

Jeroen Poblome (ed.)

# Documenting Ancient Sagalassos

A Guide to  
Archaeological  
Methods and  
Concepts

LEUVEN UNIVERSITY PRESS

## Documenting Ancient Sagalassos

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A Guide to Archaeological Methods  
and Concepts

Edited by

Jeroen Poblome

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# Introducing the Sagalassos Archaeological Research Project

*Jeroen Poblome*

This collection of papers presents a selection of methods, practices and concepts the Sagalassos Archaeological Research Project has been developing and applying in recent years, supporting its research on the archaeological site and study region of ancient Sagalassos in southwest Anatolia. With these chapters we would like to bear witness to the wider discipline of archaeology on how we, as a team, reason and on the choices we make in order to try and achieve progress while engaged with fieldwork or behind our desks. This volume is not conceived as a manual in the discipline of archaeology; that is not our ambition. Rather, we would like to document and share the rationale we have been developing as practitioners in archaeology in order to make the most of the specific setting, challenges and potential the archaeological site and study region represent. In this respect, our chapters present a selection of themes which we consider important in the sense that they underscore the research programmes with which the Sagalassos Project is currently engaged, even if mostly the archaeological bits of that research. In a way, our collection of papers can be considered a reflection on how an archaeological project with a focus on classical antiquity operates in this segment of time, the earlier part of the third millennium CE. To be sure, our team is also engaged in new interdisciplinary developments in the dialogue between ecology, geography and archaeology,<sup>1</sup> for instance, or in the sphere of digital humanities,<sup>2</sup> but such notions are not incorporated in this volume, in order to keep the focus mostly on the way we do archaeology. In further support of this focus, the selected chapters generally deal with the context of classical archaeology, as a particular domain in the wider discipline with its own issues and possibilities emerging from the specifics the empyre of its archaeological record offer.

## ***The space/time framework***

Sagalassos is a comparatively well-preserved ancient town. Located in the Turkish province of Burdur, about 100 km north of modern-day Antalya, the site offers spectacular views of the Taurus mountains (Figs. 1 and 2). This system of mountain ranges determines the geography of the southern, Mediterranean parts of Turkey, as well as the more eastern regions. On a wider scale, the Taurus mountains form part of the Alpine–Himalayan belt in Eurasia. More regionally, these mountains separate the Mediterranean coast of Turkey from the Central Anatolian plateau. The ruins of Sagalassos are tucked away in a large bend of the Ağlasun dağı range (c. 1800 m asl), forming the towering crest to the north of the site, ending in the formidable Akdağ (2276 m asl), which dominates the northeast end of the range. From its position, at the top of a V-shaped valley incised in the mountains, the ancient town (1490–1600 m asl) overlooked the lower areas of the Ağlasun River valley to the east and south.<sup>3</sup> At this location,



Fig. 1. (a) Location of the Sagalassos study area within Anatolia. (b) The ancient town of Sagalassos is located within the Taurus mountains.



the inhabitants of Sagalassos had all the required resources close by: forests for energy, natural water sources, sufficient arable land and grazing grounds, clay, timber and stone for building materials, and other resources for local craft activities. If need be, such hilltop settlements were also relatively easy to defend.



Fig. 2. View of the mountainous landscape in which the archaeological site of Sagalassos is located.

With KU Leuven as the coordinating party for over a generation, the Sagalassos Archaeological Research Project has been active at the archaeological site of Sagalassos and in an area of about 1200 km<sup>2</sup> in extent, which more or less corresponds to the administrative territory or *chora* of the ancient city of Sagalassos<sup>4</sup> (Fig. 3). This Sagalassos study region forms part of the so-called Lake District of southwestern Anatolia. These basins represent a variety of ecological and geographical zones and associated biodiversity. In antiquity, the Lake District formed part of the historical region of Pisidia. Exact boundaries are difficult to define for Pisidia in time/place or in an ethnic sense. Strikingly, this highland region is by no means a uniform landscape but rather fragmented and diverse. Large and open fertile plains between mountains, small and narrow river valleys, badlands, moderate hills, plateaus and steep mountains all occur in the area. Elevation within the wider study region varies drastically, with a difference of about 2000 m between its highest and lowest points. The variety in hydrology combined with local climatic and geomorphological conditions created a patchwork of vegetation covers – from semi-arid steppes and badlands, through marshes, to wetlands and deciduous woodlands in the highland valleys, and nearly Mediterranean zones at higher elevations.

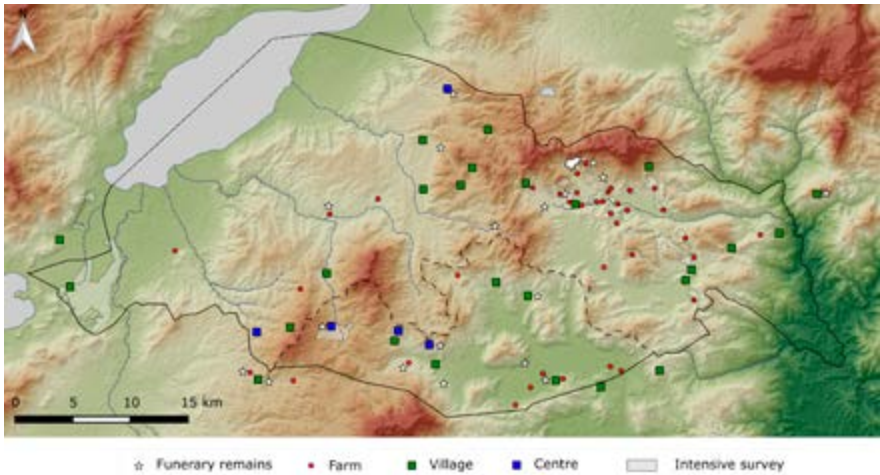


Fig. 3. Settlement distribution in Roman imperial times within the Sagalassos study region, and the outlines of the Sagalassos *chora* (black line).

Visitors to the archaeological site of Sagalassos share the sensation of discovery of classical monumental architecture and the daily life of the former community (Fig. 4). This authentic ancient city was proposed by Turkey for inclusion on the tentative list of UNESCO World Heritage in 2009.



Fig. 4. General view of the area of the Upper Agora of Sagalassos, upon its excavation, conservation and restoration, providing a sense of place to visitors to Sagalassos.

Sagalassos did not always exist, including not as a monumental urban centre.<sup>5</sup> The exact circumstances of the genesis of Sagalassos as a community are still lost to the mists of time. According to the latest evidence, a large community first settled at Sagalassos by the end of the fifth century BCE. Around the same time, another community settled at the archaeological site of Düzen Tepe, very close to Sagalassos. The appearance and nature of early Sagalassos and Düzen Tepe fit the regional Iron Age tradition. Communities started dwelling on slopes, hill-tops or mountain plateaus in fairly extensive settlements, running small-scale rural, self-sustaining economies. Some of these new settlements were fortified and around others we find a limited number of burial mounds.

Reputedly, Alexander the Great (356–323 BCE) took Sagalassos by storm in 333 BCE. His biographer talks about ‘not a small city’. The archaeological record, however, shows a developing urban settlement within its territory only from around 200 BCE onwards, in the framework of the Seleucid and Attalid kingdoms. The *Pax Romana* introduced by the Roman emperor Augustus (27 BCE–14 CE) and the contemporary incorporation of Pisidia into the Roman empire created unparalleled conditions for growth of the city. Emperor Hadrian (117–138 CE) offered privileges to Sagalassos, which consolidated its urban splendour during the Antonine dynasty. An ambitious local elite promoted their town with pride and soul, which is recognisable to this day.<sup>6</sup>

In late antiquity, Roman imperial integration with far-away markets was transformed into increased dependency on communities own specialised production and local exchange, providing sufficient buffering capacity to withstand the many political and ecological threats of these difficult times. Byzantine Sagalassos was a resilient community which continued to perform as the main regional centre into the early 13th century CE.<sup>7</sup>

### ***The Sagalassos Project in the context of Anatolian archaeology***

The Sagalassos Archaeological Research Project grew organically within the framework of the Pisidia Survey Project, which in its initial stages in the 1980s was engaged with recording and mapping of the extant epigraphical and monumental remains of ancient urban sites in the historical region of Pisidia. In 1985, the Pisidia Project began working at Sagalassos,<sup>8</sup> under the direction of Stephen Mitchell (then Swansea College). Following exploratory archaeological excavations in collaboration with the Archaeological Museum of Burdur in 1989, Marc Waelkens (KU Leuven) founded the Sagalassos Project and became its original driving force and first director between 1990 and his academic retirement in 2013.<sup>9</sup> The role of director of the Sagalassos Project was then passed

on to Jeroen Poblome (KU Leuven), who had joined the project in 1991. Apart from launching excavations at the archaeological site of Sagalassos, the project initiated extensive archaeological survey activities in the study region in 1993, at the invitation of the Turkish authorities,<sup>10</sup> and has been developing this programme ever since.<sup>11</sup>

Even if organised community life came to an end at Sagalassos during the 13th century CE, the site was never really forgotten by the local community, which continued to reside in the Ağlasun valley. That is why, as a team, we find it less appropriate to talk about the ‘rediscovery’ of Sagalassos. From the 18th century onwards, Europeans started visiting the Near East, including the Ottoman Empire. Sagalassos was explored by these travellers and connoisseurs, such as Paul Lucas in 1706 on a mission for the French king Louis XIV, Francis V.J. Arundell in 1828 making the first sketches of the ruins on the site, and Charles Fellows and W.J. Hamilton in the 19th century, amongst others. In 1884 and 1885 Karol Lanckoroński and his team, including the architect George Niemann, made a detailed architectural and epigraphical study of Sagalassos, including the application of early photography. In 1907, the explorer Gertrude Bell would visit and photograph Sagalassos as well.<sup>12</sup> Such sporadic visits to Sagalassos were to continue in the 20th century when the site and some of its monuments also formed part of wider thematic studies.<sup>13</sup> The first targeted archaeological interventions were conducted in 1972 and 1974 by Robert Fleischer, on the Northwest Heroon.<sup>14</sup> Systematic scholarly attention to the site of Sagalassos and its role in the long-term history of the region, however, was newly initiated by the Sagalassos Project in the 1990s.

To be sure, Turkish and international colleagues are also engaged in research on a range of archaeological sites in the region,<sup>15</sup> their epigraphical and numismatic records<sup>16</sup> or historical understanding.<sup>17</sup> In addition, the continued activities of the Pisidia Project and the Pisidia Heritage Trail project of the British Institute at Ankara should be noted.<sup>18</sup>

The historical region of Pisidia has long fared well with the archaeological research conducted by members of the Department of Archaeology of Istanbul University,<sup>19</sup> while the same departments at both universities in the region of Pisidia have developed a rich research palmares. Mehmet Akif Ersoy University at Burdur has a strong focus on, amongst other things, the later prehistory of the region, ancient Kibyra and its Kibyritis region, as well as ancient Kremna,<sup>20</sup> and Süleyman Demirel University at Isparta on the archaeological sites of Seleukeia Sidera and Pisidian Antioch.<sup>21</sup> Together, this community of researchers organise the Pisidia symposia, coordinated by Süleyman Demirel University.<sup>22</sup>

In this context, the Sagalassos Archaeological Research Project is coordinated as an international enterprise, supported by a range of partners, authorities

and funding agencies. Turkish academia and other parties are a fully-fledged part of the team and the planning or executing of its research programmes. It seems fair to state that the project has become internationally acknowledged for its comprehensive research strategies, or at least that is the way its team members like to engage with Sagalassos and the associated study region. The long-term history of the town and its territory, the urban and rural communities, and the choices they made in life and death, within a changing ecological framework, provide many topics of fundamental, academic research. The results are embedded in encompassing conservation, restoration and presentation policies focused on the archaeological site of Sagalassos, engaging the general public. Further social relevance is created by advancing regional development programmes focused on the heritage community of Ağlasun,<sup>23</sup> as well as by looking at elements of strategic socio-economic importance for this community, such as water management.<sup>24</sup>

In this sense, the Sagalassos Project is both a typical and a particular archaeological project. Allow us to elaborate these thoughts.

When considering how we do archaeology, the way we organise research cycles is typical. As this volume further testifies, performing fieldwork is an important part of our identity. In that respect, we carry out activities which are mainstream in the discipline of archaeology, whilst, obviously, following and at times exploring new methods or practices. Our data generation activities are related to various types of excavations (including exposing spaces of past buildings or parts of ancient structures, open area excavations, gridded digs, test trenches, control excavations), architectural and urban studies (including architectural decoration, geophysical analysis, urban survey, architectural, engineering, technical and building materials analysis), studies of material culture (applying archaeological and archaeometrical methods and techniques) and ecofacts (including archaeozoology, archaeobotany, anthracology), and archaeological surveying (a range of intensive and extensive methods, geophysical analysis and remote sensing techniques). Back in the day, the project started out as a 100% analogue operation and has now become a nearly 100% digital venture. As with most archaeological projects we have experienced this transition of strategic importance for the sustainability of our operations, but this does not mean to say that matters were/are always easy. The integration into the domain of digital humanities offers opportunities, for example, but needs careful deliberation on how all partners involved can truly collaborate in order to make the sum greater than its parts. Recently, the project has been building its identity in digital archaeology by exploring the potential of agent-based and other modelling approaches for deeper data integration and interdisciplinary collaboration, and also the application of controlled vocabularies and linked data systems.<sup>25</sup>

As things stand, the archaeological record the Sagalassos Project is documenting in its study region stretches from Middle Palaeolithic times<sup>26</sup> to our aforementioned efforts at examining the multivocal heritage of the current area. As far as the application of archaeological methods and practices is concerned, specific periods are investigated in their standard and appropriate ways. Indeed, a lot of our archaeology is related to the field of classical archaeology. As a team and for the sake of this volume, we find it important to make explicit that we consider classical archaeology to form part of the discipline of archaeology. The aims, methods, practices, and epistemological as well as theoretical frameworks of classical archaeology, and its focus on the wealth, breadth and depth of the human past, are and should remain the same as the archaeological discipline. The discipline of archaeology and the domain or branch of classical archaeology are in a continuous and reciprocal dialogue. The human past nearly always presents itself at multiple scales, from the human body to entire societies, and as nested in space and time. Its interpretation, therefore, is never a given, making *a priori* choices in for instance conceptual frameworks unnecessary.<sup>27</sup> Performing classical archaeology is best considered as a trajectory, into increasing detail and complexity. Even if empirical evidence is generally considered to be at the basis of most archaeology, in the case of classical archaeology at least also historical evidence, literature and epigraphy, art and culture, ecology and landscapes, but also increasingly digital dossiers have equal roles to play. As with archaeology, the bridging between quantitative and qualitative evidence is challenging, yet at the same time a potential source of inspiration for other disciplines. As archaeologists, we specialise in creating unique deep time perspectives on constellations of the human past, with considerable potential to contribute to historical understanding as well as to develop innovative approaches to the many problems of the modern world. In our view, classical archaeology has many fundamental contributions to make in this respect.

During its main periods of occupation, the archaeological site of Sagalassos should be characterised as an ordinary provincial town, with what are traditionally called 'heydays' from late Hellenistic into early Byzantine times. Its extant monumental remains mainly bear testimony to an urban infrastructure more or less typical for the Roman imperial period in the wider region. About 2000 towns are estimated to have dotted the landscape of the enormous Roman empire. As things stand, quite a bit is known about these Roman towns, but this knowledge is not necessarily always the result of long-standing, dedicated, interdisciplinary research programmes. Moreover, attention to urbanism is not equally spread throughout the Roman world, with places such as Pompeii serving as symbolic reference points and bigger cities such as Rome or Alexandria as academic poles of attraction. Each modern country located within the borders of the earlier

Roman empire can be said to have its prototypical Roman city, around which the interpretation of the other Roman cities in these regions tends to revolve, such as Lyon in France, Köln in Germany, London in the UK. Such research practices can run the risk of turning the particular, or even the exceptional, into the general, as well as making many less well documented urban conditions conform to better known examples. Instead, the individual ordinariness in Roman cities should be brought forward. The ability to develop dedicated interdisciplinary research programmes in such ordinary cities is of fundamental importance for the archaeological discipline. Considering the Roman imperial period, Asia Minor was one of the most urbanised regions of the empire, with some spectacular cases such as Ephesos, Pergamon and Constantinople, but mostly (fairly understudied) ordinary provincial towns. The historical region of Pisidia serves as a case in point, with no major, representational urban settlement, yet with many cities with a few thousand inhabitants. As a matter of fact, most people lived in such ordinary places. Therefore, in more ways than one, the archaeological site of Sagalassos has much to offer as one of the cases where a fundamental, interdisciplinary research programme can document many aspects of the past urban experience.

Even though this volume mainly focuses on how the Sagalassos Project navigates within the archaeological discipline, collaboration with other disciplines, in the sense suggested in the previous paragraph, very much forms part of the identity of the project as well. Indeed, any approach to the past is richer when considered from angles of different disciplines and domains. Especially when disciplines reach out to each other in the grey zones where their haloes touch, original insights are within reach. Whether this collaboration is inter-, trans-, or multidisciplinary in nature matters less, as long as such collaboration is initiated in the early stages of research projects. In our view, devising research programmes together, over the boundaries of disciplines, allows concurrent paths to grow, as well as the necessary disciplinary space and actions to be guaranteed. Well-designed collaborative research projects are the best foundation for a successful academic output for all parties involved. We are certainly not the only project in Anatolian or classical archaeology to depart from such considerations, and in that sense this makes us, once more, typical academics.

Where matters can get particular, however, is that our grounded matter is set in Turkey, yet administratively, academically and intellectually our project is coordinated at KU Leuven. ‘Founded in 1425’, ‘A comprehensive university’ and ‘Inspiring the outstanding’ are some of KU Leuven’s corporate slogans, underscored by Reuters declaring our institution as the ‘Most innovative university of Europe’ for four years in a row, and by landing at 42<sup>nd</sup> in the Times Higher Education World University Ranking in 2022 and first in the EU Marie

Skłodowska-Curie Actions programme, to cite a couple of facts and figures. Inevitably, this institutional drive towards innovation and its well-coordinated performance as a research-intensive university forms part of the Sagalassos Project's DNA. Logically, this is translated into the fact that an important part of the project's research agenda is driven by PhD researchers, that most of the project's applications to funding institutions are interdisciplinary in nature, that the project acknowledges KU Leuven's drive towards public outreach, and that the project readily collaborates in international research-driven networks, bringing its Turkish partners along. Yet, as everywhere, the KU Leuven environment also comes with limitations and sometimes the project finds itself lost in translation in trying to match the administrative logic of its host institution with that of Turkey as host nation to the team's fieldwork activities. In this context, it is important to make clear that the Sagalassos Project is independent in its fundraising, and that the project has never received any type of structural financing by an official or private party. One way or another, Sagalassos makes the mix work: the site has a certain, attractive *genius loci* matched with an excellent state of preservation of its urban archaeological record, which, together with its study region, represents a comparatively rich potential for research, as testified by all the participating disciplines, topped by the authentic and original nature of the Ağlasun community. (Fig. 5)

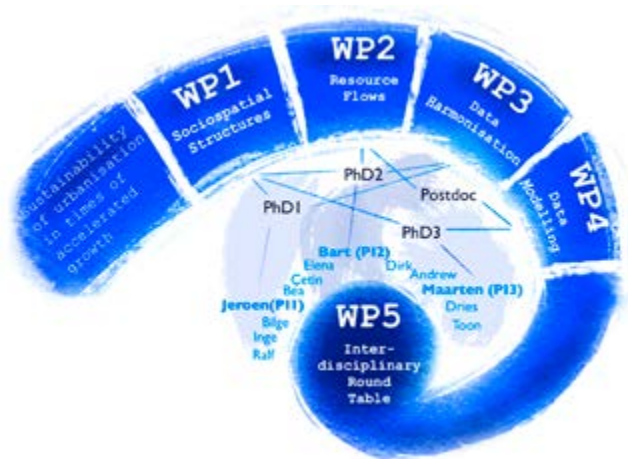


Fig. 5. Schematic presentation of an ongoing research project, supported by the KU Leuven Research Fund, investigating aspects of sustainability in times of rapid urbanisation in the past (case-study Sagalassos) and present (case-study Ağlasun), demonstrating the Work Package structure of the project and the way its staff are situated in the trajectory, with Jeroen (Poblome) representing archaeology, Bart (Muys) ecology and Maarten (Loopmans) geography.



How does the Sagalassos Project relate to other classical archaeological projects in Anatolia? Compared to the well-known cases of very long-standing excavations such as at Ephesos,<sup>28</sup> Miletos<sup>29</sup> or Pergamon,<sup>30</sup> we are a new kid on the block. At the same time, in the region of Pisidia, we are the only project that has been working on one and the same site and study region for over one generation.

Even if histories of excavations are somewhat relative, in the sense that scholarly trajectories and realisations in the field of outreach, on site or otherwise, are more important to gauge contributions to the field, it is fair to state that the Sagalassos Project is a relatively new player in the domain of classical archaeology in Turkey. Most of the classical archaeological sites which were under investigation when the then Eski Eserler ve Müzeler Genel Müdürlüğü of the then TC Kültür Bakanlığı initiated the annual Kazı Sonuçları Toplantıları<sup>31</sup> in 1979 are still active today, for instance, while it would take another decade or so before excavations started in earnest at Sagalassos.

Even though research at these classical sites in Anatolia has been continuing since 1979, a range of changes in directorships and/or of coordinating institutions should be noted in the meantime. Then as now, the same mosaic of responsible parties is represented, with a variety of (foreign) institutes in Turkey as well as (Turkish and international) university departments of Archaeology<sup>32</sup> organising the fieldwork campaigns. Actually, this variety of coordinating parties can already be identified at the very beginning of classical archaeology in Anatolia. In general, another characteristic of classical archaeology in Asia Minor stands out in comparison to other such initiatives in the Old World or even to global archaeological practices. Whereas it is a legitimate scientific tradition to every so often switch from action terrain by completing archaeological research in one region or on one site and initiate new research programmes in another, archaeological teams in Anatolia (have) tend(ed) to stay put. The extent, research potential, historical depth and stratigraphical or other complexities of the classical cities in Turkey no doubt contribute to favouring long-term alliances with particular sites or regions, in order to start fundamentally understanding the local archaeological record. At the same time, this tendency is also supported by the authorities in Turkey in charge of managing the national archaeological heritage, preferring stable, long-term engagements of excavation directorships, at least on the institutional level. Perhaps the tendency of long-term connections with particular sites helps explain why a given concentration of foreign (archaeological) institutes has been and remains active in Anatolia, from the dawn of the discipline of archaeology to today.<sup>33</sup> No doubt international diplomatic and geopolitical circumstances may play some role in such developments over time as well, yet the genuine potential for archaeological research

represented by the heritage record in Turkey certainly helps explain why this concentration of research-driven (foreign) institutions is not the only example of such archaeological practices around the Mediterranean, but a telling one. To be clear, the Sagalassos Project does not form part of an international institute located within Turkey and recognised by the relevant Turkish authorities.

When considering Pisidia, the research history of the archaeological excavations at classical sites in this historical region seems to reflect a final trend which is relevant to mention here, namely the recent evolution of newly founded Turkish universities, especially in the early decades of this century, with Süleyman Demirel Üniversitesi founded at Isparta in 1992 and Mehmet Akif Ersoy Üniversitesi at Burdur in 2006 for instance. Apart from increasing the national total of Turkish university graduates, who clearly contribute to the nation's continued development, it is noticeable that many of these fairly new institutions have become active in the field of archaeology, increasing the total amount of archaeological projects throughout the country, including in the domain of classical archaeology. The Lykos valley is another example where the total (Turkish and international) critical archaeological mass has grown considerably in recent years.<sup>34</sup>

### ***The choices of this volume and its chapters***

In more ways than one, Sagalassos speaks to the imagination. The authentic and natural beauty of the site no doubt plays a role in that. The Sagalassos Project can also testify to the fact that its core business, archaeology, also speaks to the imagination. Learning about the past is fascinating, for young and old. Exactly why this should be the case is not so easy to explain. Curiosity no doubt plays a role. Archaeologists, very much in the same way as any other scientist, are driven by curiosity, in this case to really know about past human activities. As they leave no stone unturned in their endeavours, archaeologists also stimulate the curiosity of society. The societal audience is not only interested in learning about the results in and of themselves, but also very much wishes to understand how knowledge about the past is conceived. How do they do it? In this volume the archaeologists and some of the other scientists of the Sagalassos Archaeological Research Project speak. They explain their ways, methods and concepts of reconstructing and interpreting the past of the archaeological site of Sagalassos and its surrounding study region.

Hence the title of this volume: *Documenting Ancient Sagalassos*. Plain and simple: we explain how we do the things that we think that we ought to be doing in order to participate in the discipline of archaeology and more specifically the

domain of classical archaeology – how we employ the standard methods of the discipline and how we utilise conceptualisations in order not only to register the archaeological record of Sagalassos and its study region, but also to approach its interpretation, so that our results can also be meaningful in that way. It is reasonable to ask who this book is for. We foresee good internal use, with new collaborators and students joining our fieldwork campaigns using it as a way to warm up, but also our interdisciplinary partners in crime possibly (re)discovering some of the archaeological basics. We hope, however, that many a student in archaeology, no matter how far advanced in academia or other field of study or work, with an open interest in how things come about in classical archaeology in Anatolia may find this volume a good read. Classical archaeology at times being considered to form part of different larger frameworks, such as classics, *Altertumswissenschaften* or historical archaeology, and in this way contributing to at least archaeology and ancient history as disciplines, there should be a wider interested audience out there. In this case too, practitioners in other disciplines involved one way or the other with archaeologists may want to dive in. Finally, as a project, we have been fortunate to experience a genuine interest from society in what we do and how we do it, not in the least represented by the Friends of Sagalassos.

‘Our’ framework of methods, practices and conceptualisation first and foremost is aimed at turning the many field observations into documented facts, which can serve further scholarly reasoning and debate. Facts documented according to established (yet not unchanging) methodological frameworks are less transient in nature compared to the observations made *hic et nunc* when on site or in the depots. *Verba volant, scripta manent* (“the spoken word flies away, the written word remains”) goes the anonymous Latin proverb, possibly on occasion cited by the Roman emperor Titus Flavius Vespasianus (79–81 CE) to the Senate. The *scripta manent* part of the Latin proverb is what the Sagalassos Archaeological Research Project, and any archaeological project for that matter, aspires to. This publication serves this purpose by discussing the nature of our archaeological and other fieldwork methods – the Sagalassos way of things – and how these are conceived, organised and operationalised. These methods, their resulting archaeological documentation, and in turn the interpretation of the extant archaeological record and its conceptualisation, are the best guarantee that observation is turned into fact, allowing the knowledge basis on ancient Sagalassos and its study region to originate, to be maintained, to expand and to be available to the wider scholarly community and other interested audiences.

Make no mistake, however: it is not because an archaeological project creatively develops its methodological and conceptual trajectory within the framework of the discipline that the knowledge which is generated as a result needs

to be considered as fixed, as if set in concrete and devoid of any discussion, internal or otherwise. As knowledge is being shaped and carefully considered, it should come as no surprise that not all scholars are necessarily always on the same page. In this respect, we are no different from any other archaeological project or any other research endeavour, whatever its nature and scale. Scholars are children of their time and age and in 'postmodern' society appropriation of Sagalassos as an archaeological site and as a study object is a highly complex affaire, with many stakeholders also beyond the strict academic circles. Telling 'the truth' about Sagalassos has become impossible. Perhaps it was never possible in the first place, as the past, after all, is a foreign country where they do things differently.<sup>35</sup> The question is whether this should be the aspiration rather than continuously fostering new research initiatives and creating new insights and knowledge. Obviously, embeddedness in the scientific legacy of the project is essential, as is respectfully considering the many achievements and results, but by definition research is an open exercise and quite often also one of personal choice and intellectual development. Typical for archaeology is that the archaeological record – the stuff we find – has at least partially come about by coincidence, as a result of continuing processes of formation of the archaeological record, which more often than not reflect a condition of consolidation of processes in society.<sup>36</sup> As a result, originating properties are generally difficult to grasp in archaeological terms, as such practices and processes have not yet crystallised well enough to represent recognisable conditions in the archaeological record. Much the same can be said of disappearing properties. Change, in other words, remains a difficult concept to grasp in archaeology, albeit perhaps the most crucial one of them all, giving rise to debate and different views.

For some archaeologists, stratigraphy will always be the alpha and omega of the discipline. It all starts and ends there. As with most truisms, this is (only) partially the case, especially in the domain of classical archaeology where other information carriers may be of importance. This is not to underestimate the importance of stratigraphical analysis in our case, however, but to place matters in perspective. By explaining the rationale of stratigraphical analysis in the discipline, Sam Cleymans documents how we operationalise matters while excavating at Sagalassos. Building on the discipline-wide laws of stratigraphy (one of the few, if not the only, universally accepted frameworks in archaeology), he explains how we register and document loci as the smallest meaningful archaeological unit and how we need to combine loci, as polyloci or by applying Harris matrices, in order to approach the notion of archaeological context, on which our further interpretation of the archaeological record is based. Of course, in the process of stratigraphical analysis and documentation we are grounded in and conform to the basics of the discipline. As a project excavating a specific

site, we have adopted our terminology as well as general *modus operandi vis-à-vis* stratigraphy to make matters as efficient as possible in the excavation and registration process. In a project which is also invested in different strategies of archaeological surveying, developing formalised ways to document how we approach synthesis, for instance on chronologically sequencing loci and contexts, originating from and remaining grounded in stratigraphical analysis is of importance, at least to differentiate between the different natures of evidential claims based on excavation compared to surveying, for instance, but mostly to always be in a position to revisit the empirical basis of no matter which step in interpretation of the stratigraphical record of Sagalassos.

In an ancient urban site such as Sagalassos, the documentation of its architecture is logically of crucial importance. In their chapter, Ebru Toru, Göze Üner and Özge Başağaç relate how their functioning as professional architects on a classical archaeological urban site has not necessarily been a walk in the park. They demonstrate how interdisciplinary archaeological practices best integrate architecture from the start. And even though this notion of collaboration between disciplines forms part of the basic philosophy of the Sagalassos Project, they document how in developing the *modus operandi* of the project, this has not always been the case with architecture. The resulting re-positioning of architectural recording is presented, which has substantially helped to overcome most of the hurdles, which other teams involved in urban archaeology and architectural recording of such remains will no doubt recognise. What this and the previous chapter do not discuss is that the procedures of stratigraphical analysis and documentation have seen a similar major overhaul in the history of the Sagalassos Project, running more or less parallel with this important exercise in architectural recording. The replacement of the earlier system based on the identification of stratigraphical layers, confusingly termed ‘contexts’,<sup>37</sup> with the locus system and the ensuing development of the Sagalassos Integrated Information System (SIIS)<sup>38</sup> have greatly helped not only to get the procedures, methods and practices right, but also to better define the interplay of roles between the different participating disciplines. Realising we all wanted the same outcomes but saw different roads towards that aim meant important first steps in solving a range of these matters, not in the least the need to underscore the quality of stratigraphical and architectural recording and documentation. Even though conservation and restoration of architectural structures and monuments, and site management policies in general, also revolve around the role, methods and concepts of the discipline of architecture in our project, these aspects are not presented in this volume, partly as these matters have been published elsewhere,<sup>39</sup> and also because we considered the focus of this volume mostly as archaeological *stricto sensu*.

Another logical outcome of excavating at a classical urban site is the registration of a plethora of archaeological finds or artefacts. Pottery readily dominates the find spectrum and at Sagalassos – a prolific pottery production centre especially in Roman times – this situation is very real to severe. Philip Bes and Rinse Willet present the logic behind the classification procedures of the material and its typological determination, which had to be conceived as flexible from the start. In order to sustain the documentation of the excavated pottery, the Sagalassos Pottery Template was developed, in its turn in correspondence with similar efforts in stratigraphical analysis and architectural recording, and therefore an integral part of SIIS. The aim of the template is in the first place documentation of pottery held in loci, simultaneously including typological, functional, taphonomic and quantification information, but also to open matters for discussion, research and comparison by having one logical system of combined qualitative and quantitative information in which the pottery of potentially all stratigraphical units excavated at Sagalassos can be registered. The potential of some research themes involving the pottery of Sagalassos, made approachable by the implementation of the methodological framework symbolised by the pottery template, are discussed by Philip Bes and Rinse Willet.

In her contribution, Fran Stroobants highlights the importance of coin finds and numismatic studies for provincial cities of the likes of Sagalassos. Traditionally, coins represent a special find category for classical archaeology, not only because of continued interests in the objects per se, as represented by dedicated journals, fora and institutions for numismatics, but also because the domain bridges the disciplines of archaeology and ancient history. Archaeologists are easily lured by the fact that coins can provide direct chronological evidence, while historians like to integrate coinage in wider discussions on the nature of ancient economies. In her contribution, Fran Stroobants shows that coins are all of that, and more, on the condition of applying a consistent methodological framework to what coins do as an evidential category, but also respecting the limits of such evidence. In this sense, this chapter demonstrates how a *chaîne opératoire* approach to aspects of production, circulation and use of money makes the evidence speak more loudly and equivocally. As such, her approach is very similar as to the aspirations of the Sagalassos Pottery Templates, for instance, encapsulating how pottery studies seek answers. Implicitly or not, the *chaîne opératoire* approach is a common denominator in the study of artefacts found during excavations or survey activities at Sagalassos and in its territory, and we see such methodological frameworks as the best guarantee to make the most of the available evidence in documenting patterns of ancient daily life. In the case of coin studies, adding another dimension of working with objects kept in collections is of importance, as this comes with its own potential and limita-

tions. On the whole, however, this adds to but does not fundamentally change the proposed methodological framework.

Next in line is a chapter on the role and importance of chronology in archaeology, by Jeroen Poblome. In a sense, this chapter provides a bridge between the earlier chapters on elementary documentation procedures of stratigraphy, architecture and artefacts, procedures which are actually inevitable when excavating a classical urban site, and the chapters that follow, which in one way or the other include elements of choice as to what theme or concept to study. For those archaeologists considering stratigraphy as the *nec plus ultra*, we would like to share the reflection that chronology should be considered along the same lines. Indeed, even though chronology features in perhaps every archaeological paper in some sort of way, attention to time and chronology as concepts of strategic importance to performing archaeology is overly lacking, nearly systematically so. For classical archaeology this matter is even more poignant, as epigraphy, numismatics or other ancient historical data can provide chronological markers or information that need to be considered appropriately, which means at least beyond face value. Raising awareness of what chronology does or does not do in archaeology is what this chapter wishes to contribute to.

Even in the relatively rich archaeological record of ancient Sagalassos, sometimes matters remain difficult. Take for example documenting the origins of the local community, as these traces may have made less of a mark and what there was ran the risk of being obliterated by later actions on the same location. The fact that Sagalassos was most probably organised in terraces in order to make matters liveable and walkable does not necessarily help, as collapses or rearrangements of this infrastructure can imply shifting bulks of sediment and materials. In this context, Dries Daems stresses the importance of making the most of what there is. He focuses on the available archaeological detail in order to transform this evidence into patterns of social behaviour. His communities of practice go a long way into providing a methodological and conceptual solution to making patchy archaeological records speak. In doing so, Dries Daems very much focuses on the extant archaeological record, and even mostly on the contemporary pottery. Clearly, the interpretation of that evidence also needs to be read against a deconstruction of the strong model of the origin and distribution of *polis*, à la grecque. In earlier work,<sup>40</sup> Dries Daems has contributed to mapping the intellectual attractiveness of the *polis* model and has tried to give local and regional communities, such as Sagalassos, agency in the overarching template of the Greek world. The deep cultural influences of doing things the Greek way are undeniable when looking at the Mediterranean in Classical times, but the hybridity of the actual outcomes readable in regional archaeological records, as well as the logic of giving local conditions a voice are increasingly import-

ant elements in this debate. So is projecting the archaeological evidence against wider historical developments, such as, in the case of Sagalassos, the role of the Seleucid and Attalid kingdoms in the emerging urbanisation process.<sup>41</sup>

Johan Claeys, on the other hand, describes the importance of decision-making at the trowel's edge, in order to make sure that matters are excavated in the right conditions, so as to allow further research, often by other disciplines, to add to the interpretation of sites in equally valuable ways. Of course, this holds true for most if not all archaeological excavations, yet Johan Claeys drives this message further home by applying it to the fuzzy conditions of ancient suburbs. By nature, the archaeological remains in suburbia are more ephemeral compared to excavating classical urban monuments and infrastructure, where imposing parts of ruins leave less doubt as to their interpretation. When the same methodological approaches are applied to excavating and studying all these contexts, however, we can manage to approach aspects of ancient life in almost intimate ways. Especially in a suburban context, where lots of activities related to work, commerce, gathering and feasting, but also taking care of the deceased, are attested, there are real opportunities to make the choices in life and death of the ancient community of Sagalassos tangible. That most people worked for their living at Sagalassos becomes palpable in the dossier of the eastern suburbs, and this fact shaped the choices they were able to make in important ways. The challenge is to read the archaeology they left behind in as colourful a way as their lives really were.

Whereas documenting liminal periods, such as the origins of the community of Sagalassos, and liminal zones, such as the eastern suburbs, ultimately remain grounded in and close to the realities, as documented by archaeological excavations and studies at Sagalassos, matters become more abstract when the aim is to document a concept *pur sang*, such as social memory. Even in lived experience, sensing how the different social groups one belongs to (or aspires to belong, is not allowed to belong, to or does not want to belong to) think of themselves, their importance and their roles or contributions to wider society is plain difficult, let alone approaching such elements for the past of a classical urban community, as Bas Beaujean wishes to do. Clearly, in this case too, the definition of the aim – the concept – and the laying-out of the methodological trajectory leading to that aim are instrumental in getting things right. Mostly working from structural and architectural evidence related to the Upper Agora of Sagalassos, this chapter shows how different strands of archaeological evidence can be combined to document ancient practices and dynamic actors, making conscious choices in how to shape their urban environment to represent and at the same time facilitate the workings of their society.



The study matter of Peter Talloen is similarly abstract, in that he relates how to document how humans and social groups conceived of the supranatural and how they organised religious practices and rituals in order to give believing a place in their lives and lived experiences. As with social memory, the full variety of available evidential categories needs to be brought to bear and organised in a clear methodological framework in order to reveal the different essential components of cult and its associated actions and actants. As performing religion expressed in a range of practices is fundamental to ancient religious life, and is this was very much intertwined with most aspects of ancient daily life, the documentation of ancient religion is within reach of classical archaeology. The case of Sagalassos demonstrates how vibrant religious experiences were, forming an integral part of ancient society. In this way, the documenting of social memory and ancient religion is within reach, even if both notions seem abstract, conceptual and less tangible at first sight. It seems important to us as a team to push the archaeological record of Sagalassos in ways that we do more than writing histories of buildings and monuments, or of the local social elite, but that we try to be more encompassing towards all parties in ancient society and all aspects that were foundational and meaningful to their lives. In that respect, the composition of the methodological frameworks guiding the way we do archaeology is of crucial importance, as this volume hopes to demonstrate.

The last two chapters of this volume, finally, present another aspect of the archaeological identity of the Sagalassos Project, in documenting the procedures and methods employed while surveying the countryside of the study region, by Ralf Vandam, as well as its changing natural environment, by Patrick Willett. Not only are the landscapes of the study region quite variable in nature, the methods the project has applied to its study have also changed over the years. This is partly in response to the conditions of the landscape and the archaeology it harbours of different periods, but more so to the scope of the research questions as defined by the research team; extensive or intensive, it does matter, as do the supporting activities of geophysical and geochemical analyses. Collaborations with other disciplines are even more crucial when investigating the evolution of the natural environment. Whereas the reconstruction of settlement patterns over time in the countryside can be an archaeology-driven affair, the situatedness of these patterns in the natural environment is best approached in interdisciplinary terms. As a matter of fact, settlement patterns and especially their changes over time are best considered in conjunction with their natural environment, which is impacting on the required methods to be employed in the field. Obviously, the same goes for the ancient urban settlement of Sagalassos. In that sense, it is appropriate that this mostly archaeological volume concludes with a more interdisciplinary chapter, sort of reminding us of

the obvious. It is fair to state that, as a result of the years of active fieldwork in the study region, the basic diachronic narrative of its settlement pattern and natural environments can be reconstructed in convincing detail for most definable archaeological periods. As always, progress can still be made, which at this stage of research seems mostly dependent on the success of integrating the various layers of interdisciplinary information and research strategies and on employing further computational modelling.<sup>42</sup>

From this introduction, one thing should be clear: methodological frameworks, practices and concepts are of very strategic importance to oil the many wheels of archaeology. What is more, even if each chapter has a soul and *raison d'être* in and of itself, from a methodological and conceptual point of view things work better when these frameworks are conceived of and employed together. Approaching and understanding the archaeological record requires nothing but a solid investment in the elaboration of archaeological methods, practices and concepts. That is exactly what this volume wishes to do and contribute to: showing how the archaeologists involved in the study of Sagalassos and its study region go about their business. Together, we are all too well aware that, as with most things in life, methodologies and concepts (and the resulting interpretations) cannot be fixed and closed, but should be geared towards solving issues and questions. Without a doubt there is much to be learned from trying to learn, as well as from sharing the experiences. Therefore, we gladly present this publication.

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## Notes

- 1 Boogers and Daems 2022.
- 2 Panagiotidou *et al.* 2022.
- 3 Kuzucuoğlu *et al.* 2019; Paulissen *et al.* 1993.
- 4 Waelkens *et al.* 1997, 97–102; Waelkens *et al.* 2000, 112–14.
- 5 Poblome and Daems 2019.
- 6 Poblome 2020.
- 7 Poblome *et al.* 2017.
- 8 French *et al.* 1986, 8–10.
- 9 Poblome 2013.
- 10 Vanhaverbeke and Waelkens 2003.
- 11 E.g. Vandam *et al.* 2021.
- 12 Erkal 2019.
- 13 E.g. on the Theatre, de Bernardi Ferrero 1969; on the Makellon, De Ruyt 1983.
- 14 Fleischer 1979.
- 15 E.g. on Kremna, İnan 1970; Mitchell 1995; many recent examples in Polat Becks *et al.* 2015.
- 16 Horsley 2007; Köker 2021.
- 17 Levick 1967; Brandt 1992.
- 18 Vandeput and Köse 2015; Gürsü 2023.
- 19 E.g. Özsait 1980; Duru 2008; Umurtak 2011.
- 20 E.g. Becks and Fındık 2019; Metin *et al.* 2015; Özudoğru 2020.
- 21 E.g. Özhanlı 2022; Hürmüzlü Kortholt and Sönmez 2021.
- 22 Hürmüzlü *et al.* 2012; Mörel *et al.* 2020.
- 23 Torun 2023.
- 24 Mirhanoğlu *et al.* 2023.
- 25 E.g. Dangol *et al.* 2021; Hacıgüzeller *et al.* 2019; Boogers and Daems 2022.
- 26 Vandam 2019.
- 27 Bintliff and Pearce 2011; Robb and Pauketat 2013.
- 28 Initiated in 1869 by the British Museum and, since 1895 to this day, managed by the Österreichisches Archäologisches Institut.
- 29 Initiated in 1873 at the instigation of the de Rothschild family, continued by the Staatlichen Museen zu Berlin in 1899, followed with interruptions by various German parties and now coordinated at the Universität Hamburg.
- 30 After some prelude excavations started in 1878, which, with some interruptions, continue to this day under the auspices of the Deutsches Archäologisches Institut, Abteilung Istanbul, since 1929.
- 31 <https://kvmgm.ktb.gov.tr/TR-44760/kazi-sonuclari-toplantilari.html>.
- 32 The excavations at Aphrodisias, for instance, were started in 1961 by New York University, now continued by Oxford University; the longest-running classical excavation by a Turkish university was launched at Perge by İstanbul Üniversitesi in 1946.
- 33 E.g. the Österreichisches Archäologisches Institut was founded in 1898; the Deutsches Archäologisches Institut, Abteilung Istanbul in 1929, building on the earlier presence of the Staatlichen Museen zu Berlin; the British Institute at Ankara was founded in 1947; the Institut Français d'Études Anatoliennes in 1930; the Netherlands Institute in Turkey in 1958; the American Research Institute in Turkey in 1964, focusing on fellowships; and the Missioni archeologiche italiane has been coordinating work at Hierapolis since 1957 and later at other classical sites.
- 34 E.g. Şimşek and Kaçar 2018.
- 35 Paraphrasing L.P. Hartley's novel *The Go-Between* (1953). See also Lowenthal 2015.
- 36 Lucas 2012 for an excellent philosophy of the archaeological record.
- 37 See for instance the description of the stratigraphy in Waelkens *et al.* 1997b.



