.g., at Sagalassos,²⁹ Hierapolis,³⁰ Tripolis,³¹ Aphrodisias³²), new data on more modest house forms, often integrating productive and commercial activities, has become available too.³³ As a result, a regional study on industry in late antique public and urban contexts in Asia Minor is timely.

Questions, Dataset, and Challenges

The agora, basilica, theater, baths, bouleterion, and stadium characterized the urban armature of Roman-period cities in Asia Minor.³⁴ Defined according to their classical forms and functions, it is widely held that these building types - once intimately associated with classical civic life - began in late antiquity to be extensively appropriated for, amongst other activities, industry and manufacturing.³⁵ Alongside these public structures, late antique industrial activities also started to become visible within large elite urban mansions that had been built in the fourth and fifth centuries AD, sometimes with multiple types of economic activity co-existing within the same house.³⁶ This raises a series of questions that have yet to be fully or systematically evaluated. Namely, how widespread was this urban phenomenon? Is the evidence from Sardis or Anemourion, which is so widely cited in secondary

²⁵ The Barrington Atlas (Talbert 2000) cites 176 major cities for Asia Minor, while Willet (2015) has documented 446 autonomously governed settlements and communities.

²⁶ For the development of the cities of Asia Minor in late antiquity, see Jacobs 2012, 2013; Niewöhner 2017.

²⁷ This has, also and in more general terms, been suggested earlier by Zanini (2006, 399).

²⁸ This trend in reporting on production sites is evidenced, for instance, in *Anmed* - an international, bilingual journal covering the archaeological reports of Turkish Mediterranean regions, published annually by AKMED since 2003. An increasing number of excavated sites is similarly seen in the yearly reports of the symposium on excavation results, organized by the Turkish Ministry of Culture and Tourism since 1979 (*Kazı Sonuçları Toplantısı*).

²⁹ Uytterhoeven et al. 2014.

³⁰ Zaccaria Ruggiù 2019b.

³¹ Duman and Koçyiğit 2019.

³² E.g., Lockey 2016; Berenfeld 2019.

³³ See also Flohr 2016, 149. For the growing interest in residential / commercial / productive structures in the last years, see Zanini 2006, 373-74.

³⁴ Parrish 2001.

³⁵ Haldon 2006, 617-18.

³⁶ Uytterhoeven 2018, 2019.

literature,³⁷ unusual or indicative of wider patterns in Asia Minor or even in the broader late antique world? Was this an *ad hoc* and individual process of industry moving into buildings and appropriating them, or can some degree of patterning be seen that reflects more strategic decision making and cultural practice?

In answer to the scale of this phenomenon, it is clear that the occupation of public and private buildings was widespread across many cities and that it occurred in great numbers. In fact, our dataset of late antique industry³⁸ now contains information on 99 craft production contexts, 19 shop rows, 10 food production contexts (mills, presses, bakeries, fish processing), and four service industry contexts (inn, *taberna*, stables). These were found in 86 renovated buildings dated to the Late Antique or Early Byzantine periods (from the late third through the seventh centuries AD). These contexts derive from 39 cities, with western and southern Anatolia better represented (due to regional research biases). Classifications of craftspaces were defined according to the type of material worked (stone, glass, ceramics, metal, textile, woodworking, pigment production) (fig. 1). Additional subdivisions were made when very different production methods and technologies were utilized for working the same material category. This occurred in the case of stoneworking (stone cutting differentiated from lime burning) and in the case of metalworking (sub-classified according to casting or smithing). This resulted in contexts representing seven major (material) craft industries (fig. 2).

Dating of archaeological contexts is known to be problematic for this period,³⁹ particularly for the late sixth to eighth centuries AD.⁴⁰ The dating of most contexts employed in this analysis is based on stratigraphic association (*terminus post quem*) with coins or known pottery types, while sometimes the phasing or types of building techniques can also give some chronological indications.⁴¹ In some cases, the products of the workshops are datable and are well established in chrono-typological terms. These offer a close association between the activities of the worksite and the dated material (e.g., Elaiussa-Sebaste LR1 amphora kilns, Antiochia ad Cragum amphora kilns, Sagalassos ceramic workshops). Occasionally, the phasing of a building (including its late phase prior to the appearance of industry) is supported by the *terminus post quem* of an epigraphically attested date (e.g., Sagalassos' Roman baths,⁴² Sardis' synagogue⁴³). Given the often local character of pottery types and the nuances of stratigraphic associations, we have relied on the dating provided by the excavators, who are most familiar with their contexts and regional sequences, on the understanding that future additional finds may lead to refinements of the current chronological framework. Moreover, in order to ensure that we are discussing contexts with reliable chronological associations, only in-situ contexts associated with reused structural remains have been included in the subset for analysis.

A caveat remains in that, despite the growing corpus for Asia Minor, studies on urban industry continue to be confronted with challenges related to both the limitations of the

³⁷ Saradi 2006; Lavan 2012; Commito 2019, 125-28.

³⁸ Published sources include site publication volumes (Aphrodisias, Laodikeia, Sardis, Sagalassos, Hierapolis, Elaiussa-Sebaste, Tripolis, Patara), as well as regional journals (*Anmed*, *Adalya*, *Anatolica*, *Anatolia Antiqua*, *Cedrus*, *Colloquium Anatolicum*, *Olba*) and the yearly reports of the *Kazı Sonuçları Toplantısı*, mentioned above.

³⁹ For a discussion, see Wickham 2005; Lavan 2009, 804-5.

⁴⁰ Vroom 2005; Armstrong 2009; Vionis et al. 2009; Elton and Jacobs 2019, 6; Lavan 2020b, 1-8.

⁴¹ For the dating of private houses based on these criteria, see e.g., Duman and Koçyiğit 2019, 79-100; Zaccaria Ruggiù 2019c, 12-16.

⁴² Waelkens et al. 2010, 252.

⁴³ Rautman 2011, 11-13.

archaeological record of industry, as well as prevailing archaeological research designs. As regards the former, certain craft industries are more conspicuous archaeologically. Trades such as leatherworking or carpentry, known from contemporary textual sources, are rarely identified. By contrast, industries dependent on high-temperature heat treatment have left furnaces, scorched earth, wasters, charcoal, and ash deposits, and activities reliant on major infrastructure involved basins, water systems, and tanks. All are highly visible in the archaeological record with dozens of these worksites identified (see figs. 1 and 2 for relative counts).⁴⁴ Additionally, major renovations of earlier workshops and urban mansions during the Late Roman and Early Byzantine periods often obliterated earlier phases of occupation⁴⁵ - consequently, late antique and early Byzantine workshop sites are better represented archaeologically than comparable sites dated to the earlier Roman period in the region. This makes directly comparing earlier placement and structural organization of Roman industry sites to those of the Late Antique period problematic. Despite these limitations, the corpus compiled for Asia Minor offers new and significant observations.

Building Types and Industry Appropriation

The reuse of earlier buildings, particularly by industry, has been viewed as a ‘pragmatic’ response to increasing numbers of abandoned buildings falling into ruin.⁴⁶ One of the motivations for repurposing such buildings (both public and private) was probably, in part, an interest in acquiring centrally-placed locations with a suitable layout, while avoiding the costs of demolishing and leveling standing structures.⁴⁷ Indeed, industrial appropriation of public and private buildings was widespread, and few building types (agora, basilica, theater, temple, baths, stadium, and mansion) appear to have been wholly spared of industry occupation at some time between the late third and seventh centuries AD. Also, there are no clear correlations between individual industries and specific building types; that is, there was no public or private building type that, across the region, was more consistently appropriated by a particular type of industry.

Patterns observed in our dataset, however, suggest that there may have been additional factors at play influencing which buildings were occupied and when. Using the dataset of industrial contexts, it was possible to establish the earlier function of 76 buildings that were renovated for late antique industry. This subset of the total database represents all of the instances for which the earlier phase of the building’s use has been identified.⁴⁸ The subset also only accounts for single buildings; thus, while there are several instances in which multiple units or contexts were renovated in the same structure, each building that was given over to industry was counted as a single example of changing function.

Based on the available documented cases, it is clear that some building types more frequently have been reported with industry renovation (fig. 3). Bath complexes (N=18) were over three-times more likely, and agorae (N=11) were nearly two-times more likely, to have

⁴⁴ Yet even when such materials are preserved, industry attribution is not always straightforward. This is illustrated, for example, by problems identifying oil versus wine installations; see Brun 1993; Foxhall 1993.

⁴⁵ This is especially the case with shops, which tended to be reused in the later periods, as well as with houses, which frequently remained in use for many generations.

⁴⁶ Haldon 2006, 617. For examples to the contrary, see Ward-Perkins 1999, 240-44.

⁴⁷ Barker 2010.

⁴⁸ The earlier building function is unknown or unrecorded for 10 cases.

hosted late Roman and early Byzantine industry than other public building types, such as temples, theaters, *odeia*, and stadia (fig. 3).⁴⁹ This suggests that agorae and bath complexes may have been preferentially viewed as suitable (or even desirable) for the installation of industry. Indeed, even when excluding demolition and recycling activities, agorae and especially baths still remain by far the most commonly utilized public spaces for industrial appropriation. When considering private building contexts, urban mansions and shops were also commonly renovated for industry use. Most notably all of the large elite residences (investigated thus far) underwent substantial structural and infrastructural interventions in the sixth and seventh centuries AD,⁵⁰ and most of them acquired some kind of industrial activity (N=11).

Shops and Small-Scale Production: Some smaller-scale private buildings continued in their earlier economic use and appear to have offered a model that was little adapted for the changing economic needs of the fourth to seventh centuries AD. This is particularly evident with regard to rows of shop spaces (N=15), but also independent workshops (N=3).⁵¹ Regardless of their location (e.g., in commercial agorae, along streets), shop rows tended to be continually used for commerce and industry from the Roman through the Early Byzantine periods, with changes sometimes made to the dimensions, arrangements, and construction types of the partitioning walls and floors of the shop units, as well as to their infrastructure. Distinguishing the function of such spaces (craft production, commercial sale, food and drink establishments) is notoriously difficult.⁵² In several cases, however, these spaces appear to have been used for production activities, including glassworking, dye / pigment production, metalworking and smithing, as well as ceramic manufacturing.