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# How do we document ancient urban stratigraphy?

*Sam Cleymans*

## ***Context and archaeology: why we need stratigraphy***

The term ‘context’ did not originate in archaeology, but in linguistics. Linguists use ‘context’ to indicate that a word only receives a meaning within a sentence, paragraph or chapter – thus ‘with the text’, con-text. The word ‘past’, for example, means something completely different in the following two sentences:

- In the **past**, people lived at Sagalassos.
- The soldiers of Alexander the Great marched **past**.

Apart from understanding the meaning of a word by its sentence or paragraph, the context itself consists of words. As such, the context cannot exist or is meaningless without the words out of which it is created, and *vice versa*. This going back and forth between context and content is denoted as the ‘hermeneutic cycle’, or simply ‘hermeneutics’.

In archaeology too, we use the ‘context’ to make inferences about the past, but what do we mean by context? As archaeologists use material remains (objects, faunal and floral remains, skeletons, architecture, etc.) as main sources to study the past, we are surely not referring to context as something text-related. Nevertheless, the material remains found in archaeology only become meaningful when they enter into a dialectic relation with their context. In general, archaeologists distinguish between two types of context: *systemic* and *archaeological*.<sup>1</sup> The former can be defined as the social, political, cultural, historical and/or environmental setting in which material culture was formed, transformed, used and discarded. The archaeological context, in turn, can be considered as the location of an object in a site and its association with other finds. As such, the context consists of the total of material finds and their relative position, whereas the object itself is only understood by its relation with other finds and thus by its context. In this regard, the object again enters the hermeneutic cycle. In their book *Reading the Past*, archaeologists Ian Hodder and Scott Hutson state “[a]n object as an object, alone, is mute”<sup>2</sup> to stress how important this relation between object and context – systemic or archaeological – is.

I will illustrate the previous paragraph with an example. In Figure 1 a ceramic jar is shown. Imagine you see this in a museum's display case. Without additional information, a museum visitor who is not trained as an archaeologist is probably able to say that this object is made of fired clay and that the shape resembles that of a jar. An archaeologist specialising in pottery, looking at the same object, can probably also date it to Roman imperial times, and when conducting microscopic and chemical analyses, it is even likely that it can be deduced that it was produced at Sagalassos. Yet, just based on this jar in a display case, we have no idea at which site it was found, whether it was used as a water or wine jar, or... as a cremation urn. The identification that this particular jar served as an urn was done based on its archaeological context: it was found in a burial compound and contained cremation remains, which after analysis turned out to be human. Other objects in the same context were a ceramic *unguentarium* – perfume bottle – and two bowls (Fig. 2). That these finds probably served as grave gifts was deduced by combining the archaeological and systemic context. Indeed, they were found in association with a burial context (the cremation urn), and we know that in other graves at Sagalassos and elsewhere in Asia Minor, during this time period, similar goods were often given to the deceased.



Fig. 1. A ceramic jar found in 2016 at Sagalassos.





Fig. 2. All finds from the context in which the ceramic jar, which was used as a cremation urn, was found (left-right: bowl containing cremation remains, cremation urn, small bowl, ceramic unguentarium).

So far, I have focused on the importance of context in archaeology, but I have not linked this with stratigraphy yet. As defined by Colin Renfrew and Paul Bahn, an object's archaeological context consists of three main aspects: "its immediate matrix, its provenience and its association with other finds"<sup>3</sup> Its provenience can easily be measured topographically and expresses the absolute position of an object. The other two aspects are more relative. When it comes to the immediate matrix, one can wonder how immediate it needs to be: 1 cm, 10 cm, 1 m? Similarly, we can ask ourselves from what moment finds are associated. Are they associated because of their close spatial proximity, or are there other criteria? Can an object still be associated with another object when it is found several metres away? Here, stratigraphy comes in. Under the following headings I will first define what stratigraphy is, how it works and how we document it at Sagalassos, before answering how it helps in studying archaeological contexts.

### ***Stratigraphy, what is it and where does it come from?***

*Stratigraphy* is the description and study of strata. Originally this domain developed in the earth sciences to study natural layers. The field of stratigraphy has a long history. Geologist Nicolaus Steno (1638–1686) was the first to define the theoretical basis for the study of stratification. In fact, he described three laws (Fig. 3):

- *Law of superposition*: in a series of layers, the upper layers are younger and the lower are older, as the upper must have been deposited on top of the lower one.
- *Law of original horizontality*: every layer in an unconsolidated form will tend towards a horizontal position.
- *Law of original continuity*: every layer is either bounded by a basin of deposition or thins down to a feather-edge.

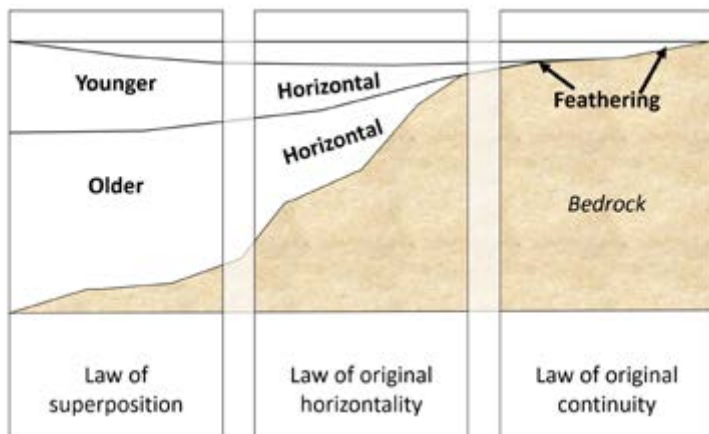


Fig. 3. Schematic overview of the stratigraphic laws.

In 1979, archaeologist Edward C. Harris adopted these stratigraphic laws and made these applicable to archaeological studies in his book *Principles of archaeological stratigraphy*.<sup>4</sup> To do so, he kept the first three laws, but defined the archaeological consequences. For the law of superposition, finds from a higher stratum would by definition have been deposited at a later moment in time than those from a lower stratum. The law of original horizontality would mean that if a layer is not found in a horizontal position, most likely some sort of human action consolidated it in a vertical or diagonal position. The filling in of a ditch is such an example. When it comes to the law of original continuity, the way a layer stops can be informative for interpreting a context as well. Knowing that a stratum usually feathers out, a vertical limit means that the layer was deposited in some sort of basin of deposition, such as a pit. Harris also added a fourth law:

- *Law of stratigraphic succession*: a stratum takes its place between the undermost of the strata which lie above it and the uppermost of those that lie below it and with which the layer has physical contact. All other superpositional relations are redundant.

This last law was added because archaeological stratigraphies are usually more complex than geological ones. People build walls, dig pits and arrange terraces, while natural stratifications are mostly the results of erosion processes and the laws of gravity. As such, there are many more relations – layers touching each other – between strata in archaeology than in geology. Therefore, describing each and every relation would be too cumbersome, whereas their relative position can perfectly be defined by following the law of stratigraphic succession.

Archaeological stratigraphy is even more complicated. So far, I have only talked about layers, while in archaeology there are also other *stratigraphical units* that are meaningful. A stratigraphical unit is the smallest man-made or natural feature which can be placed in a stratification. Apart from layers, which are often the most common, in archaeology architectural remains and interfaces are also used. Architectural elements, such as walls, floors, roofs and foundations, provide a whole new set of stratigraphical units, and have several consequences. A wall, for example, is a stratigraphical unit, but does not follow the laws of original horizontality and continuity: it is by definition vertical and bound by its own design. An *interface*, in turn, is the surface of a stratigraphical unit. In fact, as the interface and the stratigraphical unit have the same extent, one could say that it is not necessary to record it separately. However, three types of interfaces are meaningful to define:

- *Interfaces of destruction/removal*: when in the past pits are dug, or walls demolished, the underlying layers are partly destroyed or removed. Such destruction/removal is denoted as an interface as it defines the act of digging or dismantlement.
- *Walking level interfaces*: whether a floor is made of brick, tiles, a mortared surface or simply beaten earth, it always primarily served as a surface on which human activities took place. These activities often also left traces. For example, several objects could have been discarded or lost on top of the walking level. When later this floor surface was abandoned and was covered by a superposing layer – either naturally or through human intervention – these objects can still best be recorded as belonging to the interface, instead of as being part of the superposing stratigraphical unit. As such, they can be seen as an assemblage of associated finds. A walking level interface can also be larger than the surface of a single layer, as this floor area can be arranged on top of several substrates.
- *Interfaces of movement/change*: in Figure 4 a sarcophagus is shown. This sarcophagus stood in the niche of a burial compound at Sagalassos. It contained the remains of a woman – Lathenaous, as known thanks to an inscription – who was buried in the second century CE. In the third century CE a second woman – Aurelia Eias – was entombed in the same

sarcophagus and a second inscription was added. Finally, in the sixth century CE, this stone casket was removed from the niche, opened and looted. Although all these activities and alterations to the sarcophagus and its location are known and documented, they are not represented as layers or architectural features. As such, these can be defined as interfaces. The two entombments and the movement and opening of the sarcophagus can thus be considered as interfaces of change, while the looting and inscriptions cut in the stone are interfaces of removal.



Fig. 4. The sarcophagus found in the burial compound in the east of the Eastern Necropolis of Sagalassos.

### ***Stratigraphy and time***

The law of stratigraphic superposition describes how an upper stratigraphic unit is deposited after a lower one. As such, it is possible to construct a relative chronology of the events at the site. The various stratigraphic units can be placed in a relative chronological order, by looking at their mutual relation. Not only can we say that the one layer is younger than the other (Fig. 5a), because the former superposes the latter, but sometimes two layers do not have a chronological relationship with each other (Fig. 5b), or they are contemporary even though they do not touch (Fig. 5c).

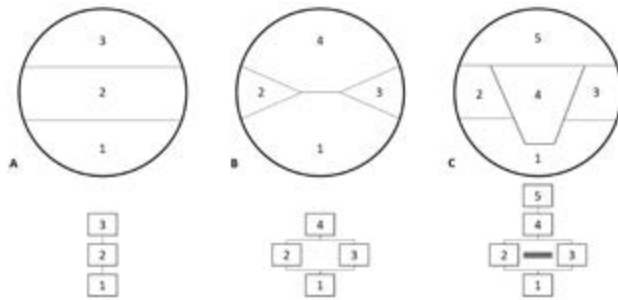


Fig. 5. Schematic overview of the three chronological relations in stratigraphy: (a) younger/older; (b) no relation; (c) contemporary.

The same Edward C. Harris who defined the archaeological laws of stratigraphy also developed a scheme to visualise this relative chronology: the *Harris matrix*. I will not discuss in detail how a Harris matrix is created, but the basics are quite simple. First, the archaeologist numbers all the encountered stratigraphical units. Second, the number of the oldest – and thus lowest – unit is placed at the bottom of the page, after which the lowest stratum of the superposing strata is placed above and so on. In this way, the relations between the various stratigraphical units are visualised. To illustrate this, Figure 6a shows the profile drawing of a fictive excavation with all stratigraphical units numbered, and Figure 6b presents its Harris matrix. Yet, instead of only 16 strata, an excavation can easily have several hundreds or thousands of units, all of which need to be incorporated in the same matrix.

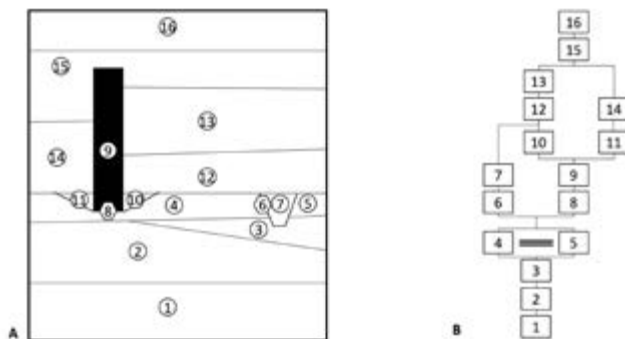


Fig. 6. Example of a Harris matrix. Left a profile drawing is shown with (9) being a wall, (7), (10) and (11) being pit fills and those numbers in a hexagon being interfaces. Right, the Harris matrix of this profile drawing is presented, indicating the relative chronology of these 16 stratigraphical units.

The moment of deposition of a stratigraphical unit is often dated based on its content. When a coin or a sherd of pottery is found in it, we know that these must have ended up in this stratum after these objects were manufactured. Consequently, if a layer contains a coin that was minted in 223 CE, we know that the layer has to have been deposited in 223 CE or later. Yet not every stratigraphical unit contains datable objects. In that case, the related strata are what allow us to set a date range. For example, imagine a simple wall made of some stacked rubble limestone blocks. This wall cannot be dated based on solely its construction technique, nor does it contain any datable objects. The layer it is standing on (Layer A), however, contains a coin minted around 50 CE. Now we already know that the wall must have been built in or after this date. We call this the *terminus post quem*, the ‘limit after which’ a certain event took place. The layer superposing Layer A and abutting the wall, in turn, must have been deposited after the wall was constructed, else it would not abut it. As this layer contains potsherds from the first century CE, the construction of the wall can be dated to the second half of the first century CE. Indeed, this coin defined the *terminus ante quem*, the ‘limit before which’ the wall had to be built. The stratigraphy can thus be considered as a powerful tool to study the chronology of human events at a site.

### ***Stratigraphy at Sagalassos: an introduction***

As stratigraphic documentation can help in studying the chronology and in understanding what happened at a particular site, almost every archaeological excavation puts a lot of effort into recording the stratification. The Sagalassos Project too has developed a system to describe stratigraphical units, their content and how these interact with other strata.

Before describing how we document the stratigraphy at Sagalassos, it is important that the terminology we use is specified. ‘Stratigraphical unit’ is quite a mouthful, and very long when it needs to be written down on a daily basis in reports, field notebooks, etc. At Sagalassos, we therefore use the term ‘locus’. A locus is defined as *the smallest meaningful archaeological unit*.<sup>5</sup> This definition consists of several relevant elements. As it is the ‘smallest’ unit, it cannot be split up into smaller parts; ‘meaningful’ indicates that it can be placed in a stratigraphic sequence and thus informs us about the order of activities that took place at a site. Moreover, a locus needs to be ‘archaeological’. What this means is that it should contain information that is relevant for archaeological research questions. For example, when conducting an excavation, we usually stop when we reach virgin soil, because then we know that no other human activities will

follow. When we first encounter this natural substrate, it is registered, as at this point it is archaeologically meaningful in terms of defining the onset of human events. Stratigraphically, however, it would still be meaningful to go deeper and look at the natural stratification, but by doing so we do not aim at answering archaeological research questions. Consequently, these deeper natural strata are not further uncovered and documented. The definition of a locus thus includes: (1) that it is a unit different than its surrounding loci but undividable by itself, (2) that it has stratigraphic relevance and thus follows the archaeological laws of stratigraphy, (3) that it contains archaeologically relevant information which is not already included in other loci, and (4) that it is bound in space and time.

When we document a locus, we follow several steps at Sagalassos. During the first step, the archaeologist documents the basic information on a locus in a standard written format. The second step is to record this stratigraphical unit topographically and photographically. Finally, we move to a meta-analysis where the relation between the various loci is investigated.

### ***Step 1: basic locus documentation at Sagalassos***

To name our loci, we use a coding system that is specific for Sagalassos. As loci are the smallest meaningful units, it is important that each locus is registered separately and that all finds found in it are also attributed to it. A locus number is structured as follows: SA-2005-AP-00115. SA stands for Sagalassos, 2005 is the year the locus got excavated, AP is the excavation during which the locus was encountered – in this case the Temple of Antoninus Pius – and 115 is the number of the locus. This means that before this locus was found, 114 other stratigraphical units were documented at AP in 2005. At the end of the locus number a find number can also be added, on the condition that the locus contains some finds. Here, we do not start numbering from 1 each time a new locus is encountered; instead the find numbering is consecutive. In this way, the find number, without a locus number, is still unique.

After naming the locus, we start by defining which locus type we are dealing with. To do so, we use a closed list: (1) layer, (2) interface, (3) vertical elevation, (4) horizontal elevation, (5) concentration, and (6) object. Layer and interface were already discussed above, and vertical and horizontal elevation are architectural features, respectively those that stand vertically (e.g. wall and columns) and those in a horizontal direction (e.g. floors, roofs, vaults, ceilings, etc.). Concentration denotes that the majority of the stratum consists of finds (e.g. a potter's dump), while an object consists of a single – often basin-shaped

– artefact which bounds another locus (e.g. a storage vessel is an object and can be filled with earth).

At this point, a detailed description of the locus can be provided. The fields to enter this information differ from type to type. Indeed, the description of a wall is different from that of a layer. Here, I only will list and discuss some of the entries for a layer for two reasons. First, layers are the most common locus type on site and their description is quite similar to that of concentrations, and second, the documentation of architectural loci will be further discussed in the next chapter:

- **Colour:** the colour of the layer is described. Often this is done by using a Munsell soil colour chart. Albert H. Munsell was an art professor who developed a coding system for colours based on visual perception. As most soil matrices are not fully homogeneous in colour, it is hard to use the smallest detail of the coding system. Therefore, we mostly use the broader categories in Munsell's chart (e.g. reddish brown, light brownish yellow, etc.).
- **Composition:** the composition defines whether the soil matrix consists of clay, silt, sand, gravel or a combination. These sediments are distinguished based on their grain size and can be discerned in the field by adding water and attempting to form certain shapes from it (Fig. 7).

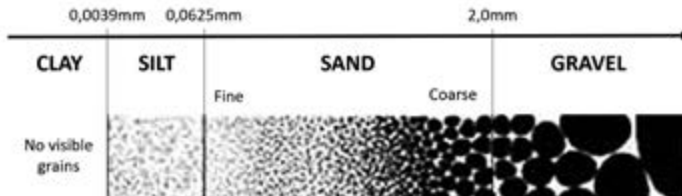


Fig. 7. Overview of how clay, silt, sand and gravel are identified.

- **Compaction:** describes how compact the soil is – a range from very hard to very loose is used.
- **Inclusions:** apart from the finds that are found in the locus, the soil matrix often contains (natural) inclusions too. Small limestone fragments, charcoal specks, some modern organic material (i.e. plant roots) and clay nodules are often found. For the inclusions we register their nature, size and amount.
- **Thickness:** the maximum and minimum thickness of a locus.
- **Extent:** the spatial dimensions of the locus. In the description this extent is often documented as where on site it is found and which space it fills, rather than measuring its coordinates.



- Integrity: here we define how we distinguished this locus from the surrounding loci. The choice of distinguishing stratigraphical units is always based on what we as archaeologists observe during the excavation but remains a (subjective) decision made by the excavators bound by inter-observer biases. Consequently, this choice also needs to be substantiated.

## ***Step 2: the topographical and photographic documentation***

Apart from describing a locus, we also record it in two other manners: photographically and topographically. Photographic documentation in archaeology is almost as old as photography itself. It is standard practice on almost every excavation to take pictures of each stratigraphical unit, architectural feature and most objects. These photos are mostly presented with a north-arrow to present the orientation, a scale-bar to indicate the size of the feature and a photo-board on which the locus name and site code is denoted. At Sagalassos too, simple pictures are taken of almost all loci. Additionally, in 2011 we started to use orthophotography. These photos are mostly shot either straight down or at an oblique angle from a 6m-long stick. During post-processing these pictures are combined to a single orthophoto using specialised software (Fig. 8). By doing so, the original relief can be reconstructed in 3D. Moreover, when adding coordinates to the photo, this orthorectified picture becomes measurable. When this is done for every locus encountered during the excavations, it becomes possible to make an overlay of all the stratigraphical units and thus to make a 3D reconstruction of the entire excavation.

Topographical measures are also taken. Usually this is done either with a total station or a GPS. A locus is measured in two ways. First the outline of the locus is recorded. This has the advantage that during post-processing the extent of these loci can be plotted on a map. When certain attributes – such as its colour, the objects found in it, etc. – are associated with a locus, it becomes possible to ask the geographic information system (GIS) software to plot, for example, all dark brown layers containing a hairpin. The Sagalassos Project has developed a database structure, named the Sagalassos Integrated Information System (SIIS), which is connected to GIS. It thus is possible to ask the database to plot certain finds or loci. A second way we document the coordinates is by taking point measures randomly spread over the locus. By doing so, we create a Digital Elevation Model (DEM) of the local relief. For a sloping layer, for example, this makes it possible to calculate the inclination.



Fig. 8. Orthophoto of the entire burial compound in the east of the Eastern Necropolis of Sagalassos at the end of the excavations in 2017.

### ***Step 3: polyloci and Harris matrices – a meta-analysis***

So far, all documentation has been restricted to a single locus. Equally or even more interesting is how these loci relate to each other. To bring these loci into synthesis, we use two techniques during post processing: polyloci and Harris matrices.

A polylocus is, as the name suggests, a combination of loci which form an archaeologically meaningful unity. A vaulted subterranean tomb can serve as an excellent example (Fig. 9). To construct it, the underlying bedrock is cut (interface), the four walls are built (vertical elevation), a tile floor is laid out (horizontal elevation) and the interment takes place (interface), after which the tomb is closed off by a vault (horizontal elevation). Each of the separate loci form the smallest meaningful archaeological unit, but the identification of it being a tomb cannot be made solely on a single locus, only on their combina-

tion. As such, the locus can be seen as a word, while the polylocus takes up the role of context, forming a hermeneutic cycle. A polylocus is more than the sum of its loci, and therefore has its own attributes. The dimensions of the tomb for example need to be measured separately in the field, as they cannot be deduced from the dimensions of the separate loci that comprise the tomb. At Sagalassos we work with three hierarchical levels of polyloci:

- *Collated loci*: the example of the vaulted tomb belongs to the lowest level. This level describes simple structures that consist of multiple loci, e.g. pits, hearths, hypocausts, rooms, graves, etc.
- *Phase*: all loci and polyloci that belong to a specific phase of a structure are grouped under this intermediate level. For example, apart from the vaulted tomb, five other vaulted tombs, a sarcophagus and a cremation chamber belonged to the same phase.
- *Site area*: the site of Sagalassos is arbitrarily subdivided in several zones, such as the 'upper city', 'eastern suburbium', 'western residential quarter' or 'southern necropolis'.

As discussed before, one of the advantages of documenting the stratification at a site is that it informs us about the chronological sequence of events that took place at the site. To understand this relative chronology, the relations between the loci need to be described. In the Sagalassos Project, we first describe the nature of the relation: superposing, abutting, cutting through, cut through by, etc. Based on the nature of the relation, it becomes possible to discuss the chronological implications. Here, only four options are available: younger, older, contemporary or no relation. These four relations are the same as discussed above, under the heading 'stratigraphy and time', and thus allow us to construct a Harris matrix for all loci documented during an excavation. As such, the relative chronology



Fig. 9. 3D reconstruction of a vaulted chamber tomb at the burial compound in the east of the Eastern Necropolis of Sagalassos with the skeletal remains of an adult female.

of a particular site can be documented in full. After material processing, when the finds associated with each of these strata are identified and dated, the Harris matrix can be refined.

### ***Contexts and stratigraphy at Sagalassos***

I started this chapter by discussing why context is important in archaeology. For the archaeological context, it was argued that three main aspects define an object's context: its provenience, immediate matrix and associated finds. For the latter two, it was noted that it is hard to define whether a matrix or find is associated with a specific object. The answer is now provided by the way the stratigraphy at Sagalassos is documented. As a locus forms the smallest meaningful archaeological unit, an object found in this stratigraphical unit is by definition associated with the locus' matrix and with the other finds encountered in the same matrix. When, for example, a walking level in a potter's workshop is excavated, the potter's tools found on this floor level are all associated with each other. The objects found in the superposing layer are consequently younger in date and cannot be associated with the same event(s).

It should, however, be noted that an archaeological context is not restricted to this lowest unit but exists on several scales. Similar to the locus that becomes more meaningful when it is attributed to a polylocus, an object cannot be fully interpreted when only the attributes of the locus it was found in are taken into account. The archaeological context thus also consists of the several polylocus levels. Imagine that in the entombment interface of the vaulted tomb – which was used as an example of a polylocus above – a bowl is found. Since it is part of an interface and several attributes are linked to the interface, further inferences can be made both about the object and about the interface. A coin or radio-carbon date on the skeletal remains that are part of the same locus can help in dating the bowl. Similarly, the act of the entombment can be dated based on the typology of the bowl. On the polylocus level of collated loci, the bowl is also attributed to a tomb. The identification of this polylocus as a tomb is mostly based on a combination of the loci it consists of and the finds within these loci. Indeed, the identification of a tomb most likely follows from the presence of human remains. As such, the bowl can now be interpreted as a grave good. If only the interface was taken in consideration, the association between the human skeleton and the bowl could also originate from a person randomly dying somewhere while he/she was carrying around this ceramic vessel. It is only because, apart from the skeleton, a tomb was also constructed that the deposition of the bowl can be identified as being part of the funerary practices. The same applies

for the other polylocus levels. Imagine that the vaulted subterranean chamber was empty. If it was found in a burial compound somewhere in the *necropoleis*, there is a good chance that it would still be interpreted as a looted or unused tomb. In turn, if exactly the same structure were to be encountered on the Upper Agora, we would look for another interpretation as we know that in these time periods inhumation never took place within the town.

In sum, an object without a context is indeed mute. It is only by going back and forth between the archaeological (and systemic) context and the finds and soil matrices that archaeologists can make sense of the past. Stratigraphic documentation is the most basic archaeological tool that helps in understanding the context and which objects and loci should be considered as being associated, either spatially or temporally. Therefore, with the Sagalassos Project we have put a lot of effort into developing methods and digital tools to document loci, polyloci, finds and contexts in a formalised way without losing information.

### **Notes**

- |   |                              |   |                                    |
|---|------------------------------|---|------------------------------------|
| 1 | Schiffer 1972.               | 4 | Harris 1979.                       |
| 2 | Hodder and Hutson 2003, 171. | 5 | Sagalassos Excavation Manual 2012. |
| 3 | Renfrew and Bahn 2008, 52.   |   |                                    |

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# How do we document architecture in classical archaeological practice?

*Ebru Torun, Göze Üner and Özge Başağaç*

## ***Architects lost in archaeology***

Archaeology is a documentary act as much as it is commonly referred to as a destructive one.<sup>1</sup> The ‘paradox of archaeology’ is that the primary act of digging ‘destroys’, or rather displaces the very context it is meant to investigate.<sup>2</sup> Starting from the early years of archaeology establishing itself as a discipline, documentation of the fieldwork and data collection, allowing post-excavation interpretation or justification of hypotheses, emerged as an answer to that paradox.<sup>3</sup> With the post-processual critique of the positivist archaeology of the 20th century, archaeology has recognised that data collection and record keeping can hardly be free of interpretation, and that the act of documentation is contextual.<sup>4</sup> Yet today – avoiding unconditional trust in the collected data – contextually targeted, accurate and consistent recording is still the practice aspired to and a factor of the scientific quality of any archaeological fieldwork.

Documentation at archaeological sites is expected to serve multiple scientific and practical aims and answer research questions referring to different scales and time frames.<sup>5</sup> At the same time, in archaeology, architects are supposed to take into account and catch up with the dynamic process of the excavations. Depending on the characteristics and condition of the exposed structures, the scope and targets of the architectural recording vary from site to site as well as through the progress of the excavations. The practice is supposed to fit and serve efficiently the management processes of the research project as well as of the archaeological heritage. Architectural recording on archaeological sites is contextual also in this sense. Consequently, the need for architects on archaeological sites is still an obvious fact.

Yet it is not uncommon in archaeology, especially in long-term projects, for the architectural documentation component to fall short of serving the research questions and post-fieldwork use. The problems encountered are often a con-

sequence of the inorganic tie of architecture with the interdisciplinary project structure and the rupture between the architectural and archaeological recording. Today, scientifically ambitious archaeological research projects establish themselves as interdisciplinary collaboration platforms. However, the field of architectural recording in most cases does not find its place in the construction stages of the interdisciplinary research where the themes, questions, methods, database concepts and research targets are set, and the modes of collaboration amongst different disciplines are defined. From the start, this prevents the architectural documentation from being designed in synchrony with the aims and requirements of a project. Thus, the nature of the relationship remains that of 'temporary technical support' or a 'service' received from architects. As a consequence, problems arise in the form of backlogs, or lack of consistency in the styles, techniques and accuracy of recordings through the years. More importantly, the documentation may miss information sought by different disciplines. Eventually this situation manifests itself as a management issue of the site, the project and the generated or missing data, with certain scientific, organisational and financial consequences.

This paper discusses the position of architectural recording within the interdisciplinary project structure of large-scale classical archaeological projects, taking the site of Sagalassos located in southwest Turkey as a case study where such a project has been conducted since 1990. The experience of architectural recording at Sagalassos is a good case, as it took a long time before the practice was well defined, systematised and improved to become eventually an integral part of the interdisciplinary structure.

The remains of the Sagalassos city centre have been excavated since 1990, exposing mainly the monumental urban fabric, created, used and transformed through centuries, with most of its visible structures and layout dating back to the late Hellenistic to Roman imperial and Byzantine eras. The ongoing archaeological excavations are part of an extensive interdisciplinary research project of KU Leuven covering the wider territory of ancient Sagalassos.<sup>6</sup> The Sagalassos Archaeological Research Project was designed to be a collaboration of different disciplines from the very beginning, in order to capture and study all possible data that could be retrieved from the excavations and surveys.<sup>7</sup> Architectural research and documentation of the visible and excavated monuments were important components of the project due to the nature of the ruins as well as the research themes of the Sagalassos Project, which focused on the urbanisation process in the Hellenistic through the Roman imperial and Byzantine eras. For many years, architects or students of architecture were invited to join the Sagalassos fieldwork for different architectural recording tasks.<sup>8</sup> Yet this kind of collaboration with individuals for architectural recording proved to be un-



sustainable and problems started to surface when further research/analysis had to be conducted making use of the architectural documents that had been produced, or when scientific reports and publications had to be prepared.

In the following sections of the paper, the results of an internal assessment made in 2007 of the architectural recording practices within the Sagalassos Project are discussed, as well as the subsequent re-organisation and how it has been implemented. In the conclusion the improved and ongoing architectural recording practice at Sagalassos in the past decade is evaluated.

### **Assessment**

The need to evaluate the state of architectural recording at Sagalassos surfaced by 2007 mainly due to the ever-growing backlog in documentation, as many sites, buildings and building blocks had remained unrecorded since the start of the excavations. Furthermore, the drawings produced often did not contain some essential information for different research questions, mainly related to *Bauforschung*, but also to archaeology and other disciplines. There were also issues of graphic quality and spatial accuracy. The methods used were not always the most efficient or appropriate ones for the tasks performed, with little time and determination to improve and/or try new digital recording techniques. As discussed below, the assessment made in 2007 identified four points to address the problems encountered: the architectural recording team; time constraints and speed/extent of excavations; the lack of clear distinction of the tasks coupled with designated protocols and methods; and the methods used.

#### The team

The formation of the architectural recording team within the Sagalassos Project differed from that of other participating disciplines. Based on their targets, these research groups composed their own teams, and used the appropriate techniques and/or tested and improved novel methodologies related to their fields. In contrast, the architectural recording at Sagalassos was not clearly assigned to a single partner group. Instead, individuals with different educational backgrounds and degrees of experience were invited to conduct architectural documentation on the site over the years. Only a few of them could participate for consecutive years, which meant that the build-up of experience, continuity and improvement of methods were not really possible. On the site, architects operated as dispersed groups engaged with *ad hoc* issues without a unifying supervision.

## Time constraints, speed and extent of excavations

The annual excavation programme at Sagalassos had to fit into approximately eight weeks and therefore required an uninterrupted digging process in order to reach the targets of the campaign. An area of around 1400 m<sup>2</sup> was excavated every campaign, with large monuments unearthed at the city centre. Documentation of the 'as found' situation of the fallen blocks in collapse layers and their removal from the trench were inherently time-consuming tasks that delayed the digging process. So, architects were expected to work fast to facilitate the excavation process (Fig. 1). By the end of a campaign, very little time was left to complete the measured drawings of the revealed structures and the retrieved building blocks, leading to an ever-growing backlog in documentation. There was also limited opportunity for good communication between the architects and the archaeologists, even though the latter could actually provide invaluable guidance and feedback for architectural recording. Archaeologists naturally saw important traces and/or correlations in their trench, such as a former floor level or traces of a niche, etc., that architects could miss and consequently not record.



Fig. 1. Architectural blocks in collapse layers, B3 excavations (West portico of the Upper Agora).

## Distinction of tasks and protocols

A variety of architectural recording tasks were supposed to serve different ends simultaneously. However, neither the tasks nor their diverse purposes and future uses were well defined and explained to the participating architects or students. Similarly, not much was done to pick and improve appropriate and efficient methods for each type of recording with a protocol to be followed. This led to the use of inappropriate methods, scales and/or insufficient accuracy and detailing in the drawings. The opposite also occurred when superfluous work was done with excessive rendering and detailing, yet with crucial notations missing, such as the site name, layer, sector and/or architectural fragment numbers, etc.

## The methods

Traditionally, tacheometry was used to produce geo-referenced measurements at Sagalassos. The fixed triangulation points on the site were created and clearly marked in the early years of cartography at Sagalassos.<sup>9</sup> Until 2007, the plans, sections and elevations were measured using total station points and were drawn by hand. There was a lack of powerful computers and/or necessary software during the excavation season to produce digital vectorial drawings.

Documentation of architectural blocks was another major architectural task, mainly of those from the structures that could be dated based on decorative style and the ones that belonged to a monument which was subject to a *Bauforschung* and/or anastylosis. A preliminary restitution investigation typically focused on diagnostic blocks that revealed the architectural order of the structure in question. Therefore, such blocks needed to be drawn on the site in 1:1, 1:5 or 1:10 scales. This manual recording of blocks was not an efficient and consistent solution for large anastylosis projects with hundreds or even thousands of architectural fragments to be recorded and studied.

As early as 1999–2000, pioneering digital 3D modelling photogrammetry software was successfully developed at Sagalassos within the framework of a European Union project;<sup>10</sup> however, the resulting software could not be employed at Sagalassos for several reasons. Firstly, and not uncommon for the initial years of any cutting-edge technology,<sup>11</sup> the demand for it had not originated from within the archaeological project itself. The site of Sagalassos was selected by the engineers of ESAT (Department of Electrical Engineering, KU Leuven, Belgium) as a case study. The architects active at Sagalassos were not well informed or involved in the 3D MURALE project. The merits of such software was not entirely grasped, as it was seen more as a visualisation and presentation

tool rather than a practical and accurate enough one for the recording purposes across the site. How it could serve to acquire the conventional architectural recording products such as 2D plans, sections and elevations where dimensions can be read, and from which new drawings can be produced, was not clear. Furthermore, once the software was developed, neither the software nor the experts who could operationalise it at Sagalassos were provided free of charge, while the expertise, as well as the equipment and hardware, to use it were lacking in the Sagalassos team. Coupled with this, the fact that the architectural recording task was not assigned to a specific research group but to individuals meant that the efficiency of the methods used was seldom questioned during the limited period of the campaigns. Due to the hectic nature of the fieldwork, there was hardly any opportunity for discovering the potential of new techniques to replace or enhance the conventional ones.

The overall conclusion of the assessment made in 2007 was that the shortcomings encountered fundamentally originated from the problematic position of the field of architectural recording within the interdisciplinary project structure.

### ***The re-organisation of architectural recording***

A new approach towards architectural documentation and research within the Sagalassos Project was suggested and a practical re-organisation of the architectural tasks was planned by the first author in 2007. This re-organisation has been in use at Sagalassos, with continuous improvements. It is presented below in four sections. Firstly, the main aim of the re-organisation is explained; secondly, the defined types, workflow and methods of architectural recording are introduced; thirdly, the changes brought about to the architectural recording team are discussed; and finally, the management aspects of the re-organisation are evaluated.

#### Main aim of the re-organisation

The new approach targeted a fundamental change by making architectural recording an integral part of the interdisciplinary research and archaeological practice at Sagalassos. This change was considered the key to remedying the shortcomings encountered in practice. The integration was prioritised and planned to develop along three interlinked tracks. The primary track was enhancing its contribution to the interdisciplinary research. The second track valorised the fieldwork as a ground for improving methods and techniques of

architectural recording. The third track led to the integration of architectural recording practice with the archaeological data collection.

The first track targeted making architectural recording tasks at Sagalassos in principle an organic part of the main archaeological research, especially the *Bauforschung*. Such a 'building archaeology' research by definition aims to cover various physical aspects, such as the study of the building material, its provenance and transport to the site, the building style and technique, the craftsmanship, the location on the site, the related urban infrastructure, the alterations to the building and its use, the collapse of the structure and perhaps its re-building. Historical and interpretative aspects, such as the purpose of building, the choice of its location, its social, political and economic implications in its historical context, as well as the entire *chaîne opératoire* behind the construction process, are often important aspects of study of an excavated building or structure. Therefore, a proper architectural documentation should seek to make this multi-faceted research possible by ensuring that all the clues and information yielded on the above-mentioned aspects are captured during the entire archaeological process, together with all other archaeological data acquired during the excavations. When conducted to serve all aspects of *Bauforschung*, architectural recording becomes a component of the larger research agenda, where close collaboration with other related disciplines gains importance and relevance.

The second track focused on the adjustment of the recording methods, techniques and procedures, acknowledging that a combination of architectural survey methods is the most flexible and efficient approach in *Bauforschung*, with techniques ranging from sketching and measuring done by hand, to tacheometry, photogrammetry and 3D laser scanning.<sup>12</sup> Yet shifting from analogue to more digital recording was considered to facilitate the integration of the documentation into the main archaeological database. Photogrammetry (surface models from digital images) and 3D scanning techniques were planned in combination with conventional tacheometric recording (geo-referenced measurements with a total station).

The third track concerned the integration of architectural recording within the entire archaeological data collection process. Digital architectural recording was preferred to link easily with the main archaeological database and to serve as its spatial interface, based on a workflow where the data acquired through architectural recording and the documentation produced was entered into the main database in a systematic manner.

## Defined types, workflow and methods of architectural recording tasks

In the new organisation that is still in use, the amalgam of architectural tasks performed on the site is divided into three main groups as ‘pre-excavation’, ‘excavation-parallel’ and ‘post-excavation’ architectural study and recording. Each group of recording, its workflow and methods are described below.

### — Pre-excavation architectural study and recording

The pre-excavation recording entails the identification and study of all visible *in situ* and dispersed architectural remains and is ideally supported by geophysical investigation of the buried architectural remains. It results in an accurate recording of the ‘as found’ situation, a tentative restitution and an evaluation of the degree of preservation of the studied structure, building or area. This provides a basis for the decision-making process and planning of excavations and potential conservation and restoration works (Fig. 2).

## PRE-EXCAVATION RECORDING




	<b>Regional Scale</b> <ul style="list-style-type: none"><li>• Geographical maps</li><li>• Regional development plans</li><li>• Regional environmental plans</li><li>• Road maps</li><li>• Geologica, geomorphological maps</li><li>• Satellite images</li><li>• Ağlasun maps, urban plans</li><li>• Ağlasun urban conservation analysis</li><li>• Viewshed analysis</li></ul>
	<b>Site Scale</b> <ul style="list-style-type: none"><li>• Sagalassos City map[s]</li><li>• Maps of the Protection Zone</li><li>• Viewshed studies</li><li>• Grid system and coordinates</li><li>• Terrain sections</li><li>• Geophysical analysis, maps and sections</li><li>• 3D site model</li><li>• 3D restitution model</li></ul>
	<b>Trench Scale</b> <ul style="list-style-type: none"><li>• Coordinates of the trench</li><li>• Architectural fragment [block] situtation documentation of the top layer</li><li>• Analysis of the visible blocks</li></ul>

Fig. 2. Pre-excavation recording in different scales and the resulting documents.

As a start, the pre-excavation stage focuses on the available research results. The interdisciplinary research at Sagalassos since 1990 has generated a large amount of data and documentation and produced a rich volume of publications. Therefore, prior to any excavation at a selected area in Sagalassos, an in-depth study in the archives is carried out to bring together the available architectural information and other documentation. The architectural studies of the Lanckoroński expeditions,<sup>13</sup> the Pisidia Survey<sup>14</sup> and the *Bauforschung* publications of the Sagalassos Project<sup>15</sup> are the obvious references to consult for architectural purposes. In addition to these, the results of the interdisciplinary urban survey conducted at Sagalassos in 1998–2005 are checked.<sup>16</sup> Furthermore, publications of the archaeometrical research on ancient building materials of Sagalassos are also used in order to become familiar with the building remains that may be encountered. Diverse research topics within the Sagalassos Project could also contribute to the interpretation of the architectural remains, such as the study of the *necropoleis* of the ancient city,<sup>17</sup> or the results of research on ancient quarrying.<sup>18</sup> Last but not least, a literature review is made of comparative study material to better interpret the remains encountered.

A relatively simple but important step at this stage is assigning a code to the new excavation area. Most of the structures on the site have already been given a name during the earlier research campaigns (the Lanckoroński expedition, the Pisidia Survey and the prior studies within the Sagalassos Project), such as the ‘Gymnasium’, the ‘Bouleuterion’, etc., whereas at the urban centre, the sectors almost always contain material from more than one structure and period. Therefore, rather than naming new trenches with the presumed function of the main structure in the sectors, a ‘neutral’ code without any functional connotation is used in the new recording system.

The major step of the pre-excavation stage is recording the study area ‘as found’. Ideally, this preliminary investigation is combined with a geophysical survey in order to understand the extent, the nature and the degree of preservation of the buried remains. The techniques used at Sagalassos, in combination with remote sensing and archaeological intensive surveys, have so far provided successful results in scanning and visualising the architectural remains underground.<sup>19</sup> The geo-radar, geomagnetic and geo-electric surveys can even provide 3D information, showing the depth and the preserved height of the structures.<sup>20</sup>

The architectural documentation of the ‘as found’ condition in the pre-excavation stage (Fig. 3) is carried out using either tacheometry in combination with hand-made field drawings, or photogrammetry in combination with tacheometry. The conventional tacheometric method makes use of a total station to acquire a multitude of geo-referenced points tied to a fixed polygon on the site. A plan sketch is made covering the visible *in situ* sections and the fallen

blocks, followed by measuring with a total station the xyz coordinates of selected points. Each registered point is marked on the sketch and the coordinates are saved as lists. In the next stage, the measured points are printed in the desired scale and this plot is used to hand-draw the plan of the sectors on the site. This plan is then scanned and used as the basis for a digital vectorial drawing (Fig. 4). The second method, which has been in use at Sagalassos since 2011, is an image-based photogrammetry technique that produces the 3D surface model of the investigated area.<sup>21</sup> Using a camera attached to an extendable monopod, overlapping digital photographs of the area are taken and processed using a software (Photoscan Professional by Agisoft). Based on similar pixel characteristics, the software detects matching 'feature' points on these overlapping images. It then calculates the position and orientation of the camera for each image and thereby generates the geometry/structure of the documented area. The Structure from Motion (SfM) algorithm locates the detected feature points as a 3D point cloud. In the next step, the software converts the 3D point cloud into a triangulated mesh and subsequently a coloured and textured surface model. This technique has to be combined with tacheometry to geo-reference and scale the created 3D model. The model is then used in different ways, for instance to acquire 2D orthophotographic plans and sections of a studied area<sup>22</sup> (Fig. 5).



Fig. 3. The UASE trenches before excavations in 2014.



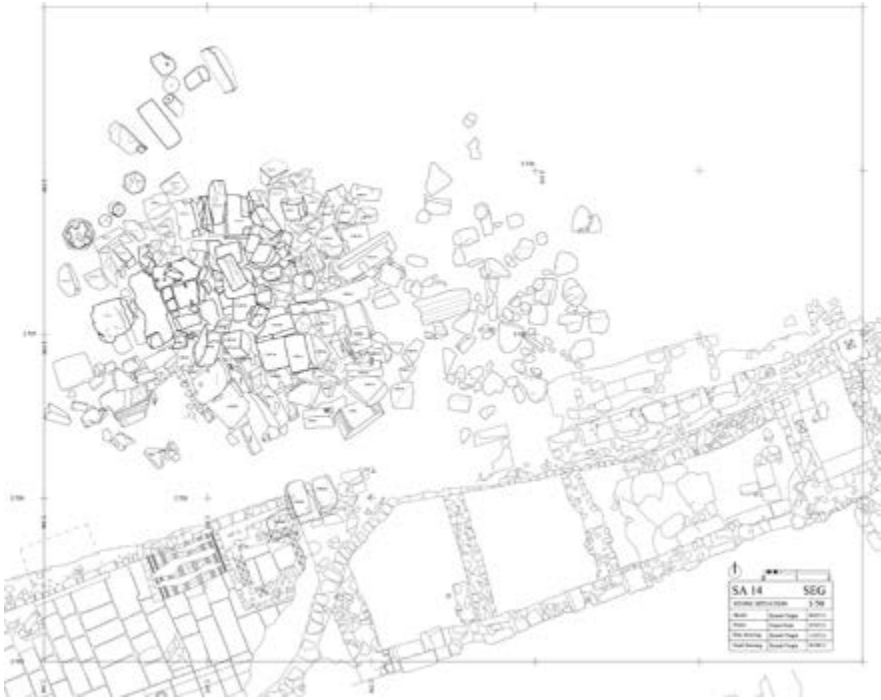


Fig. 4. Stone situation plan of the top collapse layer of the UASE site, recorded using the tacheometric method.