Roman-era shops therefore continued to be used as late antique shops, as attested at, for instance, Laodikeia,⁵³ Knidos,⁵⁴ Sagalassos,⁵⁵ or Soloi-Pompeïopolis.⁵⁶ Yet during these later periods, other types of buildings were also adapted in ways that converted them into shop-like spaces. For example, the design of a small, one- to two-room space, often with a front portico, was exploited for the adaptation of other public buildings. This scenario has been observed in the outer gallery of the Theater at Side⁵⁷, the portico of the ‘Small Temple’ at Kyme,⁵⁸ and in the ‘Sacred Stoa’ at Priene.⁵⁹ In this renovation process, design features and areas of earlier buildings, particularly *stoai* and porticos, were segmented from the rest of the larger building complex by inserting partitioning walls. It is difficult to assess the extent to which the number of commercial spaces may have increased in the Late Antique period, as it is not possible to discern whether these represent more urban producers and sellers in the city or whether these were simply shopkeepers and small-scale producers moving across the city-scapes.

⁴⁹ This is based on a subset of the dataset (N=44) with clear identification of the building type and for which centurial dating is available.

⁵⁰ Uytterhoeven 2019.

⁵¹ The distinction between shops (as commercial units) and workshops (as production units) is to some extent necessarily arbitrary, as these spaces were often cleared before abandonment leaving little trace as to their specialized economic function.

⁵² Baird 2007; Holleran 2017; Ellis 2018.

⁵³ Şimşek 2016.

⁵⁴ Doksanaltı et al. 2017; Doksanaltı 2020.

⁵⁵ Poblome et al. 2015.

⁵⁶ Yağcı 2015; Yağcı and Yiğitpaşa 2016.

⁵⁷ Alanyalı 2010.

⁵⁸ La Marca 2017, 243.

⁵⁹ Fildhuth 2017, 51-54.

Furthermore, the majority of shops were not only maintained, but some of their porticos were embellished with mosaic pavements,⁶⁰ e.g., the ‘Alytarchos Stoa’ at Ephesos;⁶¹ the ‘Byzantine Shops’ of Sardis,⁶² and the ‘Library East’ workshops of Sagalassos.⁶³ The use of statuary in such contexts has similarly been documented, e.g., along the ‘North-South Colonnaded Street’ at Sagalassos.⁶⁴ Thus, at a time when earlier public buildings were being repurposed for activities such as industry, these public passageways were often being embellished - perhaps speaking to the sorts of new urban aesthetics described by Jacobs⁶⁵ being applied to street contexts,⁶⁶ or to the growing role of production and commercial activities among the daily life practices of the city’s inhabitants.⁶⁷ Whether any or all of these factors may have influenced the persistence of this building form, is challenging to ascertain, yet it is undeniable that at a time of major urban reworking, these buildings were not only being curated, but also elaborated.

Building Types and Chronology of Industry Occupation: Apart from shops, most other urban building forms were also undergoing renovation in late antiquity. It seems that the spatial properties of certain buildings made them more or less suitable for industry. However, this process appears to have happened across several centuries, and in order to track these changes, a subset of the dataset (N=44 buildings) was selected for which centurial dates were provided by the excavators (figs. 4 and 5). A series of box-plots then was made for each building reflecting its dates of occupation by industry (fig. 5). Of course, across the region there are inconsistent styles of date reporting and differently reliable dating evidence. Consequently, projects variably reported to the century, half-century, or quarter-century. To accommodate these differences, a method was developed to track date ranges with multiple degrees of confidence. In cases of quarter-century or half-century reporting, these were indicated as simple ‘boxes’. However, in cases with coarser dating, the greatest possible duration of occupation as reported by the excavators was presented as ‘whiskers’ on the box plots, while averaged start-dates and end-dates were used to define the ‘box’ indicating a more restricted date-range. For example, for an occupation dated by the excavators as *third through fifth centuries AD*, the ‘whiskers’ extended between AD200 and AD499, while a ‘box’ bracketed AD250 and AD450. In instances for which a single start or end date was not provided, a dotted line was provided from the known date. The chart therefore includes as many examples as possible, while accounting for variability in date reporting. This phasing is presented in figs. 4 and 5, and the results demonstrate a complex, multi-century process of industry occupying reused buildings.

In general, the repurposing of urban public buildings for industry at most sites began by the late third century AD and became common by the fourth century AD, with industrial occupation often continuing to move into new urban spaces into the early seventh century AD. Yet this repurposing seems to have occurred in different building types at different times. Industry occupation of theaters, for instance, is documented beginning in the late third / early fourth century AD; that of agorae in the late fourth / early fifth century AD, around the time that

⁶⁰ Lavan 2020a, 48-51.

⁶¹ Quatember et al. 2009.

⁶² Crawford 1990, 5-6.

⁶³ Poblome et al. 2015, 214-15.

⁶⁴ Jacobs and Stirling 2017.

⁶⁵ Jacobs 2013.

⁶⁶ Indeed, the colonnaded street, as an architecturally elaborated street, was already a well-established architectural form in the region (Burns 2017).

⁶⁷ Carrié 2002; Zanini 2006.

shops were also commonly renovated (in the early fifth century AD); and that of bath complexes in the mid / late sixth century AD. In late antique urban mansions, this can generally also be dated to the mid to late sixth century AD. Of all building types, agorae, bath complexes, and private residences offer the best insights in the introduction and development of late antique industries. In contrast, other building types are either under-represented in the dataset or present no clear chronological trend.⁶⁸

In the case of the agorae, changes have been interpreted as reflecting an increasingly commercial character of these public spaces in late antiquity, drawing in traders in order to meet a concentrated consumer market.⁶⁹ Dual agorae had been a feature of many cities in Asia Minor since the Hellenistic period, when urban building programs separated administrative and ceremonial functions from commercial agorae.⁷⁰ Lavan suggests the abandonment of civic agorae in the East as an urban trend already by the fourth and fifth centuries AD,⁷¹ with, on the other hand, many agorae continuing to be renovated and occupied into the sixth century AD.⁷² The former is consistent with our findings,⁷³ but our results suggest that such industry interventions and occupation continued into the seventh century AD. Recent evidence also suggests that, in cities believed to have had only one agora (e.g., Xanthos,⁷⁴ Kyme,⁷⁵ Andriake⁷⁶), these agorae were even occupied by industrial furnaces in the late fourth / fifth century AD.