Fig. 5. Orthographic image from the 3D model of the top collapse layer at the UASE site, before excavation.

The pre-excavation investigation includes a closer study of the visible *in situ* architectural remains and the collapsed building material in order to identify the structure(s) in the sectors and the architectural blocks on the surface. The architectural style and order of the buildings and/or structures in the studied sectors can be estimated through this study. Even before any excavation, the number of visible architectural blocks can give an idea about the degree of preservation and the potential for anastylosis (Fig. 6). Ideally, a tentative restitution of the structure(s) incorporating the geophysical research results should be prepared prior to the excavations.



Fig. 6. First stone situation plan of the UASE sectors with the preliminary identification of SE Claudius Arch blocks in the collapse.

The pre-excavation stage also guides the excavation strategy to be followed. Investigation of the visible and underground architectural remains helps to decide whether excavations on the studied sectors are required. In some cases, surface clearing and documentation of the visible remains may suffice to provide answers to the specific research questions, and no excavations may need to be

planned to date a monument and draft its tentative restitution, as has recently been the case for the Trajanic Nymphaeum at Sagalassos.<sup>23</sup> The type of excavations – opening a wide area or making test soundings – can also be determined. As part of the architectural recording procedures at this stage, a suitable terrain must be prepared on which the removed architectural blocks will be stored. The visual and physical effects of the stone platform should be taken into account at the scale of the site, especially considering the legibility and the accessibility of the *in situ* archaeological remains. The pre-excavation investigation also helps to compose an appropriate task force and estimate the amount of time and cost of the excavation and the post-excavation processes. The number of workmen, archaeologists and architects/conservators, and material specialists that will be required during and after the excavations can be predicted. Before taking the decision to proceed with large-scale excavations, an informed estimation must be made of the amount of archaeological finds that may be encountered. Their storage and conservation requirements as well as the time required for the study and processing of the retrieved material must be planned. In addition, site safety issues and requirements for all employees and visitors during and in the aftermath of excavations, and their costs are to be part of this decision-making process. Last but not least, conservation and possible anastylosis processes on the site, and the accessibility and presentation requirements that would need to follow the excavations should be considered as crucial criteria for establishing an excavation strategy within the scope of the interdisciplinary scientific agenda and a long-term site management plan.

— *Excavation-parallel architectural recording*

Excavation-parallel documentation, aiming to capture the irreversible excavation process has evolved rapidly with the use of digital technology since the early 1990s.<sup>24</sup> It mainly focuses on the registration of the stratigraphical units during the course of digging.<sup>25</sup> At Sagalassos, the excavation-parallel documentation has been better defined and improved with the 2007 re-organisation. The main focus of this stage of recording is the undisturbed collapse layers of ashlar buildings and structures. The crucial information contained in these layers is very easy to lose during a rapid excavation process which requires the evacuation from the trench of the large fallen blocks as quickly as possible. Architectural recording parallel to the excavations at Sagalassos takes place in the two stages, namely the recording and removal of the architectural blocks from the trenches, and their storage on organised stone platforms (Fig. 7).

## EXCAVATION PARALLEL RECORDING

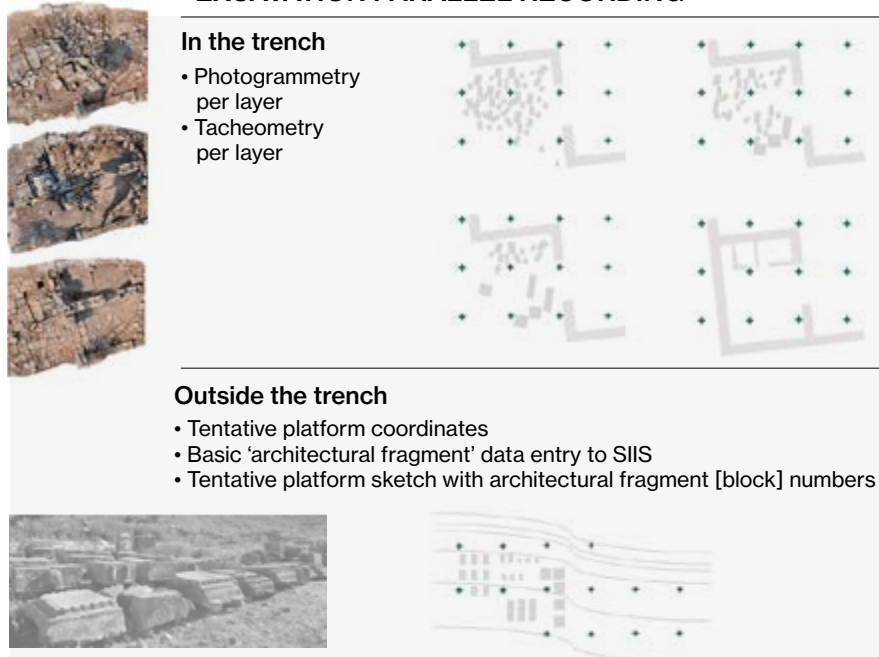


Fig. 7. Excavation-parallel recording and the resulting documents.

In most cases at Sagalassos, one of the first acts of excavation at a sector has to be the removal of the uppermost layer of fallen blocks with the help of a crane. Recording and removing the collapse layer by layer constitute one of the major tasks of the architectural documentation team at Sagalassos. A 'layer' of collapsed architectural blocks in a trench is defined as 'the group of stones free from other overlaying blocks'. This means no architectural piece is removed by reaching beneath another stone or pile, or in a way that would form a deep pit in the trench, in compliance with the archaeological principle of following the stratigraphy during the dig. The 'as found' plan of each layer of architectural blocks in a trench is documented with the above-mentioned techniques to produce an 'Architectural Blocks (Stone) Situation Plan' per stratum.

Depending on the importance and complexity of the encountered layers and the possibility of anastylosis, 3D photogrammetry methods combined with the tacheometry are preferred. This way, the entire excavation process can be documented in 3D, layer by layer (Figs. 8–9). Each block, recorded on the plan or captured in a 3D model, is then given the site code and a find number, which is also noted on the architectural drawing and the model. The tentative iden-

tification of the removed block and most importantly its coordinates as found in the sector are entered into the database. In fact, each architectural fragment is treated like any other archaeological find in the trench. While the finds are labelled and sent to the excavation depots to be sorted and studied by material experts, architectural fragments are coded, numbered and stored in 'stone platforms' on the site, to be further recorded and studied by the experts. In this sense, the 'stone platforms' are the site depots for architectural fragments and should be managed and maintained as carefully as the finds depots of the excavation project.



Fig. 8. 3D recording of the collapse layers during the excavations. Layers 3 and 4 at UASE.

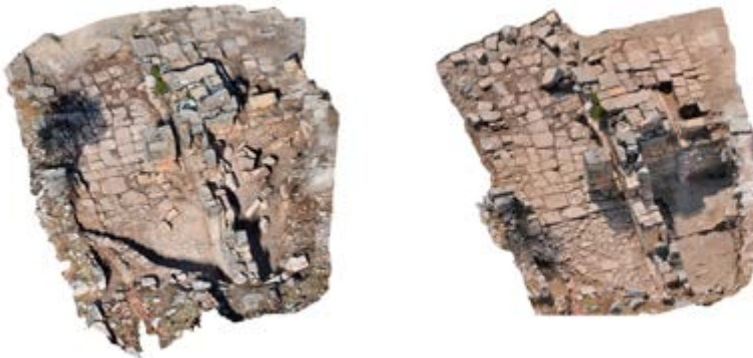


Fig. 9. 3D recording of the collapse layers during the excavations. Layers 5 and 6 at the UASE.

Certain criteria are taken into consideration when selecting a stone platform for a specific excavation site. The platform should be in the vicinity of the trench to improve the workflow, unless this would cause problems for visitor access, and

also the legibility of the architectural remains is considered. Attention is paid to ensuring that the terrain can be drained, as a platform that remains soaked for long periods of time contributes to the deterioration of the stored blocks. The surface vegetation and rubble are cleared so that the blocks can be placed in orderly rows, when possible grouped according to their functional identification. The blocks are organised in a grid layout, with enough room in between allowing further study on the platforms. When placing a block on the platform, attention is paid to keeping the diagnostic features of the block visible as well as the code and find number. A sketch of the platform plan is kept throughout the process of organisation, noting each placed block and its number. At the excavation-parallel recording stage, the coordinates of the stone platform are tentatively measured and listed until the excavation ends, and the stone platform borders can be determined for final documentation (Fig. 10).



Fig. 10. Blocks recorded and removed from the trench are organised on a stone platform.

#### — *Post-excavation documentation*

Once all architectural blocks are removed from the trench and the excavations are stopped, the final stages of architectural recording and study start (Figs. 11–12). As discussed below, the post-excavation stage can be grouped into five main activities, namely the documentation of the stone platform; study and the documentation of individual architectural blocks; investigation for a reliable restitution; the documentation of *in situ* architectural remains; and the documentation of the conservation and anastylosis processes.

## POST-EXCAVATION RECORDING

### Restitution, conservation and anastylosis

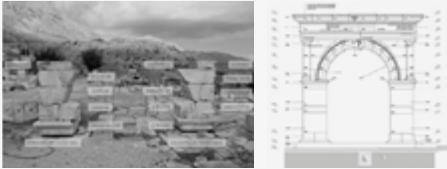
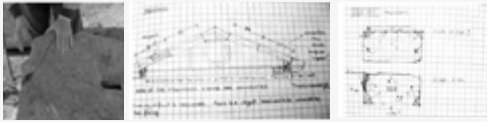

<ul style="list-style-type: none"> <li>• Hypothetical restitution</li> <li>• Trial site mock-ups</li> <li>• documentation</li> <li>• Final restitution</li> </ul>	
<ul style="list-style-type: none"> <li>• Stone conservation</li> <li>• documentation</li> <li>• Documentation of the re-building</li> </ul>	
<ul style="list-style-type: none"> <li>• Documentation of the observed deterioration</li> <li>• Documentation of the conservation interventions</li> </ul>	

Fig. 11. Post-excavation recording during conservation and restitution research and resulting documentation.

## POST-EXCAVATION RECORDING

### Recording architectural blocks and in situ remains




<ul style="list-style-type: none"> <li>• Photogrammetric / tacheometric documentation of the platform</li> <li>• 'Current' location coordinates entry to SIIS per architectural fragment</li> </ul>	
<ul style="list-style-type: none"> <li>• Architectural fragment recording per piece</li> <li>• Detailed 'architectural fragment' data entry to SIIS</li> <li>• 'Stone Catalogue' per building / structure</li> </ul>	
<ul style="list-style-type: none"> <li>• Photogrammetric / tacheometric relevé of the in situ architectural remains</li> </ul>	

Fig. 12. Post-excavation recording in different scales and the resulting documents.

The final state of the stone platform prepared in a grid layout is recorded at the end of the excavations. Total station measurements of the borders of this new platform are taken to situate it on the site plan. Furthermore, two corners of each individual 'lot' of the grid layout containing at least two blocks are measured. The code and number of the blocks stored on that lot are listed on the platform plan and the lot coordinates are entered into the database as the 'current location' of the architectural fragment. This way, the database contains the geographical reference of the found position of each architectural block in a trench, as well as its current location on the site where it is stored. The sketch that is kept during the preparation of the platform is finalised into a neat drawing, showing the stored architectural blocks together with their numbers. Each measured and drawn platform plan is coupled with the inventory of its contents to facilitate any future research. This drawing is saved both as a CAD and a PDF file in the system and is linked with the database. This protocol has been applied as a norm since 2007 for all excavation processes at Sagalassos and makes it possible to locate on the site any architectural block stored on the stone platforms, and to trace it back to its found position in the excavation sector (Fig. 13).



Fig. 13. Platform plan at the end of the organisation of blocks. Attention should be paid to providing space to study the blocks and allowing access to each piece with the crane.



When further architectural research is intended, for instance for a more accurate restitution and/or an anastylosis process, more work has to be conducted on the organised stone platforms. Blocks of the same type are identified by studying all excavated pieces. This often leads to a re-organisation of the stone platform according to the identified groups. In such cases, attention is paid to keeping the platform plans and database information updated in order not to lose any architectural piece on the site.

At this stage, database entries per architectural block should be completed, filling in all relevant attributes of a stone. These range from the geographic location and layer in which it was found, its position and proximity to the *in situ* structure and other building blocks, as well as its material, type, style, dimensions, and details such as traces of structural connection holes (dowel and clamp holes), stonemasons' marks, special decorative features and aspects about its state of preservation. The architectural fragment database structure is designed to accommodate these attributes.

As part of a detailed building research, identified architectural blocks are individually documented and a stone catalogue is prepared for the monument in question. Instead of the analogue hand-made drawings of all faces of a block, the digital photogrammetric method is used. The method is user-friendly as it involves simply photographing all sides of a block, thus reducing considerably the time and effort the fieldwork requires. The photographic documentation is done in a systematic way per block, under the same diffused light conditions, and requires overlapped images taken as a series, for all sides of a block. The software forms a 3D point cloud and subsequently a textured surface model of the recorded block. For 'objects' such as architectural blocks, it is necessary to place marker points on the photographed faces. The absolute distance between the markers is measured to be able to scale the model and to extract the required dimensions from it. This method was first tried in documenting the architectural blocks of the Hadrianic Nymphaeum in 2013 and the resulting records were effectively used in the study of the restitution of the monument.<sup>26</sup> In the anastylosis project of the SE Claudius Arch at the Upper Agora of Sagalassos, this technique was consistently used. The available blocks of the monumental gate were recorded, and a stone catalogue was prepared which included each face of a block, extracted from the model as 2D orthographic projections, with the necessary measurements (Fig. 14). This method successfully replaces the hand-made block documentation and it is accepted as the norm at Sagalassos for systematic documentation of architectural blocks when a restitution and/or anastylosis research is conducted.



Fig. 14. A stone catalogue is prepared comprising of orthographic documentation of each architectural piece, derived from the 3D models.

The organised stone platform and the individual recording of the architectural pieces allow for a concentrated study to figure out the original spatial relationship amongst the blocks and the *in situ* sections of the structure. The database filtering as well as the field investigation suggest certain groups and relationships amongst the building blocks. Certain attributes are investigated to check if two blocks could be adjacent, such as their type, the found location and position, the masons' marks, the position of clamp and dowel holes or even the nuances in the colour of the stone or the patina. The best way of verifying the estimations are the site mock-ups, i.e. assembling the blocks in question for a trial, directly on the *in situ* sections or on the ground (Fig. 15). By the end of this research, a 2D restitution of the investigated structure is drawn using the blocks in their estimated positions. Such a restitution is always supported with comparative research about other similar contemporaneous monuments (Fig. 16).



Fig. 15. First site mock-up of the SE Claudius Arch.

After the excavations are completed, the recording of the architectural remains in the exposed trench is defined as a specific task within the architectural works at Sagalassos. The relevé is carried out by a specialised team at the end of a campaign. The plans, sections and elevations have been recorded by the same team since 2007. The required degree of detail, abstraction and accuracy as well as the graphic language of the 2D architectural drawings are determined be-

forehand in negotiation with the archaeologists and/or other specialists who would make use of this documentation for different purposes. This stage of architectural recording requires a preliminary study and interpretation of the revealed structures and features, which is done by the architects together with the archaeologists. Before the drawings are finalised, the team shares the results with the archaeologists to avoid missing details or measurements, or to adjust the legibility of certain features.

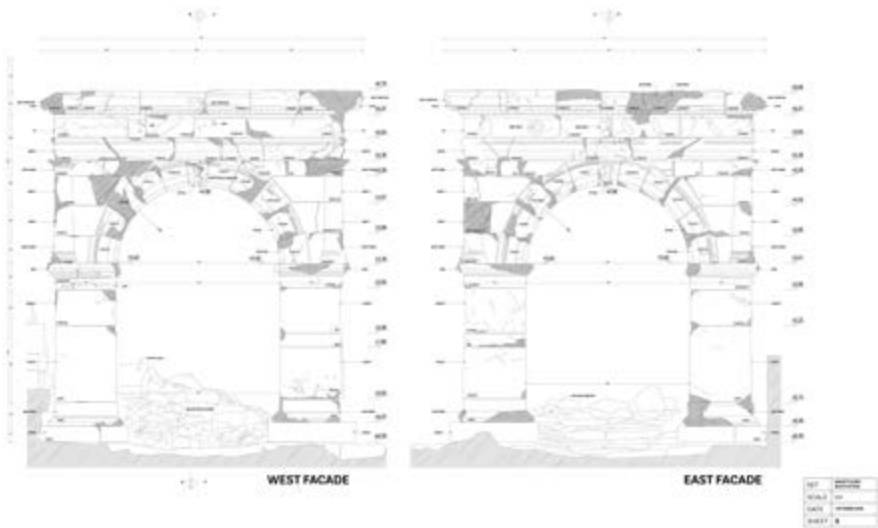


Fig. 16. Anastylosis drawings set of the east and west facades of the SE Claudius Arch.

The measured drawings are for the most part produced using a total station, supported by rectified photography. For this purpose, the architectural team makes sure that the architectural remains are sufficiently visible and all remaining soil and vegetation are properly cleared by the archaeologists. A set of polygon points close by the studied area are set, linked to the reliable fixed points on the site. Sketches of the plan, the elevations and the sections are made on the site and sufficient number of points are measured and noted. Next, the measured points plotted to scale are used as the basis to draw the plans, sections and elevations using AutoCAD. To facilitate this process, rectified ortho-images of the drawn 2D projection are often used as a base. In 2014, the above-mentioned digital photogrammetry method was used for the first time for producing final measured drawings for the relevé of the UASE (Upper Agora Southeast) excavation site. Sections taken from the 3D model were used as the basis of the 2D sections and elevations (Fig. 17). In this method, all new architectural measured

drawings are accurately geo-referenced and are subsequently integrated into the larger city map. As the defined protocol is followed always by the same team, discrepancies in graphic representation or drawing quality have been largely avoided since 2007. In principle, all measured drawings of the newly excavated sectors are initiated and completed by the end of the month following an excavation campaign; this way backlogs in final drawings are avoided.

UPPER AGORA SOUTH EAST GATE SECTION 1

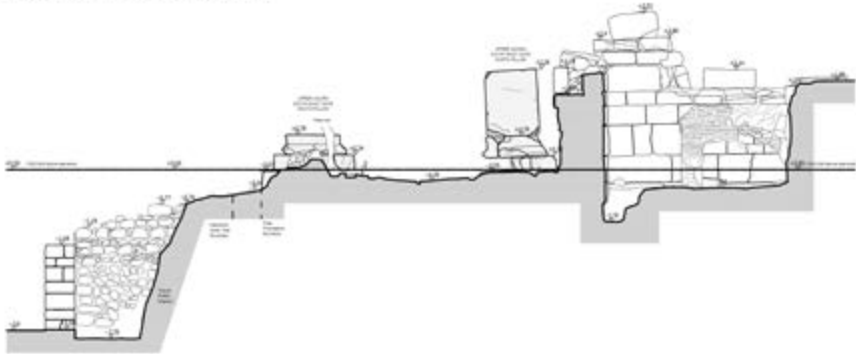


Fig. 17. Longitudinal section of the UASE site at the end of the campaign. The excavated area is measured and drawn at the end of the excavations and a set of plans and sections are produced.

Since 2015, in collaboration with IBAM (Institute for Archaeological and Monumental Heritage, National Research Council, Italy), 3D laser scanning methods have been used for architectural recording of the Bath-Gymnasium at Sagalassos. In this collaboration, the resulting 3D architectural model serves purposes beyond being a record of the current state of this large complex. The model also works as a viewing tool and a documentation platform providing links to other types of documentation for the experts of the interdisciplinary team. It can also be used for monitoring the structural and material deterioration processes active on the monument.<sup>27</sup>

#### The architectural recording team

Most of the problems encountered concerning architectural recording were clearly linked with the team formation and composition, but more importantly with the problematic position of the architectural recording team within the project structure as a whole. The latter was addressed greatly with the appointment of a permanent staff member – the first author – as the senior architect

responsible for architectural recording in 2007. This was a major step for the integration of the architectural recording team as a solid collaborating party within the larger research group and to solve the problems originating from the lack of proper supervision.

Within the scope of the re-organisation, changes were introduced to the way the architects' team was composed. The tasks and protocols were well defined and, considering the large volume of work and the backlog, these tasks were divided into two major groups. The post-excavation task of documenting the *in situ* architectural remains, the relevé, was designated as the first group, while the rest of the tasks in the pre-excavation, excavation-parallel and post-excavation stages constituted the second group. Instead of recruiting individuals for the excavation season, the two tasks were assigned to two of the authors, as long-term members of the Sagalassos Project and architects with their own start-up firms in İstanbul and İzmir. Both were familiar with the tasks and prepared to make a long-term commitment to work as part of the scientific team, while implementing and co-improving the recording procedures and methods. This was a kind of controlled 'outsourcing' agreement which has worked successfully to date, under the supervision of the senior architect. The documentation tasks of each year are discussed in relation to the scientific programme and the planned excavations, and timing, budget and teams are allocated accordingly. At the end, this new team structure proved to be the key to overcome the problems of architectural recording at Sagalassos.

#### Architectural recording and data management

The Sagalassos Project has been developing an integrated information system since 2006, with a relational database that records and allows to query the massive amount of information generated during fieldwork. The Sagalassos Integrated Information System (SIIS) was designed by the staff members of the Sagalassos Project in 2006–2009. The database structure allows information to be entered about the *in situ* architectural remains, such as walls, floors, superstructures, etc., covering a wide range of descriptive and empirical information, including orientation, exact location, structural and technical attributes, degree of preservation and interventions over time. Moreover, within SIIS, architectural fragments are defined as a find category, and a detailed database structure is designed to cover possible attributes of building blocks. Detailed features of architectural fragments can be entered, so that the database can be queried as part of a restitution and anastylosis research. The database structure also stores the coordinates of each block as an archaeological find (locus) within the trench as it was found, but also the coordinates of the location it was stored at the end

of the excavations. Ideally, SIIS is planned to provide links to all relevant drawings produced during the architectural documentation procedures. For this purpose, the archives of architectural records were re-organised, following an overview of possible end products of architectural documentation at different scales and media.

Integration of architectural data into SIIS as any other stratigraphical unit and the possibility of establishing links with the digital end products of architectural recording provide the ultimate means to make architectural recording an organic part of the interdisciplinary research and archaeological practice at Sagalassos. The SIIS database has the potential to be the scientific platform where the digital archives of architectural documentation are made accessible to the users of the database. However, a more easily accessible platform, not only to the different scientific collaborators but to all stakeholders of Sagalassos, including the local partners, decision-makers and the public, is deemed necessary, to open up and enrich the data and documentation.

## ***Conclusion***

Architectural recording at archaeological sites is part of the challenge of documenting a destructive process, an inherent characteristic of excavations. Ideally, architectural recording has to precede the excavations, progress during the digs and continue after the archaeologists leave the site. Therefore, it should not only be accurate but also well adjusted to capture and facilitate the excavation process. The methods and techniques of recording should be selected according to the nature of the architectural remains encountered and to the possible uses of the resulting product by different disciplines for various purposes. The process should not be treated as an isolated task, but should be considered part of the entire recording system and research agenda of the archaeological project. To that end, architectural recording should be given a place as one of the collaborating disciplines of the interdisciplinary research from the start, rather than an external service required from architects.

The Sagalassos Archaeological Research Project, conducted since 1990 as an interdisciplinary, large-scale classical excavation in southwest Turkey, sought, after nearly two decades, to tackle the backlog problems it encountered related to architectural recording. An analysis made in 2007 showed that the problems were related to four main issues, namely the problematic formation and discontinuity of the architectural recording team, the challenging speed and scope of excavations, the lack of proper task definitions and protocols of workflow, together with inappropriate methods and techniques. All four issues were

linked to the fundamental problem, namely the treatment of architectural recording as a task separate from the core archaeological work. Therefore, a re-organisation implemented in 2007 dealt with the issues by changing primarily the relationship between the field of architectural recording and interdisciplinary archaeology. The first author as a permanent staff member/architect was made responsible for the architecture-related tasks at Sagalassos. This allowed architectural recording to function as one of the disciplines with which archaeology collaborated. The requirements, the team as well as the timing and the budget of the architectural tasks were set out in the annual research plan. A reliable team for architectural recording was formed where continuous participation of the key team members could be assured by outsourcing the task in a controlled manner. At the same time, the architectural recording tasks on the site were better analysed, the stages of the process were identified and the workflow was clearly set. Subsequently, appropriate methods were selected. This re-organisation created opportunities to experiment with and improve the techniques used. In the last couple of years, architectural recording has been integrated into the general framework of data acquisition and management within the project. The architectural component of SIIS was improved to allow the entry of a wide range of attributes of the *in situ* architectural remains as well as the architectural fragments. This way, the ultimate aim of the 2007 re-organisation has been achieved in order to establish architectural documentation as an integral part of the interdisciplinary archaeological research.

## Notes

- 1 Wheeler 1954, 209; Hueber 2002, 77; Lucas 2001.
- 2 Lucas 2001.
- 3 Wheatley and Gillings 2002, 2.
- 4 cf. Hodder 1987; Tilley 1989; Kohl 1993; Lucas 2001; 2002; Lock 1995; Lock and Molyneaux 2006; Thomas 2015.
- 5 Lock and Harris 1992; Lock 1995.
- 6 Waelkens 2008.
- 7 Waelkens 2006, 325.
- 8 Waelkens 2008, 1.
- 9 Van Rompaey and Depuyt 1997, 263.
- 10 For the 3D MURALE Project see Pollefeys *et al.* 2000; 2001; Green *et al.* 2002; Schindler *et al.* 2003; Mueller *et al.* 2004.
- 11 Lock 1995.
- 12 Mayer and Styhler-Aydın 2012.
- 13 Lanckoroński 1892.
- 14 Mitchell and Waelkens 1987; 1988; Waelkens *et al.* 1990.
- 15 Among others, Vandepuyt 1992; 1993a&b; 1997a&b; Waelkens 1989; 2002; 2015; Corremans *et al.* 2012; Mägele *et al.* 2007; Martens *et al.* 2009; Jacobs and Richard 2012; Jacobs and Waelkens 2013; Torun 2014a; 2014b; 2015; Torun and Waelkens 2012; Uytterhoeven *et al.* 2010; Uytterhoeven *et al.* 2013.
- 16 Martens *et al.* 2012a&b; Dirix *et al.* 2013.
- 17 Köse 2005.



- 18 Degryse *et al.* 2008; 2009.
- 19 Martens *et al.* 2012a&b; Dirix *et al.* 2013.
- 20 Mušič *et al.* 2008.
- 21 This image-based photogrammetry method was first applied in 2011 in collaboration with Joeri Theelen, Umut Ovalı and Göze Üner of the architectural recording team at Sagalassos.
- 22 Quatember *et al.* 2013.
- 23 Waelkens *et al.* 2011.
- 24 Clarke 2016.
- 25 Green *et al.* 2002; Doneus *et al.* 2011; De Reu *et al.* 2013a; 2013b; 2014.
- 26 Waelkens *et al.* 2017.
- 27 Malfitana *et al.* 2015.

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# How do we document ancient ceramic material culture?

*Philip Bes and Rinse Willet*

## **Introduction**

One of the blessings and pleasures of archaeology and archaeological research are the artefacts that we uncover, largely through stratigraphic excavations and systematic (extensive and intensive) field survey. At Graeco-Roman sites, in particular urban sites, numerous is the appropriate word when we consider the quantity and variety of artefacts. What to do with all of them? Only rarely does an artefact have obvious and immediate museum value. Indeed, finds commonly encountered at archaeological sites include broken pieces of bone, lithic, glass, metal and stone, yet in terms of sheer numbers, it is the humble potsherd that usually is the most common find category. Cooking pots, cups, plates, storage vessels and so on have been common items in the lifestyles of people over the past 8,000 years up to the present day, as a quick glance into our modern households shows.

One of the principles of archaeology is that we acknowledge that these artefacts did not emerge by accident (though we do acknowledge mankind's continuous desire to experiment and to solve); instead, we recognise that these artefacts embody the very societies we are studying and that we wish to understand. We do not reach interpretations and models about the past by simply gazing at these artefacts. We need to actively interact with these artefacts by asking questions, devising methods to approach them and thinking of concepts within which to study them – in fact material culture more broadly – and put forward ideas and theories that envisage what we think the past may or could have looked like. In other words, these 'mundane' fragments can tell us a great deal about daily life in antiquity.

Proper documentation is one of the essential steps within archaeological research, and one that we wish to explore in some detail in this contribution (Fig. 1). A documentation system serves multiple purposes: it allows us to store the artefacts and review the facts, our observations, and to create a foundation

in support of our interpretations. It is also a means to communicate aspects of our work with colleagues through publications, papers and so forth.

In this chapter, we highlight pottery found in the Anatolian city of Sagalassos, an ancient site that saw large-scale manufacture and consumption of pottery during the Roman imperial period, c. 50 BCE to 700 CE.<sup>1</sup> The chapter first focuses on the methodology of how we classify and document Roman pottery, specifically that which comes from stratigraphic excavations. In the second part of our contribution, we present two case studies that demonstrate how we get from actually finding ceramic artefacts – which are to be seen and understood within their stratigraphic and architectural environment – to an idea of past people and societies.



Fig. 1. Depot 14 at the Sagalassos Excavation House at the end of the 2018 campaign. Each box carries a unique barcode capturing the project's ongoing digitisation efforts.

### ***The how, what and why***

Ever since the start of the Sagalassos Archaeological Research Project, the study of material culture formed an integral part of the project's interdisciplinary approach. There are good reasons for this. These remains – structural remains, artefacts; as said, in this contribution we are specifically concerned with ceramic artefacts – encompass a broad range of materials, which inform us about



people's use of their surrounding natural and cultural landscapes in the past. The ways in which people used these materials and artefacts to help shape, furnish and decorate their living and working environments also tell us things about their behaviour, their rituals, their customs, sometimes even about individual personalities; fragmented though it usually is, the material culture we excavate *de facto* reflects their culture.

Whether we are dealing with the Neolithic or the Ottoman period, or any period in between for that matter, ceramic research and classification within the Sagalassos Project rests on three building blocks:

1. Fabric, or the clay mixture. We define a clay paste or fabric through the observation of combined macroscopic properties (colour, texture, inclusions/temper, etc.);
2. Shape, which we can define as a combination of overall shape in combination with specific morphological features. Often, a recurring shape with specific morphological features is given a type number, which improves our classification process; and
3. Surface treatment – in the broad sense of the word, so this includes decoration, polishing, stamping, scratching, etc.

These three parameters we consider to be fundamental, not only because they allow us to distinguish and classify the many sherds we excavate. More importantly, as the use of fabrics, shapes and surface treatments was neither haphazard nor accidental (barring exceptions), and shows to have been dynamic over time, these ceramic fragments reflect past knowledge, technical choices, contemporary society, changing fashions and styles, individual skills and preferences, and so on.

Not each and every artefact that we excavate or collect during field survey eventually contributes in equal measure to our attempts to understand the past. We nonetheless cherish the premise that each artefact, however tiny and unassuming it may be, is potentially informative about that past. Therefore, within the context – in the figural sense of the word – of the stratigraphic excavations at urban Sagalassos, since 2005 we have been working with the Sagalassos Pottery Template, a spreadsheet that is organised around the combination of fabric and shape which is worked into a functional framework, listing all types that have been identified so far (Fig. 2). Basically it is a menu that guides us in the processing, classification, determination and storage of raw numerical data and eventually the study of the pottery from a context/locus. Once a context/locus is selected for detailed study, the following aspects are important:

- a. All sherds from a selected context/locus are sorted by fabric and shape or type simultaneously or, in the case of large quantities, first by fabric and then by type.

- b. Then, all diagnostic fragments belonging to a particular type are counted and weighed – this is the more significant part of the raw data that is stored in a template.
- c. This process is repeated for each and every type that is identified.
- d. Such diagnostic fragments are usually rims, which are generally considered to be the most characteristic and prone to change over time.
- e. While experience continues to show that base, handle and body sherds are more difficult to attribute to a specific type, these fragments can of course be identified and classified by fabric, and then counted and weighed.
- f. In short, the Pottery Template can accommodate all ceramic fragments from a context/locus. And in the event that something completely new is found, the classification system underlying the Pottery Template was conceived flexibly, which means that such new discoveries can be easily and quickly defined and inserted.

ID	General Functional Category	Functional Category	Specific Functional Category	Object	Fabric	Functional Group	Type/Variant	Description	Count				Weight						
									R	B	BS	H	R	B	BS	H			
187	Household Implements	Tablewares	Consumption	Bowl	1	B	100												
188	Household Implements	Tablewares	Consumption	Bowl	1	B	101												
189	Household Implements	Tablewares	Consumption	Bowl	1	B	110												
190	Household Implements	Tablewares	Consumption	Bowl	1	B	120												
191	Household Implements	Tablewares	Consumption	Bowl	1	B	130												
192	Household Implements	Tablewares	Consumption	Bowl	1	B	140												
193	Household Implements	Tablewares	Consumption	Bowl	1	B	150												
194	Household Implements	Tablewares	Consumption	Bowl	1	B	160												
195	Household Implements	Tablewares	Consumption	Bowl	1	B	161												
196	Household Implements	Tablewares	Consumption	Bowl	1	B	162												
197	Household Implements	Tablewares	Consumption	Bowl	1	B	163												
198	Household Implements	Tablewares	Consumption	Bowl	1	B	170												
199	Household Implements	Tablewares	Consumption	Bowl	1	B	171												
200	Household Implements	Tablewares	Consumption	Bowl	1	B	180												
201	Household Implements	Tablewares	Consumption	Bowl	1	B	190												
202	Household Implements	Tablewares	Consumption	Bowl	1	B	191												
203	Household Implements	Tablewares	Consumption	Bowl	1	B	200												
204	Household Implements	Tablewares	Consumption	Bowl	1	B	210												
205	Household Implements	Tablewares	Consumption	Bowl	1	B	220												
206	Household Implements	Tablewares	Consumption	Bowl	1	B	221												
207	Household Implements	Tablewares	Consumption	Bowl	1	B	230												
208	Household Implements	Tablewares	Consumption	Bowl	1	B	231												
209	Household Implements	Tablewares	Consumption	Bowl	1	B	232												
210	Household Implements	Tablewares	Consumption	Bowl	1	B	233												
211	Household Implements	Tablewares	Consumption	Bowl	1	B	240												
212	Household Implements	Tablewares	Consumption	Bowl	1	B	241												
213	Household Implements	Tablewares	Consumption	Bowl	1	B	250												
214	Household Implements	Tablewares	Consumption	Bowl	1	B	251												
215	Household Implements	Tablewares	Consumption	Bowl	1	B	260												
216	Household Implements	Tablewares	Consumption	Bowl	1	B	000												

Fig. 2. Segment of the Sagalassos Pottery Template for the Roman imperial and early Byzantine periods.

Here is an example: part of the Pottery Template (a complete template currently includes close to 500 different fabric and type entries) for context SA-1997-PQ-6 (Fig. 3). This is an extensive dump that was partly excavated in 1997, in Eastern Suburbium, formerly called the Potters' Quarter. This segment shows all bowl types in the locally manufactured Sagalassos red slip ware (SRSW), and the size of this dump is reflected in the unusually high counts and correspond-

ing weights: for example, 692 rim fragments of bowl type 1B170 were counted, which combined weigh 9.65 kg. The presence, absence, proportion of types and the fragmentation of the pottery subsequently allow us to determine a chronological range of a context/locus. In this case, the pottery in this dump could be dated to the second half of the second century CE.

ID	General Functional Category	Functional Category	Specific Functional Category	Object	Fabric	Functional Group	Type/Variant	Description	Count			Weight				
									R	B	BS	H	R	B	BS	H
187	Household Implements	Tablewares	Consumption	Bowl	1	B	100			26				227		
188	Household Implements	Tablewares	Consumption	Bowl	1	B	101		9	15			688	296		
189	Household Implements	Tablewares	Consumption	Bowl	1	B	110			1				5		
190	Household Implements	Tablewares	Consumption	Bowl	1	B	120		3				40			
191	Household Implements	Tablewares	Consumption	Bowl	1	B	130			1				6		
192	Household Implements	Tablewares	Consumption	Bowl	1	B	140									
193	Household Implements	Tablewares	Consumption	Bowl	1	B	150		471				5390			
194	Household Implements	Tablewares	Consumption	Bowl	1	B	160		8				66			
195	Household Implements	Tablewares	Consumption	Bowl	1	B	161									
196	Household Implements	Tablewares	Consumption	Bowl	1	B	162		56				734			
197	Household Implements	Tablewares	Consumption	Bowl	1	B	163		5				64			
198	Household Implements	Tablewares	Consumption	Bowl	1	B	170		692				9654			
199	Household Implements	Tablewares	Consumption	Bowl	1	B	171									
200	Household Implements	Tablewares	Consumption	Bowl	1	B	180									
201	Household Implements	Tablewares	Consumption	Bowl	1	B	190		172	3	1		1286	38	6	
202	Household Implements	Tablewares	Consumption	Bowl	1	B	191		252	20	48		2934	324	289	
203	Household Implements	Tablewares	Consumption	Bowl	1	B	200									
204	Household Implements	Tablewares	Consumption	Bowl	1	B	210									
205	Household Implements	Tablewares	Consumption	Bowl	1	B	220		4				102			
206	Household Implements	Tablewares	Consumption	Bowl	1	B	221		11				214			
207	Household Implements	Tablewares	Consumption	Bowl	1	B	230									
208	Household Implements	Tablewares	Consumption	Bowl	1	B	231									
209	Household Implements	Tablewares	Consumption	Bowl	1	B	232		2				24			
210	Household Implements	Tablewares	Consumption	Bowl	1	B	233									
211	Household Implements	Tablewares	Consumption	Bowl	1	B	240									
212	Household Implements	Tablewares	Consumption	Bowl	1	B	241									
213	Household Implements	Tablewares	Consumption	Bowl	1	B	250		7				136			
214	Household Implements	Tablewares	Consumption	Bowl	1	B	251									
215	Household Implements	Tablewares	Consumption	Bowl	1	B	260		29		2		908		30	
216	Household Implements	Tablewares	Consumption	Bowl	1	B	000		8	102	4		164	2975	49	

Fig. 3. A segment taken from the Pottery Template of context SA-1997-PQ-6, showing the bowl types in Sagalassos Red Slip Ware.

Originally, the Sagalassos Pottery Template – discussed in greater detail in a recent paper, to which we gladly refer any interested reader<sup>2</sup> – was developed as a methodological tool specifically for the Roman imperial and early Byzantine periods, as finds of this seven-century time frame abound within the limits of the ancient city. Yet the classificatory structure’s flexibility mentioned above can also accommodate other periods, since we consider fabric and shape (and surface treatment) to be characteristics that are universal in the manufacture of material culture. For research purposes, it is indeed necessary to include other periods as well as other material categories. Previously, the basic principles of the Pottery Template were expanded to allow the study of ‘Dark Age’ and Byzantine pottery.<sup>3</sup> And as the Sagalassos Archaeological Research Project has always firmly committed itself to innovative undertakings, including with the Pottery Template – and material culture more broadly – there is work in progress concerning digital and analytical applications.

The raw data that we collect with the aid of the Pottery Template allows us to ask both simple and complex questions. For instance, were there more cups

or dishes being used in the first century CE? Or what changes can we observe in exchange routes and dining practices between the Hellenistic and middle Roman imperial periods? These are two topics that are presented in more detail below.

### ***The how, what and why: topics under study***

The tens of thousands of sherds found in a typical urban excavation each year represent vessels that the ancient inhabitants acquired, owned, used and discarded. Meaning needs to be attributed to these vessels as rarely were vessels owned just for the sake of owning them. Vessels in pottery were utilitarian, they served a purpose, and often the wear and tear of their use is visible on the potsherds. Usages of ceramic vessels varied widely. During Hellenistic and Roman imperial times, distinct vessels could be associated with certain functions. Amphorae were the shipping containers of antiquity, holding and transporting all sorts of goods. *Dolia* were large storage vessels which could be found in houses, storage buildings, agricultural installations and farms, and even functioned as holding tanks on ships. But ceramic vessels also were and still are a fundamental part of the daily routine of people's lives. Lamps were made of pottery and they are commonly found in excavations. But ceramic vessels were also used in the preparation and serving of food and drink. Plainware bowls and dishes, *mortaria* or grinding vessels, cooking pots, baking dishes, frying pans and casseroles, all were commonly found in the kitchens of the ancient world. At the same time, plates, cups, dishes, bowls and jugs, often covered with a decorative fine red slip finish, were used for serving food and beverages.<sup>4</sup>

### ***Fashionably dining***

This brief functional overview of pottery reveals the complexity of the specialisation in functions for ceramic vessels. The function of a vessel can be used in the reconstruction of the activities that took place in the space where it was found. For example, a collection of *dolia* found in a room can be indicative of the storage function the room had, while a collection of cooking vessels, *mortaria* and so on can be indicative of food preparation in or near that room. A reconstruction is always an interpretation of all the artefacts belonging to the same context and the function of a vessel is an important aspect of that process. However, as with all things related to humans, objects not only have functional aspects (although superficially, these aspects stand out most clearly) but they

are rooted in a social and cultural framework of habits and customs. The shape and the type of vessels used in the kitchen inform us about the types of food that were prepared and the methods of food preparation that were employed. For example, a shallow frying pan is likely to have been used for preparing foodstuffs that could be fried, while a deep cooking vessel or cauldron is more suitable for stewing. At the same time, the shape, origin and distribution of cooking vessels can tell us about the types of cuisine that were fashionable in antiquity.

At Roman imperial Sagalassos we can track change and continuity in cooking practices in detail. For example dishes with a thick 'anti-stick' coating on the interior, known as Pompeian Red Ware, became *en vogue* in Italy from the first century BCE into the first century CE and they were probably intended originally as bread baking dishes. At Sagalassos, these popular dishes were imported (albeit on a small scale) during the late first century BCE. Soon they were locally produced and their design evolved and they remained popular into the second century CE. Although it is not possible to say with absolute certainty, we may deduce that with the popularity of this Italian style of vessels, the Italian style of baking bread became popular during this period and quite possibly evolved into a local Sagalassian style (Fig. 4).<sup>5</sup>



Fig. 4. Centre and left, a collection of early Roman imperial baking dishes found at Sagalassos, similar to Pompeian Red Ware dishes.

Other cooking vessels were imported too, with one group becoming quite common from the second half of the first century BCE to the second century CE. This range of hard-fired cooking vessels was imported from outside the direct territory of Sagalassos, although the exact provenance is still to be determined.

They consisted of frying pans with rounded handles and shallow vessels with a double flanged rim. This last type would be copied locally as well. These vessels were undoubtedly used for frying and possibly stewing. Yet whether they were associated with a specific dish cannot be determined. However, they demonstrate that it was possible and perhaps important to have the latest culinary gadgets in the kitchens of Sagalassos.

At the same time, traditional local cooking vessels played an equally important role during this period as well. For example, locally made cooking pots or *chytrai* and stewing pots or *kakkaboi* formed the majority of cooking vessels that were found in the first to third century CE contexts. This suggests that traditional customs of food preparation and cuisine continued to play an important role, despite the fact that some new options became available to the inhabitants. There is even more striking evidence of the persistence of traditional cuisine *vis-à-vis* the influx of new vessels and ideas about cuisine. This consists of a type of deep cauldron that appears during Hellenistic times and continues to be used well into late antiquity. The production method differs from the other ranges of cooking vessels discussed here, which were all made on a fast turning wheel. This type of cauldron was, however, made on a slow-turning wheel and a paddle was used to shape the vessel. The marks of the paddling are still easily visible on the sherds of these vessels. Furthermore, mottled spots on the exterior of the sherds may suggest it was fired in a bonfire, which is in contrast to all other cooking vessels, which were fired in a kiln. As parallels from other locations for this type of vessel still need to be identified, it may well be that this cauldron is part of a local tradition in preparing food and cuisine, which continued for many centuries during antiquity.