Concerning the civic agorae, public buildings required renovations for their new commercial and industrial purposes. Such occurs at Priene, where the northern ‘Sacred Stoa’ of the civic agora was converted into shop units with front porticoes sometime after the fifth century AD.⁷⁷ In the case of commercial agorae with Roman-period shops, these also began to accommodate industries reliant on larger infrastructure (e.g., Ephesos’ late fourth / early fifth centuries AD ‘Tetragonas Agora’ glass furnace;⁷⁸ Xanthos’ *stoai* smithies;⁷⁹ Iasos’ late Roman stoa furnaces;⁸⁰ Rhodiapolis’ central court limekiln⁸¹). And in some cases, agorae underwent a more dramatic renovation whereby both indoor and outdoor areas were reorganized. At the ‘North Agora’ of Hierapolis, shop units running along the western and northern perimeters were renovated and transformed into ceramic workshops and adjacent outdoor areas were segmented for the installation of ceramic kilns in the fifth century AD,⁸² while the eastern areas of the agora

⁶⁸ Temple reoccupation by industry offers no clear pattern, and the datasets for *odeia* and basilicae are too small at present to offer an interpretation.

⁶⁹ Mango 2000, 191-92; Lavan 2006.

⁷⁰ Mert 2016, 386-92.

⁷¹ Lavan 2006, 236; 2020a, 263-338.

⁷² Lavan 2006, 206, 224-30; 2020b, 339-73.

⁷³ An exception to this is found at Sagalassos, however, where the civic agora (‘Upper Agora’) took on a more mixed, industrial / commercial character only in the mid sixth century AD, possibly in relation to the installation of a Christian basilica in the courtyard of the earlier Bouleuterion (Putzeys 2007, 289-385).

⁷⁴ Varkivanç 2013, 2014.

⁷⁵ La Marca 2017.

⁷⁶ Aygün 2017.

⁷⁷ Fildhuth 2017, 51-54.

⁷⁸ Czurda-Ruth 2005.

⁷⁹ Varkivanç 2013, 2014.

⁸⁰ La Marca 2017.

⁸¹ Çevik et al. 2008.

⁸² Mastronuzzi and Melissano 2007; Semeraro 2017, 106-7.

court were used for lime burning and stone curation.⁸³ At Andriake, the entire ‘Harbor Agora’ was converted into a murex dye processing plant with both indoor and outdoor spaces.⁸⁴

As noted, the Asia Minor data show that the industrial repurposing of public bath complexes became widespread by the mid sixth century AD (figs. 4 and 5), with evidence for industrial works for stripping the building and recycling its materials (i.e., liming of marble), as well as for workshops employing raw materials that would have been supplied from sources outside of the building (i.e., clays for ceramics). This is not to suggest that baths were continuously used for public bathing until the mid sixth century AD, however. At some sites, parts of the bath complexes had already been converted for other purposes. For instance, at Sagalassos, the bath industries were preceded by early sixth century AD communal dining in the former frigidarium⁸⁵, and it was only in the mid sixth century AD that this building was clearly taken over by industry. Similar evidence for large-scale dining activities (in this case, according to a *taberna* organization) has been proposed for the ‘Bath-Palaestra Complex’ at Metropolis and dated to the third century AD, with a glass workshop subsequently installed in the sixth century AD.⁸⁶ At Sardis, inscriptions in the ‘Marble Court’ suggest that the hall may have been used for late Roman civic meetings of the *Boulè* and *Gerousia*, and in the late third / early fourth century AD the south wing of the palaestra was converted into a synagogue.⁸⁷ The reorganization of these larger spaces in some cases appears to have taken place prior to the arrival of industry, with earlier phases of appropriation that were sometimes communal or semi-public in character (i.e., civic meetings, communal dining, religious meetings).⁸⁸ In the cases of the ‘East Church complex’ at Labraunda⁸⁹ and the ‘Balatlar Church’ at Sinope,⁹⁰ Roman baths likewise were converted for community use, but these were maintained through late antiquity, while, elsewhere, where the first renovated function was not maintained, the buildings may have been made available for industry use at these later dates.

As regards the late antique urban mansions, pinpointing the exact moment when the presence of industry started to become widespread is not easy and most of the dates remain rather imprecise. At many sites in western Anatolia, however, a substantial transition seems to have occurred around the mid sixth century AD,⁹¹ coinciding with the period of industry occupation observed in the public bath complexes. Whereas the luxurious standards of the late fourth and fifth centuries AD seem to have been maintained into the early sixth century AD, this clearly changed later in the century, in spite of the fact that the occupation of the structures largely continued into the seventh century AD. All mansions investigated thus far show evidence for subdivision of the one-family residences into smaller living units for multiple

⁸³ Arthur 2006, 117-18.

⁸⁴ Aygün 2017.

⁸⁵ This use as a dining hall is evidenced by a dedicatory inscription in the floor mosaic, see Waelkens et al. 2010, 252. For the faunal remains related to these dining activities; see De Cupere et al. 2015, 193.

⁸⁶ Aybek 2016, 18-20.

⁸⁷ Yegül 1986, 5, 16; see also Rautman (2011, 11-13) for a general discussion on continued civic investment in the ‘Baths-Palaestra Complex’.

⁸⁸ Lavan (2003, 180) has noted the use of buildings for new purposes in late antiquity as a widespread trend.

⁸⁹ Blid 2016.

⁹⁰ Köroğlu 2020, 227-28.

⁹¹ For the issue of dating interventions in house contexts, especially from the mid sixth century AD onwards; see Ellis 1988, 565.

families,⁹² removal and recycling of building materials, and repurposing of spaces for storage, rural activities, and industrial production. In these renovated urban mansions (which continued to be primarily used for domestic purposes), industries involved in recycling building materials, especially for lime burning, were among the most commonly observed. Many different spaces within the structures were subjected to this industry use, including entrance vestibules, as shown by the lime kiln in Sagalassos' 'Urban Mansion'⁹³ (fig. 6) and the lime slaking activities organized in the southern residence in Sardis' 'Sector MMS / S'⁹⁴ and Tripolis' 'House with the Mosaics'.⁹⁵ However, most evidence comes from (formerly) large reception spaces and private baths. For instance, while stone dyeing / fulling basins were arranged in the apse of a representative hall of the late antique residence in 'Sector MMS / S' at Sardis⁹⁶ and marble and stucco were recycled in one of the earlier reception rooms and some neighboring spaces of the 'House of the Doric Courtyard' at Hierapolis,⁹⁷ the private baths of the 'Southern Roman Villa' at Laodikeia were transformed into a glass workshop.⁹⁸ Thus, for the late antique residences the currently available evidence allows broadly distinguishing between the 'heydays' of the mansions in the period between the late fourth / early fifth century AD and mid sixth century AD on the one hand, and their phase(s) of transformation between the mid sixth and mid seventh century AD on the other.

Discussion: General Trends in the Data

Several general observations can be made regarding the trends in the regional dataset for industry appropriation of public and private buildings. The phased relocation of manufacturing activities into different building types suggests that shifts in economic practices and civic priorities were significant, selective, and gradual. The phasing of industry renovations in different building types cannot simply be explained solely by urban depopulation models and opportunistic appropriation of abandoned structures - whereby one might expect a more arbitrary selection and timing of architectural renovation. Rather, the fact that there seems to be some loose chronological structure to the process and that industry moved into different building types with greater or lesser frequency at these times, suggests that this was not a random phenomenon. Rather, this structuring more likely reflects shifting uses and priorities concerning the availability of built environments, with large domestic mansions and bath complexes sometimes maintaining local uses until quite late (the mid sixth century AD) and only then being converted for industry use. Thus, some degree of social decision-making was directing this process, based on the perceived opportunities and changing priorities of the late antique urban communities. When it ultimately did occur, however, it happened at a particularly conspicuous scale.

⁹² This is suggested by the construction of ovens and fireplaces at various places in the mansions, as is, for instance, attested in the 'Urban Mansion' at Sagalassos (fig. 6), the 'House with the Mosaics' at Tripolis (Duman and Koçyiğit 2019, 98-99) and the Late Antique houses in 'Sectors MMS and MMS / S' at Sardis (Rautman 1995, 62; Greenewalt and Rautman 2000, 653-54).

⁹³ Uytterhoeven et al. 2014, 376.

⁹⁴ Greenewalt and Rautman 2000, 648-49.

⁹⁵ Duman and Koçyiğit 2019, 98-99.

⁹⁶ *Archaeological Exploration of Sardis 1989-1990*, 52.

⁹⁷ Zaccaria Ruggiù 2007, 219-21; Zaccaria Ruggiù and Cottica 2007, 157; Zaccaria Ruggiù and Canazza 2011, 219-20; Zaccaria Ruggiù 2019a, 48, 53-55. Stucco recycling seems to have also occurred in the neighboring 'House of the Ionic Capitals', see Bortolin 2019, 69; Zaccaria Ruggiù 2019a, 54, n. 89.

⁹⁸ See further Şimşek 2009, 422; 2013, 302. The glass workshop is also discussed by Taştēmür 2018, 217-18.

These developments are in line with observations made for other regions of the late antique world. In this sense, the pattern of building reuse and adaptation by industry is something observed more widely. However, regional comparisons also highlight local variations, especially regarding chronological patterns, that reinforce an image of regional heterogeneity in terms of economic development. Particularly informative is the study by Rogers of late Roman Britain, where the process began earlier and involved different types of buildings and industries. In this region, industrial production most commonly occurred in the forum-basilica complexes, with most documented cases related to metalworking industries. These seem to have taken place primarily from the late third through fifth centuries AD, with much evidence in the fourth century AD.⁹⁹ Additionally, the multi-regional comparative study by Underwood highlights urban changes in the western Mediterranean as following regional trends that can be observed already in the third century AD and involved the reuse of buildings for a range of activities, including industry works.¹⁰⁰ These local variations in time clearly indicate that the different regions of the late antique world underwent similar processes but were, nevertheless, characterized by a specific political, socio-economic, and cultural reality defining them.