Yet apart from methods of preparing food and styles of cuisine, pottery can also reveal a great deal about the way food and drink was consumed. Both modern and past societies have a lot of rituals associated with the consumption of food and drink. The setting of the table for dining is a complex and multi-layered affair in which plates, bowls, dishes and cups have a specific role in terms of position, use and status. Consider the table set in a modern restaurant: most, if not all, readers would be surprised to find the soup being served in wineglasses, the cutlery placed in front of or behind the plates, the water served in a frying pan, the salt and pepper being placed on a large plate and so on. All these obvious *faux pas* of modern etiquette underline the presence of rules and habits and how intuitive they become for a member of society. Such rules and customs were present in antiquity as well, and through the remains of ceramic tableware we are able to reconstruct some of these.

During late Hellenistic and early Roman imperial times, the ceramic vessels associated with dining were all covered in a red slip finish. From historical

accounts and from the size of the plates and dishes, we know that these vessels were used for individual servings during Hellenistic to middle Roman imperial times. Dining took place lying on beds not dissimilar to modern *chaises longues*, in a *triclinium* (Fig. 5a–b).<sup>6</sup> Each diner would get his or her own cup for drinks

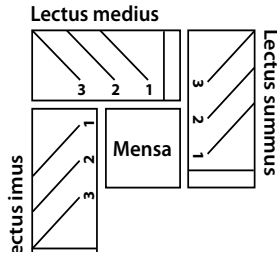


Fig. 5. Top: layout of a typical Roman *triclinium*, during the late Republican and early Roman imperial periods. Note the ranking of the couches (*lectus*), which are known through literary sources to have been designated *summus*, *medius* and *imus* or highest, middle, lowest. The *mensa* is the central table; bottom: fresco on the west wall of the *triclinium* in the House of the Chaste Lovers in Pompeii, depicting convivial drinking in a *triclinium*. (source: Dunbabin, 2003, 39, 43; plate 1).

and plate for food. During late antiquity, the positions for dining would shift and a change was made from individual servings to communal eating, whereby the food was shared from large communal platters (Fig. 6).<sup>7</sup>



Fig. 6. Schematic representations of late Roman banqueting scenes and the reconstructed access of each diner to the shared vessels. The scene on the left is based on the eucharist scene from the Catacomb of St. Callixtus (fourth century CE) with two bread baskets and three dishes with fish. The scene on the right is based on the banqueting scene in the so-called Catacomb of Vibia (second half of the fourth century CE) with three vessels each containing a different food (possibly fish, poultry and cake or pudding). (source: Hudson 2010, 670).

In pottery, this shift from smaller plates, dishes and bowls towards larger platters is rather distinct throughout the Mediterranean.<sup>8</sup> At Sagalassos, which was a major production centre for tableware, a clear shift towards larger shapes occurs during the fourth century CE. During the first three centuries CE, smaller shapes like the Sagalassos red slip ware cup types 1A100 and 1A130, dish types 1C100 and 1C120, and bowl types 1B160 and 1B170 were very popular (Fig. 7). However, during the period after the fourth century, large bowl types would set the tone, such as 1B200, 1B220 and 1B230. Even small bowl types, like 1B130, were comparatively large, while cup type 1A140 is on average larger than the cups of the first three centuries CE (Fig. 8). In other words, from studying pottery, we can detect changes in both cooking and dining practices and in cuisine.



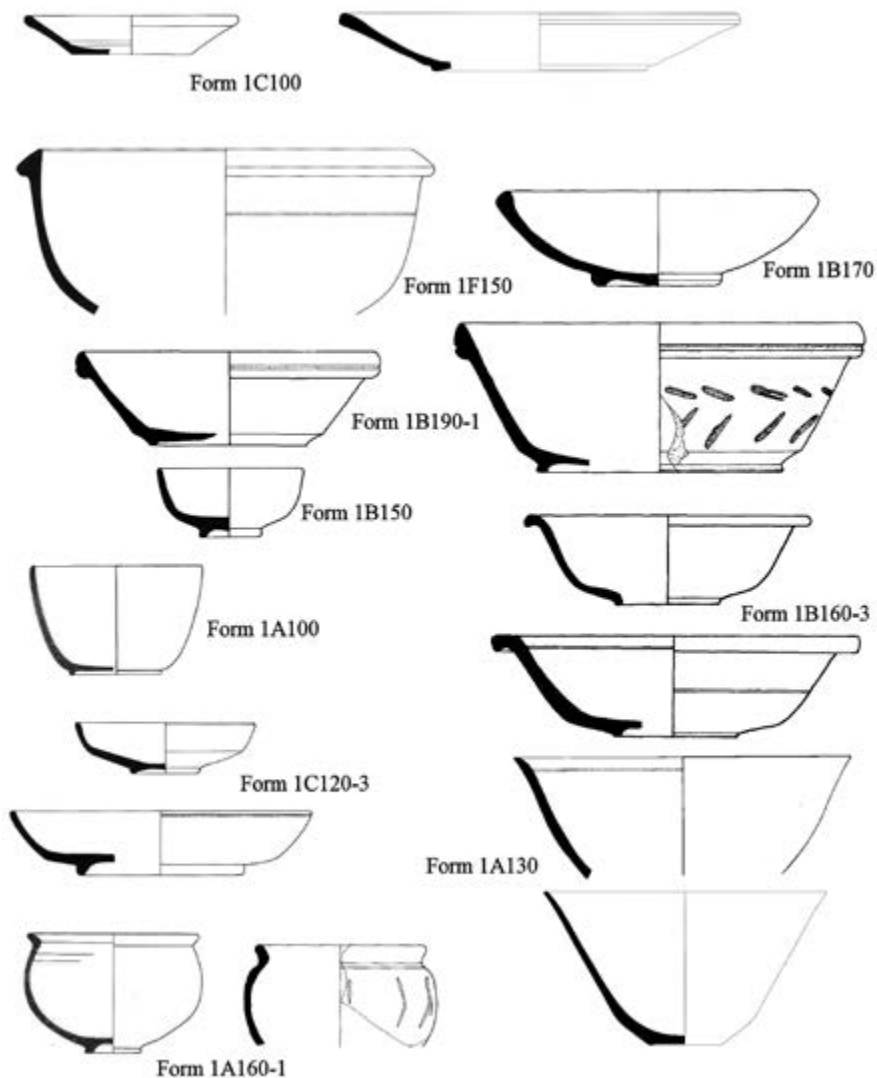


Fig. 7. Tableware vessel types produced at Sagalassos which were popular during the first and second centuries CE.

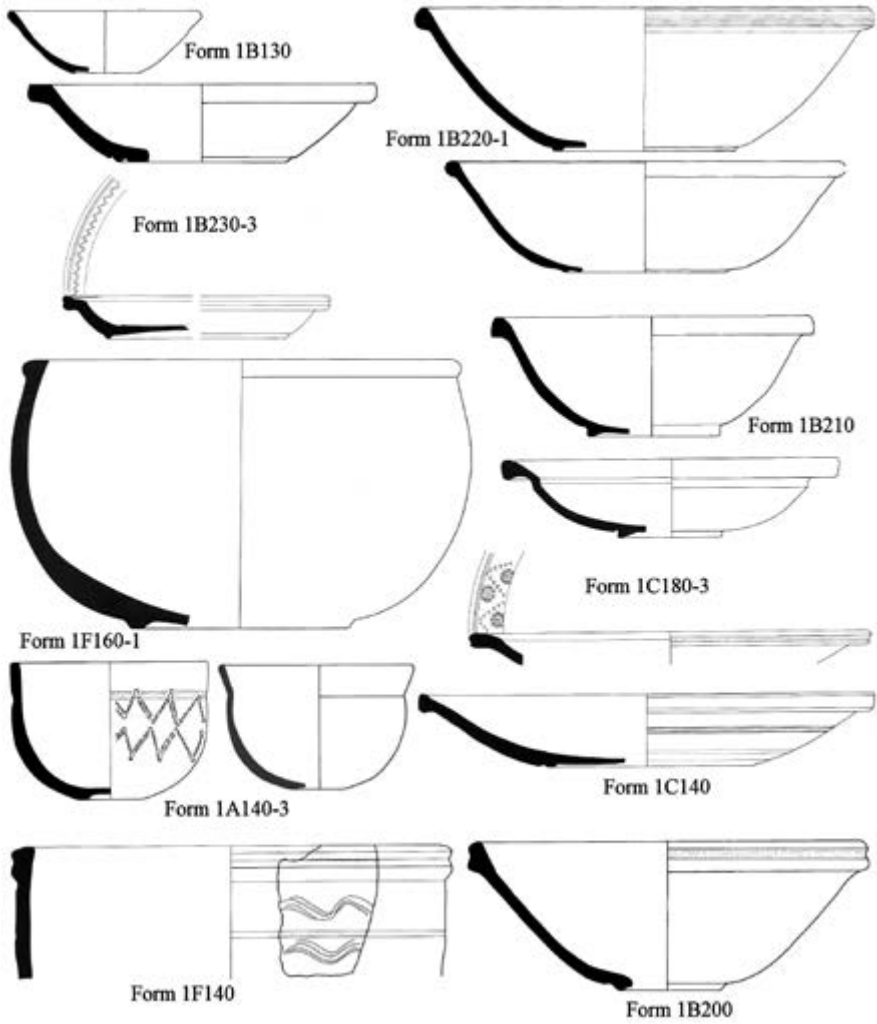


Fig. 8. Tableware vessel types produced at Sagalassos which were popular during the fourth and fifth centuries CE.

## ***Cosmopolitan flavours?***

At the same time, we envisage that not all inhabitants of Sagalassos shared an identical or a very similar attitude towards the food and beverages they served and consumed, nor in fact could they all afford or wish to do so. As far as the pottery and the scientific results of other disciplines (archaeobotany, for example) allow us to make statements, the majority of staple food was presumably procured from the region around Sagalassos. However, among the pottery we do find clues that suggest that some of the inhabitants of Sagalassos were able to obtain wine as well as other agricultural produce from beyond the town's territory – in some cases, in fact, from far beyond its borders. This not only makes us look at what people served and consumed, but also who these people were, and for whom they served food. Moreover, such finds offer us clues that help understand the ways in which Sagalassos was integrated into wider Mediterranean economies during the Hellenistic and Roman imperial, and above all the late Roman imperial and early Byzantine periods.

Given that much of the archaeological record at Sagalassos concerns the late Roman imperial and early Byzantine periods (c. the fifth to seventh centuries CE), our idea about Hellenistic to middle Roman imperial Sagalassos remains comparatively patchy. Recent research has succeeded in partly redressing this balance.<sup>9</sup> That said, ceramic evidence for long-distance imports of pre-late Roman date is sketchy: we identify fragments in both contemporary contexts, as well as residual fragments in later contexts.<sup>10</sup> The majority of these fragments belonged to amphorae, antiquity's transport containers *par excellence*. All in all it is not much, and it is insufficient data to know how much arrived at Sagalassos, or who was able to obtain these vessels for their contents. We should assume though that quantities were small, and that perhaps only a happy few were able to lay their hands on these amphorae. So, some people were able to enjoy wine carried in amphorae that came from Rhodes and Chios, and even from western Italy. A few amphorae originated from as far away as southern Spain, and presumably contained a sauce of processed fish. We know that some such 'sauces' were held in high esteem. If these amphorae contained what they were primarily intended for, some Sagalassians could afford and display some level of cosmopolitan behaviour and tastes, which they themselves and their guests will surely have enjoyed.

We are much better informed about the fifth to seventh centuries CE. We still find single sherds of imported amphorae in heavily disturbed layers, but more often we find imported vessels in stratigraphic contexts.<sup>11</sup> Their role in the urban food supply still seems to have been limited, and *stricto sensu* their supply was perhaps not even necessary for sustaining the population. For this period

we identify a range of sources, yet most amphorae came from eastern areas: so-called Late Roman Amphora 1 (mostly from East Cilicia), and 4 and 5 (from the southern Levant) are found in various places in Sagalassos (Fig. 9). One of the more significant findspots appears to have been a small shop or kitchen of sorts, where foodstuffs and possibly even prepared meals could be bought: perhaps the remains of a takeaway or delivery *avant la lettre*? Here, the remains of three or four so-called Late Roman Amphora 4, or ‘Gazan,’ amphorae were found, which may well have carried the wine which the sixth-century CE bishop Gregory of Tours, as well as other ancient authors, spoke highly of.



Fig. 9. Some of the more commonly identified amphora types at Sagalassos. Left: Late Roman Amphora 1 from Cilicia; bottom, left of centre: small variant of a Late Roman Amphora 5 from the southern Levant; right of centre: Late Roman Amphora 4 from the Gaza-Negev region; bottom right: Late Roman Amphora 5 from the southern Levant.

A second place that is very informative on long-distance contacts between Sagalassos and the Mediterranean is a courtyard in the Urban Mansion. Here, during excavations especially in 2002, several thousand fragments of imported amphorae were found, representing several dozen vessels. Again, most belong to common amphora types found elsewhere in Sagalassos, but some rarer types were also identified. What is interesting is the space where these were found, in one particular part of the courtyard. Perhaps this was a place where inhabitants could dump their amphorae and even other waste, although it is more tempting

to think of this as a storage place, where imported wines were kept for consumption on special occasions – a sort of wine cellar perhaps?

So how did these vessels arrive at Sagalassos? For the late Roman imperial and early Byzantine periods, given that the majority of these amphorae came from sources further east, we should probably look to Asia Minor's south coast, particularly the Pamphylian port of Perge where these vessels could begin their inland journey along the Via Sebaste, the road that connected the Pamphylian coast with the interior of western Asia Minor (Fig. 10). One can picture these vessels laden on carts or donkeys which found their way into the Taurus mountains – presumably the people who led such convoys made one or more stops for water, likely even for the night.



Fig. 10. Map showing the names of places and regions mentioned in the text.

### ***Back to the broader picture***

We still know fairly little about how inland economies functioned, or to what degree these were integrated into the Mediterranean economies.<sup>12</sup> We know that cities of the Eastern Mediterranean were by and large self-sufficient and Sagalassos and its surroundings seem to have been no different, agriculturally and otherwise, from an economic system that presumably functioned for mil-

lennia.<sup>13</sup> At the same time, with the ebb and flow of kingdoms and empires, seeds of change were planted, which grew and were harvested in the form of people, ideas, objects, fashions and so on. These blended in with local culture to form a unique mix, a regional cultural character that was not to be found anywhere else. And this character is also reflected in the tens of thousands of potsherds we find at Sagalassos.

During the Roman imperial and early Byzantine periods we certainly should not only look towards the Mediterranean regarding imported goods. For example, much of the marble that was used for the adornment of both public and private buildings in Sagalassos was quarried at Dokimeion (modern Afyonkarahisar), some 120 km to the north as the crow flies. At the same time, fish caught in the Nile was also imported. The variety of finds is of course much larger, which brings us back to the beginning of this contribution: the broad range of arte- and ecofacts that can be found at a site such as Sagalassos needs to be studied in its entirety. Only in this way can we try to understand as fully as possible these material remains and the society that produced, traded and used them. By carefully documenting these finds we are increasingly able to understand how the city functioned, how it organised its economy – agricultural and otherwise – how people lived and what they ate and drank, and with which regions Pisidia maintained contacts, directly and indirectly, materially (e.g. raw materials, objects) as well as immaterially (e.g. ideas, fashions).

## Notes

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|---|---|
| <p>1 Poblome 1999; Degeest 2000; Willet and Poblome 2015.</p> <p>2 Poblome and Bes 2018.</p> <p>3 Vionis <i>et al.</i> 2009. More recently, Dries Daems succeeded in adding Achaemenid- and Hellenistic-period Pottery Templates. Also see Daems and Bes 2019.</p> <p>4 Hayes 1997.</p> | <p>5 Poblome 2012, 86–89.</p> <p>6 Dunbabin 2003.</p> <p>7 Hudson 2010.</p> <p>8 Willet 2014; 2018.</p> <p>9 Daems <i>et al.</i> 2019.</p> <p>10 Daems <i>et al.</i> 2017.</p> <p>11 Bes 2020.</p> <p>12 Bes <i>et al.</i> 2020.</p> <p>13 Willet 2020.</p> |
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# How do we document ancient coinage?

*Fran Stroobants*

In the modern world, no one would deny that money can tell us a lot about a certain society: it not only shows how certain aspects of the economy work and how commercial transactions are carried out, but also informs us about interpersonal relations, social values or the welfare of a community. Money that survives from the past can shed a light on a similar variety of aspects, and is therefore an important material category to be studied when documenting a certain ancient society. Luckily, the site of Sagalassos has proven very rich in this kind of data. On the one hand, the city had a rich production of coinage struck in its name for about five centuries, of which witnesses are saved in collections and the archaeological record. On the other hand, the numerous coin finds registered during the excavation and survey campaigns show us what types of money circulated on the site and how this evolved over time. When combining this numismatic material with other historical and archaeological evidence, it becomes possible to reconstruct the coin use and level of monetisation of Sagalassos over the long term.<sup>1</sup>

## ***The coin production of Sagalassos***

A first category of data that can be used to document money at Sagalassos are the coins produced in the name of the city itself over time. These include both rare silver and common bronze coins, dating from c. 200 BCE until the second part of the third century CE (Fig. 1). Such civic coins circulated alongside the Hellenistic regal or Roman imperial issues, and were struck according to local needs. They were part of a rich tradition of local coin production in the whole of Asia Minor, and should always be studied with the broader regional context in mind.

The first necessary step to analyse the coin production is to assemble as many pieces as possible struck in the name of Sagalassos from various sources. These sources primarily include both published collections, like for instance the *Sylloge Nummorum Graecorum* series, and unpublished material from major

museum collections, such as the British Museum (London) and the American Numismatic Society (New York). Secondly, the coins sold on the market or published in auction catalogues and on online platforms like Coin Archives also form a rich source of material. Finally, the coins found during the excavation campaigns at Sagalassos are the third major contributor to the dataset. Combining all these sources, the catalogue of the coins struck in the name of Sagalassos includes 1,506 pieces at present. In this first phase of data collection, every individual piece is photographed and registered in detail, describing for instance their iconography, legends, weight, size, die-axis and origin.



Fig. 1. (a) Silver coin (Brussels 2014-277; 18mm), (b) anonymous bronze coin (Berlin - Bernhard-Imhoof 1928; 16mm) and (c) Roman provincial coin dating to the reign of Marcus Aurelius (161-180 CE; British Museum G. 4471; 35mm), struck in name of Sagalassos.

This dataset is then used to study various aspects of the coin production, which all contribute to the wider knowledge of the city and its monetary history. A first important aspect is the quantity of specimens produced for each period or reign. This matter can be approached using several methods. A first possible way to reconstruct the production volume is by simply counting the number of recorded specimens. This method was for instance applied in the past by the authors of the different Roman Provincial Coinage volumes, who used the frequency of coins in the most important and accessible museum collections as a quantitative measure of production quantities.<sup>2</sup> However, it is not that certain whether the number of registered coins indeed represents the quantity of coins produced over time. Unfortunately, the data include some serious inherent problems that might hamper this link. A first important deficiency is the fact that many of the main collections, both public and private ones, are compiled according to the so-called 'collectors principle', i.e. with the objective of building a reference collection with at least one piece of every type. Moreover, many collectors are mainly interested in especially rare or valuable pieces, which leads to an under-representation of the more common types. Both public and private collections are therefore in most cases only a fraction of the coins that were found, which in their turn represent only a tiny portion of the coins that were struck in antiquity.<sup>3</sup> However, the fact that the bulk of the coins struck in Sagalassos consist of rather cheap and worn bronzes might diminish this objection a little. A

second factor that could cause a distorted image of the original output level is the possible withdrawal, melting or reminting of certain coin series. When the cities of Asia Minor for instance started to increase the face value of their coins from the 240s CE onwards,<sup>4</sup> this was in some cases done by restriking older issues. Such recycling methods could result in a better representation of the pieces belonging to the later stages of the civic coin production in collections, auctions and excavation finds.<sup>5</sup> A third problem that might bias the representativeness of the data is the possible presence of hoards in collections or auction catalogues. Large concentrations of coins might end up as a whole or dispersed over a number of museums or private collections, or appear on the market, and their presence can cause an overrepresentation of a certain period or type. Regarding the excavation finds, it should finally be added that differences in the representation of different coin series might be a result of their respective values, rather than the fact that they represent different production quantities. Small pieces, such as the various series of anonymous bronze coins dating to the late Hellenistic or early Roman imperial period, are for instance more likely to have been lost – and subsequently not searched for – than the larger third-century coins with a large face value.<sup>6</sup>

However, many of these issues can be resolved by using another factor as a proxy for production quantities, i.e. the number of dies used to strike the issues.<sup>7</sup> This method departs from a detailed comparison of the recorded coins in order to identify the number of dies with which the surviving specimens were struck (Fig. 2). Based on this die-study, the theoretical number of original dies can be extrapolated through several formulas,<sup>8</sup> of which the one developed by Carter<sup>9</sup> is the simplest and most commonly used. The Carter formula uses the number of surviving specimens and identified dies to estimate the original number of obverse dies<sup>10</sup> for a certain issue, taking into account variable die lifetimes. The more surviving specimens are recorded per known die, the more the reliability of the sample increases and the error range decreases. Depending on this ratio, one of the following three formulas is used, where  $D$  = the estimated number of original obverse dies,  $d$  = the number of recorded obverse dies, and  $n$  = the number of recorded coins per die:

$$D = \frac{n \cdot d}{1.214n - 1.197d} \quad (\text{if } n / d < 2)$$

$$D = \frac{n \cdot d}{1.124n - 1.016d} \quad (\text{if } n / d = 2 \text{ à } 3)$$

$$D = \frac{n \cdot d}{1.069n - 0.843d} \quad (\text{if } n / d > 3)$$



Fig. 2. Die-comparison between three anonymous bronze coins of the type Athena / Nike (SNG Fitzwilliam 5174; Munich 410; SNG Ashmolean 1526). While the first and second coin are struck with the same obverse die, the second and third coin share their reverse die.

A next step then consists of estimating the volume of the issues struck by the theoretical number of original dies. However, it is at this level that the greatest uncertainty exists. The question whether or not it is possible to calculate the original production quantity based on these die-studies represents a long-standing debate in ancient numismatics, of which François de Callataÿ and Ted Buttrey are the two ‘key players’. According to Buttrey, the biggest problem is that the life of a die and the output it produced was not constant, but depended on several factors, like the metal involved, the quality of the die, possible wear or damage to the die, and the organisation of the production.<sup>11</sup> Although de Callataÿ recognises the level of uncertainty, he does believe that a mean value of coins struck per die must have existed, and that die-studies can therefore lead to some useful estimations or ‘best guesses’.<sup>12</sup> However, it was decided to refrain from translating the estimated number of dies into absolute numbers of issued coins for the coinage of Sagalassos, given the fact that the many uncertainties described above seem all the more applicable to Roman provincial coins. First, it is highly possible that dies were not used to exhaustion during a certain issue period,<sup>13</sup> as is for instance suggested by fact that reverse dies were in some cases reused again after a considerable amount of time. Moreover, the existence of the workshop system,<sup>14</sup> with obverse coins shared between several cities, makes estimations per individual city even more difficult and might even give preference to the number of reverse dies as the most important indicator of the quantity of coins produced.<sup>15</sup>

A final consideration that should be taken into account when assessing the production quantity is the effect of the length of the time span in which the coins were issued.<sup>16</sup> Regarding the civic bronzes issued during the Roman imperial period for instance, there are theoretically more occasions for production

during long reigns, such as the reign of Septimius Severus and Caracalla, than during short reigns, such as the reign of the emperor Macrinus. This factor can be eliminated by dividing the number of coins and/or dies by the length of the respective reigns, as such providing comparable ratios.

As an example of this method, the following graph shows the number of recorded obverse and reverse dies, the estimated original number of obverse dies using the Carter formula, and the number of recorded coins per reign for Sagalassos during the Roman imperial period, divided by the length of the reign in months (Fig. 3). In general, the evolution of the production rhythm and volume at Sagalassos, with a rather low and sporadic output during the first century CE, a slight increase during the second century CE and a climax during the third century CE, coincides with the typical pattern for the region of Sagalassos, and by extension the whole of Asia Minor. However, some aspects seem to be rather exclusive to Sagalassos or its immediate region, like the absence of coinage during the long reign of Antoninus Pius, and the peaks under Nerva, Macrinus and Claudius II Gothicus. Regarding these periods of apparent higher productivity, it should however be taken into account that they all represent rather short reigns, lasting respectively 16, 14 and 24 months. One way to explain these peaks is that the issuing of civic coins might have been at its height during the first months of a new reign, for instance to express the city's loyalty to the new emperor.

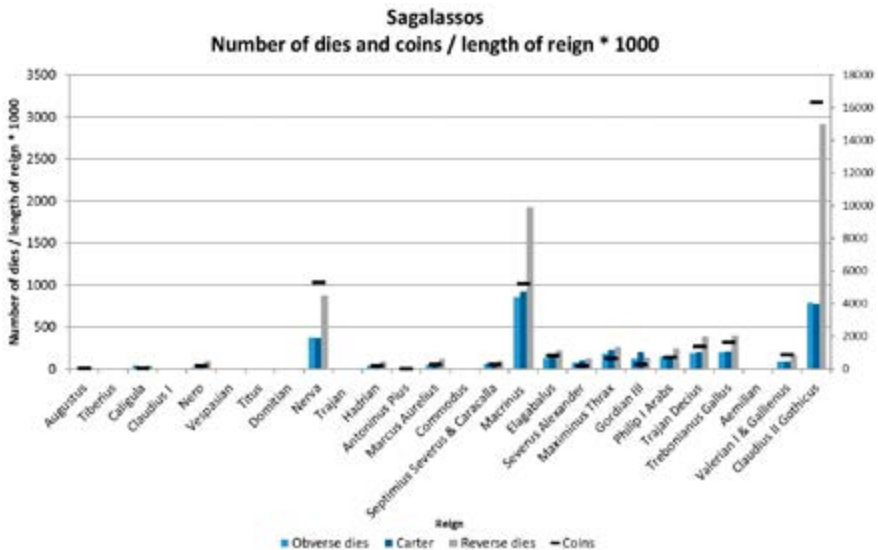


Fig. 3. Graph showing the number of dies and coins per reign for Sagalassos during the Roman imperial period, divided by the length of reign in months and multiplied by 1000.

A second aspect that is studied for the coin production at Sagalassos is the types and iconography of the coins, including both images and legends. Although Konrad Kraft has argued that civic coin designs were chosen by the workmen at the mint from a set of general images and have as such no meaningful link with the issuing cities,<sup>17</sup> Fergus Millar described the objects as “the most deliberate of all symbols of public identity.”<sup>18</sup> Indeed, it cannot be doubted that the cities and the responsible magistrates themselves decided on what to depict on their coins. As such, the coinage became an important medium to express the communal ‘polis identity’, and can provide some clues on what the city – or at least its elite – deemed important to express.<sup>19</sup>

What does this mean for the coin designs at Sagalassos? As was generally the case for all civic coins struck in the Roman East – and even all coinage struck during antiquity in general – the bulk of the coinage struck in the name of the city featured images belonging to the religious sphere, which makes them indispensable witnesses of the civic pantheon. Some gods are omnipresent on the coinage during all or most of the period, as was for instance the case for the Olympian gods Zeus and Apollo and the local deities Mên and Lakedaimon (Fig. 4). Remarkably, their designs stay rather static over this long period of time, resulting in a traditional look of the coinage. Other figures, like Dionysos (Fig. 5), appeared rather sporadically on the reverses. The latter deity’s appearance on the coinage from the reign of Marcus Aurelius onwards shows how his cult was gradually incorporated into the civic pantheon following his popularity in more private contexts and can be linked to the overall renaissance of the cult of Dionysos in the whole of the Graeco-Roman world during the Antonine period, after a centuries-long suppression by the Roman authorities.<sup>20</sup> Coin iconography can however also inform us about other aspects of civic identity. During the third century CE for instance, reverse designs referring directly or indirectly to the power of Rome became increasingly popular. These references fit into the changing context of this period, and express the new relationship that existed between the Roman and local level.<sup>21</sup> One of the clearest examples of such expression are the coins showing the image of two clasped hands, accompanied by the legend *POMAION CAΓAΛACCEΩN*, struck during the reigns of Valerian I and Gallienus and Claudius II (Fig. 6).



Fig. 4. Three bronze coins struck in name of Sagalassos during the reigns of (a) Nerva (37-41 CE; SNG Paris 1750; 27mm), (b) Marcus Aurelius (161-180 CE; Berlin – Loebbecke 1906; 26mm) and (c) Trajan Decius (249-251 CE; SNG von Aulock 5192), showing a similar image of Lakedaimon on their reverses.



Fig. 5. Bronze coin struck in name of Sagalassos during the reign of Marcus Aurelius (161-180 CE; SNG Paris 1774; 33mm), showing on its reverse the image of Dionysos supported by a satyr.



Fig. 6. Bronze coin struck in name of Sagalassos during the reign of Valerian I & Gallienus (253 – 268 CE; Cambridge – Mossop collection; 33mm), showing the portrait of Salonina on its obverse and two clasped hands on its reverse.

In addition, the chronology of the different coin series can be studied based on the assembled dataset. Regarding the silver and anonymous bronze coinage – i.e. bronze coins without an imperial portrait – all pieces are lacking certain chronological indicators, such as the presence of eras or magistrates' names. Therefore, a combination of other aspects should be considered to reconstruct

their production date. First, the style and design of the coins might be of use, like for instance letter forms, the subject and style of the image, or the fabric of the flans. A second aspect consists of the metrology of the coins, i.e. their weight and sizes, which might show some similarities with other series from the city itself or from the wider region. Thirdly, the context in which some of the pieces are found can provide valuable chronological information, including both hoard evidence and archaeological features. Finally, comparisons with the wider regional context might give some additional clues, for example through the existence of similar series in the region. All these parameters were for instance used to determine the chronology the most common series of anonymous bronze coins struck in the name of Sagalassos, showing the portrait of Zeus on its obverse and two goats butting heads on its reverse. Looking at the regional context, the production of this and other types fits well into the increase in the production of anonymous bronze coins in Pisidia and Pamphylia in general during the first century BCE.<sup>22</sup> Moreover, hoard evidence from the Ariassos Hoard,<sup>23</sup> the Burdur 1987 Hoard<sup>24</sup> and the Çeltikçi 1987 Hoard<sup>25</sup> clearly shows a link with the late first century BCE. The archaeological contexts in which some of the coins were found opens up the possibility that the production of the series might extend somewhat further in time. Another clue for a rather long production span for the type is given by the high number of identified dies and the corresponding large production quantity on the one hand, and the stylistic and in some cases even metrological differences on the other (Fig. 7). Based on the combination of all these clues, it seems more or less certain that the Zeus/goat type was produced towards the end of the Hellenistic era and the start of the Roman imperial period, with the possibility that it might have started sometime earlier and possibly continued for some time during the Roman period.

For the Roman provincial coinage struck in the name of Sagalassos, the question of chronology is much more straightforward. Thanks to the presence of an imperial portrait and title on the obverse of the coins, it is possible to appoint the bulk of the coinage directly to a specific reign. Some exceptions do however exist. The coins featuring the portrait of Caracalla and Iulia Domna could for instance have been issued both during the joint reign of Septimius Severus and his son Caracalla, or during the sole reign of the latter. In such case, it is necessary to look for other chronological clues, such as the presence of certain titles, the style of the imperial portrait or the existence of die-links with other series. One obverse die of Caracalla (Fig. 8) shows for instance a young portrait without beard. Regarding the 'official' imperial coinage, such portrait is characteristic of the coins issued before Caracalla's sole reign.<sup>26</sup> The title AVT points to the fact that he is already proclaimed *Augustus*, which dates this die



	1. Bucranium	2. Kerykeion	3. Cornucopiae	4. IA	5. No symbol
A	Group 1.1 O1 / R1 	Group 2.1 O1 / R1 - 5 	Group 3.1 O1 / R1 	Group 4.1 O1 - 3 / R1 - 2 	
B	Group 1.4 O8 - 12 / R9 - 14 	Group 2.3 O3 - 7 / R7 - 12 			
C	Group 1.2 O2 - 4 / R2 - 6 				
D	Group 1.3 O5 - 7 / R7 - 8 				
E		Group 2.2 O2 / R6 			
F			Group 3.2 O2 - 6 / R2 - 5 		
G					Group 5.1 O1 - 2 / R1 

Fig. 7. Different style groups of the Zeus / two goats series.



Fig. 8. Bronze coin struck in name of Sagalassos during the reign of Septimius Severus and Caracalla (193-217 CE; SNG Paris 1787; 24mm), showing a young bust of Caracalla on its obverse and Demeter on its reverse.



Fig. 9. Bronze coin struck in name of Sagalassos during the reign of Septimius Severus and Caracalla (193-217 CE; Berlin – Imhoof-Blumer 1900; 24mm), showing a the bust of Plautilla on its obverse and Demeter on its reverse.

between 198 and 211 CE. Moreover, a shared reverse die (R10) and stylistic similarities with an obverse die for Plautilla (O16), makes it possible to limit the date to 202–205 CE (Fig. 9).

A last aspect to be studied for the coins struck in the name of Sagalassos is their metrology and denominational scheme. For the final period of coin production, i.e. the reigns of Valerian I and Gallienus and of Claudius II, some series display marks referring to their value in Greek *assaria*, the equivalent of the Roman *asses* (Fig. 10). All earlier issues from Sagalassos are however lacking such indications of their face value. Therefore, the metrology of the different types has to be used in order to identify the set of denominations struck during a certain period in time. Although there are some problems related to this approach, like for instance the possible oversimplification of the data or the wide range of weights and diameters the coins could exhibit, the absence of other indicators leaves no other choice.



Fig. 10. Bronze coin struck in name of Sagalassos during the reign of Claudius II (268-270 CE; ANS 1944.100.52080; 35mm), showing Apollo on its reverse. On the obverse, the value-mark I for 10 assaria is added.

For the Roman provincial coinage for instance, the coin types can be grouped into five different denominations based on metrological similarities (Fig. 11).<sup>27</sup>

	1 30+ mm "VERY LARGE"	2 ca. 25-30mm "LARGE"	3 ca. 20-25mm "MEDIUM"	4 ca. 15-20mm "SMALL"	5 -15 mm "VERY SMALL"
Augustus		27mm; 11,26g T = 1; N = 1		19mm; 4,65g T = 1; N = 15	
Caligula		27mm; 14,16g T = 1; N = 1	24mm; 8,46g T = 1; N = 1		
Nero			22mm; 9,22g T = 1; N = 10	20mm; 4,69g T = 1; N = 19	
Nerva		27mm; 13,03g T = 1; N = 7	23mm; 8,26g T = 2; N = 18	19mm; 4,79g T = 2; N = 60	
Hadrian	31mm; 19,74g T = 3; N = 4	25mm; 10,07g T = 2; N = 9	24mm; 8,20g T = 2; N = 10	19mm; 5,18g T = 3; N = 17	14mm; 2,60g T = 2; N = 5
Antoninus Pius					15mm; 4,01g T = 1; N = 1
Marcus Aurelius	34mm; 23,23g T = 4; N = 8	27mm; 11,40g T = 4; N = 15	25mm; 8,46g T = 2; N = 14	19mm; 4,93g T = 3; N = 12	14mm; 3,08g T = 2; N = 3
Septimius Severus - Caracalla	32mm; 22,04g T = 4; N = 5	27mm; 12,98g T = 2; N = 10	24mm; 8,41g T = 8; N = 29	18mm; 4,19g T = 5; N = 29	14mm; 2,66g T = 2; N = 7
Macrinus	28mm; 13,90g T = 3; N = 15	23mm; 8,25g T = 3; N = 19	21mm; 5,75g T = 3; N = 14	16mm; 2,62g T = 4; N = 26	
Elagabalus	33mm; 18,44g T = 2; N = 4	29mm; 11,53g T = 3; N = 14	25mm; 6,39g T = 3; N = 13	20mm; 3,91g T = 2; N = 7	
Severus Alexander	32mm; 17,74g T = 2; N = 2	27mm; 11,02g T = 4; N = 6	24mm; 7,01g T = 5; N = 7	19mm; 3,35g T = 4; N = 8	13mm; 1,22g T = 2; N = 4
Maximinus I	33mm; 15,37g T = 1; N = 2	27mm; 9,47g T = 2; N = 10	25mm; 5,51g T = 1; N = 1	18mm; 3,92g T = 3; N = 9	12mm; 1,54g T = 1; N = 2
Gordian III	37mm; 28,76g T = 1; N = 1	26mm; 10,44g T = 5; N = 12	23mm; 6,42g T = 1; N = 4	19mm; 5,20g T = 1; N = 1	
Philip I	35mm; 23,73g T = 4; N = 10	27mm; 12,08g T = 4; N = 24	24mm; 7,29g T = 2; N = 9	20mm; 3,91g T = 2; N = 4	10mm; 1,27g T = 1; N = 1
Trajan Decius	34mm; 16,85g T = 2; N = 3	27mm; 10,75g T = 4; N = 20	23mm; 7,07g T = 1; N = 6		
Trebonianus Gallus	33mm; 16,29g T = 2; N = 8	26mm; 9,36g T = 3; N = 22	22mm; 5,69g T = 3; N = 6	19mm; 4,01g T = 2; N = 5	

Fig. 11. Overview of the denominations issued at Sagalassos from the reign of Augustus (27 BCE - 14 CE) until the reign of Trebonianus Gallus (251-253 CE), giving the median size, the mean weight, the number of types (T) and the number of coins (N) recorded per denomination.

Such an extensive denominational system already suggests that the local economy attained a certain level of complexity, requiring both small, medium and large bronzes. A first important general observation is that the size of the different denominations was much more consistent than their weight, both within one reign and during the entire period of Roman civic coin production. While the diameters of the coins generally fell within a limited range, the weights could be double within one coin type. This observation suggests a highly fiduciary coinage, with a fixed face value of the coinage regardless of their intrinsic metal value. Regarding the evolution of the denominational scheme over time, the situation in Sagalassos is very similar to the rest of Pisidia and Pamphylia. While the first century CE was characterised by a rather limited amount of denominations, the second century CE saw a clear expansion in the denominational system. Although the 'small' denomination seems to have been the most popular at first, the larger denominations, and especially the coins of 30+ mm, became increasingly popular from the Antonine period on. During the reigns of Valerian I and Gallienus and of Claudius II, Sagalassos joined the overall trend of striking coins with a larger face value, in this case 6 and 10 *assaria*, and equally added value marks to their civic bronzes. A final important observation regarding the denominational scheme at Sagalassos consists of the fact that in some cases both obverse and reverse designs could be used as denominational markers. This is for instance suggested by the popularity of sitting deities on the 'medium' denomination, with Apollo occurring during eight reigns, Zeus during five reigns, Sarapis during three reigns and Hephaistos during two reigns (Fig. 12).



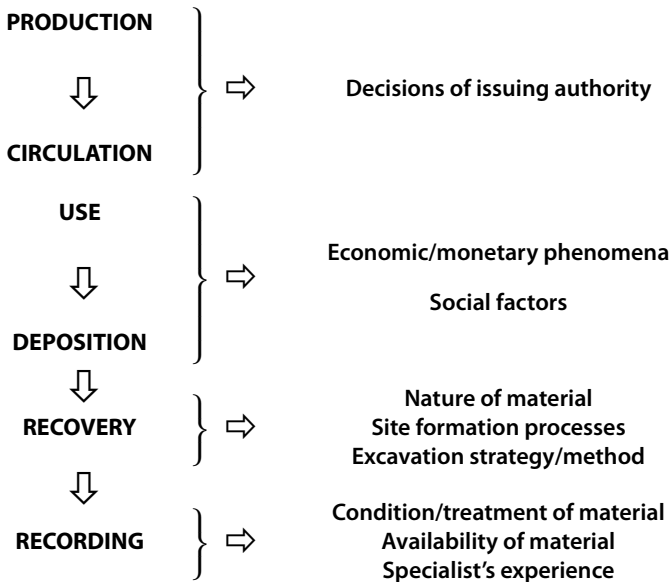
Fig. 12. Four bronze coins struck in name of Sagalassos belonging to the 'medium' denomination, showing the image of (a) a seated Apollo (Nerva; Berlin – Bernhard-Imhoof 1928; 24mm), (b) Zeus (Nero; SNG Paris 1752; 20mm), (c) Sarapis (Macrinus; SNG Paris 1804; 20mm) and (d) Hephaistos (Trebonianus Gallus – Volusian; Boston 63.1167; 21mm) on their reverse.

### ***The coin finds from Sagalassos***

The second category of numismatic material that can be used to document money at Sagalassos is coin finds that were registered during the excavation and survey campaigns at the site and its territory. To date, a total of 4,348 coins have

been identified, of which 1,142 pieces could not be attributed to a specific period. The coins found between 1990 and 2004 were identified and partly published by Simone Scheers.<sup>28</sup> From the campaigns of 2005 on, the material has been studied by the author and Johan van Heesch. The coins are analysed both on the spot at the depots of the Excavation House and in the Burdur Archeological Museum, and through casts and high-quality images of the material. Every specimen is described in as much detail as possible, ideally consisting of an attribution to a specific period or reign, the metal and denomination of the piece, the mint or place of production, the description of the design and legends on the obverse and reverse, the weight, size and die-axis, a reference to a standard catalogue, and the individual find number of the coin.

Before these data can be processed, it is essential to be aware of a variety of aspects that could influence the interpretation of coin finds from archaeological excavations. In an ideal scenario, the finds are a direct reflection of the coins that were actually circulating and used at the settlement and during the different periods. However, things are not that straightforward. Due to processes that take place during the various stages of the lifetime of the coins, the finds encountered are a filtered image of what was produced, circulating and used in the past. According to Casey, for instance, only 0.003% of the Roman coinage originally produced is recovered due to these filters.<sup>29</sup> The following scheme<sup>30</sup> can be used to describe the coin's 'biography' and the different influencing factors:



The first step in a coin's lifetime is its production by a certain authority, which could be either regal, imperial, provincial or civic. As was discussed above, estimating the quantity of coins that was originally produced is not an easy task, but could be approached using detailed die-studies. As such, comparisons can be made between the evolution of the estimated production volume and the site finds. Although numerous die-studies of coin series of individual cities or specific regal or imperial periods exist and have become increasingly common, it is not possible to estimate the total numbers of coins produced by each issuing authority for the entire period. However, both the volume of the coins produced at a certain moment in time and the reason and circumstances behind the issue had a significant effect on the following stages of the coin's lifetime and on what is ultimately reflected in the site finds.<sup>31</sup>

Once the coins were produced, they were supplied to certain areas or contexts where they were intended to circulate and function. As was the case for the production, this phase was also controlled by the issuing authority. The mechanisms behind the coin supply will have varied considerably per period, region, issuing authority or nature of the coinage, and were influenced by several factors such as the distance from the issuing mints. Of course, the supply of regal or imperial silver coinage to military troops will have been completely different to the way in which civic bronze coins were brought into circulation in the Hellenistic and Roman period. Moreover, the reverse action of withdrawing and re-issuing coins also causes anomalies in what actually survived in the archaeological record.<sup>32</sup> Older, more valuable pieces could be removed from circulation when they automatically reached the treasuries through the payment of taxes, after which they were melted down in order to strike a larger number of coins with a lower intrinsic value from the same amount of metal. Another way of reusing older coins in circulation was through the common practice of overstrikes, changing the responsible authority or value of the coins without the production of new flans. All of these practices could result in the underrepresentation of specific series that were initially circulating at a certain site or region.