Conclusion

Motivated by the growing interest in the daily lives of ancient city dwellers of different layers of the society, industrial transformations of public and private spaces have recently attracted much attention in urban studies - in part due to their sometimes stark contrast to the urban environments of earlier periods and in part due to the larger social and economic implications of these reorganizations. Large-scale regional studies conducted in different parts of the late antique world have also highlighted divergent chronologies and processes in these urban changes across the Mediterranean. In line with these regional approaches, this study intended to move beyond the individual site level, by focusing on broader trends and developments in one of the most urbanized regions of the late antique world. In laying out this corpus from Asia Minor, what is clear, based on the current evidence, is that these processes of industry appropriation of public and private space, including the stripping and recycling of building materials, as well as the repurposing of spaces for industrial production, occurred across the entire region. They have been observed in large late antique *metropoleis*, such as Ephesos, as well as smaller regional centers, such as Rhodiapolis and Kyme, following broadly similar chronological developments. They appeared everywhere in Asia Minor, regardless of geography - from the harbor cities of Anemourion, Elaiussa-Sebaste, and Patara, to the mountain sites of Sagalassos and Kibyra. The pattern is widespread.

This study has offered a view on the regional changes within the urban environments of late antique Asia Minor and the patterning of those changes - particularly in terms of the chronology of building transformations. Importantly, we have identified general trends across the region for industry use of specific architectural and infrastructural settings, with certain building types preferred. We have also demonstrated that this was a complex process in changing urban space, with parts of the structures occupied by industry, while other parts sometimes retaining earlier functions. Moreover, based on the currently available data, industry intruded into different types of public and private buildings at various moments in

⁹⁹ Rogers 2011, 130-48.

¹⁰⁰ Underwood 2019.

time between the late third / early fourth century AD (starting with theaters) and mid to late sixth century AD (ending with public baths and private mansions) and these chronological trends for specific building types are similar in many cities across Asia Minor. The image that consequently emerges is one that is complex and dynamic, reflecting a significant transition within cities of Asia Minor - a transition in which craftspeople and artisans clearly played a central role.

Acknowledgments

This research was supported by a postdoctoral fellowship at the Koç University Research Center for Anatolian Civilizations. The investigation of the 'Urban Mansion' at Sagalassos, mentioned here as one of the case studies, was carried out within the framework of the Sagalassos Archaeological Research Project (KU Leuven, Belgium) with the support of the Belgian Programme on Interuniversity Poles of Attraction, the Research Fund of KU Leuven, and the Research Foundation Flanders (FWO).

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Craft Industry Classes	Number of Contexts
Ceramic	19
Glass	14
Metal	18
<i>Metalworking</i>	10
<i>Smithing</i>	8
Plaster & Pigment	3
Textile	4
Stone	26
<i>Limeburning & slaking</i>	23
<i>Stonecutting & carving</i>	3
Wood	1
Service Industry Classes	
Taberna	2
Inn	1
Stables	1
Food Production Classes	
Bakery	3
Press or Mill	6
Fish Processing	1

FIG. 1
Classifications and frequencies of Late Antique industry found in reused buildings (Murphy and Uytterhoeven).

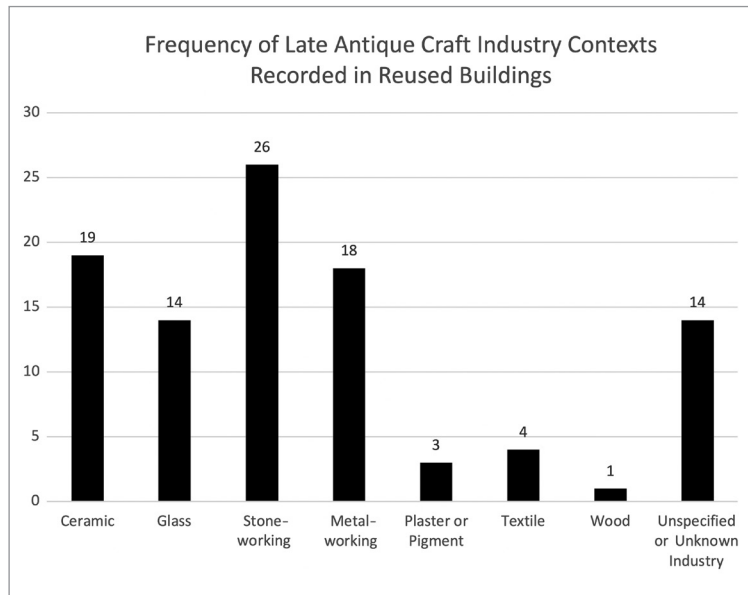


FIG. 2 Late Antique craft industries represented in the dataset (Murphy and Uytterhoeven).