The coins that were supplied by the issuing authorities to a certain place or region were then put into circulation. The quantity and velocity with which the coins circulated will again have been influenced by different factors. One of these factors could be the function of (a certain area) of the site: coins will have circulated at a higher level at places where regular commercial transactions took place, like shops or market places.<sup>33</sup> Another factor consists of the characteristics of the coins, such as their metal or denomination. Small bronze coins that could easily be used to pay for daily transactions had a completely different circulation pattern than high-value gold or silver ones, which were used for

larger payments in other contexts, like taxation or public works. Moreover, economic phenomena could also influence which and how many coins circulated at the site. In periods of inflation and price rises, for instance, more coins will have been needed to carry out similar transactions. The time span during which the coins circulated is another aspect that should be taken into consideration. While some coins might have had a short lifespan, i.e. because they were quickly demonetised or replaced by new issues, other types might have stayed in use for decades or centuries. When coins are found in contexts which are chronologically distinct from their date of production, we should consider the option that they represent pieces with a long circulation span or formerly obsolete coins the use of which was revived. Several characteristics, like contextual information, wear or the presence of countermarks could help to solve this question.<sup>34</sup>

The next phase in the coin's lifetime is the moment of deposition, i.e. when the coins end up in the archaeological record. First of all, an important distinction has to be made between two types of site finds: hoards on the one hand and single finds on the other. The term 'hoard' points to a concentration of two or more coins that was deposited by its owner, and was as such withdrawn from the circulation pool. This term covers many loads, involving for example hidden savings, abandoned purses and deposits made as offerings. Savings hoards often consist of large-value coins that were intentionally selected. In many cases, they represent unstable monetary phases: when the state decided to lower the intrinsic value of the coins, the users saved the older, more valuable pieces. Concentrations like purses are more likely to reflect the coinage that was actually circulating at the time of loss or abandonment, and tend to consist of lower-value coins.<sup>35</sup> The second category, namely single finds, consists of coins that were individually deposited into the archaeological record. This could have happened both intentionally and accidentally.<sup>36</sup> On the one hand, coins might have been deposited for a specific purpose, for example as offerings or grave goods, or might have been thrown away or put aside because they were not or no longer legal tender and did not contain enough intrinsic value to be recycled.<sup>37</sup> On the other hand, coins could be lost accidentally at a specific point in their lifetime, which has some inherent implications. First, it is more likely that coins were lost at places where they were most frequently circulating and being used, i.e. in commercial contexts. Secondly, they are more likely to be lost at locations whose characteristics made it difficult to recover them, like unpaved areas or cracks between pavement slabs.<sup>38</sup> Thirdly, low-value coins are more likely to be lost and subsequently not carefully searched for than high-value ones.<sup>39</sup>

Another problem related to the deposition of coins into the archaeological record is the difference between primary and secondary contexts. Coins found in primary contexts, i.e. the contexts in which they originally entered the ar-

chaeological record and which consequently have a direct relation with the use or storage of the pieces, are often scarce at sites in the East. The majority of coins come from clearly secondary contexts, like levelling layers or dumps, or from erosion or demolition layers. In these cases, the original location and moment of deposition of the coins is in most cases impossible to reconstruct. The pieces end up in layers which are often characterised by very heterogeneous material finds and are chronologically and spatially distinct from the initial circulation and use of the coins. In order to make a necessary distinction between these two types of contexts, it is very important to understand their nature and formation processes.<sup>40</sup>

During the archaeological excavation and survey campaigns, the coins enter the phase of recovery. Again, several factors influence which and how many of the deposited coins are actually recovered. First of all, archaeological excavations are necessarily a selection: in most cases, it is impossible to excavate all levels of the entire surface of the site. Logically, the upper, more recent layers are easier to reach and therefore are often better studied than the underlying, older ones. Of course, this greatly affects the number of recovered coins per period.<sup>41</sup> Secondly, the characteristics of the coins also influence their chances of being recovered or not. Larger coins will be more easily spotted than very small denominations, and the same goes for shiny gold and silver pieces as opposed to heavily corroded bronze coins.<sup>42</sup> Finally, the excavation method and experience of the excavators should also be taken into account. The use of metal detectors or the sieving or flotation of contexts<sup>43</sup> will increase the numbers of often poorly visible coins. Moreover, some fieldworkers will be more used to or familiar with recognising coins in archaeological layers than others.<sup>44</sup>

The coins that were recovered during the excavations and survey at the site are subsequently recorded by specialists. The level of detail to which the coins can be identified is again dependent on several factors. First, the thoroughness and methods of the cleaning and conservation of the coins can greatly ameliorate their legibility. Some coins however will stay completely unidentifiable due to processes of wear or corrosion, or can only be attributed to a very broad time span.<sup>45</sup> In addition, the mediums that are at the disposal of the specialist will influence the identification process: the coins themselves or alternatively their casts are much easier to read than photographs of the same pieces. Again, the level of experience of the person(s) identifying the coins will also be of great importance in this stage. After the identification of the coins, they can be reported in a variety of ways. In some cases extremely detailed catalogues are compiled, including all the characteristics of the coins involved, while other excavations only generate general lists or tables. These differences often greatly complicate comparisons between different sites.<sup>46</sup>



When the material is identified and registered, their different characteristics are presented in graphs and tables, in order to obtain the general coin profile of the site. As an example, Figure 13 shows the graph of late Roman single finds (294–498 CE) per production period for Sagalassos. First of all, it should be mentioned that this material covers the bulk of the coins found in Sagalassos, consisting of *c.* 77% of the total number of finds. However, this imbalance does not necessarily reflect different degrees of monetisation, but is to a large extent due to a number of the filters mentioned above. To begin with, the continuous development and occupation of the site results in the higher visibility and presence of later contexts in the archaeological record. Secondly, the nature of the coins also probably had an impact: the late Roman bronze coins mainly consist of very small pieces, and might have had a significantly lower value than the generally larger provincial bronzes which were in use during the early and middle Roman imperial periods. This means more coins will have been needed to carry out similar transactions. Focusing on the graph of the late Roman finds, it is immediately clear that some periods are better represented than others, with for instance rather low numbers until 330 CE, an increase from the middle of the third century CE, a substantial peak in the 388–408 CE period, and a subsequent drop in the fifth century CE. Once again, it would be dangerous to translate these fluctuations purely in terms of periods of increased or decreased coin

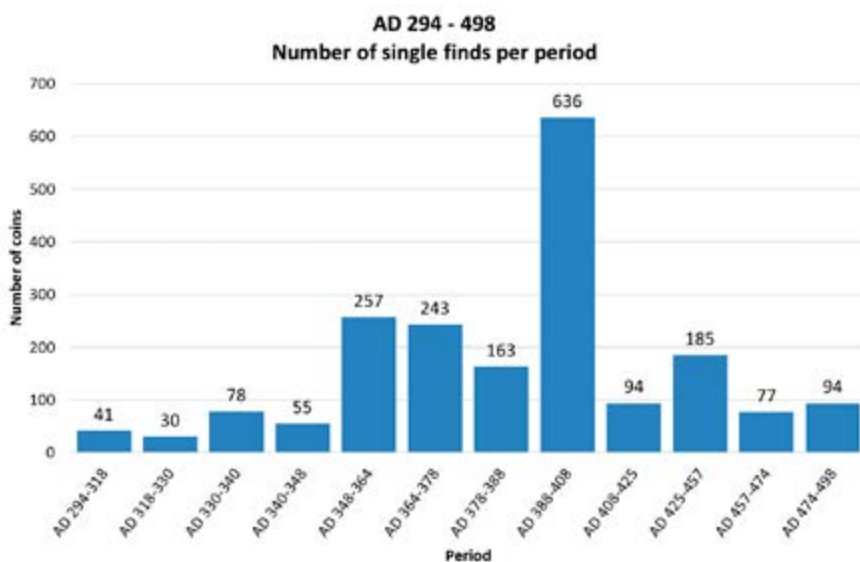


Fig. 13. Number of single finds per period for the late Roman coins found at Sagalassos and its territory

loss and monetisation. When the site finds of Sagalassos are compared to other late Roman coin profiles encountered in the Mediterranean East,<sup>47</sup> the similarities are striking with, for instance, the well-represented Valentinianic and early Theodosian dynasties. Based on these observations, Peter Guest suggested that “these characteristics were not local responses, but are a reflection of the fluctuating output of late Roman [and early Byzantine] bronze coinage and how these were distributed around the empire”.<sup>48</sup> In other words, it is primarily the decisions of the issuing authority during the production and circulation phase that mostly influenced the coin profile at Sagalassos, rather than local factors.

### ***Reconstructing the use of money at Sagalassos***

The ultimate goal of the analysis of both the coin production and the coin finds at Sagalassos discussed above is to gain insights into how money was functioning and being used in the city over the long term. In this framework, it is important to make a distinction between two categories of numismatic data, providing information about two different monetary levels. On the one hand, gold and silver coins are generally characterised by a high intrinsic and face value, and are mainly suited for large transactions requiring considerable sums of money. On the other hand, bronze and billon coins have a rather small purchasing power and are ideal means of exchange during frequent and more modest transactions. As was already discussed above, the difference in value of these two categories translates into an unequal proportion in the archaeological record. While base metal coins are found in abundant numbers during the excavations, the number of precious metal pieces is much more limited, resulting in a ratio of 99.4% to 0.6% respectively for the site of Sagalassos and its territory.

Several aspects of the numismatic data can be used to discuss the evolution of the level of monetisation and coin use at Sagalassos over time. Besides, for instance, the volume and denominations of the coins produced and the differences in the number of coin finds per period, the spatial distribution and archaeological contexts in which the coins were found during the excavation and survey campaigns might also add valuable information.<sup>49</sup> Figure 14 for instance shows the spatial distribution of the Roman coin finds across the various excavation sites of Sagalassos. Some peaks draw immediate attention, with in particular the Makellon, the Bouleuterion site – and more specifically the late Roman portico at the western edge of the Upper Agora – and both agorai being extremely rich in coin finds. At first sight, the amount of coins found at these spots can be easily linked to their commercial function and the daily use of low-value coins when buying various commodities at the shops and stalls

present at these places. When zooming in on these different sites, however, we are confronted with the same problem that is characteristic of so many archaeological sites in the East: a large proportion of the coins are found in destruction or erosion layers or clearly secondary deposits, so that no direct link with their primary use exists.<sup>50</sup> To take just one example, during the 2009 campaign 230 coins were found at the Makellon in a mid-sixth-century CE dump layer, which was thrown in to block the sewer.<sup>51</sup> The predominant secondary nature of the contexts in which most of the coins are found does of course influence their interpretation. However, this archaeological reality does not mean that the analysis of the coin finds has no potential at all. Although the question remains as to where the material constituting the various layers exactly originated from, it would be most efficient to limit the distance to be covered by dump or fill materials as much as possible. Indeed, the composition of the secondary layers often seems to point to a local provenance.

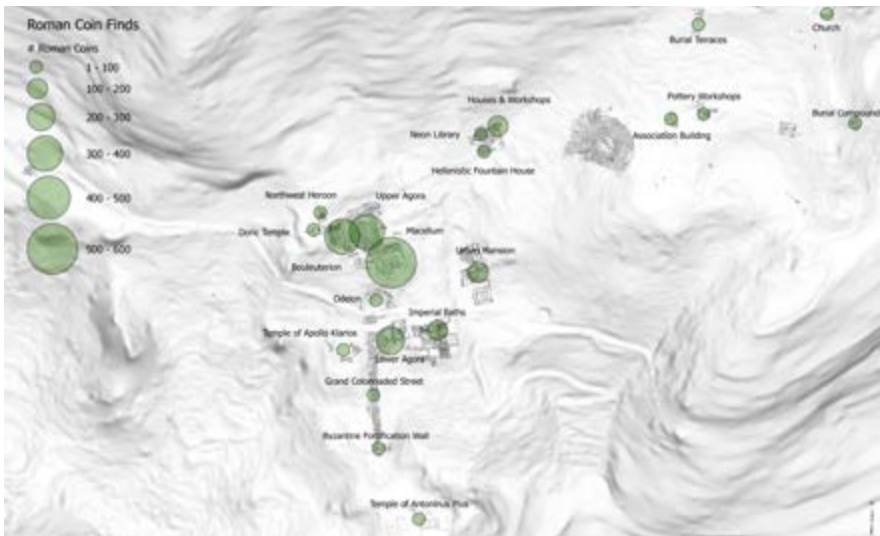


Fig. 14. Spatial distribution of the Roman coin finds across the various excavation sites of Sagalassos.

In a next step, the coin data have to be combined with evidence from non-numismatic sources that can provide information about the context of monetary transactions at Sagalassos. Regarding daily coin use, much can be learned about the (semi-)permanent commercial structures that left their traces at the site of Sagalassos and other cities in Asia Minor, like porticos filled with (work)shops, *macella* and market stalls. Epigraphical evidence can also shed a light on how

money was used in the city, especially when it comes to larger payments, which are virtually invisible in the archaeological record. The building inscription of the temple of Apollo Klarios,<sup>52</sup> erected for the restoration and the dedication of the temple to both the deity and the divine emperors during the second century CE, for instance mentions that the priest Titus Flavius Collega invested the 10,000 *denarii* “of his priesthood”, i.e. his *summa honoraria*, for the re-building of the colonnades and the marble cladding, while the rest of the repairs were paid for by other members of his family.<sup>53</sup> Whether the formula should be interpreted as a unit of account or as a literal reference to a cash payment in Roman imperial silver coins remains however open to speculation. In addition, historical evidence describing similar urban conditions can help us understand the contexts of coin use at Sagalassos. Some writings by the first-century CE writer Dio Chrysostom are for instance highly informative in this respect. In one passage on Phrygian Apameia, the author describes how the city functioned as a primary market and meeting centre for a wide region and how the annual assize brought a lot of visitors to the centre, leading to a high level of commercial activity and money use.<sup>54</sup> In another passage,<sup>55</sup> Dio mentions how “the poor” paid money for every commodity they needed except for water, highlighting the high level of monetisation during daily exchanges.

To conclude, both the coin data and the contextual evidence should be interpreted in combination with our knowledge of the general development of Sagalassos. The different phases in the settlement’s history did indeed require different monetary needs: the self-sufficient peasants in late Achaemenid and early Hellenistic Sagalassos will have been less familiar with payments in coin than the citizens of the Roman city, who counted on the shops and markets in the city and on the countryside to fulfil their daily needs, or the elite and authorities who financed public amenities. In the end, this contextual approach to the data on coin production and coin finds allows us to study the monetary developments at Sagalassos and its territory as completely as possible and from different points of view, each contributing in their own way to the bigger story, as long as we keep the limits and deficiencies presented by every category of evidence in mind.

## Notes

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| <p>1 Stroobants 2017. This article is a combination of the methodological chapters and some general results of this Ph.D.</p> <p>2 RPC I, xii, 17; RPC II, xiv, 14–16;</p> | <p>3 RPC III, vii; RPC IX, vii–viii, 26–35. Johnston 1998, 155; Katsari 2003, 47–48; 2005, 267; 2011, 31–33; RPC I, 56.</p> <p>4 See Johnston 2007.</p> |
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- 5 Heuchert 2005, 39, fn. 43; Johnston 1998, 156; Katsari 2011, 19.
- 6 Butcher 2004, 150; Casey 1986, 70–72; Katsari 2011, 20; Reece 1993, 341; van Heesch 1998, 20.
- 7 The methods and potential of die-studies were extensively studied by F. de Callataÿ. In this respect, see the articles collected in the first part of de Callataÿ 2006 and 2011.
- 8 For an overview and discussion of the different methods to estimate the number of dies, see Carter 1981; de Callataÿ 1984; Esty 1986.
- 9 Carter 1983.
- 10 The number of obverse dies is preferred over the number of reverse dies since they are presumed to be fewer and less likely to be discarded before full utilisation (de Callataÿ 1995, 294, fn. 23).
- 11 Buttrey 1993; 1994; 2011.
- 12 See the articles collected in the first part of de Callataÿ 2006, and especially 1995.
- 13 Heuchert 2005, 33.
- 14 See Kraft 1972.
- 15 See also Leschhorn 1985, 213–34.
- 16 See e.g. Johnston 1984, 250–52.
- 17 Kraft 1972, 94–96.
- 18 Millar 1993, 230. This assumption seems to be confirmed by the famous late Hellenistic inscription from Sestos, which describes the expression of civic pride as one of the two main motivations for civic coin production (IGSK XIX, 1; OGIS, I 339)
- 19 The idea of coins as a prime medium to study civic identity has been a ‘hot topic’ in recent years. See for instance the various papers in Howgego *et al.* 2005.
- 20 Talloen 2015, 322–23. Also a temple and the Nymphaeum on the Upper Agora were dedicated to Dionysos during this period, and perhaps the construction of the Theatre at the end of the second century CE can also be seen as a sign of his renewed popularity (Talloen 2015, 187–89). See e.g. Mitchell 1993, 238, 250–53.
- 21 Ashton 2012, 201.
- 22 Olcay 1969; von Aulock 1977, 27–29.
- 23 Köker 2006, 13–14, nr. 51.
- 24 Köker 2006, 14, nr. 52.
- 25 Johnston 1983, 59.
- 26 The same method is used in the *Roman Provincial Coinage* series (see RPC I, 34; RPC II, 22–29; RPC III, 813–28; RPC VII.1, 72–79; RPC IX, 38–50).
- 27 Scheers 1993a; 1993b; 1995; 1997; 2000.
- 28 Casey 1986, 84.
- 29 Based on Butcher 2001–2002, 23.
- 30 Katsari 2011, 20.
- 31 Butcher 2004, 150–51; Katsari 2011, 21.
- 32 Butcher 2001–2002, 31.
- 33 Butcher 2001–2002, 5.
- 34 Katsari 2011, 10–15; van Heesch 1998, 16–17.
- 35 Katsari 2011, 19; van Heesch 1998, 17.
- 36 Butcher 2001–2002, 24; 2004, 151.
- 37 Butcher 2001–2002, 32; Howgego 1992, 3; Katsari 2011, 19; Reece 2003, 151.
- 38 Butcher 2004, 150; Casey 1986, 70–72; Katsari 2011, 20; Reece 1993, 341; van Heesch 1998, 20.
- 39 Butcher 2001–2002, 25–29; Katsari 2011, 23.
- 40 Wigg-Wolf 2009, 111, 114–16.
- 41 Butcher 2001–2002, 25; Collis 1974, 192; Reece 1993, 341; Wigg-Wolf 2009, 116.
- 42 In the case of Sagalassos, it does indeed seem that a considerable portion of the finds were only encountered after flotation, as was for instance the case of c. 1/8 of the total amount of coins found during the 2000–2003 campaigns (Claeys 2004, 10).

- 44 Collis 1974, 193; van Heesch 1998, 20.
- 45 Katsari 2011, 21.
- 46 Butcher 2001–2002, 7; Katsari 2011, 22.
- 47 Guest 2012, 111–12.
- 48 Guest 2012, 117.
- 49 Recently, archaeological-numismatic studies tend to transcend the traditional identifications and general commentaries of the material, and increasingly explore the potential of spatial and contextual analysis to illuminate coin use at certain sites. Some inspiring examples are for instance Butcher 2001–2002 on the coin finds of Berytus, Kemmers 2006 on the military camp of Nijmegen, and Hobbs 2013 and Ellis 2017 on a selection of coin finds from Pompeii.
- 50 Richard *et al.* 2013, 47–48.
- 51 Richard *et al.* 2010, 267–68; Waelkens *et al.* 2010, 271.
- 52 Lanckoronski 1892, 226, nr. 200.
- 53 Talloen 2015, 275–76; Talloen and Waelkens 2004, 175–76.
- 54 Dio Chrysostom, *Orationes*, XXXV, 14–16.
- 55 Dio Chrysostom, *Orationes*, VII, 105–06.

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# How do we document time?

*Jeroen Poblome*

## ***Time is very much a mystery***

Being an archaeologist sometimes feels like being a magician or a wizard of sorts. We are the profession that can pick up an object from the past and comfortably state that it dates to the fourth century CE, for instance, or can be associated with one or other cultural period, such as the late Bronze Age. At some point in their academic training, aspiring archaeologists become miracle workers who can predict, or rather postdict time in the past. This chapter wishes to look into how this can come about. How do archaeologists deal with time?

It is a truism that the five 'W's make good journalism: Who, What, Where, When and Why are questions best answered to make a journalistic piece appropriately informative. When reporting on the results of their work, archaeologists too would be best off taking these basic questions to heart, as the answers to these provide essential information understandable to everybody. More often than not, however, circumscribing an answer to the questions Who and especially Why proves difficult for archaeologists. In contrast, What, Where and When are questions referring to particular and factual conditions resulting from archaeological fieldwork, meaning that these answers seem to be more easily within reach. Indeed, finds of all kinds and types manifest themselves in given locations and archaeological contexts as a result of fieldwork. Even though positioning these remains in time is at least as much the essence of archaeology as determining the location and nature of finds or structures, unfortunately chronology does not reveal itself so easily. Archaeology, as a historical discipline, will always be needing to work with time, however. The crux of the matter is that archaeology would not exist without chronology, but that time does not present itself readily.

As things stand, not only archaeology finds it difficult to deal with time. At the most fundamental level, time remains much of a mystery. The greatest of human minds, conceiving of the General Theory of Relativity and the Second Law of Thermodynamics, have approached time as bound to matter and gravity as well as time and space as two sides of the same coin. Both, for instance, separate things and events from one another in each or both of these dimensions.

One of the crucial differences between time and space, however, is that we can move freely in space, albeit theoretically, but time enforces directionality, from past to present. Physicists consider this directionality, the arrow of time, to be related to the concept of unavoidable and increasing entropy in the universe, from its pure state at origin towards increasing disorder, of which entropy is the measurement. An archaeological excavation, for instance, cannot be undone or redone; there is a before and after the moment of excavating, and the conditions of the site are clearly different before than after the excavation. Yet entropy is a concept related to the Second Law of Thermodynamics, which stipulates that this process is active in closed systems with a constant total amount of energy. Science seems to be in agreement that the universe is not such a closed system. So, how to explain the difference between the dimensions of time and space and what if there is no such thing as the arrow of time?

In antiquity too, time was an experience requiring deep thought. πάντα ῥεῖ, as attributed to Herakleitos of Ephesos (544/35(?)–483/75(?) BCE) in Achaemenid times, encapsulates a common ancient metaphysical approach to time. “Everything flows” and “no man ever steps in the same river twice” are citations attributed to Herakleitos, which represent his views on the essential role of change in understanding nature and the universe. Everything is constantly affected by change and in opposition to something else. The movement of the water of the river is in contrast to the situatedness of the riverbed, for example. This unity of opposites allows change to foster becoming and progress, ultimately creating unity. The Herakleitian perception that everything flows corresponds to a fundamental experience in human lives related to the appreciation of time as infinite: the stream that transports us from a past we cannot revisit to a future we cannot know.

When Augustine of Hippo Regius (354–430 CE) reflected upon the nature of creation and of time as well as its relations with God in Book 11 of his Confessions, he concluded that only God was infinite and eternal, whereas time could only be experienced in the present, hence being finite. The present in any case was different from the past and the future; if that were not the case, time would be equal to eternity. In this way, Saint Augustine considered time to be something changeable, but beyond interaction when it came to the past and the future. Although the difference between a finite or infinite appreciation of time is fundamental, Augustine remained unsure whether he had come to a clear and complete understanding of the nature of time, as revealed by this citation from Book 11.14.17: “What, then, is time? If no one ask of me, I know; if I wish to explain to him who asks, I know not.”

Clearly time is more than a range of physical or philosophical concepts. The experience of time is different for children than for adults, for example, and while time flies when you are having fun, it can also move extremely slowly in dramatic circumstances such as during a traffic or other accident. Time, in other words, is not only an abstract phenomenon, but is wired in the human brain in ways that have not been completely elucidated yet.

### ***Solving the mystery: Step 1 – conceptualisation of time***

It should be obvious that in archaeology, the concepts of time and place form part of the core DNA of the discipline. The object of study of archaeology as a scientific discipline is the human past, with a particular focus on constellations of past communities and the historical processes in which these are embedded. By definition, archaeology takes a long-term perspective and aims for a fundamental understanding of human behaviour and human evolution. In order to do so, the conceptualisation of time and space are essential.

Time, to be clear, is a theoretical concept. As a result, the way time is considered affects the way archaeological interpretation is constituted. In this respect, it is striking how little conceptualisation of time is represented in professional archaeological literature. More often than not, historical narratives are approached in a uniform, linear way based on a variety of divisions in discrete units feeding comparison and interpretation.<sup>1</sup> Prehistory is something different from the Bronze Age and the latter is different from the Iron Age, and so on. To put it bluntly, the world evolved from the savagery of prehistory, towards the feuding of protohistory to the (blessed, yet still bloody) epochs of civilisation in historical periods, with agricultural and urban revolutions feeding the changes in society from bands to tribes, chiefdoms and states. It feels natural as an archaeologist to be able to divide time and societies into such exclusive units following a 'logical', linear order, and draw a comparison between these units. It is important to recognise that this (quite often implicit) understanding of time sustains models for historical explanation in similar terms. In this way, the linear order of exclusive units of time is at the basis of much, if not most, historical research.

The Annales School problematised this linearity and the duality of history as both continuity and change.<sup>2</sup> Instead, historical processes are considered to be constituted by unique combinations of the short, medium and long term, on different yet concurrent wavelengths.<sup>3</sup> Very slow-moving processes, such as environmental change or world views, are considered to be the structures of the long term, which both enable and constrain continuity and change. The con-

junctures of the medium term, on the other hand, are at the basis of the history of eras, regions and peoples, translated into typical constellations of social and economic organisation, or the demographic effects of diseases such as pestilence. The short term, finally, is characterised by events noticeable at the individual scale, quite often forming the focus of traditional political or military historical research, such as the life and works of Alexander the Great (356–323 BCE), or various processes of contingency, such as chance, uniqueness, unpredictability and unexpected change. In survey archaeology – the study of regions and places based on non-interventionist methods such as intensive surface survey – for instance, the Annales perspective has become one of the dominant frameworks to explain changes in the surface record (the *conjoncture*), as this follows from the interplay between the *histoire événementielle* of historical sources, the more stable background of the landscape (*longue durée*) and the *mentalités* of individuals and societies.<sup>4</sup> It is the task of the historian and archaeologist to present the evidence of processes at the different time scales, and then analyse retrospectively how these interacted to create unique and unpredictable outcomes (Fig. 1). As a result, the archaeological record encompasses multi-temporality and its reconstruction should be an act of interpretation. Contingent and/or predictabilist processes operate at a variety of temporal and geographical scales. Changes on these different scales require different explanations and, by extension, different units of analysis. Such an approach does more justice to the variability in data as recovered by archaeological fieldwork, allows these to be evaluated more critically in the light of the history of events and introduces a more flexible way to approach aspects of regionality, which is more often than not the typical scale of archaeological analysis.

More recent considerations of time and history have been introduced by G. Lucas<sup>5</sup> and M.G. de Molina and V.M. Toledo,<sup>6</sup> underscored by non-linear, metabolic models of change, punctuated by cycles or periods of rapid transformation, creating unique and unpredictable outcomes. In this sense, time is at least as multi-dimensional and dynamic as space, containing the dualism of continuity and change, and of process and event. Time is not a fixed structure in which changes simply take place, but is as multi-layered as these changes, and is moulded by them as much as it moulds them. Time simply cannot be an independent dimension, a homogeneous measure or a container for events. Instead, time-linked processes form part of social-ecological metabolic processes, with the concepts of change and emergent properties forming the framework for historical explanation, and the present is seen in a combination of relations with the past (no relation (yet) and/or (in)directly related).

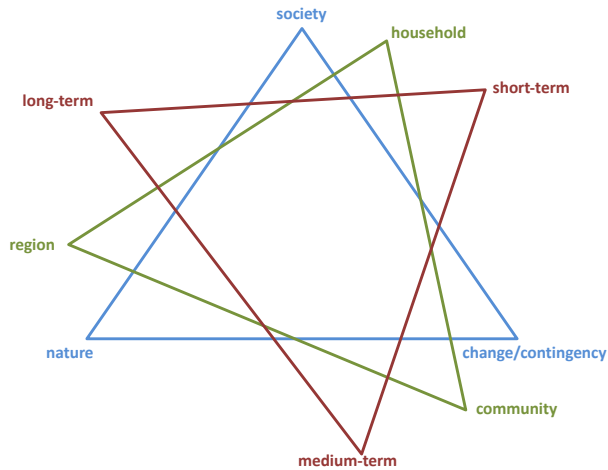


Fig. 1. The overlapping triangles help to situate events and processes in time and to determine their nature and reach. This scheme was developed for the Sagalassos Project in order to document change at the regional scale. It mostly works as a heuristic tool. Events and processes are compared and situated in the fields of tensions each triangle represents. An individual action preserved in the archaeological record will be situated in the ranges of short-term, household and society, whereas climate change is best situated in the ranges of long-term, nature and affecting the region. Most processes and events are not so clear-cut, and that is how the overlapping triangles help structure thinking in time and effects.

To be sure, any theoretical approach to time should avoid the oftentimes very suggestive links between time, evolution and progress. Allowing ourselves to judge the (non-)complexity of prehistoric human behavioural patterns, for instance, is not only politically incorrect, but at a higher level such thinking places a straitjacket on the understanding of processes of social evolution and change, as if the arrow of time follows a unique, predestined and basically teleological path. Even though early Modern period European imperialism, for example, would like us to consider this ‘benign’ state of affairs to be a direct result of the implementation in society of the fruits of the golden age for democracy in Classical Athens, combined with insights into the governmental genius of Imperial Rome, these views are not based so much on historical interpretation, but rather on ways of appropriating and ‘owning’ history. Such arrows of time simply miss their marks; they are pointless.

## **Solving the mystery: Step 2 – building chronologies**

In order for time to find its place in the epistemological processes in archaeology, chronologies need to be constructed. The result of studying chronology is typically expressed as in: “The Pisidian *coloniae* were founded in 25 BCE”, “Layer 3 is older than Pit 6” or “These pithoi are typically associated with Bronze Age funerary practices”. Archaeological chronologies provide dates, or at least determine whether an event or a stratigraphical feature can be dated before, after or at the same time as another event or feature. To be clear, what chronologies do not do is interpret such events or features, no matter how precise the date may actually be. It is of crucial importance to be aware of what archaeological chronologies can and cannot do; it is not that difficult to spot deficient uses of chronologies in professional archaeological literature (including in the output of the Sagalassos Project, as it happens). Basically, dates, as resulting from chronological studies, should not feature as an element of a conclusion, but feature as one of the elements in wider archaeological reasonings, leading towards interpretations and conclusions.

In order to make this point clear, let us look in more detail at what archaeological chronologies do and are. Within the large variety of chronological systems, the key difference is between absolute and relative chronologies. Relative or ordinal chronologies are systems without direction, which determine whether a feature or event is older or younger than another feature or event, in a similar position, or with no relationship to such events or features. The units of such relative chronologies are non-specific and therefore not necessarily of the same nature. Moreover, relative chronologies are based on the interdependence of the data being studied. Typical methodologies to establish relative chronologies involve the creation of typologies of series of archaeological material culture, the statistical seriation of find assemblages and the study of archaeological stratigraphies. Periodisation, which stands for attributing given artefacts or events to cultural periods, such as the Iron Age or the Roman imperial period, is often the result of exercises in relative chronology. In this sense, *pithoi* can for instance be attributed to the early Bronze Age, and as a result these large storage vessels receive the dates attributed to the cultural phase, without being dated in and of themselves. This is an important difference to understand: following relative archaeological chronologies, dates are projected onto objects, features and events, without these intrinsically providing their own dates (Fig. 2). Oftentimes, scholarly discussions in professional archaeological literature originate from an incomplete understanding of this specific and intrinsic nature of relative chronologies, when ‘projected’ or ‘borrowed’ dates of cultural periods are taken for granted and as being meaningful in and of themselves.





Fig. 2. Fragment B of the early Hellenistic inscription found near the Upper Agora. According to the ancient historians, difficult to date, yet attributed to the late fourth and third centuries BCE (Vandorpe 2000; Vandorpe and Waelkens 2007; Eich *et al.* 2018, 21–28). This date is not established by a time framework independent of the inscription, such as the mentioning of a Hellenistic ruler. The inscription also does not otherwise present equal units of measurement of time. Hence, the date for the inscription is not an absolute one, but an example of relative chronology. Indeed, the attribution in time is partly based on palaeographic criteria, considering the shape and style of the characters in comparison with other inscriptions, as well as the absence of such elements in earlier or later inscriptions. Another element in the chronological reasoning is also comparative, namely the fact that only autochthonous names are mentioned on the stone, not yet including royal names, as will be customary later, in Roman imperial Sagalassos. Both comparative reasonings are an example of cross-dating in relative chronological terms. More Hellenistic inscriptions at Sagalassos itself would help tighten this comparative framework. The nature of the date implies that it cannot be established what the date range implies: an equal distribution according to which each year within the range is as likely for the erection of the stone, or a central tendency distribution, with likelihood of attribution following a bell curve. Other options are possible, but none is more valid than the other.

## Absolute chronology

Absolute or interval chronologies, on the other hand, are systems with direction based on specific, equal units of measurement, albeit without a point zero. Absolute chronologies are based on a time framework that is independent of the data being studied. In this way, a range of absolute dating techniques is available to support the construction of chronologies of materials and sites.<sup>7</sup> The most well known of these 'scientific' dating techniques are dendrochronology and radiocarbon dating.<sup>8</sup> Dendrochronology is the scientific method of dating growth rings of trees to the year in which these were formed. Each tree ring marks one year or a complete cycle of the seasons of that year, with the nature and thickness of the ring being dependent on the environmental conditions of that year. As tree ring growth is environmentally sensitive, trees of the same species and from within the same region tend to develop similar patterns of ring widths. Dendrochronology compares and matches such regional tree growth patterns on a ring-by-ring basis between different trees. When tree ring growth patterns match between trees, a dendrochronology can be constructed. This chronology can vary when the age of the wood cannot be determined, in which case this technique results in the creation of a relative chronology. Absolute tree ring dates can be established when an object or a structure provides a date one way or the other, such as a painting on wood panelling which mentions the date of painting, or a building inscription which can be historically dated providing an association for the beams found within that building. Matching the tree growth patterns of these dated wood panels or building beams with similar tree ring patterns in other objects or structures makes it possible to cross-date the latter. In this way, entire series of dated tree rings can be reconstructed for specific tree species and regions.

When historical dates cannot be associated with tree rings, in many cases radiocarbon dating can be used to provide dates for the otherwise floating dendrochronology. Radiocarbon or carbon-14 is a radioactive isotope of carbon present in organic matter in exchange with the environment. As soon as this plant or animal dies, the environmental exchange stops and <sup>14</sup>C starts decaying, with the half-life of the isotope around 5,730 years. Upon measuring the remaining quantity of the carbon isotope in dead organic matter, the moment when the atmospheric exchange came to a halt can be determined. This data is compared to the changing proportions of <sup>14</sup>C in the atmosphere, providing a date at death of the object, plant or animal in question. <sup>14</sup>C dates should be considered as statistical descriptions, dependent on calibrations, and expressing a range within which given dates are plausible. Moreover, unlike tree growth rings, <sup>14</sup>C dates do not correspond to calendar years. Further caution is war-

ranted, as the element which is carbon-dated is not necessarily equal to the totality of the archaeological event or process which is considered for dating, but often only represents a part thereof (Fig. 3).



Fig. 3. The sieving of excavation soil in order to recover small animal bones which were deposited as pellets by an eagle owl, Bath-Gymnasium, 2005. The remains of the pellets were radiocarbon dated and calibrated, indicating that the bones were deposited during the period of the second half of the sixth to the first quarter of the seventh century CE (De Cupere *et al.* 2009). Similar owl pellets were found at the bottom of the stratigraphy which had accumulated within the ruined Frigidarium 1 of the Bath-Gymnasium, immediately on top of the mosaic floor and before the structural debris of the building had started to come down and form part of the layers on top. The eagle owl(s) can only have started to live inside this large hall upon its abandonment. Whereas the date provided by the owl's pellets was originally associated with the period after the major earthquake which struck Sagalassos around this time, and thus provided a *terminus ante quem* (period before which) for the event of the earthquake, continued excavations indicated that from the second half of the sixth century CE onwards at least this part of the bathing complex was abandoned and stripped of its valuable and recyclable building materials. As a result, the eagle owl(s) could also have started to live inside this hall of the baths upon its abandonment and stripping, yet before the earthquake. The calibrated radiocarbon dates in and of themselves do not hold further information on either of the options, necessitating further archaeological reasoning.

Irrespective of the analytical costs involved or the difficulties in obtaining or exporting relevant samples for dendrochronology or radiocarbon dating, the truth of the matter is that most archaeological studies or projects, even those that have interdisciplinarity written into their DNA, make mostly 'targeted use' of these absolute dating techniques. Indeed, considering the total amount of stratigraphical units even a fairly simple excavation produces, it is impossible to

document every meaningful stage in the relative chronological build-up of an archaeological site with absolute dating techniques. Other archaeological data generation methods, such as surface surveys or museum studies, typically lack the framework of stratigraphical context associated with excavations, making the outcome of such analysis comparatively difficult to interpret. As a result, most archaeological studies are very dependent on the outcome of typological and other chronological analyses of collections of finds, providing the ABC of how to arrange the relative sequence of events and therefore the narrative of the studied sites and regions.

Apart from the dating techniques discussed above, absolute chronology can also be determined by historical association. For instance, in Roman imperial times, the detail of the titulature of emperors, as is for example present in inscriptions (Fig. 4) or on coinage, quite often provides fairly narrow chronologies. In the event that such an inscription can be associated with a given building, the monument and its context can be dated accordingly. With coins, the matter is most often more complicated, as the date implied actually refers to the moment of striking the coin, and does not incorporate its circulation or its loss and becoming part of the archaeological record. In a lot of archaeological sites, however, even Roman imperial ones, the opportunities for applying dates from historical association are few and far between, further stressing the strategic importance of building relative chronologies.

Fig. 4. Restored statue base with inscription for the emperor Caracalla (211–217 CE) on the Upper Agora, in 2017. The fact that the name of the emperor is mentioned, together with details of his political and military career, allows the text of the inscription to be dated within the year 212 CE (Devijver and Waelkens 1995, 115–16; Eich *et al.* 2018, 87–88). This is an example of absolute chronology, as the inscription refers to the external framework of the career of the emperor, which is well documented from a range of other sources.



## Relative chronology

Stratigraphical analysis based on Harris matrices,<sup>9</sup> typological analysis of material categories, and seriation of find assemblages form the backbone of relative chronological systems. Before we look at these methods in somewhat more detail, it is – considering how often the understanding of time in archaeology is more often than not based on relative chronologies – of crucial importance to conceptualise what these chronologies do. In and of themselves, they should serve the interpretation of the diversity and multiplicity of temporal experience in the past. Obvious as this may sound, the meaning of relative dates is not always that clear. If a Sagalassos red slip ware drinking cup is dated to around the start of our era, for example, do we then date a moment in time when this vessel was produced, a period during which the vessel is supposed to have been in use, a *terminus post quem* (period after which) when, upon being discarded, the vessel became part of the archaeological record, or a normal distribution within which range the production, use and discarding of the vessel are considered to have taken place (Fig. 5)? The fact that most archaeological structures and finds experience a lifecycle on their own, combining genesis, change and endedness or recycling, does not make answering this question any easier. In most cases this is difficult to tell and that is why the creation of a relative chronology is best when it retains elements of stratigraphical, typological and seriation analyses.

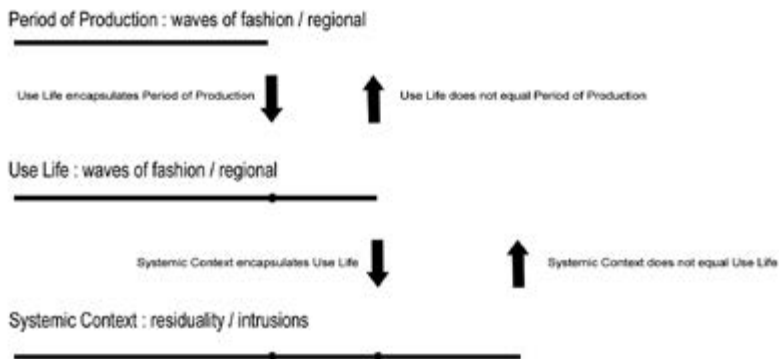


Fig. 5. Scheme of possible date ranges for a Sagalassos red slip ware vessel. As Sagalassos was a prolific production centre of pottery tableware, most of the pottery found on site was locally made. The chronology of this Sagalassos tableware is partly based on the excavation and study of potter's workshops in the Eastern Suburbium. As a result, most of the dates provided for this pottery refer to the period of production. The issue is that these dates cannot readily be projected onto other excavation contexts, as this pottery, during an unknown/able period of time, was acquired and used, discarded and became part of the archaeological record.

The principles of stratigraphy and how we apply these at Sagalassos are explained elsewhere in this volume, as is our approach to studying material culture. As to the latter, when the themes of classification and typology of material culture are concerned, the material specialists of the Sagalassos Project have agreed to make a conscious shift from 'traditional' type/variant-based classifications based on morphological central tendencies to following a joint, pre-designed taxonomic system based on functional categorisation,<sup>10</sup> allowing the integration of results in research-efficient ways.

Even when generally considered boring as a field of research, the at times very detailed discussions on aspects of classification and typology of finds in professional archaeological literature go to the heart of the matter. Without typologies of artefacts, archaeological chronologies could not be constructed, and in most cases the stories of the studied materials and by extension of the archaeological sites or regions where these were found could not be told.

In general, archaeological typologies contain types. Obvious as this may seem, the challenge at hand is to logically and consistently organise the total collection of finds an archaeological study/excavation/survey/project generates, in order to reflect some aspect(s) of the reality it seeks to describe.<sup>11</sup> In conceptual terms, typologies of archaeological materials should be ontologically grounded, in the sense that types need to represent more than the mental construct introduced by the analyst but be relevant for revealing aspects of the past. In practice, a typology is a kind of classification. When applying classification, a compilation of finds is ordered in units based on morphological similarities and differences. Units should be structured in the sense that membership (or not) is based on criteria of inclusion/exclusion. The same units should be falsifiable and replicable, and the set of types must be exhaustive. The systematics of ordering is arbitrary, implying that the number of ways to define units is infinite and no one arrangement is better than any other; all depends on the research questions/aims. Following classification, a typology wishes to go further and attribute meaning: "a typology is thus a way to represent systematically the patterning imposed on artifact material by the makers and users that has subsequently been uncovered analytically by the archaeologist".<sup>12</sup> This implies that typologies are explanatory, in the sense that types have non-random associations that have to do with context (spatial, chronological, social, functional, ideological, etc.), choice, causal processes and/or relationships.<sup>13</sup>

At Sagalassos, best practices in typology and chronology were developed, with the locally produced tableware or Sagalassos red slip ware (SRSW) providing the most abundant and at the same time most sensitive information.<sup>14</sup> In applying the principles of polythetic description,<sup>15</sup> an SRSW type has a consistently recurring range of (measurable) attributes which consider both the

actions required to produce the object and the range of past usage behaviour. What started as an ethnic exercise, has grown towards an emic context of interpretation, illustrated by how SRSW formed part of a meaningful supra-regional koine or common language of material culture in a production/economic and consumption/social-cultural sense.<sup>16</sup> The chronological reconstruction based on SRSW allows stratigraphical analyses to induce the grouping of types and loci as assemblages, which, in a next step, are ordered by applying the method of frequency seriation, based on differences in proportional representation of types between loci. Based on the analysis of SRSW, the relative chronological sequence of find materials at Sagalassos contains nine phases between the end of the first century BCE and the seventh century CE.

However, even though the methods of typological and chronological analysis seem to work fine, the continuing fieldwork combined with recent efforts at integrated digital data management at Sagalassos<sup>17</sup> results in steady streams of data which are increasingly beyond our human analytical capacities. 78 types and variants, representing five functional groups, quantified by two parameters, and 36 seriated ceramic assemblages were incorporated in the original study on the typology and chronology of SRSW.<sup>18</sup> In the meantime, 351 types and variants quantified by eight parameters and representing 60 functional groups are included in more than 1,400 pottery templates (Fig. 6). In the original study, layers were hardly functionally interpreted and sequenced based on three relations, whereas now 16 relations can govern 15 locus types and 38 functional subtypes of the 1,400 loci for which pottery templates were tabulated. Even if the methods seem to work fine, are we sure we are catching up? Clearly, the available data has grown beyond human analytical capacities. This could imply that the potential of interpretation is underexploited. When tried and tested methods are being applied repetitively, this can lead to too narrow an understanding of variation, possibly resulting in wrong assumptions, and a poor narrative of historical change in this ancient community as a result.

The Sagalassos Project has therefore recently decided to bring on board best practices in Visual and Data Analytics. From a data analytical point of view, the understanding and interpretation of this Sagalassos archaeological dataset constitutes a so-called 'wicked problem',<sup>19</sup> i.e. one that exhibits the following characteristics: (1) finitude of resources/knowledge (e.g. one cannot travel back in time, or excavate every single existing piece of pottery); (2) complexity (i.e. archaeological finds are influenced by a host of factors that might interact, from the time of deposition up to the moment of excavation); and (3) normativity (i.e. interpretation of archaeological finds is dependent upon the background and values of the researcher). Clearly, the problem at hand requires the algorithmic, data analytical support of the human researcher, where each play a crucial

part. This process of interaction between a human analyst and data is referred to as Visual Analytics. We eagerly await these new research results!

ID	General Functional Category	FUNCTIONAL LEVEL			TYPE LEVEL				COUNT		WEIGHT		
		Functional Category	Specific Functional Category	Object	Fabric	Functional Group	Type/Variant	Description	R	IS	R	IS	
	Personal Ornaments	Jewellery		Bead									
		Dress Accessories		Pendant									
		Cosmetic Articles		Button									
	(Household) Implements	Kitchenwares	Preparation	Uxentarium									
				Moronium									
				Krater									
			Jar										
			Jug										
			Bowl										
		Cooking	Strainer										
			Chalice										
			Kalkobos										
			Lopos										
			Taxidion										
			Lid										
		Tablewares	General	Jar									
				Jug									
				Askos									
	Serving		Changphoros										
			Krater										
			Pedestal										
	Consumption		Plate/Tray										
			Tunnel										
			Strapper										
				Lid									
				Strainer									
				Cup									
				Bowl									
				Dish									
				Tondo Dish									
				Ledge Handle									
				Appliqué									
	Furnishings	Lighting	Wheelmade Oil Lamp										
			Pedestal Oil Lamp										
			Mouldmade Oil Lamp										
			Candleholder										
		Sewing & Spinning Equipment	Rigette										
			Soldier's Mask										
			Terracotta Plaque										
		Leisure Articles	Theatre Mask										
			Loomweight										
			Music Instrument										
	Miscellaneous	Gaming Piece											
		Tap											
		Religious Item											
	Architectural & Structural Fittings	Construction	Incense Burner (f)										
			Tile										
			Brick										
			Hypocaust Tile										
			Brick & Tile										
	Agricultural Production	Storage	Waterpipe										
			Wall Fitting										
			Pithos										
			Pithos/Container										
			Lid/Strapper										
	Production	Pottery	Amphora										
			Kiln Fragment										
			Kiln Spacer										
			Wald										
			Slag										
			Stamp										
			Patris										
			Matrix										
			Waster										
			Toad										
	Glass		Cosette (f)										
			Lining (f)										
			Cucible										

Fig. 6. Summary overview of the pottery templates used at Sagalassos. The pottery of each excavation unit considered worthy of detailed study is inventoried according to this scheme. The level of types and variants is not incorporated in this summary. The classification is based on presumed functions of the material. This template is shared between the material categories of pottery, glass, worked bone and metals, allowing combined analyses.



### ***Solving the mystery: Step 3 – link with the dynamic archaeological record***

When all is classified, analysed, calibrated, tabulated, quantified and/or seriated, in one way or the other dates are established for archaeological facts and features. The next step is to re-integrate the chronological information with the archaeological record, as surveyed, excavated or otherwise studied, in order to establish a chronological framework for a (part of a) site or study region. Sometimes even a chronological narrative can be reconstructed for specific archaeological episodes, although the many methodological caveats expressed above make clear that such attempts are always open-ended. Amongst others, G. Lucas<sup>20</sup> has argued that the archaeological record is always dynamic and part of the systemic context.

To make this abstract notion more tangible, let us look at an example: vaulted Tomb V, excavated in 2012 at the site PQ 4, which is a burial compound located at the far eastern end of Sagalassos' Eastern Suburbium (Fig. 7).<sup>21</sup> The tomb was situated partly underneath the northern and eastern walls of the burial compound, which meant that it was part of the original design and execution. Other factors indicated that the compound was destined to contain a family. Although the excavation revealed an undisturbed structure of the vaulted tomb, the remains of the buried female of between 30 and 40 years at death had been disturbed by rodents, the remains of which were also found inside the tomb. Presumably shortly after burial, the rodents disturbed what otherwise could have been a pristine burial. During excavation the context of the burial was already dismantled in order to retrieve the human remains and the burial gifts for conservation, study and preservation. All in all, these represent fairly drastic actions (never jeopardising the condition of the remains and finds), as a result of which each type of find is studied by a respective conservation and find specialist and the human remains by a bio-archaeologist. Following study, the storage of these finds and remains was arranged in separate depots, with regard for the optimal preservation conditions of the finds and remains. This implies the burial will never be recomposed in its entirety, reducing the window of opportunity for the entire burial to the single moment of excavation. As the burial was found disturbed, this sequence of actions means that the original conditions of the burial can never be approached. Even though the excavation was executed in line with the best professional archaeological norms and practices, this is a hard conclusion to reach and also one with repercussions for the detailed understanding of the burial (Fig. 8).



Fig. 7. General view of the site PQ 4 under excavation in 2012. Vaulted Tomb V is located in the upper corner of the burial compound.

Fig. 8. The process of excavation of the vaulted Tomb V in PQ 4. Dismemberment of an already disturbed context, with each material category and the human remains packed separately for transportation to the conservation laboratory in the excavation house.



One such aspect of understanding the burial is its positioning in time. The skeletal remains were radiocarbon-dated to 130–340 CalCE. This provides an indication, albeit not a very precise one. Typically, burial gifts can also provide chronological indicators. In standard practice, such finds are studied and dated by respective material specialists. As a result, the question arises as to which find will actually date the burial. In this case, a copper-alloy mirror was found, along with a ceramic *unguentarium* or ointment flask, two glass *unguentaria*, one containing an iron pin, seven worked bone hair pins, one bone spatula, two bone spinning tools, two golden earrings and a silver ring with gem stone (Fig. 9). Most of this material is very difficult to date and is best attributed to the Roman imperial period. The ceramic ointment flask was dated in relative chronological terms to the first/second century CE, and the same goes for its glass counterparts. It is actually surprising how a relative variety of objects which we know were deposited at one moment in time – the burial of the woman – are mostly

datable at a fairly crude resolution which provides overlap but also differences in range. Moreover, the mirror was found broken. The study of the break revealed this had already happened in antiquity, most probably implying that this object was shattered at the moment of the burial, symbolising the end of life. It is possible that the mirror formed part of the daily utensils used by the deceased, and therefore its own object biography might imply that its date is not compatible with the rest of the gifts, as it was already existing and in use before the moment of the burial. It is unclear whether this complication also counts for some if not most of the other objects. The wire of the pair of golden earrings, in contrast, was found closed in such a way that it could not be opened, indicating that these were never worn during the lifetime of the woman, but only given to her as part of the burial ceremony.



Fig. 9. The collection of burial gifts found in association with the adult woman interred in vaulted Tomb V, site PQ 4.

In this way, the archaeological record of this burial does not represent a single event in the past, as is traditionally presumed for such archaeological contexts. On the contrary, vaulted Tomb V at the site of PQ 4 is a palimpsest of events, objects and time scales, linking with the life of the deceased, the moment of burial, the disturbances upon burial and the excavation of the context, along with the study of the remains and finds.

Considering this tomb in isolation, for instance in function of its chronology, would be creating stasis and/or a single event where there was none. This tomb reveals how chronology is always dynamic, as is the archaeological record, incorporating multi-temporality. By approaching the archaeological record too much as a simple (causal) sequence of building blocks, we run the risk of reducing archaeology to an understanding of sequencing points in time, whereas time is active, diverse and multiple, if not much more. As archaeologists, along with all colleagues in other disciplines investigating time or time-related processes, we will perhaps never really get our heads round the enigma of time. It is up to each of us to judge whether this is good or bad news.

## Notes

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| <p>1 e.g. the otherwise cunning Harari 2011.</p> <p>2 The Annales School refers to a highly influential group of 20th-century French historians who changed the way history was conceived and written at the time, with particular attention to social themes and methods. Globally, Fernand Braudel (1902–1985) is the school's most well-known protagonist.</p> <p>3 Bintliff 1991.</p> <p>4 Bintliff 1991; Knapp 1992.</p> <p>5 Lucas 2005.</p> <p>6 de Molina and Toledo 2014.</p> <p>7 Blain and Hall 2017.</p> <p>8 Manning and Bruce 2009; O'Brien and Lyman 1999.</p> | <p>9 Harris 1989.</p> <p>10 e.g. Poblome and Bes 2018, for an elaboration of these principles based on the study of Sagalassos red slip ware.</p> <p>11 Banning 2000.</p> <p>12 Read 2007.</p> <p>13 Bortolini 2017.</p> <p>14 Poblome 1999.</p> <p>15 Clarke 1968.</p> <p>16 Poblome and Firat 2011; Poblome <i>et al.</i> 2017.</p> <p>17 Dangol <i>et al.</i> 2021.</p> <p>18 Poblome 1999.</p> <p>19 Farrell and Hooker 2013.</p> <p>20 Lucas 2005.</p> <p>21 Cleymans <i>et al.</i> 2018.</p> |
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# How do we document the beginning of Sagalassos?

*Dries Daems*

## ***Introduction***

We all know Sagalassos as one of the most beautiful archaeological sites in Turkey. The site reached its heyday as a city in Roman imperial times. Many of the splendid structures that continue to amaze visitors were built at this time. However, the settlement did not originate as a full-blown Roman city. A significant period of development preceded its Roman phase. Unfortunately, our knowledge of the earliest phases of habitation at Sagalassos is patchy, especially compared to the information we have from Roman and early Byzantine times. Most likely, later building and living activities have covered or destroyed many of the older material and structural remains. This impedes a clear view of what the community originally looked like.

The limitations of the available data do not mean that we know nothing of the beginning of habitation at Sagalassos. Some information, albeit limited, is indeed available. In this contribution, I will focus on the oldest pottery material attested at the site. As one of the previous contributions already dealt with material culture per se, I will go beyond the immediate focus on the material in and of itself and discuss how we can use this material to draw conclusions regarding the origin of habitation and the beginning of community formation at Sagalassos.

The first part of this contribution will focus on the methodological framework, whereas in the second part I will discuss how the available data can be fit into this framework in order to elucidate the oldest phases of habitation at Sagalassos. The oldest material remains are dated to late Achaemenid and early Hellenistic times (fifth to third centuries BCE). Structural remains associated with this material are sparse, and only really enter our archaeological record as we know it from the second century BCE when the first monumental architecture is constructed and Sagalassos developed into an urban town.

## Studying the beginning: methodology

The limited amount of evidence poses a serious methodological challenge which needs to be overcome. It requires a framework which allows us to piece together a maximum of information out of a minimum of material. Archaeology studies people living in the past, their actions and interactions, insofar these leave any material remains or traces in the archaeological record. Archaeologists then build their interpretations on this archaeological record (Fig. 1).

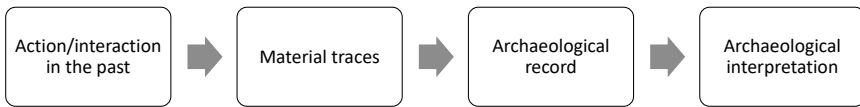


Fig. 1. Basic scheme of archaeological interpretation.

The same figure can be transformed into a basic pyramid structure, where the proportion of each of the steps in the sequence is determined by the base of the underlying step (Fig. 2). But what if the foundations provided by the archaeological record are too narrow to build a strong interpretation in and of itself? By over-loading our pyramid with an overly extensive superstructure of interpretation, we may run the risk of it toppling over.

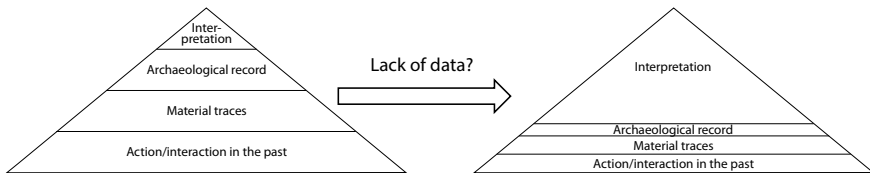


Fig. 2. Pyramid structure of archaeological interpretation.

It becomes clear that archaeology is not just putting a spade in the ground and shovelling dirt to gather objects or uncover buildings. Nor do these remains from the past necessarily speak for themselves. In these cases, archaeologists need a good dose of creativity to come up with a sound methodological framework which allows us to practice our profession in the absence of an abundance of data, without going beyond the reach of the evidence that is actually available. The archaeologist might be likened to a scientific version of a tightrope-walker.

One way of strengthening the rope to walk on is by considering archaeological remains as more than mere reflections of one-off actions and interactions. While each and every object by itself is the result of a distinct action (or



series of actions), material culture as a whole is the result of a series of repeated or recurring actions, which can be considered as a collection of social practices. In its most basic definition, social practices represent routinised patterns of behaviour encoded into structures of social organisation through successive repetition. In this sense, the individual object is not only linked to a distinct action, but is also inscribed in wider ways of doing. Material culture can then be considered an expression of communities of practice, where the production and usage of material is shaped by practices performed by a group of people belonging to the same collective social entity. This approach allows more extensive interpretations to be drawn from the properties of this material insofar they can be related to distinct ways of doing. The incorporation of the practice-based approach can be illustrated by reworking Figure 1 to incorporate a recursive loop in the overall structure (Fig. 3). It is through this loop that we can transcend some of the limitations of the archaeological record.

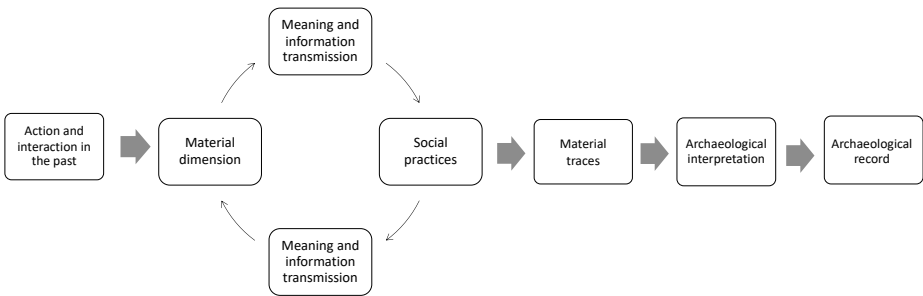


Fig. 3. Practice-based approach to archaeological interpretation.

The establishment of communities of practice entails the usage of specific categories of material culture for social practices shaped by the material environment in which they take place. In being used for these practices, objects and environment alike constitute a material dimension that obtains a certain meaning and can be used in the transmission of information and communication within a social group. Information transmission therefore not only occurs through direct social interaction between group members, but has a material dimension as well. However, the meaning and messages of material culture as part of a wider communication system is not only determined by its usage. Specific messages are already imbued materially during the process of production and construction. To fully assess the implications of meanings associated with material culture and the way we as archaeologists interpret these, we need to integrate the focus on information transmission and communication into all subsequent steps of the operational sequence of material production, usage and discard.

In Figure 4, we show what a (simplified) operational sequence looks like for pottery production, followed by associated flows of information and perception which allows meaning to be attributed to this material. Both loops recursively influence each other, with actualised and perceived usage taken into account in subsequent production sequences.

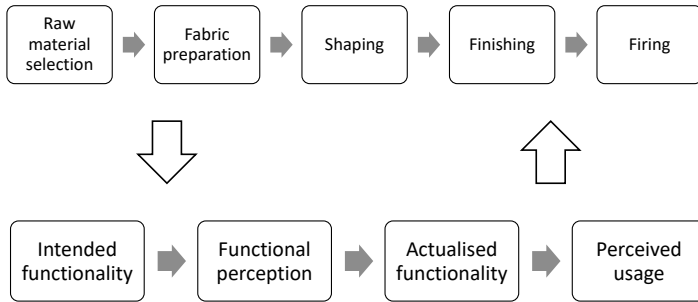


Fig. 4. Operational sequence of pottery production and associated choices in information transmission.

To sum up, material objects and structures are given meaning through the endowment of information during their production and usage. Combined, objects and structures form the material environment, providing contexts for meaningful practices to take place. Communities of practice develop through a consistently recursive relationship of information transmission and adaptation between material environments and localised social practices.

### ***Tracing the beginning at Sagalassos: late Achaemenid and early Hellenistic times***

The oldest material remains retrieved from the site pertain to a body of ceramics, largely found as surface finds or as residual material in younger excavation contexts spread almost throughout the full extent of the later town (Fig. 5).

These finds have been dated to late Achaemenid and early Hellenistic times (fifth to third centuries BCE, see *infra*). The surface material was collected mainly from the southwestern part of the settlement during the urban survey programme which covered the full extent of the Roman town. Late Achaemenid and early Hellenistic material was found elsewhere in the town as well, albeit sparsely and less concentrated. In addition to the survey material, residual material was found in excavations widely distributed throughout the general area

covered by the later phases of the town. This includes finds on and around the (later) Upper Agora in the city centre, to the south and north of the later Neon Library in the eastern parts of town, as well as at Site F in what would become the Eastern Suburbium.

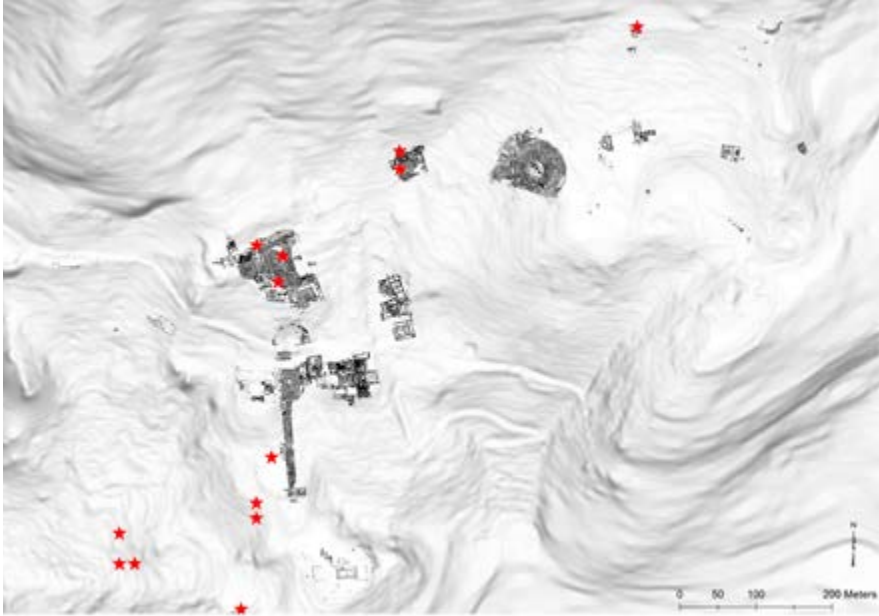


Fig. 5. Find locations of late Achaemenid material at Sagalassos.

The contexts from the Upper Agora and Site F are particularly interesting. Control excavations were conducted at the Upper Agora, *inter alia* to uncover the nature of a large anomaly identified during geophysical research. The anomaly turned out to result from a series of large pits, resulting from clay quarrying activities conducted before the construction of a public square at this location.<sup>1</sup> Pottery associated with the fill of the quarry in order to accommodate the construction of the original public square at this location was dated to the second century BCE. Sherds datable to the late Achaemenid period were also found as residual material in this fill, suggesting an exploitation phase already during this early period of habitation at the site. In and of itself, the attestation of clay quarrying need not necessarily indicate the presence of a veritable community at this time and place. However, more clues are present elsewhere at the site.

At Site F, material from the Achaemenid period was attested in a small stratigraphically associated body of material as part of a foundation deposit of a ter-

race wall. This wall can therefore be considered the only securely dated structural evidence of this period. Interestingly, although few indications are known regarding the organisation of communal life at this time, the preparation of this area in the form of terrace wall construction would have required at least some level of social organisation.<sup>2</sup> The construction of this terrace wall indicates that natural slopes of the area were levelled, which would allow better exploitation of the soil, possibly in function of agricultural activities. Other indications of agriculture have been found nearby, in a central depression slightly towards the southeast, where core drills provided evidence of a *palaeosol* horizon which could be dated to 370–200 BCE.<sup>3</sup> The development of the *palaeosol* was linked to soil accumulation due to deforestation of the higher slopes. Clearing the area of its vegetation cover might be related to preparation of this land for agricultural production, corroborating the evidence from Site F. Interestingly, the *palaeosol* had developed on top of a clay quarrying phase, providing a *terminus ante quem* for these activities as well.

Clearly, clay quarrying and agriculture were important activities taking place at Sagalassos during the late Achaemenid and early Hellenistic period. The spatial extent of these activities, along with the extensive distribution of associated material, suggests that we can indeed consider these activities to have been conducted by some kind of community at Sagalassos in Achaemenid times, the first one attested here. However, we may still wonder what kind of community it was at this time. To this end, let us now take a closer look at the material itself.

First of all, it is important to discuss why exactly we consider the material found here to be datable to the late Achaemenid and early Hellenistic periods. The most apparent diagnostic feature to suggest this date pertains to the slips that were used (Fig. 6). For the Hellenistic period, a tradition of so-called colour-coated wares, characterised by a typical dull, semi-lustrous and mottled slip of variable colours, ranging from light brown to orange and reddish brown hues, has been widely attested throughout the Eastern Mediterranean from the second century BCE onwards.<sup>4</sup> However, most of the sherds under scrutiny here which still bear traces of surface slips do not adhere to this Hellenistic practice, but can instead be situated within an earlier, pre-Hellenistic tradition of fat, sticky brown to reddish brown slips. This material therefore precedes Hellenistic pottery traditions. At the same time, it is interesting to note that none of the intricate painted and burnished pottery, characteristic of the preceding Iron Age period (ninth to sixth centuries BCE), is present either. This suggests an overall chronological bracket between the (late) fifth and (early) third centuries BCE. Typological comparison with pottery found elsewhere in Anatolia confirms this general date as well.<sup>5</sup>



Fig. 6. Selection of late Achaemenid pottery from Sagalassos.

However, pottery can be used for more than merely a chronological indicator. By looking at the way this pottery was produced and what it was used for, we can say a lot about the community which produced and used these objects. To this end, we need to use the framework outlined above to link material objects to social practices and ways of doing.

A first element to consider is the exploitation of raw material used for pottery production. Good quality clays suitable for pottery production could be exploited in and around the site from weathered flysch, limestone and ophiolite bedrock outcrops. I already discussed two potential clay beds, one at the later Upper Agora and one in the eastern part of town. Although it cannot be conclusively proven that these specific quarries were necessarily exploited for pottery production, it does seem plausible that at least part of these raw materials were used by potters, as petrographic analysis has indicated that comparable clays were used for much of the oldest pottery found at the site.<sup>6</sup> This is already an important first indication of the way pottery production was organised at the time. Potters targeted first and foremost raw materials found at the site or in the immediate vicinity. This corresponds to common practices in a least-effort raw material economy.<sup>7</sup>

When looking at the shapes present in this pottery material, it can be noted that the basic typological spectrum is not fully present. For example, jars and cooking vessels seem to feature most prominently, with only a limited presence of fine wares (Fig. 7). It should be noted, however, that fine ware from this per-

iod is not easily distinguishable from later pottery wares. This is mostly relevant for studying survey material, where no stratigraphic arguments can be applied. Additionally, the nature of the excavated contexts, related mainly to agricultural and quarrying activities, may inherently be less likely to contain fine wares. Does the limited amount of available material then pose an insurmountable bias in our current dataset after all?

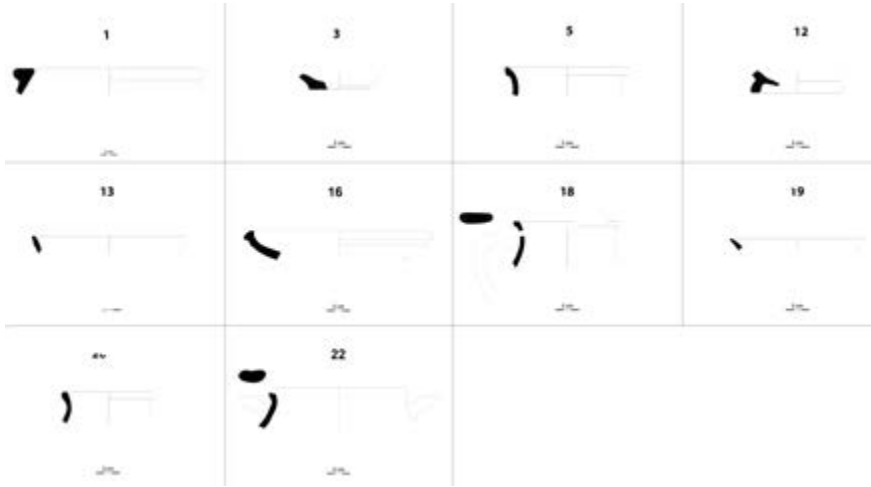


Fig. 7. A selection of shapes of late Achaemenid pottery at Sagalassos.

Luckily, the material from Sagalassos does not need to be studied in isolation and one particularly relevant point of comparison is available. Located merely 1.8 km from Sagalassos, a site was discovered at Düzen Tepe on a plateau consisting of two wide promontories overlooking the central parts of the Ağlasun valley and the valley of Yeşilbaşköy. Here, pottery material similar to that of Sagalassos was found, lacking the intricate painted decoration patterns which places it beyond the Iron Age period. At the same time, both the thick pre-Hellenistic slip and mottled colour-coated slips occur, suggesting an occupation date between the fifth and second centuries BCE, contemporary to the earliest phases of habitation at Sagalassos. Coin finds and radiocarbon dates seem to corroborate this general chronological bracket.<sup>8</sup> Interestingly, the site appears to have been abandoned during the second century BCE, resulting in the preservation of far more evidence from late Achaemenid and early Hellenistic times compared to Sagalassos.

Surface remains were documented on both promontories, covering an area of almost 75 ha. An extensive fortification wall consisting of dry rubble and unworked breccia boulders, was constructed along the edges of the promontory,

covering the western and southern sides of the settlement. The core settlement itself stretches out over an area of about 13 ha and consists mainly of an unstructured layout, suggesting little central planning (Fig. 8). Most buildings visible at the surface consist of two or three rooms, although both smaller and larger structures occur regularly. Excavations conducted at the site indicated that most structures at Düzen Tepe were constructed with stone foundations and socles of small to medium-sized local fieldstones, forming the basis for walls and a roof structure made of perishable materials, likely from mudbrick and straw.<sup>9</sup> All in all, the settlement appears to have been a sizeable village.

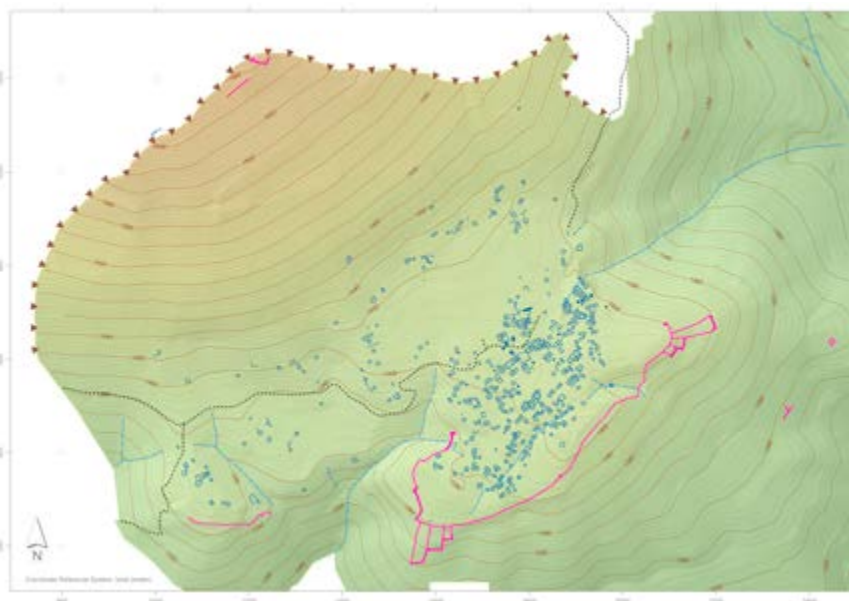


Fig. 8. Settlement layout of Düzen Tepe.

So what about the pottery found at the site, and how can we compare it to that of Sagalassos? First off, a similar general strategy of raw material procurement to that of Sagalassos seems to have been prevalent at Düzen Tepe, likewise focused on exploiting resources from clay beds found on the flanks of the mountain ranges around the Ağlasun valley in close vicinity to the site. When we compare the occurrence of overall type groups (cups, bowls, jars, etc.) in various fabric groups (fine wares, common wares, etc.) at Düzen Tepe with those of Sagalassos, we see that both groups largely overlap (Fig. 9). Both assemblages show a limited degree of fabric specialisation as different fabrics cover large parts of the full typological spectrum, with only a few exceptions of specialised

production, such as a fabric for large storage vessels. Production at both sites was therefore characterised by low product specialisation and general subsistence strategies geared towards supplying their own community rather than an external market. The limited distribution of this material, not exceeding its own catchment area within the immediately surrounding valley, seems to corroborate this suggestion.

Düzen Tepe		Cookwares	Common wares	Fine wares	Import	Storage
Tableware	Cups		●	●	●	
	Bowls	●	●	●	●	
	Dishes	●	●	●		
Serving	Jars/jugs	●	●	●	●	
	Open containers		●	●	●	
Kitchen-ware	Cooking vessels	●	●			
	Preparation/storage	●	●			
Storage	Storage vessels		●			●
Cosmetics	Unguentaria	●		●	●	

Sagalassos		Cookwares	Common wares	Fine wares	Import	Storage
Tableware	Cups		●	●	●	
	Bowls			●		
	Dishes	●		●		
Serving	Jars/jugs	●	●	●	●	
	Open containers		●	●	●	
Kitchen-ware	Cooking vessels	●	●			
	Preparation/storage	●	●			
Storage	Storage vessels					●
Cosmetics	Unguentaria			●	●	

Fig. 9. Comparison of type and fabric groups of Achaemenid and Hellenistic pottery from Düzen Tepe and Sagalassos.

When we look at the level of individual types within these groups as well, it becomes clear that strong typological overlap and continuity exists when comparing Sagalassos and Düzen Tepe. It should be noted that typological variety at the latter is comparably richer. However, it should also be taken into account that far more material from Düzen Tepe was included in the comparison.<sup>10</sup> More interestingly, however, is that, even if we observe a lot of typological parallels, considerable differences can be noticed when looking at the specific fabrics within the overall fabric groups (fine wares, common wares, cookwares, storage wares) that are used for pottery production at both sites (Fig. 10).



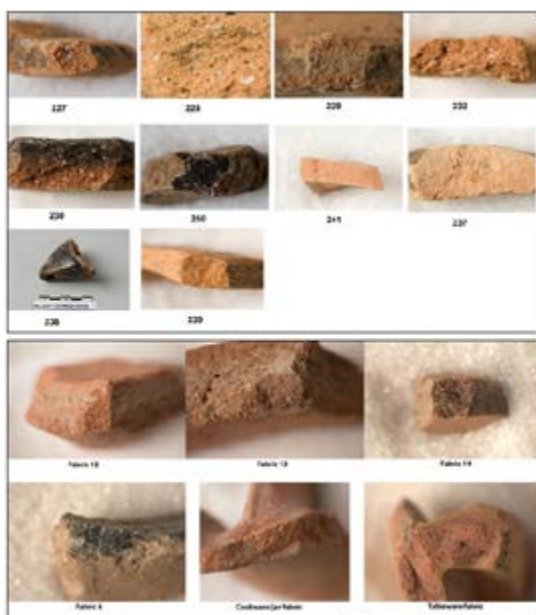


Fig. 10. Fabric comparison of Düzen Tepe (upper) and Sagalassos (lower) pottery.

The fact that largely the same typological spectrum was attested within the overall fabric groups at both sites suggests that both communities can be situated largely in the same socio-cultural framework. This suggests that, even though few structural remains have been preserved of Sagalassos from this time, it will likely have been a community similar to that of Düzen Tepe. As we have seen, Düzen Tepe appears to have been a sizeable village community. Recent calculations have suggested a population somewhere between 500 and 1,500 people, with an average of about 1,000.<sup>11</sup> Sagalassos at the time can be considered a comparable village community whose population would probably not have exceeded that of Düzen Tepe. Comparisons with pottery found elsewhere seem to suggest that the morphological features of pottery production and usage at both sites were mainly oriented towards an Anatolian and Levantine sphere of influence. Yet, even though they were part of the same overall socio-cultural framework and background, the fact that the material itself was produced in different fabrics at both sites indicates that slightly different – as in similar but not the same – practices were at the root of pottery production and consumption at Sagalassos and Düzen Tepe. In other words, both settlements constituted different communities of practice within a shared socio-cultural background.

### ***Tracing the beginning at Sagalassos: urban transformation in the middle Hellenistic period***

The image sketched so far of Sagalassos as a village community in late Achaemenid and early Hellenistic times stands in marked contrast with its better-known image as a Roman city. Let us therefore now discuss what happened in the intermediate period. The picture sketched so far started to change from the late third century BCE onwards, when Sagalassos transformed into an urban settlement organised around a political community which started to express itself through a formalised agora and associated core of monumental buildings in the second century BCE (Fig. 11).

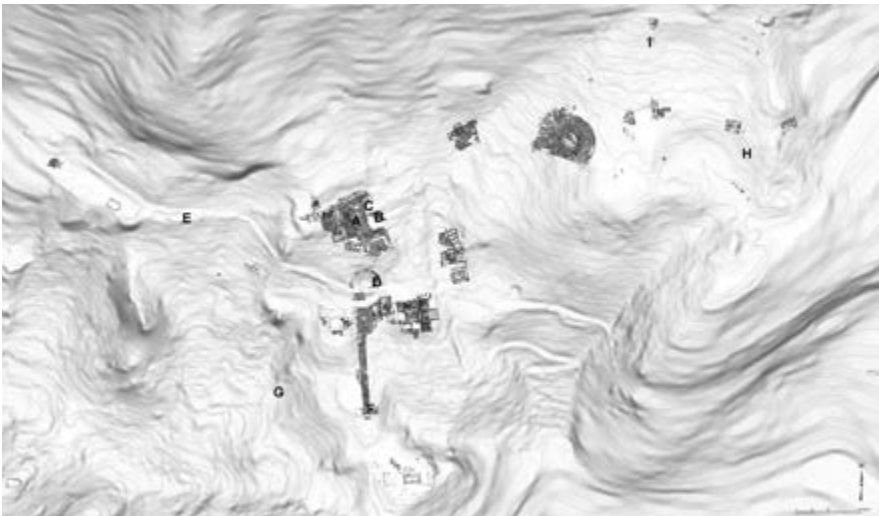


Fig. 11. Urban features at Sagalassos dated to the third and second centuries BCE. (A=Agora; B=Market Building; C=North-East Building; D=Pottery kiln; E&F=Fortifications; G&H=Necropolis; I=Terrace wall and Hellenistic cremation burial).

The construction of the first public square in the second century BCE constituted an important part of this urbanisation process, and over the course of the next century the surroundings of the square were gradually filled up.<sup>12</sup> The oldest structural remains surrounding the agora pertain to a wall found at its southern side, dated to the late third century BCE. At the eastern edge of the square, a sizeable building was constructed around the middle of the second century BCE. Around the same time, a monumental terrace building – the function of which remains unclear – was built towards the northeast of the square, together with the street in front of it. In addition to the monumental centre and produc-

tion facilities in the south, the oldest residential quarter located in the western part of town was laid out. At different sides of the settlement, extensive, spatially dedicated *necropoleis* were laid out, of which the southern one is considered the oldest, dating back to at least the second century BCE.<sup>13</sup>

The urbanising community also considered its defences. The Fort at Tekne Tepe, guarding the pass over the mountain ridge to the north of the site, seems to have been originally laid out in the late Hellenistic period (second to first centuries BCE), and the same chronology could be attributed to an excavated portion of the urban fortification system in the western part of the site.

Whether close to Sagalassos or further afield, military defence is also associated with the original development of a political community at Sagalassos, as indicated by two parts of an inscription found near the Upper Agora, considered to be difficult to date, yet attributed to the late fourth or third century BCE.<sup>14</sup> The inscription mentions an unidentified *akra* (fortress) and the second part of the text refers to arrangements following civil war. The inscription also mentions a system of rotating public officials, suggesting the existence of a political system predating the oldest attestations of monumental public architecture at the site. So far, no archaeological remains can be associated with the episode(s) related to this inscription, but the document in itself is of crucial importance for documenting the early stages of the political community at Sagalassos.

Along with Sagalassos' urban transformation, its material culture production underwent marked changes as well. During excavations conducted in the *cavea* of the Odeon, the remains of a badly damaged pottery kiln were discovered, predating the construction of the concert hall. Material found in deposits retrieved from inside the dismantled kiln could be dated to the second century BCE, and can therefore be considered contemporaneous with the urban transformation phase of Sagalassos. Indeed, comparisons with material associated with the construction of the agora has indicated strong morphological and fabric similarities in both bodies of material.<sup>15</sup> Geophysical research in the area revealed a series of magnetic anomalies, possibly also related to kilns or other production activities. It was therefore suggested that this might indicate the location of a separate production quarter already in Hellenistic times. The construction of a distinct production zone stands in marked contrast with the evidence from Düzen Tepe, where only a single kiln was found, situated at the very heart of the settlement.

The material itself also markedly changed, with a typological diversification being one of the most notable features of the Hellenistic pottery material compared to that of earlier times (Fig. 12). Another difference is the systematic production of fine wares with greenish detrital clays derived from the northwestern parts of the nearby Çanaklı valley.<sup>16</sup> As these clay beds were located 7–8 km

from Sagalassos, this indicates a shift in exploitations strategies and practices beyond a least-effort raw material economy, where particularly suitable clay beds were specifically targeted and exploited. Material culture from Hellenistic Sagalassos is characterised by an increasingly clear delineation in fabric/function associations and targeted raw material exploitation, geared towards selecting better-quality resources to assure high-quality production outputs. The usage of finer clays, combined with better preparation of the paste and increased technical skills can all be associated with a more specialised production.

Functional category	Functional group	Düzen Tepe	Sagalassos
Consumption	Cups	1	4
	Bowls	4	4
	Dishes	7	8
Serving	Jars	7	11
	Open containers	3	3
Storage	<i>Pithoi</i>	3	3
	Jars	5	5
Cooking	Cooking vessels	3	7
Total:		34	45

Fig. 12. Number of types per type group in pottery of Düzen Tepe and Hellenistic Sagalassos.

It can be suggested that the horizon of Sagalassos started to expand beyond its original catchment area of the Ağlasun valley for the exploitation of raw materials. This expansion is mirrored in the distribution of the pottery of Hellenistic Sagalassos, which started to appear in neighbouring valley systems as well (Fig. 13). In addition to the existing local and regional patterns of exchange, Sagalassos started to participate in large-scale exchange networks, as illustrated by the first attestations of amphorae originating from Rhodes, Kos and Chios from 200 BCE onwards. More or less at the same time, the first indications of an expanded politically dependent territory are attested, suggesting that Sagalassos controlled lands as far away as south of Lake Burdur.<sup>17</sup>

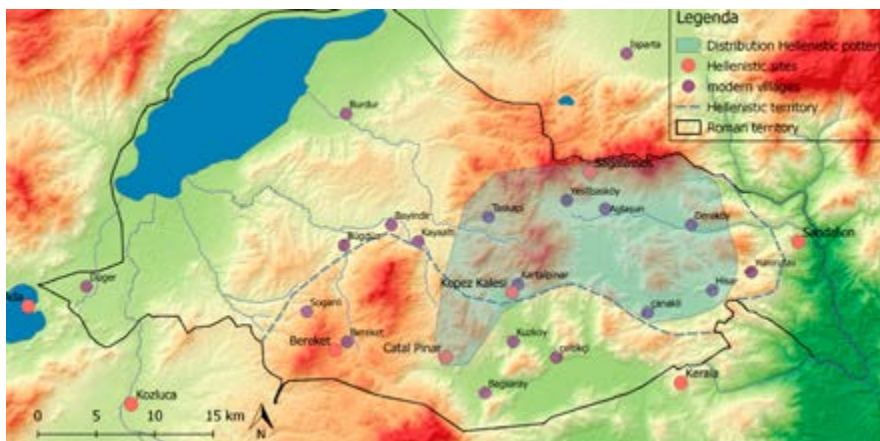


Fig. 13. Distribution of Hellenistic pottery (blue) and boundaries (dashed) of the territory of Sagalassos.

Clearly, lots of things were changing at Sagalassos and its environs at this time. Additionally, it was in exactly this period that nearby Düzen Tepe appears to have been largely abandoned. Several explanations have been offered for the divergent development of Düzen Tepe and Sagalassos, searching for an explanation for the abandonment of the former and the transformation of the latter into an important centre on a local and regional level. Some examples include an advantageous setting for exploitation of water and raw materials, or more available space for the deployment of economic activities.<sup>18</sup> It has been suggested that the establishment of Sagalassos as a system hub, drawing in energy and resources from a politically controlled area stretching from Lake Burdur in the west to the Aksu river in the east took away the necessary ‘breathing space’ for Düzen Tepe to continue to exist. At the same time, processes of population nucleation observed throughout the immediately surrounding landscape may have pulled (part of) the population of Düzen Tepe towards Sagalassos. It has been tentatively suggested that this may have been part of a veritable *synoikismos* event, although it is impossible to ascertain to what extent it was effectively a single event rather than a process extended over a period of time.<sup>19</sup>

It is clear, however, that the initial development of the pulling force of Sagalassos cleared the way for a sustained pathway of development of urban transformation in Hellenistic times, continuing well into Roman imperial times and late antiquity, when it gradually gained and maintained the position of the prime city in Pisidia.

I hope that in the last parts of this contribution I have been able to show the reader how the ‘classic’ image of Sagalassos as a Roman city is historically connected to its origins as a village community in late Achaemenid and early Hellenistic times. Clearly, the abundance of material from its Roman imperial and late antique phases allows wholly different kinds of questions to be asked and answered, compared to the relative paucity of material from earlier phases. At the same time, I hope to have been able to demonstrate how the methodologies outlined at the beginning of this paper have allowed us to elucidate and document the earliest beginnings of habitation and community formation at Sagalassos in spite of the limited data availability. In the end, this is what archaeology at Sagalassos is all about: using the material at hand in a creative yet rigorous manner to create a consistent and sensible narrative and explanation of stability, change and development in the past.

## Notes

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|---|---|
| <p>1 Talloen and Poblome 2016.</p> <p>2 Claeys 2016, 76–77.</p> <p>3 Vermoere <i>et al.</i> 2003.</p> <p>4 Hayes 1991, 23–31.</p> <p>5 Daems and Poblome 2017.</p> <p>6 Braekmans <i>et al.</i> 2017.</p> <p>7 Daems <i>et al.</i> 2017.</p> <p>8 Vanhaverbeke <i>et al.</i> 2010.</p> <p>9 Vyncke 2013.</p> <p>10 For Sagalassos, a total of 800 sherds is discussed here, whereas for Düzen Tepe documented diagnostics alone ranged up to almost 2,000 sherds, with an additional several thousand</p> | <p>studied for fabric documentation.</p> <p>11 Daems 2018, 236.</p> <p>12 Talloen and Poblome 2016.</p> <p>13 Köse 2005, 19–22.</p> <p>14 Vandorpe 2000; Vandorpe and Waelkens 2007; Eich <i>et al.</i> 2018, 21–28.</p> <p>15 Daems <i>et al.</i> 2019.</p> <p>16 Poblome <i>et al.</i> 2002.</p> <p>17 Waelkens <i>et al.</i> 1997; Daems and Poblome 2016.</p> <p>18 Poblome <i>et al.</i> 2013.</p> <p>19 Daems and Poblome 2016; Daems and Talloen 2022.</p> |
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# How we document ancient (suburban) life and death?

*Johan Claeys*

## ***Introduction***

The study of life and death is very much like the study of, well, everything. However, we would like to go beyond the more obvious aspects of life and dead and try to delve deeper. We will try to reconstruct the methodology behind certain hypotheses that let us touch on more intriguing and personal facets of the ancient inhabitants of Sagalassos. While these remain hypotheses, they are based on careful observations and deductions from the tangible archaeological record. Suburbs of ancient cities in general, and of Sagalassos in particular, offer such necessary contexts to get really under the skin of the ancient inhabitants. While city centres were more prone to cleaning up, reconstructing and/or overbuilding, the suburbs offered more chances for the survival of relatively untouched remains of sometimes very personal, human activities.

Throughout this chapter it will become clear that the true added value of these contexts only comes to light through an intensive interaction between different sciences. This already starts at the level of the excavation itself. There is for example the need to understand when and where to collect (soil) samples that will prove an added value when studied by specialists such as palaeobotanists, archaeozoologists, pedologists, numismatists, etc. Furthermore, it does not suffice to collect finds per stratigraphic unit, since often their exact location can carry relevant meaning for understanding the contexts. It is therefore important to map the finds, ideally in 3D. Lastly, equal attention should be given to all types of find material, including finds that often get a second-class treatment, such as nails and building ceramics (bricks, roof tiles, etc.). This level of detail and collaboration with other specialists needs to continue during the whole cycle of processing, interpreting and publishing the data.

Obviously, any archaeological fieldwork could benefit from this level of attention, but that would unavoidably grind excavation campaigns to a halt. There would be little, if any, added value in this approach or the vast majority of finds in contexts such as collapse debris, erosion layers or infills. It is up to the

archaeologists in the field to recognise the contexts that are worthy of additional attention. In order to clarify these statements, I would like to present a few case studies from the Eastern Suburbium of Sagalassos.