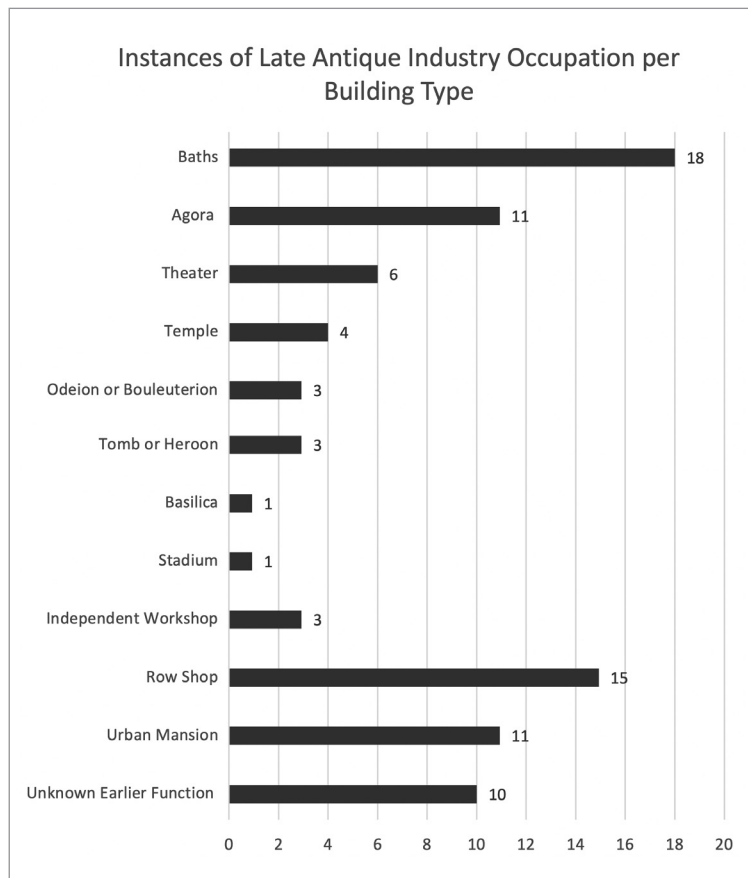


FIG. 3
Frequencies of Late Antique industries found in different building types (Murphy and Uytterhoeven).

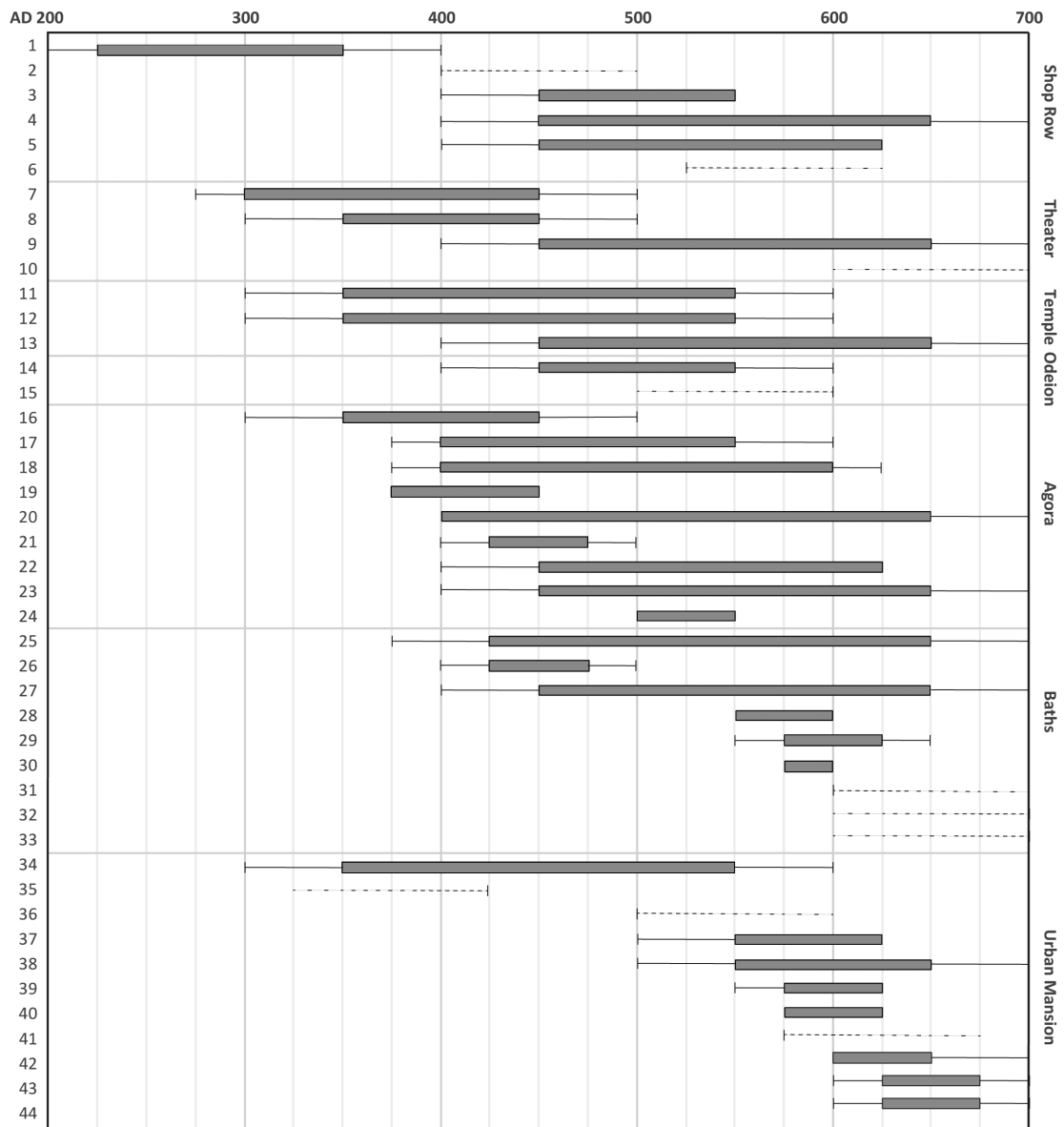


FIG. 4 Chronological trends in the movement of industry into building types (Murphy and Uytterhoeven).