### ***The 'Pompeii premise'***

After all, exceptional results ask for exceptional conditions. Archaeological sites are almost never encountered in pristine conditions. In most cases, they are buried underneath still occupied and ever more densely inhabited land. Recent protective measures to safeguard our tangible history cannot counteract centuries of ongoing wanton and unwitting destructive activities. Abandoned sites, likewise, have not only been exposed to the annihilating forces of nature and neglect, but to looting as well. As an obvious consequence, those sites more often than not are stripped of most remnants that can teach us something about the more fleeting aspects of life.

In other words, you need very specific contexts and preservation conditions at archaeological sites to be able to go beyond the obvious level of information. Sagalassos offers quite a good starting point: parts of the ancient city were to a large extent abandoned after a catastrophic event in the seventh century CE and due to its inaccessible location, it was left relatively untouched afterwards. Nevertheless, even catastrophic events would often allow inhabitants to recover what was dear to them before abandoning their homes and the remaining pockets of the population that obstinately refused to leave their ruined city would have their impact on the remains. We especially notice that metal was intensively recovered, even from within collapsed complexes, and that marble wall veneer and statues were regarded as mere sources of lime for the production of mortar.

However, large sections of the city were left intact, as they were buried underneath protective layers of collapse, erosion and/or waste. This especially holds true for parts of the city texture that were already dwindling down from the sixth century onwards, as was the case for the Eastern Suburbium of Sagalassos, a suburban development to the northeast of the town. But also in other parts of the city we have encountered contexts that offer more than a glimpse of life in ancient times. East of the Library, a household and workshops dating to the fifth century CE were excavated where all belongings were hastily left behind in a raging fire. For some reason, the contents of these rooms were never recovered, providing us with as close to a 'Pompeii premise' context as we could hope for.<sup>1</sup> A similar result might be expected from the 2018 campaign, where the excavated content of a storage space east of the Upper Agora awaits further study. The

content was preserved due to a fire and especially the subsequent attempt to save the building by using soil as an extinguisher, which served as a buffer against the further collapse of the upper structure. This ground floor level was subsequently backfilled and the original goods were apparently not deemed worthwhile enough to recover. Now, more than 1,500 years later, their value for the study of the ancient population of Sagalassos cannot be underestimated.

### ***Looking at the fringes to get to the core***

When we want to study the dead *and* the living, the aforementioned Eastern Suburbium of Sagalassos is a good place to start (Fig. 1). The city centre of Sagalassos is surrounded by its *necropoleis* (burial grounds), but on this plateau to the northeast of the city the story is quite a bit more complex. Burial grounds in ancient times were almost always excluded from the city centre, but they were not necessarily isolated from the realm of the living. While churchyards can be very centralised, they are normally clearly delineated and closed off spaces. In ancient times, however, the areas considered suitable for burials had to share their space with a lot of other activities that were deemed either unfit for the city centre or that were located at the outskirts for practical reasons. Reasons for exclusion of such activities from the centre were for example their likeliness to cause inconveniences, their proneness to hazards or their association with taboos. In addition, large spectacle buildings would often be constructed outside the centres, both for practical reasons (space) as well as to avoid their inherent nuisances (noise, crowd, waste, etc.). In Sagalassos, both the Theatre and the Stadion fall within this category.

The Eastern Suburbium was by far the most important artisanal quarter of the town, with evidence of large-scale ceramic production, as well as the presumed presence of glass-working ateliers, metallurgy workshops, tanning pits, textile production, etc. Workshops would make up the heart of the quarter, with most of the burial grounds on the edges. But tombs were also located immediately next to workshops and a burial plot could just as easily be shifted into a working area and *vice versa*. Moreover, gardens on burial grounds could serve for leisure or economical purposes and could be equipped with additional provisions to accommodate groups of visitors. Furthermore, the Eastern Suburbium held several large complexes for communal interests: one unexcavated building might have served as baths, a series of structures centred around a large open yard is likely to have been used for fairs and (cattle) markets and a completely excavated rectangular building was identified as a *schola* ('club house' and/or 'community hall').<sup>2</sup> In short, the quarter must have been a bustling area, where

many aspects of life and death – work, festivities, trade, mourning, burial rites, leisure, etc. – can be studied.

The focus of the Sagalassos excavations and related studies have also started to shift towards the people behind the monuments. The history of the town has, to a large extent, been established and its layout is no longer uncharted territory. While the study of inscriptions has allowed us to reconstruct several of the prominent families of the city, the ordinary commoners increasingly demand and deserve our attention. The research agenda has thus followed suit, with campaigns aimed at documenting workshops, households and burial sites of the less well-off. A lot of that attention went into the Eastern Suburbium and provided us with some remarkable results.

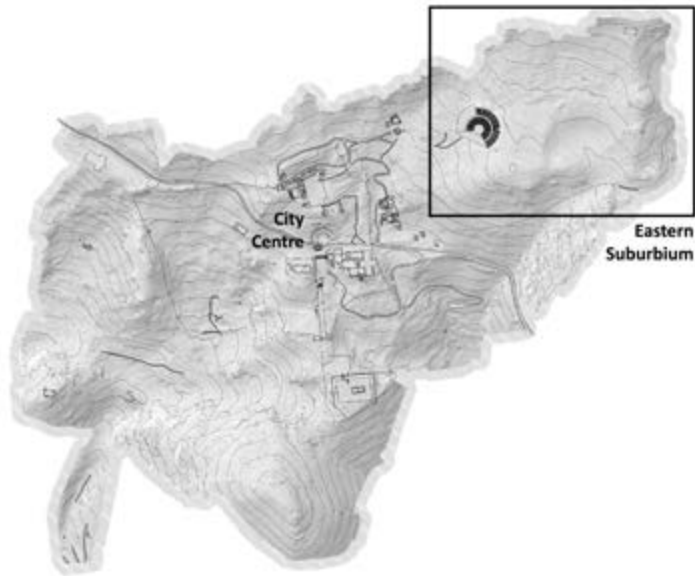


Fig. 1. The location of the Eastern Suburbium in relation to the city centre of Sagalassos.

So here we have the first important pillar in the documentation process: where to start looking for suitable locations. The Eastern Suburbium has been the topic of research since the earliest British–Belgian survey campaigns and was also the site of the first rescue excavation in 1989. The information since then gathered on this suburban quarter originated from excavations, small test soundings, survey campaigns, core drilling, geophysical mapping, soil sampling and aerial photography (Fig. 2). The geophysical survey, for example, produced a map of the area through a combination of four non-destructive techniques for scanning the subsoil. The most archaeologically valuable results were obtained through

the combination of magnetic and ground-penetrating radar methods. The former technique picked up the signals typical of stone walls and the strong magnetisation of clay-built kilns and furnaces; ground-penetrating radar was originally introduced to reconstruct the water and street network and analyse more complex building remains. Field surveys, core drilling and aerial photography further allowed for a refinement of the map obtained by the geophysical teams.

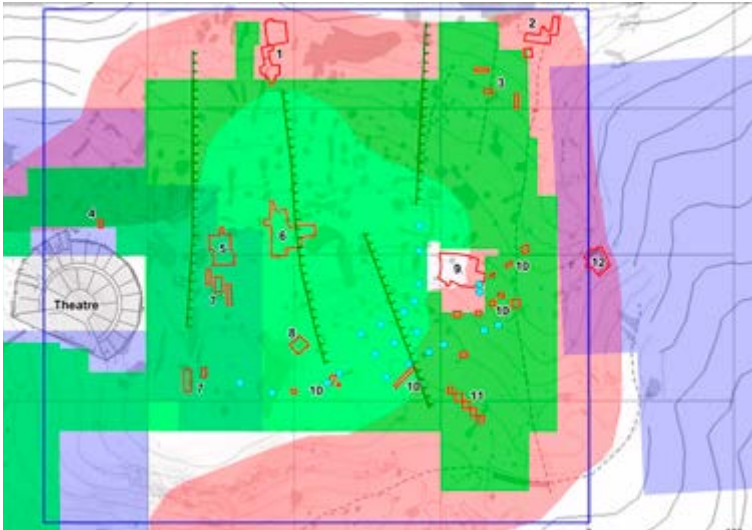


Fig. 2. Overview of the main research techniques applied throughout the Eastern Suburbium: excavations (red outlines), core drillings (light green dots), field surveys (shaded blue), geophysical surveys (shaded green), tomography profiles (green lines) and aerial photography (blue outline). The case studies referred to in this chapter can be found under no. 6 (site PQ 2) and no. 1 (site F).

The location of several excavations have subsequently been based on this map, pinpointing its shortcomings but overall highlighting its usefulness. Excavations and test soundings only cover c. 3% of the built-up area of the Eastern Suburbium, but since their locations were chosen in order to resolve open research questions, the level of their added detail allows us to make some guesstimated predictions for the remaining 97% of the quarter. It was thus with some prior knowledge that in more recent years several sites within the Eastern Suburbium were chosen in order to document certain aspects of the living and the dead, among which a series of burial terraces at the northern fringes of the quarter (site F), the aforementioned *schola* (site PQ 2) and a large burial compound<sup>3</sup> dominating the eastern ridge (site PQ 4).

Documenting the dead may seem rather straightforward: you excavate human remains and have them studied by an anthropologist. However, Sagalassos displays such a wide variety of burial customs and rituals that the underlying cultural aspects are more difficult to grasp. Burial monuments at Sagalassos have been intensively studied in the past,<sup>4</sup> thanks in part to a lot of them being visible and accessible for study in their not-excavated form. Indeed, most of the large temple tombs, sarcophagi, osteothecs (vase- or chest-shaped stone urns) and *arcosolia/chamosoria* (rock-cut tombs) occupied rocky terrain, which made them less likely to be destroyed for other purposes or buried by post-occupational erosion processes. However, there are burial customs that do not show up on the radar, and cannot be known unless you start digging: burials in wooden coffins or in simple pits, cremation remains collected in terracotta urns or left in primary context, etc. Moreover, we can learn many additional aspects of funerary culture when full burial plots are excavated and the finds are studied by a wider range of specialists, such as the feasting activities that took place near or at the spot of the graves of loved ones.

While this might sound counterintuitive, documenting the living is often more difficult to accomplish than learning about the dead. The last resting places of the dead are more likely to be preserved untouched, since they are by definition off-limits for the living. Indeed, there is a whole system of taboos, established laws and unwritten customs protecting burials that do not apply to the realm of the living, or to a far lesser extent. This does not mean that burials were never to be ransacked or usurped, but the former would mainly apply to 'rich' tombs and the latter would more likely than not provide us with additional information on burial customs. Such conditions are only rarely found in 'living' contexts. We do indeed encounter plentiful extant remains of the past, but in order to reach a level of knowledge about the ancient population beyond the obvious and ubiquitous, we need to encounter exceptional contexts that, moreover, should be read and interpreted correctly. Some of the well-preserved pottery workshops from the Eastern Suburbium, for example, have procured<sup>5</sup> (and will keep on providing) us with a thorough knowledge of the organisation of work within and between individual ateliers. In recent years, it has also been possible to document other aspects of life in the Eastern Suburbium.

We would like to provide a few examples from these recent results and show the underlying documentation process that allowed us to arrive at certain conclusions. We will not go into detail of the documentation of, among other things, stratigraphy, architecture and landscape, which are covered in other chapters of this volume. It is implied that those aspects played a major part in the documentation process of all sites excavated within the Eastern Suburbium. Furthermore, it needs to be understood that these are ongoing studies, where the documenta-

tion process is as yet unfinished and where future scientific perspectives might procure unexpected new data. The contexts below, for example, did not involve DNA research<sup>6</sup> or carbon-dating, nor did they venture into facial reconstruction or epigraphical studies, all research techniques that have been used to varying degrees for burials elsewhere within the Eastern Suburbium.

### ***Going out with a ban(g)quet***

The site PQ 2 was not coincidentally chosen. The geophysical map showed a single, rectangular building in the part of the Eastern Suburbium that was apparently reserved for more monumental, communal complexes. The absence of pottery kilns, which normally show up as clear anomalies on the magnetic surveys, was also a trigger. The idea of a building used by *collegia* (associations) was already put forward before the initial excavations that took place in 2012. *Collegia* formed an important backbone of ancient social life and could be based on religious, ethnic, professional or social links between its members. Their club houses are often located outside the city and town centres, partially due to the disturbances their associated activities might create in more densely inhabited quarters.

The size of the building made it clear that several excavation campaigns would have to follow. Due to circumstances, these excavations were supervised by different individuals,<sup>7</sup> but the quality of documentation and reporting was such that the transfer of information was smooth and efficient. From the first campaign onwards it was already clear that this building contained a large potential for more in-depth research on its associated activities. A lot of knowledge concerning *collegia* is handed down through ancient texts and inscriptions, but very few excavated *schola* contained find contexts that were studied in their own right. Already in 2012 an extensive second- to third-century dump was excavated east of the building that clearly originated from the site's phase of use. Therefore, pottery specialists were from the start involved in the documentation process, as well as archaeozoologists (studying the animal bones) and palaeobotanists (studying the burnt plant remains from the soil samples). Likewise, numismatists follow up each excavation campaign to identify the newly found coins.

While the geophysical map pointed us in the right direction, it may be clear that the excavation results added several layers of complexity to the original outlines of the site, both in layout as well as in history. The most interesting feature was that at the PQ 2 *schola* we could reconstruct one final event that apparently capped the building's period of use. In this particular case it was neither a fire nor any other catastrophic event that preserved this unique context, but more

likely a conscious decision. What that decision might have been and why it would have been ordained is unknown to us, and might remain a mystery. But we can certainly put forward some hypotheses.

The *schola* hosted a final banquet with dozens of participants in the second half of the third century, most probably around 275 CE. The rectangular building was clearly equipped for this kind of event: it contained several rooms, a kitchen annex, a running water system and the necessary outfit of vessels for cooking and serving as well as tableware and cutlery. Similar vessels and faunal remains from the aforementioned dump east of the building bore witness to many similar events taking place here on a regular basis. Interestingly, it appears that this club house was rearranged from an older, single-hall building that more likely served cultic purposes during the second half of the first century. The water system, with fountain, was an integral and central part of this older arrangement and was given a new life in the second main period of use of the building (Fig. 3).

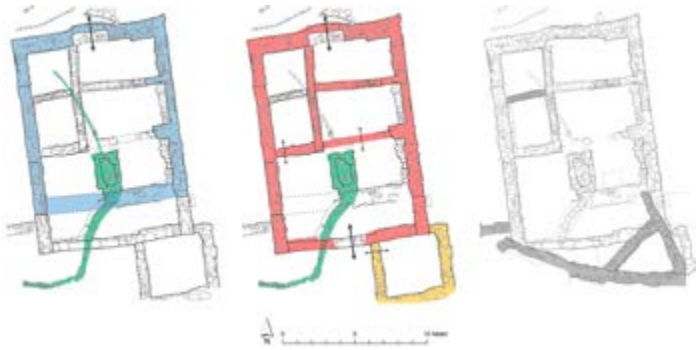


Fig. 3. Overview of the major changes in the layout of the PQ 2 site. Left: original layout (blue) from c. 50 CE, with one single entrance from the north and the water infrastructure (green) against the back wall. Middle: layout after c. 100 CE, with an extended building subdivided into separate rooms (red), multiple entrances and a kitchen annex added later (yellow). Right: post-abandonment layout, with the subdivision of room 2 and the later construction of field walls across and above the remains of the ruined building (grey).

This last event took place in and around the whole building. The partygoers left all of their tableware and some of their cutlery and unfinished meals behind on the floor and the tables. The original brick or stone floor was already dismantled before the event and the tables appear to have been recovered later, whereupon all leftovers landed on the floor. Many dozens of intact or complete (but broken) vessels could be recovered. The finds of several oil lamps among the remains suggests that the feast went on late into the night. Other loose finds



included hair pins and gaming pieces, suggesting the presence of women and entertainment in the form of games (gambling?). It is tempting to read the state in which everything was left behind as the result of a brawl, after which the venue was permanently closed. But the observation that the floor was already removed before the banquet indicates instead a deliberate final event. This is also suggested by the food remains, which suggest a richer diet than what can be reconstructed based on the neighbouring dump. The latter showed that the venue would normally serve simple meals in the form of stews and/or broths, not unlike a soup kitchen.<sup>8</sup>

In order to add an additional layer of potential to this context, it was necessary to look at what the ancient authors and inscriptions can tell us about the *collegia* and this sort of events. There were no inscriptions encountered at the PQ 2 site and there are no associations actually known by name for the Eastern Suburbium. On the other hand, there is little doubt that this type of association and their communal activities were an essential part of life in antiquity. Contemporary sources refer to regular gatherings of similar associations, on a (bi)monthly basis, in which “eating and drinking among pleasant company seemed to strike at the very essence of what a *collegium* was all about.”<sup>9</sup> It is in fact possible that the associations ran meetings with an economical agenda or even with political goals, but several ancient texts refer to the curtailing of *collegia* particularly because of the threats they might pose to the powers that be. It is thus safe to say that most events would be of a more informal nature. The proceedings of a few of these meetings are passed on to us, allowing some insight into the hierarchy and strict rules that govern these boisterous occasions, where music, speeches, plays, philosophical discourse and poetry are encouraged in a setting with food and drinks. Inscriptions, such as the inscription erected by the Worshippers of Diana and Antinous at Lanuvium (south of Rome) mention simple meals of wine, bread and sardines, standing in stark contrast to the exotic fruits that were specially imported for the banquets held by a *collegium* of rich businessmen in Rome.<sup>10</sup>

Both the timing as well as the setting make it clear that this particular final banquet does not fit among the regular meetings. We know that the associations would have special festivities organised for the *collegium*'s day of foundation, the festivals related to the deities they worshipped or the birthdays of their patrons. Banquets could also ensue when club members got married or promoted, when dead members were buried or commemorated, when a new (part of the) club house was inaugurated, when a dedicatory statue was erected, etc. The abandonment of a building would certainly fit this list of special events, in the same way that a banquet could mark the dedication of a new *schola* building. The banquet remains should likewise be understood as an abandonment sacrifice, while the

stripping of any useful furnishings should be seen as an indication that the *collegium* itself was not abolished, but rather re-accommodated.

Since we cannot draw information from inscriptions, figurative decoration or statuary, any possible identification of the group(s) that frequented the *schola* remains highly speculative. It is possible that the *schola* venue could be rented out, though seeing as the activity took place after the building was already partially stripped, it seems more likely that the 'house association' was the organising party. There are several possibilities. *Collegia* could be erected as burial clubs, where a yearly membership fee would guarantee a proper burial with the necessary funerary decorum. These clubs would logically be located near to or within the suburban *necropoleis*, where they had immediate access to the burial grounds. In the case of the PQ 2 *schola*, the large enclosure to the west, with an identical orientation, might in fact be a burial plot. Likewise, *collegia* dedicated to foreign deities would have their seats in the suburbia. And finally, it is tempting to link the building with an association of potters, who after all were the most likely professional group to form a sizeable, lasting *collegium* in the Eastern Suburbium.

### ***The dead vs the living***

The next context taught us as much about the living as it did about the dead. During the 1990–1991 campaigns, a trench was opened at site F, which is located at the steeper, northern slopes of the Eastern Suburbium. That was at a time before any geophysical survey maps were available for the area. The location was therefore based on the partially exposed remains of a vaulted tomb; the only archaeological feature visible at the surface. The steep terrain was made accessible and exploitable from (late) Achaemenid times onwards by a series of terrace walls. The excavations not only succeeded in documenting the disturbed content of the vaulted tomb (seven individuals), but also recovered 11 well-preserved terracotta cremation urns two terraces below. The human remains were studied in detail by a physical anthropologist and published in the Sagalassos series.<sup>11</sup>

In 2011 and 2012 the site was revisited for additional excavations. By that time, the geophysical surveys had procured a map of the Eastern Suburbium, but it did not reach up to these higher, steeper slopes. The initial goals were to expose more of the burial plot with the terracotta urns. This was one of the excavations that might not have provided exactly what we were looking for (the burial plot with urns was apparently completely depleted, since on either side of the original trench we encountered enclosing walls), but brought up a lot of new and unexpected research potential.

Both to the east and west of the initial plot with cremation urns, remains of pottery workshops were encountered. This showed that the Potters' Quarter was even larger than previously estimated on the basis of the geophysical map and earlier excavations. On the higher terraces, a wide spectrum of burial types were documented, aside from the above-mentioned family tomb: inhumations in simple pits and coffins, two individual built tombs, an (emptied) charnel pit, an additional terracotta cremation urn, the remains of a sarcophagus, a Hellenistic  $\Pi$ -shaped tomb and a primary cremation burial (Fig. 4). This last context provided a unique case study for which the experience of several scientific disciplines would have to be combined in order to complete the puzzle (Claeys *et al.* 2023).



Fig. 4. View from the south on the eastern half of the 2012 Site F excavations. In the background (from left to right) the vaulted tomb, the Hellenistic monument and the possible charnel niche; in the foreground the two individual tombs and the primary cremation covered with bricks and remains of the lime cover.

The excavation exposed an area covered by 24 tightly fitting bricks; each brick measuring on average 40 x 40 x 5 cm, thus covering a surface of roughly 2.4 x 1.6 m. The bricks themselves were originally covered with a thick layer of slaked lime, of which large chunks were encountered *in situ* and in the surrounding layer. They were clearly not used in a structural fashion, but only served to cover the remains underneath. When removing these bricks, a large, burnt spot was exposed, containing the remains of a cremation pyre. The burnt remains of the deceased were still more or less positioned in anatomical position, although they must have collapsed together with the pyre. This type of burial is more known

in the form where the funeral pyre is allowed to drop into a dug-out hole, after which the burnt-out remains can easily be covered with earth (a *bustum* burial).

Several burial gifts were found among the pyre remains, including a coin (to symbolically pay for passage to the underworld), a worked bone clothing pin, a small glass flask and several terracotta vessels. Dozens of nails were furthermore strewn around the burnt-out pyre. The remainder of the burnt context was sampled in its entirety and further researched by the respective specialists. Through archaeobotanical research it was possible to reveal the presence of almonds, walnuts and grapes inside the burial, as well as unidentifiable crusts containing cereal grains; these were apparently added to the pyre as grave gifts. Moreover, charred remains with imprints of textile and of a woven or plaited item were observed, which might be understood as a woven/plaited basket (containing the fruits and nuts?) or as a woven/plaited bier that was used to carry the deceased to his final resting place. The archaeo-anthropological analysis of the remains identified the individual as an adult, likely male. No pathological lesions could be observed on the remains. The numismatists could tell us that the coin encountered in the burial was minted at Konana (near modern-day Isparta) in the second century CE.

Here once more we had to dive into the written records and look for similar contexts elsewhere in order to find a likely explanation for our observations gathered from the fieldwork and initial analyses. It was indeed possible to find parallels for each of the individual characteristics of this cremation burial, but their combination still makes this burial unique. Stones were (and are) used throughout many cultures in order to keep the body of the dead in place. Natural stone is most commonly used, but the presence of bricks has sometimes been attested too.<sup>12</sup> Nails were believed to have magical powers throughout ancient times, partially because of the material they were cast from, but especially because of their capacity to fix things into place. Nails were thought to be able to avert the spread of diseases, but were also used in a negative fashion, e.g. with *defixiones* ('curse tablets') and voodoo dolls.<sup>13</sup> For the use of lime in burial contexts we even have to reach into forensic territory: the main attributed qualities of lime are its abilities to let a body decompose faster and to prevent contagious diseases from spreading.<sup>14</sup>

The three main characteristics of this particular cremation burial thus seem to suggest that the remaining relatives went to great lengths to prevent the deceased from returning and possibly bringing harm to his surroundings. At the same time, he was apparently buried with all the expected gravitas and with suitable funerary gifts. The living bore him no ill will, or at least did not want to provoke any possible retaliations by not fulfilling the customary rites. All of this seems to point in the direction of a so-called 'restless dead', who according to

the ancient sources might return from the afterlife as a revenant. Someone could end up as a restless dead after a life of deviant behaviour or as the result of a bad death, for example by being left unburied, by dying prematurely, or by dying in a violent way. Death brought on by a mysterious illness would fall within the latter category and could certainly warrant the above-mentioned sanctions in a society where magic, religion and household rituals were inseparably intertwined.

## Conclusions

While both case studies above are relatively close in time and space, part of the same suburban quarter northeast of Sagalassos' centre, they offered widely different research opportunities and consequent data. Nevertheless, through both cases we have been able to get a sense of close acquaintance with the inhabitants of second- to third-century Sagalassos, in life as well as in death.

It is important to note that a different methodology during the fieldwork or the lack of input from specialists during the processing might not have revealed this potential. Each promising archaeological context therefore needs a 'customised' methodology in excavation, documentation, processing and publication. Since archaeological fieldwork is by definition full of unpredictable twists and turns, making the right methodological choices on the spot is undoubtedly the most important part of the archaeologist's job. After all, those initial choices will define whether or not the full potential of such contexts can be tapped into during the further research phases.

## Notes

- 1 Poblome *et al.* 2015.
- 2 Claeys and Poblome 2017.
- 3 Cleymans and Poblome 2017.
- 4 Köse 2005.
- 5 E.g. Poblome 2016.
- 6 E.g. Ottoni *et al.* 2016.
- 7 Sven Van Haelst in 2012, Peter Talloen in 2013 and Johan Claeys in 2014 and 2016.
- 8 De Cupere *et al.* 2015.
- 9 Donahue 2004, 85.
- 10 Smith 2003, 87–125; Dunbabin 2003, 99–140.
- 11 Charlier 1993, 211–15; Charlier 1997, 553–69.
- 12 Alfayé Villa 2009.
- 13 Alfayé Villa 2010.
- 14 Schotsmans *et al.* 2012.

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# How do we document a concept? Social memory in antiquity

*Bas Beaujean*

How does one document an abstract idea generalised from particular instances? This is something that at first glance might seem evident, but often starts to slip away the more you scrutinise it. First and foremost, careful description and definition of the concept is the name of the game. Everything hinges upon what a concept means, i.e. how it is linked to the dynamics (practices) which re-configure realities, and which actors (e.g. humans, gods, objects) actively partake in these dynamics. This ontological understanding of a concept can differ considerably between oneself, one's academic peers and the general public. This initial phase of defining the concept, both theoretically and operationally, is critical. If the foundation is rotten, this rot will eventually spread to everything built on top of it, including the documentation of data, and one does not want to place that final brick and watch all that hard work collapse into a meaningless pile of rubble.

## ***How to define a concept***

Generally speaking, most of the concepts used in archaeological research did not originate within the discipline itself, but were borrowed and/or adapted from other research traditions like geology, sociology and anthropology. These concepts developed in specific academic contexts nestled within larger political and socio-cultural settings, and have had multiple complex trajectories within a rapidly changing world. To better understand such a concept, and deconstruct its assumptions, identify biases and estimate its current research potential, one needs to investigate how, when and why it originated, how this fitted within the wider zeitgeist, how the concept subsequently developed and was integrated into archaeological theory and methodologies, and keep tracing its uses and associated discussions up until the present day. In short, the first step is to care-

fully trace the historiography of the concept one intends to use, and assess its suitability with respect to one's own research goals.

All of this might sound like quite a bit of work. Potentially all for naught, if the concept and related methodologies turn out to be ill-suited for the stated research goals. Fortunately, we are not the only ones passionate about studying human behaviour in the past. You can bet your boots that if you think of something clever, someone lucky enough to be born earlier will have thought of it before, and shared his or her ruminations with the rest of us. Consequently, if a concept has been around long enough, there are bound to be several historiographic works and critical deconstructions available for a quick assessment of its history, utility and biases. If this assessment turns out to be a positive one, the real fun can begin: the operational defining of the concept with respect to the spatiotemporal framework and goals of your own interests. A moment of excitement and ostensibly endless possibilities, facilitated of course by a good dose of blissful ignorance. No need to worry, such rosy expectations will soon be dashed on the battlefield of academia – lined with unflinching critics, conservative hardliners and conceptual daredevils. Indeed, most of the relevant concepts are hotly debated, which often has the advantage of keeping everyone honest and stimulating creativity. However, this can also result in confusion and culminate in seemingly never-ending semantic discussions. In this chapter, readers will be given a whistle-stop tour of a process of conceptualisation, including a short description of practical applications. For this purpose, we will use the slippery concept of 'social memory', as it is a perfect example of a concept that seems obvious, but if used incorrectly results in a methodological framework with more holes than a Swiss cheese.

### ***A trip down social memory lane***

First of all, we look into the appearance of social memory on the academic scene, and explicate some of its archaeologically relevant developments during the last quarter of the 20th century. This chapter is not intended as an in-depth deconstruction of social memory,<sup>1</sup> and is of course a reflection of the author's own convictions regarding the concept. Everybody seems to love a good origin story these days, so let us get started.

'Once upon a time' might be the perfect opening words to kick off any discussion of social memory, which is in large part about the power of the past to communicate contemporary in-group concerns. Once upon a time there lived a sociologist named Maurice Halbwachs (1877–1945), and while certainly not the sole source of origin,<sup>2</sup> he is often considered the father of what he termed



‘collective memory’. Take up any academic product with an adjective specifying some kind of ‘memory’ in the title – be it social, collective or cultural – and it is bound to at least mention the good man in passing. Halbwachs was influenced by the disparate teachings of his two mentors: structural functionalist Emile Durkheim (1858–1917), and philosopher Henri Bergson (1859–1941). It is the latter’s contemplations about the subjectivity of memory, in combination with Durkheim’s emphasis on the pervasiveness of social orders,<sup>3</sup> that in part inspired Halbwachs’ eloquent enunciation of collective memory in *Les cadres sociaux de la mémoire* (1925) and *La mémoire collective* (1950). Assuredly, he wrote during a time permeated by modernist thought, wherein the mind was conceived as separate from body and (material) world. Consequently, the mind was understood as a bona fide storage device, using sensory perceptions to record and store data (i.e. memory), which could in turn be used for objective reconstructions of an external world.<sup>4</sup> Like all of us, Halbwachs was an intellectual creature of his time, yet his cerebrations about memory partially transcended modernist notions of remembering. He did not perceive individual recall as accurate recovery of information, but as acts of socially embedded composition. During these acts, elements from a plurality of dynamic memories were used to bring individual concerns and beliefs<sup>5</sup> – which are influenced by group affiliations – into conformity with contemporary political and socio-cultural developments.<sup>6</sup> For Halbwachs, the individual act of recall was thus inherently social. For instance, he used the act of dreaming<sup>7</sup> to illustrate that in the only situation wherein human beings are completely disconnected from their social trappings, the result is utter incoherence. It is probably a misreading of his central thesis, aggravated by the many uses and associations of the word ‘memory’, in combination with nationalist agendas, and the age of computerisation, that the idea of collective memory as an actual entity persists in popular parlance and occasionally academia.<sup>8</sup> Let us be up front. There is no such thing as collective memory in the sense of an overarching hive-mind, and Halbwachs specifically cautioned against such a blatant misconception. Stating that Cuba remembers is incorrect (using memory-related metaphors in a piece about social memory can only obfuscate, and is inadvisable), but saying that Che Guevara is collectively recalled by individuals supporting a specific in-group notion of Cuba is not. Naturally, what is communicated between these individuals is not a realistic representation of the revolutionary himself, but an idealistic composite of his biological, physical and psychological characteristics, and his many deeds – both real and imaginary – that articulate the present concerns of a group engaging within the wider world. It is from this conceptualisation of collective memory by Halbwachs that our whistle-stop tour of its further development departs.

Most of the seeds regarding elaborations and (re)adaptations of ‘collective memory’ had already been planted in Halbwachs’ original works, albeit in an underdeveloped state – like unexplored paths whose initial direction was marked on a map. Fast-forward to the 1970s and 1980s, when the so-called ‘memory boom’ exploded in academia. For those interested in the complex culmination of zeitgeist-specific processes hypothesised to have facilitated this resurgence, and its actual validity, we refer to the various deconstructions and discussions regarding this phenomenon.<sup>9</sup> Instead, we will focus on several exponents of this trend that shaped the integration of social memory in archaeological theory, and my own understanding of it. Pierre Nora, the first stop on our tour of social memory lane, contended that historical deconstruction had eviscerated France’s uninterrupted environments of memory, what he called *milieux de mémoires*. Consequently, he argued that only *lieux de mémoires* remained: isolated sites of memory where a deep sense of continuity with the past persisted.<sup>10</sup> While his separation of history and memory is problematic, Nora’s nostalgic ruminations inspired various historians and archaeologists to focus on mnemonically charged entities ripped from the semiotic landscapes in which they had once emerged. This attention to mnemonic focal points in landscapes, in part already elucidated by Halbwachs,<sup>11</sup> benefited from the maturation of archaeological survey methodologies, and has been integral in regional studies of how past societies understood their landscapes in relation to their own conjectured pasts.<sup>12</sup> In addition to reinvigorating interest in spatial aspects of social memory processes, Nora’s existential crisis also directed attention to the pertinent question of whether there is a difference between the products of historical research and social memories generated by (non-academic) social groups.<sup>13</sup>

During his successive essays, Nora made the plaintive remark that gestures and habits are the last bastion of true memory in modern times,<sup>14</sup> skimming the surface of a more subtle element of social memory processes: the mnemonic power of repetitive (bodily) practices. While Halbwachs commented indirectly upon the importance of ritual and daily practices in the social formation and continuation of group values and beliefs,<sup>15</sup> he never explicitly considers the mnemonic efficacies of performances and gesticulations. In his pivotal work *How societies remember* (1989), Paul Connerton does look beneath the surface, and enunciates how the human body is crucial in (re)establishing a sense of social cohesion. He puts practice centre stage, dividing mnemonically efficacious practices into ‘incorporating’ and ‘inscribing’ practices, the former relating to momentary bodily communication between actors, the latter pertaining to the (un)intentional transference of information, like inscriptions, that can outlast its spatiotemporal setting.<sup>16</sup> While his conception of inscribing practices does not completely shake off the yoke of modernism, the emphasis on (bodily)

practices rolls out the red carpet for archaeology. If practices are the linchpin in generating what we call social memories, all actors and/or elements interacting in such activities – including qualities of material culture and landscapes – can be used to investigate mnemonic phenomena. As a result, the concept becomes useful for archaeology. This brings us to our third and last main stop: the mnemonic power of materiality in (re)establishing group continuity. This is an aspect partially enunciated by Jan Assmann while describing his concepts of ‘cultural and bonding memory’.

In part, Assmann focuses on disentangling the knotty conceptual relationship between Halbwachs’ collective memories and traditions, which Halbwachs regularly and somewhat randomly alluded to, but never truly explicated. He enunciates that what people call traditions consist of sets of *material* and immaterial cultural instruments (i.e. cultural memory), which through objectification and mnemonic practices become intricately intertwined with various in-group perceptions of the past and present, offering participants semiotic anchors to catch onto amidst the unpredictability of life.<sup>17</sup> Consequently, the material precipitation of such evocative mnemonic practices are discernible within the archaeological record (i.e. form patterns), and can be used to study how traditions facilitated the continuation of social entities. He juxtaposed this cultural memory with bonding memory (Halbwachs’ collective memory), which pertains to the more quotidian practices of group formation, and has a limited temporal horizon of 80–100 years.<sup>18</sup> While Assmann theoretically cautions against conflating cultural memory with inscribing and bonding memory with incorporating practices, methodologically he does exactly that. This creates a conceptual break between the mundane and extraordinary, which originated in the Bergsonian–Durkheimian duality of collective memory. As Assmann is chiefly concerned with explicit manifestations of institutionalised inscribing practices, the championing of inscribing over incorporating practices is not much of a problem for him, but it is for those focusing on material culture. In particular, Connerton’s ruminations hint at the mnemonic potential in seemingly mundane practices – for example, how people prepare a meal, produce a pot, or simply how they do things – allowing us a foothold to bridge this ontological gap. As Connerton dryly remarked,<sup>19</sup> from its beginning, most phenomena described by the concept of collective memory have been all about in-group and inter-group communication of how the past relates to the present. It is about how people meet in (for them) important locations within the landscape, and through vocal and bodily performances relay that importance to each other. It is in how one greets one’s neighbour, and expects that salutation to be reciprocated in a certain way. It can be specific in how a building is constructed through collective action, or how one practices one’s religion within a

group setting. All of these acts and practices are about (re)establishing predictability, communicating how the world was, is and will be. Like fish moving in schools, life is more predictable when living it with like-minded neighbours. As such, the concept of social memory – coined by Fentress and Wickham<sup>20</sup> – is all about the formation and maintenance of (dynamic) social identities.

This seemingly evident observation has severe implications for archaeological studies of social memory processes, and how we can use data to effectively study them. If we abstract social groups to consist of dynamic sets of actors (e.g. human beings, animals, material culture, values), whose connection is expressed in various ways during (mnemonic) practices,<sup>21</sup> certain actors can come to be structurally equated by in- and/or out-group members, signalling in-group similarities and inter-group differences.<sup>22</sup> Such in-group similarities can revolve around certain group-specific values and customs, providing members with affordances influencing how and why they act. However, the aforementioned actors are usually part of other groups as well – groups with their own specific and potentially conflicting and/or overlapping in-group values, beliefs and associated practices. Consequently, human beings and material culture are, according to different degrees of intensity (depending on intra- and inter-group dynamics, and external influences), and across relative scales, at any time dynamically engaged in multiple processes of group formation. This makes it extremely difficult to identify specific social groups and their in-group activities on the basis of non-random material precipitation alone. In addition, the material durability of some emergent products affords them a permanence outlasting the social groups and even societies in which they first emerged, and consequently remained available for semiotic (re)use.<sup>23</sup> Relatedly, the fact that individuals actively participate in several groups, coupled with the semiotic mutability of material culture, cautions against overestimating the homogeneity of social groups and their mnemonic experiences. This is a rather common flaw in the archaeological interpretation of the impact of certain social memory processes. Additionally, we need to guard against equating individual abilities in a group setting or during social activities with those of a social group, when making this methodological leap during data analysis – as it at the very least obfuscates the essence of what we are studying.<sup>24</sup> This complexity inherent in group formation brings us to a third issue: the tunnel focus on determining human intentionality in social memory processes. With so many interacting variables, human cognition cannot be the quintessential source of action, as modernist thought purported it to be, but is dynamically engaged in relations with other types of actors and elements,<sup>25</sup> from which it continually emerges. Furthermore, the structurally emergent products of such complex interactions cannot be reduced to their constituent actors and/or elements, but are more

than the sum of their parts, and as such need to be studied within the totality of relations from which they emerged.<sup>26</sup>

All considered, the phenomena we have been describing as representative of what we like to call social memory are quite diverse in both extent and character. Accordingly, to shine an archaeological light on how bygone social groups dealt with their own conjectured pasts when (re)establishing themselves within an ever-changing world, we need to analyse how they used material culture to (re)configure their formation, and place it all within contemporary political and socio-cultural developments. We do this while keeping a set of theoretical principles in mind: (1) individual memory is sociogenic (i.e. not an inherent, unchanging quality of human beings), (2) anything can become an actant in group formation (i.e. methodological departure from heterogeneity not homogeneity), (3) actors do not change inherently, but through engaging in relations with different actors (i.e. change and continuity are not absolute binaries), (4) individual recall is selective, and includes forgetting (i.e. there is always a cost), (5) action is not a human prerogative (i.e. intent  $\neq$  consequences), (6) group (dis)unity is not inherent (i.e. requires explanation), and perhaps most importantly (7) the past is always reused according to present concerns (i.e. social memory studies are not studies of origination). Ontologically, we thus integrate our understanding of social memory into a flat ontology, commonly rooted in relational theories. Departing from heterogeneity requires subdividing our methodological framework into cognitively digestible bits (e.g. landscapes, cityscapes, deathscapes), lest our creativity choke on these extensive and multifarious datasets. Technically, the concept of social memory does not significantly change the way we archaeologically document during intensive surveys and excavations. Its fort e is in exploiting the heuristic synergy between seemingly disparate kinds of documented data, facilitating new insights and hypotheses about the potential of material culture to engage in past group formation. Let us now consider a social memory approach when applied to archaeological contexts. While we lack the space to carry out the analytic procedures, we can give a general description of the latter.

### ***Once upon a time in Sagalassos***

Like industrious ants swarming an area, (re)appropriating all available resources in their environment to ensure their colony's continuance, human beings scurried diligently across the rugged mountains, woodlands, river valleys and plains of Pisidia, their multifarious activities at times leaving behind material imprints which they enfolded upon these varied landscapes, which eventually

piqued the curiosity of subsequent social groups. Like them, we need to move through these landscapes, dwell in the past as it were, and, as has been enunciated by Ralf Vandam and Patrick Willett (further in this volume), meticulously record all visible inferences of past human activities and environmental processes. During such a regional evaluation of social memory processes – largely based on data documented by the Sagalassos Archaeological Research Project's long and successful history of extensive and intensive survey programmes – our eyes are drawn to potential places of mnemonic power. Such places are often re-configured near specific natural features like mountains, hilltops, springs, rock formations and caves. For instance, mnemonically charged activities have been attested at the Karain cave near Termessos, the Kocain cave near Sia, the Zindan cave near Timbriada,<sup>27</sup> and a rock sanctuary near Sagalassos.<sup>28</sup> Within these natural chambers, (fragments of) objects still litter the present surface, ranging from rusted beer cans to ancient terracotta figurines. A hodgepodge of actors and elements, once actively engaged in disparate practices, now cut loose from their original relations, and shifting into the semiotic framework of archaeology. As explained earlier in this volume, by documenting the characteristics and qualities of these objects according to archaeological standards, we can start situating some of them in time. In addition, the properties of certain objects, for example figurines of deities, can hint at the nature of bygone activities. Evidently, we are dealing with surface finds, which only allow limited temporal and contextual inferences regarding the shifting relations from which they emerged and precipitated. Such aggregations of raw data can be abstracted and subsequently explored within a geographical information systems (GIS) environment. Within this abstracted representation of past natural, political and socio-cultural landscapes, we can obtain a preliminary overview of the structural emergence and disappearance of mnemonically charged practices, and interpret them within contemporary developments. In addition to providing a long-term perspective, the resulting hypotheses could offer indications of where to focus our archaeological attention next, and go beyond in- and inter-group dynamics on a regional level. Let us enter a site which has deservedly garnered quite a bit of archaeological attention, and explain how more detailed documentation and reconstruction of archaeological contexts raises our resolution when investigating mnemonically charged practices, resulting in a more nuanced understanding of what can appear to be (supra)regionally homogeneous phenomena.

Similar to a dot on a map, the motionless impression that the material palimpsest of Sagalassos can bestow upon its visitors can easily make one forget that it was once a dirty, inhabited cityscape. Within this political and socio-cultural arena, a wide variety of social groups interacted, each consisting of countless

actors, all on a quest for a sense of spatiotemporal cohesion and ontological predictability, which materialised in multifarious and potentially conflicting ways. For a case in point, take the dynamic honorific practices, often categorised by historians and archaeologists under the umbrella term ‘euergetism’, in which members of the social elite in the Roman East regularly engaged. These acts, like the financing of a public building, needed to thread a fine line, balancing intricately intertwined relations between in- and inter-group values and beliefs, and their perception and understanding by the very different actors involved. Amongst others, these actors included emperors, representatives of the Roman authorities, fellow members of the local and (supra)regional social elite, the non-elite urban population and those living in the countryside.<sup>29</sup> A lot of people, all of whom were aligned – to varying degrees of intensity – with multiple social groups, which manifested in congruent and disparate understandings and emotive reactions associated with how the world was, and is meant to be. These hopes, fears, concerns and ambitions shaped and changed the cityscape of Sagalassos continually, resulting in new opportunities and constraints for those living within its vicinity. Once built, a building’s or monument’s physical presence is relatively permanent. However, the use of its space and/or affordances are not simply set in stone. A late first-century BCE to early first-century CE canopy monument, situated at the southern end of the Upper Agora of Sagalassos (Fig. 1), provides a striking example of the dynamic nature of seemingly static things like buildings and inscriptions. After its construction, this structure functioned as a *tychaion*, housing a statue of Tyche, the Goddess of Fortune. Cultic practices successfully, dynamically sustained this function until the end of the fourth century CE,<sup>30</sup> worshipping Tyche into an important actor in re-configuring this public space. As time passed, inscriptions honouring the western emperors Gratian (367–383 CE) and Valentinian II (375–392 CE) were carved into respectively the northeastern and northwestern pedestals, and a reused and partially broken monument – formerly honouring a local notable – was placed on the statue base. In addition to the surviving snippets of its original dedication, it now bore an honorific dedication to honour the empress Eudoxia, wife of Arcadius (395–408 CE).<sup>31</sup> Not only do we observe a shift in the urban assemblage of a shrine to a monument, the removal of Tyche (including altar and inscription), and the addition of imperial actors associated with Christianity also altered the potential for religious associations. Alas, isolated from contemporary (supra)regional processes, and local practices, this evocative example is nothing more than an archaeological anecdote. To truly understand these shifting relations within social memory processes in terms of impactful change and/or continuity, we need to examine them within their contemporary urban fabric, and compare their (material) emergence with what came before, and what oc-

curred after. Fortunately, the area around the Upper Agora of Sagalassos, where the elite truly let their hair down during Roman imperial times, has been excavated comprehensively, providing us with enough data to reliably reconstruct its spatiotemporal development.<sup>32</sup> Unfortunately, such a scholarly effort is outside the remit of this paper, so we will limit ourselves to some further examples.