Building Type	Chart Site ID	Ancient City	Excavation Designation	Published Reference	Industry Occupation Dates	
Row Shop	1	Aphrodisias	Plaza backing Odeion	Rockwell 1991	early 3rd - 4th c.	
	2	Laodikeia	Stadion Road	Şimşek 2016	5th c. - unspecified	
	3	Sagalassos	East of Library - New Construction	Poblome et al. 2015	5th - mid 6th c.	
	4	Kyme	Colonnade	La Marca 2017	5th - 7th c.	
	5	Sardis	Byzantine Shops	Crawford 1990; Harris 2004	5th - early 7th c.	
	6	Soloi-Pompeopolis	Colonnaded Street	Yağcı 2015; Yağcı and Yiğitpaşa 2016	post - AD 525 - unspecified	
Theater	7	Side	Theater	Alanyalı 2010	late 3rd / early 4th - 5th c.	
	8	Rhodiapolis	Stoa	Çevik et al. 2008	4th - 5th c.	
	9	Kyme	Theater	La Marca 2017	5th - 7th c.	
	10	Pompeopolis	Theater	Summerer and Çevik 2015	unspecified - 7th c.	
Temple	11	Sardis	Wadi B Temple	Greenewalt et al. 1987	post 3rd - 6th c.	
	12	Aphrodisias	Sebastion	Smith and Ratté 1998	4th - 6th c.	
	13	Laodikeia	Temple A	Şimşek 2013	5th - 7th c.	
Odeion-Bouleuterion	14	Kibyra	Odeion-Bouleuterion	Özudoğru and Dökü 2008	5th - 6th c.	
	15	Anemourion	Odeion-Bouleuterion	Russell 2002	pre-7th c.	
Agora	16	Nysa-ad-Maeandrum	North Portico of Agora	İdil and Kadioğlu 2009	4th - 5th c.	
	17	Ephesos	Tetragonos Agora	Czurda-Ruth 2005	late 4th / early 5th - 6th c.	
	18	Hierapolis	Agora	Arthur 2012	late 4th / early 5th c. - late 6th / early 7th c.	
	19	Andriake	Harbour Agora (<i>Plakoma</i>)	Aygün 2017	late 4th - mid 5th c.	
	20	Kibyra	Agora (West Stoa)	Özudoğru 2020	first-quarter 5th - 7th c.	
	21	Kyme	Agora	La Marca 2017	5th c.	
	22	Hierapolis	North Agora	Mastronuzzi and Melissano 2007	5th - early 7th c.	
	23	Xanthos	West Agora	Varkıvaç 2013, 2014	5th - 7th c.	
	24	Sagalassos	Upper Agora	Uleners and Altay 2009	first-quarter 6th c. - mid 6th c.	
	Baths	25	Patara	Harbor Baths - Palaestra	Dündar 2015	post - late 4th / early 5th c. - 7th c.
		26	Kibyra	Roman Imperial Bath Complex	Özudoğru 2016	5th c.
27		Metropolis	Bath-Palaestra	Aybek 2016	5th - 7th c.	
28		Sagalassos	Imperial Baths	Rens and Waelkens 2012, 2013	mid-6th - late 6th c.	
29		Elaiussa-Sebaste	Small Baths	Equini Schneider and Ritti 2015; Polosa 2016	second-half 6th - first-half 7th c.	
30		Anemourion	Baths-Palaestra Complex	Russell 2002	late 6th - pre 7th c.	
31		Sardis	Bath-Gymnasium Complex	Yegül 1986	7th c. - unspecified	
32		Anemourion	Small Baths - North of Palestra	Russell 2002	unspecified - 7th c.	
33		Pompeopolis	Baths	Summerer 2016	unspecified - 7th c.	
Urban Mansion		34	Sardis	House of Bronzes	Crawford 1990	4th - 6th c.
	35	Arykanda	Naltepesi Villa - Private Bath	Oransay 2012	unspecified - first-quarter 5th c.	
	36	Laodikeia	Southern Roman Villa - Private Bath	Şimşek 2009, 2013	post- 5th c.	
	37	Sardis	Sector MMS/S	Archaeological Exploration of Sardis 1989-1990	6th - early 7th c.	
	38	Antandros	Terrace House	Polat et al. 2007	6th - 7th c.	
	39	Tripolis	House with the Mosaics	Duman and Koçyiğit 2019	mid 6th - late 6th / early 7th c.	
	40	Labraunda	Tetraconch - Private Bath	Blid 2016	late 6th - early 7th c.	
	41	Ephesos	Terrace House 2	Ladstätter 2011; Wefers and Mangartz 2011	late 6th / early 7th c. - unspecified	
	42	Laodikeia	House A - House 3	Şimşek 2009	early 7th c. - 7th c.	
	43	Hierapolis	House of the Ionic Capitals	Bortolin 2019; Zaccaria Ruggiù 2019a	7th c.	
	44	Hierapolis	House of the Doric Courtyard	Zaccaria Ruggiù 2007; Zaccaria Ruggiù and Cottica 2007	7th c.	

FIG. 5 Listing of sites presented in fig. 4. This list represents a subset for which both centurial dating of industry occupation was reported and for which building type attribution was available. Dates reflect all industry occupation documented within a single building complex (even when located in separate spaces) (Murphy and Uytterhoeven).



FIG. 6 Aerial photograph of the Urban Mansion excavations at Sagalassos, with mid sixth and seventh centuries AD economic activities indicated (Image courtesy of the Sagalassos Archaeological Research Project - Adapted by Uytterhoeven and Murphy).