Fig. 1. The current situation of the former Tychaion, with the SW-gate and the SW honorific column in the background.

As mentioned, some of the most materially visible mnemonically charged practices revolved around the commission, placement and dedication of so-called honorific monuments. Departing from documentation according to archaeological standards, we need to determine the dimensions, material qualities and inferences, and the original location and date of these honorific assemblages. Unfortunately, their material longevity caused most of them to engage in new relations time and again, sometimes for very different purposes. Consequently, the hardest part is to find (in)direct material traces of their original and/or previous urban environments. Sometimes we are lucky, and the name of a known notable or stratigraphic superposition with datable layers offers enough clues to establish an acceptable range wherein a monument emerged. However, most of these honorific elements bearing inscriptions were found *ex situ*, meaning we cannot reconstruct their location. Consider the fact that the Upper Agora of Sagalassos was monumentalised with limestone slabs in the second quarter of



the first century CE, and remained an open arena for human interaction until some parts were covered during the sixth and seventh centuries CE. For almost seven centuries, this square was a hive of activity, with a veritable hodgepodge of social groups appropriating actors and elements from earlier times, to attempt to enfold their own preferred versions of reality upon this public space. However, some of these practices and activities left some mark, even if these traces have become very faint. Concerning the location of monuments, one material trail is provided by the fact that some were structurally secured by clamp- and dowel-holes fashioned into the surface upon which they were installed (Fig. 2). Comparing potentially corresponding clamp- and dowel-holes can help connect the dots between a displaced monument and one of its earlier locations. In fact, their spatial permanence offers additional clues. After all, where a monument stood, nobody could walk, strut or dance, resulting in less-worn slabs compared to their often-trod neighbours. In addition, water would regularly accumulate between the substructure of the monument and the underlying square. Both the absence of abrading boots and sandals, and the interactions between limestone and standing water can result in a kind of imprint. While, there is no exact correlation between the dimensions of a monument's substructure and such imprints, it is an additional way of narrowing down where certain monuments could have been positioned. Having pinpointed the likely location of several monuments opens up possibilities for spatial analyses of social memory processes, in addition to diachronic evaluations.



Fig. 2. The presence of clamp- and/or dowel-holes in slabs can help in identifying the original location of monuments.

Naturally, the capacity to communicate in-group concerns by expressing how the past relates to the present was not the sole provenance of the elite. However, the available set of affordances for the common folk generally resulted in less durable and/or imposing material precipitation for archaeologists to play with. Despite this material bias, the urban fabric of Sagalassos displays plenty of inferences not *necessarily* associated with the well-to-do, and which can be directly or indirectly used to study social memory processes. For instance, inscribed graffiti is omnipresent in the upper city of Sagalassos, where the inhabitants regularly expressed their concerns in the limestone slabs, and upon monuments and walls. The specific relations from which these words sprang forth vary considerably. Some seem to claim locations for the temporary installation of market stalls, while others, in the form of crosses, are clearly engaged in religious discourse (Fig. 3).



Fig. 3. In the foreground a cross carved into a slab/block covering a drainage channel is present. Behind it the water emerging from the restored Antonine Nymphaeum of Sagalassos glistens in the sunlight. Two material inferences emergent from very different political and socio-cultural phenomena, emblematic of changing social memory processes preserved in the material palimpsest that is the Upper Agora of Sagalassos.

While most of these inferences are hard to date, a systematic examination has never been done, disconnecting the documented graffiti and more mundane traces from the wider contexts in which they emerged. With the aid of 3D imaging and other image-enhancing software, such an endeavour has now become more feasible. 3D imaging (in combination with GIS applications) allows for high-resolution documentation and examination of large horizontal and vertical surfaces, easing the identification and evaluation of a variety of features, including graffiti, postholes, structural modifications, and acts of spoliation and/or reuse, to name but a few. For instance, a bird's eye perspective of a 3D model of the Upper Agora of Sagalassos allows us to identify corresponding postholes, while zooming in on such an area shows a crudely inscribed name, which in all likelihood can be associated with the former proprietor of the stall (Fig. 4). What was once a coveted space for the display of elite achievements became desirable once more for very different reasons. While not as eye-catching as a carefully sculpted monument, such information is essential in obtaining a more inclusive picture of the many lives lived in ancient cities, and the underlying mnemonic dynamics.



Fig. 4. A high resolution image (based on a 2017 3D model of the Upper Agora of Sagalassos) allows the identification of related postholes (blue dots). Zooming in on this area, one of the slabs (red arrow) delineated by the postholes has been inscribed with a name (green arrow).

Like the Colombian author Gabriel García Márquez said, “what matters in life is not what happens to you, but what you remember and how you remember it.” This was applicable to past social groups in Sagalassos as well. By creatively

combining information derived from the monumental husk of an ancient city, and integrating data obtained through material studies, we can start analysing and arguing how those living in the various reincarnations of Sagalassos might have conceived of their past, how they attempted to use past elements to further their present concerns, and how, despite their best intentions, time eventually passed them by. The study of social memory processes requires a wide variety of material data, derived from a diverse assortment of archaeological contexts. Of course, this documentation of material qualities and inferences required to study social memory processes has only been cursorily addressed. For example, the potential in investigating how social groups commemorated their lost ones, or how in certain circumstances seemingly mundane activities can become potent mnemonic in-group signifiers,<sup>33</sup> has not even been mentioned. In other words, the reconstruction of the urban fabric's history is just the beginning, and while social memory can be a powerful tool in investigating how past social groups (re)negotiated themselves, it does require extensive and heterogeneous datasets and a strong tradition of interdisciplinary research. One should not use the concept of social memory as quickly applicable conceptual make-up to dress up out-dated narratives and/or excavation reports.

## Notes

- 1 For example: Kansteiner 2002; Wertsch 2002; Jones 2007.
- 2 See: Assmann 2006, 5–6; Olick *et al.* 2011, 19–26.
- 3 Olick *et al.* 2011, 9–10.
- 4 Thomas 2004, 171–95.
- 5 Halbwachs 1952, 61.
- 6 Halbwachs 1952, 225.
- 7 Halbwachs 1952, 41–42.
- 8 Klein 2000; Thomas 2004.
- 9 For instance: Klein 2000; Olick *et al.* 2011, 20–33.
- 10 Nora 1989, 7–9.
- 11 Halbwachs 1952, 201.
- 12 For example: Alcock 2002; Van Dyke 2004.
- 13 Wertsch 2002.
- 14 Nora 1989, 13.
- 15 Halbwachs 1952, 54, 119.
- 16 Connerton 1989, 72–75.
- 17 Assmann 2006, 37.
- 18 Assmann 1988, 10–11.
- 19 Connerton 1989, 38.
- 20 Fentress and Wickham 1992, ix.
- 21 Harris 2014, 94; Lüders *et al.* 2016, 8.
- 22 White 2008, 1–7.
- 23 Keane 2005; Preucel 2006; Kohn 2013.
- 24 Kansteiner 2002, 185.
- 25 Latour 2005, 46.
- 26 Delanda 2006, 10; Rogers 2017, 1328.
- 27 Talloen 2015, 114–15.
- 28 Talloen *et al.* 2015.
- 29 Zuiderhoek 2009, 150–53.
- 30 Talloen 2015, 208–9.
- 31 Devijver and Waelkens 1995, 118–19.
- 32 Talloen and Poblome 2016.
- 33 For example: Cipolla 2008.

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# How do we document ancient religion?

*Peter Talloen*

## **Introduction**

Religion is generally seen as a system of belief in and responses to the divine, a system that is both internally coherent and also separated from other, 'secular' aspects of human life. However, this was not the case in classical antiquity. There was instead a wide range of ways in which people could interact with the divine world, which do not form a coherent system, nor were they clearly separated from other aspects of human experience. Having said that, ancient religion was not based on the revelation of divine truths in a set of sacred scriptures, but on a group of traditional practices that were thought to establish contact between mortals and the gods. The latter comprised a multitude of divine forces that could affect human life for better or worse, but could in turn be affected by human actions. By honouring these gods, mainly by offering them gifts, people could hope to win their favour and obtain help in achieving their goals. The ways in which the ancients understood their religion were therefore manifested more in performance and practice – in the rituals and routines of cult – than in explicit statements. Practice, not belief, is the key to understanding ancient religious life, according to Price, who sees questions about faith as the result of imposed alien values.<sup>1</sup> This is based on the anthropological principle that religion for most people in history has been a matter of practice, not intellection, and that the belief systems themselves arose out of evolving practices.<sup>2</sup>

These religious practices can be circumscribed as cult, a system of patterned actions in response to religious beliefs that relate to transcendent forces or supernatural beings or objects. Cult actions entail participation and offering by the celebrant, intended to focus attention on the religious experience and the presence of the deity, and are situated in the boundary area between this world and the next.<sup>3</sup> Typically, cults are developed within each society in accordance with local or *ad hoc* prescriptions and prohibitions, and find expression in rituals. A ritual is a complex of consistent and repeated actions effected by or in the name of an individual or a community. These actions serve to organise

space and time, to define relations between men and the gods, and to set in their proper place the different categories of mankind and the links which bind them together.<sup>4</sup>

### ***The components of cult***

The definition of cult used above identifies supernatural beings (pantheon), space (sacred landscape), celebrants (religious personnel) and ritual as the main constituents. In what follows, these different components of religious practice will be discussed and illustrated with examples from Sagalassos.

#### Pantheon: the subjects of cult

Lacking today's sophisticated technology and science, ancient man was particularly vulnerable to disease and death, as well as the ravages of war and natural disasters. He was also basically dependent on subsistence agriculture, which was directly affected by the regional climate and environment. Consequently, in looking for protection and support, he tried to engage supernatural assistance in his mortal struggle, conceiving of the polytheistic pantheon, including the great Olympian gods, along with a wide range of lesser deities, demi-gods, local heroes and spirits, each of which represented a particular aspect of life. All of these had distinguishable identities enabling the worshipper to call upon them in appropriate terms or times. The most important deities were given additional titles or epithets to differentiate which of their functions was being invoked. The epithet *karpophoros* or 'the fruit-bearer' of Zeus as worshipped by the agricultural estates of Sagalassos, for example, characterises him as protector of agriculture (Fig. 1), while Herakles 'of the *komè* of the Moatreis' was the chosen protector of the village of Moatra in the territory of the city.<sup>5</sup> In this way, the ancients rationalised their experiences of the natural world, responding to their fears, needs and desires by invoking, placating and revering the appropriate deity. As ancient religion was an open system in which people exercised free choice, new deities could constantly be added to their local pantheon. The changing composition of *panthea* can reveal not only changing local priorities but also contacts with other cultures. In the Roman imperial period, for instance, this would result in the adoption of the Nilotic deities Isis, Sarapis and Harpokrates at Sagalassos and other cities in Pisidia.<sup>6</sup>





Fig. 1. Limestone bust of Zeus Karpophoros, dating to the Roman imperial period and found at Çeltikçi in the territory of Sagalassos.

### Sacred landscape: the places of cult

The ancient gods were thought to inhabit the physical space. Worshippers recognised this presence of divine power by allocating sacred space for communication between human and divine. There were no sacred places per se, but only spaces institutionalised and recognised by humans who perceived them as having a sacred character, either because of some special geographical or numinous quality, or because they contained some particular manifestation of the divine. Therefore, sacred spaces cannot be separated from the persons that consider them sacred. It was their ritual activity that marked a place as sacred. To avoid inadvertent pollution, such a sacred area needed to be identifiable. These locations were therefore often monumentalised, built up as theatres for religious

rites and practices. Large, well-established sanctuaries would have been easily recognisable from their conventional architecture and elaborate entrances, such as the Temples of Apollo Klarios, Antoninus Pius and Tyche at Sagalassos.<sup>7</sup> Many sacred sites, however, were not so obviously marked. In the countryside especially, any spring, rock face or cave could belong to a deity, like the so-called Rock Sanctuary, a rock outcrop in the urban periphery of Sagalassos, which became sacred through the deposition of votive offerings (Fig. 2).<sup>8</sup>



Fig. 2. View of the Rock Sanctuary, a rock outcrop with crevices which served as a sanctuary for Aphrodite in the periphery of Sagalassos.

The ensemble of spatial expressions and correlates of religious behaviour is designated by the term ‘sacred landscape’. Successive sacred landscapes could differ greatly, even without a change of the fundamental character of religion, because each period had its own logic or grammar in terms of the nature and location of monuments.<sup>9</sup> The dominant settlement type during antiquity was the city-state or *polis*, an institution which united the inhabitants of a specified geographical area within a single governmental structure. It consisted of two components, an urban centre (*asty*) and its dependent countryside (*chora*). These urban and rural settings of cult are often considered two separate spheres of religious life, each with a distinctive appearance characterised by monumental sanctuaries in the *asty* and non-monumentalised, ‘natural’ sanctuaries predominant in the *chora*.

## Religious personnel: the celebrants of cult

As divine powers were believed to affect people's lives, access to those powers was obviously important. Celebrants naturally comprised all people participating in cultic actions, but there were groups which established a claim of sole or privileged access to this divine power, and thereby acquired their own social power. They could therefore manipulate and control individual and collective behaviour through an authority which was invested primarily in a religious office or function.

One of the landmarks in the religious life which emerged under Hellenic influence was the introduction of new cultic functionaries. These included not only priests – the superintendents of religious practice as represented by the priest of Zeus Solymeus at Termessos in southern Pisidia (Fig. 3)<sup>10</sup> – but a whole range of officials concerned with the performance of rites, the upkeep of sanctuaries and the management of religious accounts, who performed their duties in the name of the *polis*. Rather than the function of a specialist who had undergone religious training, priesthood became a public office which was in several aspects similar to the magistracies. They were elected by and from the people, placing overall control of the religious life of the community in the hands of the citizens and their political leaders. It was the role of the *polis* to coordinate the sacred and the human spheres to ensure that the community flourished. The dominant social group, the land-holding elite that presided in the councils, provided the magistrates as well as the religious functionaries, as these offices entailed expenditure: priests were expected to pay for the upkeep of sanctuaries, the performance of rituals and the organisation of spectacles. In return, they acquired social recognition and symbolic capital.



Fig. 3. Hellenistic limestone base dedicated by Otanes, the priest of Zeus Solymeus at Termessos and depicting a sacrificial scene (Lanckoronski 1892: Fig. 8).

## Cultic rituals

As mentioned above, the central focus of ancient religion was rituals, a complex of actions set to define relations between men and the gods. Piety was expressed in behaviour, in acts of respect towards the gods, represented by sacrifice, offerings and gifts. The presentation of religious offerings was modelled upon this pattern of exchange between status-unequals, in which the inferior offered what he could, in return for what was appropriate for the superior to bestow on him. Every exchange re-enacted the status-relation and reaffirmed it. The ritualised actions of giving aimed to honour the gods and, at the same time, averted the misfortunes which might result from the gods' anger at their neglect. The offering of gifts was ruled by the reciprocal principle of *do ut des*. This is exemplified by offerings in accordance with a vow, which identified an object dedicated to a divinity or spirit as the fulfilment of a promise.<sup>11</sup> In this way, offerings could be seen as part of a kind of commercial transaction between man and god.

There were two principal categories of oblations used to enter into and sustain a good relation with the gods: sacrifices and dedicatory offerings. Sacrifices comprise those donated objects intended for consumption, whether divine or human, while dedicatory offerings are basically durable. The most important form of cult was sacrifice, as it constituted the core of the majority of religious rituals (Fig. 3). The typical victim was an animal, but there were also bloodless or 'pure' sacrifices of corn, cakes and fruit, as well as liquids such as water, wine and milk, offered in addition to or instead of the animal. Such sacrifices – originally the offering of agricultural products as a tithe recognising the beneficence of the deities – were a gift to the gods who had to receive their share of all human goods: first-fruits of harvest, libations at drinking parties, etc. Dedicatory offerings can be defined as all non-consumable objects dedicated to a deity. These offerings were enormously varied, ranging from a simple terracotta figurine (Fig. 4) like the many thousands found at the Rock Sanctuary mentioned above to a marble-clad temple. They all had a common purpose, namely to please the god.

Two groups of rituals are generally recognised. One was public, closely connected to the state, with rituals and sacrifices funded by the state, offered by civic religious officials for the protection of the city and the prosperity of its people, in the communal cult places. In return for the blessings of particular deities, representatives of the community would establish a permanent public cult, with a public shrine and the regular performance of sacrifices of animals and other specified rituals. Public cult was thus essentially the sum of the rituals employed by public representatives to maintain good relations between the community and its gods. The numerous public rituals, which generally took place on fixed dates every year, thus constituting a religious calendar, could vary from relative-

ly simple sacrifices to elaborate festivals, like the *Klareia* in honour of Apollo Klarios at Sagalassos.<sup>12</sup> Participation in civic cults was mandatory for all citizens to preserve the ‘peace of the gods’ or *pax deorum*, to ensure their benevolence and protection of the city.



Fig. 4. Terracotta figurine of Aphrodite (Roman imperial period) produced at Sagalassos, found at the Rock Sanctuary, and kept at the Burdur Museum.

The other group comprised sacrifices and offerings presented by private persons. Past emphasis on religion as manifested in state-sponsored or civic cults has given way to a recognition that religious expression outside the context of public worship – expression generally associated with the household and family – was also significant and must be investigated.<sup>13</sup> Such religious expression might include supplication of a household’s patron deities and rituals related to

the cycle of life, such as pregnancy, birth, adulthood and death. The domicile was evidently a central locus for petition of family gods, but it hardly exhausted the phenomenon of private religion. The religious activities of private individuals could also occur in places other than the home, such as local sanctuaries where votive material can be used as an indicator of such actions. Private rituals can therefore perhaps be best defined as those rituals which were not organised by public authorities. Rituals regulated the whole of everyday life so that every social act (birth, marriage, death, agreements) and every aspect of production (sowing, harvesting, making pots) had to be accompanied by some appropriate sacralising performance. Conversely, structural changes in society demanded changes at the ritual level, whether by the introduction of new forms, or by attributing new meaning to existing rituals. Ritual too was thus by no means static.

### ***The archaeology of cult***

Since most cities of the ancient world, including Sagalassos, could not boast any of the renowned sanctuaries or deities, their religious life does not feature in any writings of the ancient authors. Although one may regret the lack of texts, there is no shortage of alternative source material: the great mass of epigraphic evidence collected by numerous scholars, the catalogues of coins minted by the cities, and the continuing archaeological discovery of the material manifestations of cult, both through excavation and survey. Combined they generate a depth of evidence that can support generalisation about religious practice. As mentioned above, ancient religion was inscribed in actions, defined by symbols and objects which offer us the possibility to record them and to reconstruct the ritual actions which they served. The translation of religion into material signs makes ancient cult approachable within the archaeological record.<sup>14</sup> The main advantage of an archaeological approach to cult might be its ability to encompass the material results of this religious behaviour, resulting in general patterns of interpretation applicable to wide-ranging time frames, regions and communities, in contrast to the documentary sources, which often display inbuilt biases resulting from their mostly context-specific origin and message. Moreover, archaeology provides the opportunity to document routine cult actions which have left no mark in the written record. The main disadvantage of this approach is the fact that the archaeological identification of ancient ritual activity is problematic. Apart from the nature and quality of the available archaeological record, this recognition of human activities directed towards the supernatural is just as much determined by the methodological and theoretical framework

applied to the sources. There is a great need for an explicit statement that establishes archaeological correlates of religious behaviour. This lack of methodology for reconstructing religion is most sharply felt for societies known only archaeologically. The situation is intrinsically better for the historical periods with developed architectural forms, a wealth of documentary or epigraphic evidence, and an established iconography of divinity expressed in a well-defined typology, which help to identify the artefacts as religious in nature. We will now have a closer look at these material categories.

### Architectural sources

Places of cult are generally identified as sanctuaries. The definition of a sanctuary has to be broad enough to include any location that was set apart to accommodate the performance of some ritual and which could be regarded as sacred. Essentially, a sanctuary is a place where a person or people expect to come into contact with a supernatural force or being. For this no actual building was required; an area left vacant for the purpose, designated as *temenos*, or a natural point of attraction such as a spring or a cave was sufficient, as long as it could evoke a boundary zone between this world and the next. How do we recognise such a sanctuary materially? There is of course the familiar image of the classical temple, as still visible at the Pisidian city of Adada (Fig. 5), housing the cult statue of the deity and storing votive offerings. As the most visible element of ancient cult ritual it was the centre of the cult site, but in fact the entire sanctuary or *temenos* – as a place cut off from other areas of human settlement – was liminal. This means that not only the temple but also the surrounding constructions should be considered in their entirety, including porticoes for the convenience of the celebrants, elements of water supply for drinking and ritual cleansing, and subsidiary buildings for cult equipment.<sup>15</sup> In fact, altars, not temple buildings, were the key element of sanctuaries, since it was there that the offerings to the deity took place. After the altar, the next most common feature of any type of sanctuary were the votive offerings, which were not to be removed from the sacred enclosure. In this way, actual ritual activity took place outside the temple and the latter was solely designed to house the statue of the god and some of the votive offerings.

Although the term sanctuary suggests an architecturally defined space with features such as altars and temples, much of ancient religious activity, especially in the countryside, was connected with specific places in the landscape which inspired awe, with or without any man-made signs of their importance. While excavators of prehistoric sites have formulated explicit criteria for deciding what particular sites were sanctuaries, classical archaeologists have been less explicit

about their methods. For establishing cult sites in the countryside, for example, a loose range of potential diagnostic features have been used in the available literature, ranging from architectural features and epigraphic sources, via the presence of divine images, to concentrations of fine pottery and spectacular locations. In the case of the aforementioned Rock Sanctuary, it was the abundant concentration of votive offerings that allowed the site to be identified as a sanctuary.



Fig. 5. Corinthian prostyle temple (late second century CE) dedicated to the deified emperors and Zeus Megistos Sarapis at Adada.

Moreover, ritual activity was not limited to actual sanctuaries, but was embedded within the settlement fabric as a whole, as is abundantly clear at Sagalassos. It could take place in public places of gathering, whether open-air like the city square and theatre, or closed like the council hall and public baths. Divine representations were often associated with public structures such as the monumental fountain on the Upper Agora of Sagalassos dedicated to Dionysos, and the northern city gate watched over by busts of Athena and Ares. Although these types of buildings belonged to the architectural category of ‘secular buildings’ according to the criterion of primary function, they too formed part of



the symbolic system of cult. To other non-sacred structures, such as private dwellings, ritual acts could only be related incidentally. In this case, the *in-situ* presence of material manifestations of cult is required in order to incorporate these structures as locations of cultic activity.

### Epigraphic sources

The ‘epigraphic habit’, the custom of having all sorts of information inscribed in stone,<sup>16</sup> caused the public space of ancient cities and the cemeteries that surrounded them, as well as rural settlements and sanctuaries, to be adorned with monumental writing. In the context of religious practice, such inscriptions can reveal the names of the gods that were worshipped, the offices that served their cult, the status and sometimes intentions of the dedicators, as well as particular rites, celebrations or prescriptions. A commemorative inscription was not a necessary part of any offering, whether dedicatory or sacrificial, public or private, as the large number of uninscribed objects found in sacred places indicates. But it should be considered normal that the dedicator should wish the memory of his gift to be kept, being a prevailing motive in the dedication; thus the priestess Briseis commemorated with an inscription on the shaft of an altar her dedication of this ritual installation to Angdeisis, a local form of the goddess Kybele, at a rural sanctuary of the goddess in the territory of Sagalassos (Fig. 6). In this way, dedicatory inscriptions, or statements of who had dedicated what to which divinity, allow us to take a glance at their authors’ religious beliefs, while honorific and funerary inscriptions could refer to the identity of the deceased as a religious functionary, as a president or victor of games in honour of a deity, or as a member of some religious association. Inscriptions are not merely documentary sources but also archaeological ones, since all aspects of the carrier (i.e. type, decoration and material) as well as its spatial context have to be taken into consideration.



Fig. 6. Inscribed limestone altar for Angdeissis, a local version of the Mother Goddess, erected by her priestess Briseis (second century CE) from Bağsaray in the territory of Sagalassos.

## Iconographic sources

The image is a medium to avoid absence, to make the invisible visible. The use of images was a central point in ancient religious practice, as cult required the faculty of representing the divinity: in order to worship a god one had to figure that god and be able to distinguish him or her from other deities. Therefore, specific images were developed in accordance to the polytheist pantheon composed of a variety of deities and divine figures, each with their own guises and attributes.<sup>17</sup> Importantly, figuration in classical antiquity was basically anthropomorphic in nature. Although the ancients conceived that animals could be attributes of the gods (e.g. the eagle of Zeus, the stag of Artemis, the lion of Kybele, the owl of Athena), in the classical world at least the attendant animals are not treated as equivalent to these deities. It is only coupled with the whole figure that these attributes have meaning. In general, animals or other attributes perform as indicators or symbols of the nature of the deity. The ear of corn, for example, is taken as characteristic of the agricultural character of Demeter, or as a kind of embodiment of the god, just like the thunderbolt of Zeus, the club of Herakles, the lyre of Apollo, the bow of Artemis, the *thyrsos* or fennel staff of Dionysos, the *kerykeion* or staff with intertwined snakes of Hermes, or the trident of Poseidon.

A first material category of images representing divinity were cult statues as exemplified at Sagalassos by the copy of such an image of Apollo Klarios that was placed in the Nymphaeum near the entrance to his sanctuary (Fig. 7). They were the prime icons of antiquity, held to display supernatural power and rendering the living gods present. Cult effigies were regarded as inhabited by the *numen* or spirit of the worshipped deity, empowered to receive votive offerings, answer petitions of suppliants and, at times, even become animate. The representation of a god was experienced as 'the presence' of that particular deity in a locality. Images of deities were of course not limited to their cult statues, but featured in a whole series of objects. This comprised reliefs, figurines, decorated pottery (Fig. 8) and jewellery. Household items such as pottery and jewellery decorated with religious scenes were not necessarily cult-related, but they certainly provide information on the religious environment of the people who manufactured and used these artefacts.<sup>18</sup>



Fig. 7. Marble copy (early second century CE) of the cult statue of Apollo Klaros from the Hadrianic Nymphaeum at Sagalassos.



Fig. 8. Ceramic tray (second century CE) decorated with a central medallion depicting Dionysos supported by a satyr and greeted by Pan, from the Urban Mansion at Sagalassos.

A final category of iconographic sources were coins issued by the city. This civic coinage asserted the religious-political self-image of its body of citizens, clearly indicating which cults supported the identity of a city and from which deities citizens expected protection and prosperity. The images and legends of local coinage represented the community as a sacred city under the protection of powerful and important deities, who are depicted together with their symbols, temples and festivals; Sagalassian coins, for example, feature a depiction of the shrine of the city-goddess Tyche (Fig. 9). An overview of the coins of each city therefore allows an insight into the case-specific symbolic systems.<sup>19</sup>



Fig. 9. Bronze coin of Sagalassos (reign of Claudius II) depicting the city's Tychaion or shrine for the goddess of fortune, Tyche (Photo courtesy of the Royal Library of Belgium).

### Other material sources

Besides the obvious sources of architecture, epigraphy and iconography, 'mute' archaeological evidence can also be used to reconstruct religious practice. As a result of standard shapes, formulae and imagery, the cultic nature of the former types of evidence is fairly easy to establish. In many cases, however, ritual objects cannot be recognised as easily. Such objects were endowed by ritual with qualities that brought them into relation with the divine or made them conducive to the efficacy of the ritual, and thus caused them to enter the domain we label 'sacred', while there is nothing in their intrinsic nature that distinguishes them from objects of everyday use, like the implements used in cooking or textile production. The ceramic loom weight shown in Figure 10 was one of several objects related to textile production that was deposited as a votive gift at the Rock Sanctuary. Except when present in an explicitly cultic context, like votive deposits, such objects will remain undetectable.



Fig. 10. Ceramic loom weight (Roman imperial period) found at the Rock Sanctuary near Sagalassos.

### ***Limitations***

Our understanding of religious practice is very much the product of the sources we employ and their availability. The evidence for religious practice is inevitably affected by patterns of research in a given region. In spite of the great efforts of the last decennia, many sites in Pisidia remain poorly published – or not published at all – and most artefact types have never been studied systematically. As a result, the imposition of patterns on this difficult and inchoate material is challenging and at times somewhat speculative. Furthermore, any research that has occurred has largely focused on the urban centres. The limited knowledge of rural cult is largely based on some isolated sanctuaries, and stray altars and reliefs. For the majority of these sources, information is confined to the intrinsic data of the object as they could not be recorded in context, consequently limiting the deduction of information for contextualisation.

Obviously, there is also a bias of higher-visibility products. Monumental sanctuaries are far more likely to be detected than rustic constructions or simple domestic shrines. Special sacred sites in the countryside, for example, were often unmarked by formal architectural monuments and are therefore difficult to recognise in the landscape. We also have to realise that epigraphic evidence, even in its most modest form, does not comprise products that were generally

available to all layers of society, and we have to accept that some groups will simply not be heard. Equally, civic coins reflected the religious views of the elite representatives of the city that issued them. In the case of Sagalassos, our evidence is also temporally biased, as it is most heavily concentrated in the first three centuries CE. Few sources of any sort dating to the Hellenistic period have been found in the region of Pisidia. Cultural superposition, i.e. the continuous occupation of a site, will have been partly responsible for this lack, but processes such as urban growth and monumentalisation made certain periods more archaeologically visible than others. Finally, the material at our disposal sets limits to the kind of understanding that can be reached. Archaeology can register the material manifestations of religious practice and interpret them in terms of the ritual activities of the community which once used them. Archaeological sources, however, cannot claim to reveal the religious experience or thoughts of any single individual of the period. Furthermore, the material evidence can only provide us with indications of some of the ritual activities that took place. There will have been others that did not leave traces in the archaeological record, for example music, dance, songs and prayers – indeed, particularly prayers, as appeals made to the gods in a variety of situations (requests for blessings, prosperity, health and divine intervention), are one of the least noticed because most highly routinised everyday activities.<sup>20</sup> Even many of the sacrifices did not leave any traces, especially those involving perishable offerings, like food, clothing and wooden artefacts. In sum, the difficulties inherent in any attempt to comprehend the elaborate, complex and fragmentary material record of the ancient systems of religious practice are profound, but they should not deter us, since it would be unacceptable to ignore or neglect the omnipresent sphere of religion in the reconstruction of daily life.

## Notes

- 1 Price 1999, 3.
- 2 Geertz 1973, 213–218.
- 3 Renfrew and Bahn 1991, 359.
- 4 Bruit Zaidman and Schmitt Pantel 1992, 27.
- 5 For Zeus Karpophoros see Talloen 2015, 249; for Herakles of the Moat-reis see Talloen 2015, 248.
- 6 Talloen 2015, 196–99.
- 7 Talloen 2015, 102–08 gives an overview of such monumental sacred architecture.
- 8 See Talloen 2019.
- 9 Nixon 2006, 5.
- 10 A standard work on priesthood in antiquity is Beard and North 1990.
- 11 Van Straten 1981.
- 12 On religious festivals in Pisidia see Talloen 2015, 296–304.
- 13 Kindt 2012.
- 14 Renfrew and Bahn 1991, 358–62; Insoll 2011; Raja and Rüpke 2015.
- 15 An overview of the structures and other artefacts to be found in classical

- sanctuaries is given by Bruit Zaidman and Schmitt Pantel 1992, 57–60; Whitley 2001, 134–36; and Pedley 2005.
- 16 MacMullen 1982.
- 17 The exhaustive overview provided by the *Lexicon Iconographicum Mythologiae Classicae (LIMC)* is an indispensable tool for anybody dealing with ancient iconography.
- 18 Talloen and Poblome 2005.
- 19 Price 2005.
- 20 On the importance of ancient prayer see Versnel 1981, 17–26.

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# How do we document the past countryside?

*Ralf Vandam*

## **Introduction**

The countryside has always been a central research area for the Sagalassos Archaeological Research Project. Rather than just focusing on the city of Sagalassos itself, from early on the project has recognised the importance of the surrounding landscape as well. Located high up in the Taurus Mountains, Sagalassos would have never become a regional centre without its hinterland and the exploitation and management of the many resources in it. The main aim of the project is to study the long-term development of socio-ecological systems in the study region of ancient Sagalassos, which indicates the importance of the countryside to the project. Examples of the project's research questions on the countryside have been: How was the territory of Sagalassos organised? How did the countryside change throughout the rise and decline of Sagalassos? What kind of agricultural production strategies took place in this heterogenic mountainous landscape? Research on the countryside is also of interest for a large audience as there is no such thing as a general, homogeneous concept of countryside that characterises the wide geographical range of the Roman world.<sup>1</sup> On the contrary, it is particularly varied and there was considerable regional diversity. The 'villa system', for instance, did not spread equally into the Eastern Mediterranean, and a variety of lifeways, extraction and production activities were all features of the Roman countryside. Therefore, it is of importance to document countrysides in general as they are unique case studies in human–environment interactions.

In this contribution we will briefly present the diachronic developments within the Sagalassos countryside. Here we will focus on the developments in the hinterland from around the Hellenistic period up to Middle Byzantine times (4th century BCE - 13th century CE), which coincided with the rise and fall of Sagalassos as a centre. More importantly we will assess how we approached our study of the countryside and how it developed over time. Over the years, different methodologies, ranging from reconnaissance surveys to intensive tract

walking, have been implemented according to the different research questions of our project. In addition, the research designs had to meet various landscape units of the research area within the Western Taurus Mountains and thus had to deal with different terrain conditions, and rates of accessibility and visibility.

### ***The countryside of Sagalassos***

The earliest evidence of occupation at Sagalassos dates back to the late Achaemenid period (late fifth century BCE), after which it remained continuously inhabited up to the end of the middle Byzantine period (13th century CE).<sup>2</sup> It was mainly during the Hellenistic (323–25 BCE) and Roman imperial period (25 BCE–300 CE) that Sagalassos reached its heyday, in which it grew into a regional centre, and even became the first city of Pisidia.<sup>3</sup> These periods were characterised by important urban developments, including large-scale building activities, with the erection of public squares, temples, market buildings, nymphaea, an extensive bath-gymnasium, etc. It was during these periods that Sagalassos had an increased influence on its surroundings. From a diachronic perspective, the countryside underwent significant changes.

In the preceding Iron Age and Achaemenid periods (1200–323 BCE) the study area was dominated by large-scale fortified hilltop settlements, and in several plain areas small farming villages have been found.<sup>4</sup> During this period the first large-scale human impact in the palynological records, with an intensification of agricultural and arboriculture production, called the so-called Beyşehir occupation phase, has been observed.<sup>5</sup> Around the fifth century BCE small-scale communities emerged at Sagalassos and its neighbouring site Düzen Tepe, which were located high up, as is the case at other contemporary sites.<sup>6</sup> It was only in the Hellenistic period that Sagalassos became a political centre and reached beyond its close vicinity. The best proof of this is that a part of the study area was turned into the territory of the town. The territory at that time was smaller than in the Roman imperial period (see below) as the southern plain areas of Bağsaray and Çeltikçi still belonged to the independent polity of Keraitai (Fig. 1).<sup>7</sup> The economic and political structures within the territory during the Hellenistic period remains puzzling, but the increased distribution of materials from Sagalassos to various settlements within the study area indicate an intensified interaction system.<sup>8</sup> The Hellenistic settlement pattern itself also changed, as many of the preceding hilltop settlements were abandoned and the site numbers and variety increased in the valleys, creating a more diversified settlement pattern than before.<sup>9</sup>



Fig. 1. Overview of the Sagalassos territory: Hellenistic (dashed line), Roman imperial (solid line).

In Roman imperial times, Sagalassos grew further and the town gained enormously from the *Pax Romana* and the extensive markets and networks of goods, ideas and people of the Roman empire. Based on the recovery of border- and milestones, inscriptions, fortifications, literary evidence and topographical observations, it is known that the territory of Sagalassos extended to about 1,200 km<sup>2</sup>.<sup>10</sup> Within its countryside, the trend of site diversification, increasing settlement numbers and intensification of agricultural activity continued further. Throughout the entire territory, settlements have been found ranging from farms to hamlets and (large) villages. However, ongoing fieldwork has illustrated that certain parts were perhaps only loosely integrated into the overarching Roman economic and administrative structures. At some locations within the territory, we have identified large rural settlements, which indicate that the territory of ancient Sagalassos was organised around secondary centres on which smaller sites relied for their direct practices. In the direct vicinity of Sagalassos, clusters of small farming sites with evidence of olive cultivation and manuring have been documented,<sup>11</sup> which illustrate the complexity of the countryside.

During the following late antique period (300–700 CE) the countryside remained overall stable, in the sense that there was great continuity with the preceding period. Many sites remained occupied and there was still a high settlement density. The role of Sagalassos, however, began to change during this period, as it started to lose its central position and become more self-reliant due to major socio-economic transformations (e.g. re-organisation of the provinces and central responsibilities in the area), which more than likely had an influ-

ence on the hinterland.<sup>12</sup> In the countryside, we possibly see different regional responses to this new situation, but notably without evidence of a decrease in prosperity. In the eastern part of the Ağlasun valley, in the Dereköy Highlands, a sharp rise in the rural population residing in small, isolated farms and farming villages is noticeable.<sup>13</sup> The fact that they began cultivating the small patches of arable land in this area is meaningful. The many locally produced amphorae and (counterweight and screw) presses identified at the sites indicate that these people were engaged in wine/oil production and hints towards a productive landscape. In the Bereket valley, on the other hand, we have indications from our pollen data and fauna assemblages that the agricultural practices shifted towards pastoral activities.<sup>14</sup> A period of change in the countryside occurred around the middle Byzantine period (c. seventh to 13th century CE) with a drastic decrease in the number of settlements and the re-occupation/foundation of large hilltop settlements. At Sagalassos, urban life then became limited to and around an episcopal kastron. However, due to recent research in the surroundings, evidence of a *dioikismos*, which involves the dispersion of a larger population group over smaller settlement units in the surrounding valleys, has been documented.<sup>15</sup> This once again demonstrates the heterogeneity of the countryside and how different human responses can be observed within one research area.

### ***How did we get there?***

The insights presented in this brief overview of the developments in the countryside were achieved through many years of archaeological research on this topic for which we applied different archaeological field survey methods, with archaeological surface survey forming the main backbone. Furthermore, we relied on many environmental/landscape studies, which are outlined in the next chapter of this volume.

#### Surface survey

The primary source of regional archaeological data is archaeological surface surveying. This comprises a team of archaeologists exploring the landscape on the ground (Fig. 2) to record archaeological surface materials.<sup>16</sup> These materials range across different categories, from ceramics and stone tools to architectural remains or standing structures. Thus, no excavation methods are implemented in surface survey, which makes it an inherently non-invasive method. However, archaeological materials at the surface are usually collected for further research.

In contrast to excavations, where we get very detailed archaeological information on a very small area, i.e. a single settlement or more likely a small section of it, this method works on a regional scale. Through the excavation of a settlement, little or no information will be gained on other site types in the vicinity, such as isolated farms or artisanal sites, which undoubtedly played a role in the community as well. In this regard, a surface survey does not have to be seen as an alternative to an excavation. On the contrary, they complement one another, as each of them addresses different kinds of research questions. In general, an archaeological surface survey aims to reconstruct past human activities within a certain area, thus identifying sites and recording their chronology, nature and size. A survey can solely focus on settlements, but in reality there are many projects like the Sagalassos Project that document all foci of human activity, including raw material extraction points, water channels, terrace walls, animal corrals, and so on. Consequently, as surveys go beyond simply detecting and dating sites, the goals of surveys can become more complex. Now, for example, surveys may be designed to optimise the recovery of specific special kinds of archaeological materials (e.g. obsidian), or to estimate the proportions of sites by land-use zone.<sup>17</sup> Logically, within archaeological field survey research, the landscape forms a central aspect as well. People have a dynamic relationship with the environment in different dimensions on which they constructed and used the environment around them.



Fig. 2. Archaeological survey team conducting a systematic surface survey in the Burdur Plain.

The fact that this method relies on surface materials and thus without context, has a few consequences.<sup>18</sup> First, a surface survey is always dependent on excavated (closed context) assemblages to provide further meaning to the findings. Second, field walking projects must have knowledge of the local post-depositional processes to interpret the results. For instance, the fact that no prehistoric materials are found might be the outcome of the lack of prehistoric activity in the area but also due to sedimentation processes that buried the prehistoric artefacts. In the same line of thinking, the visibility of the fields themselves is an important factor in conducting a successful surface survey. The visibility comprises the degree to which the surface is visible combined with the ease with which an artefact can be discerned. If the area is, for instance, overgrown by vegetation, there is little use conducting a surface survey, and other survey methods such as augering or test soundings may be more appropriate for investigating the area. Due to these limitations, the value of survey data has been debated throughout the history of our discipline.<sup>19</sup> It is true that the relationship between the surface findings and the subsurface archaeological records are complex, and it is always useful to test the survey findings through test soundings. However, as illustrated here, by applying a well-thought-out survey methodology and design, which account for the study area conditions and the research question that the collected data should answer, survey data can be highly valuable. This is also argued in a recent paper on good practices for Mediterranean surface survey projects.<sup>20</sup>

Based on the collected regional survey data, further research can be carried on various topics, including diachronic settlement patterns and systems, off-site patterns and land-use strategies, for instance.<sup>21</sup> For these reconstructions, archaeologists depend on the material studies of the survey findings. This study can be a basis for documentation on the dating and nature of the findings, but it can also assess the relations between sites, explore the level of exchange between them, or characterise the level of production, for instance. For more information on material studies, one is referred to Chapter 4 of this volume. Another method that is of importance in processing archaeological spatial data is archaeological mapping. Usually, this step is carried out in geographical information systems (GIS), which is a powerful platform for integrating different gathered data within one framework and to explore relationships between both spatial and non-spatial data.<sup>22</sup> The link between the physical environment and the type and chronology of sites, or to detect off-site patterns, for instance, is of great interest for survey archaeologists.

A wide array of surface survey methodologies may be found in the literature, but there are two general types of surface survey: extensive and intensive survey. These types of surveys differ from one another in their resolution and coverage.

An extensive survey is a low-resolution approach in which the research area is usually large and unsystematically sampled. It is mostly site-based, with the aim of getting a basic idea of the archaeology of an area. This type of survey can be problematic in that it is biased by the preferences and choices of the surveyors.<sup>23</sup> For instance, locations which have high archaeological potential will most likely be favoured and more area will be covered within those places. In an intensive field walking survey, the team will sample the landscape or a site in a systematic way with high resolution. Most of these survey projects employ a grid system or equally spaced transects which are laid out across a research area. By documenting artefacts per sample unit, slight changes within the artefact distribution can be detected. Therefore, the chances of finding more less-obtrusive sites and off-site patterns are much more likely, and in this way intensive surveys provide a more comprehensive image of human activities.<sup>24</sup> On the other hand, less ground can be covered with an intensive survey and it is much costlier in terms of both time and money than an extensive survey.<sup>25</sup> It is thus clear that a survey design needs to be well considered and correspond with the objectives and contexts of the survey project in order to be most effective.<sup>26</sup>

At the Sagalassos Project we have a long track record of surface surveying in which we have implemented different methodologies and worked on different scales to meet the specific research questions at that time. Each new survey brought up new research questions, which then needed a new specific survey design. At the request of the Turkish Ministry of Culture, the first archaeological survey took place in 1993, which was the start of a four-year extensive survey programme in which we aimed to explore the archaeology of the entire study area.<sup>27</sup> It was at that time opted for an extensive survey methodology since we wanted to get acquainted with the local archaeology in a relatively short time period. The extensive survey encompassed the recording of archaeological remains in the modern villages, visiting the most promising locations in the landscape, and interviewing the local inhabitants to gain information about possible archaeological sites in the area. In addition, previously known sites were also revisited and further documented. All of the sites were basically documented, including general pictures and a grab sample of the surface material to gain more information on the chronology and nature of the site. These grab samples also allowed us to build up a general reference collection of the study area. The extensive surveys in the 1990s were particularly successful, with more than 300 archaeological sites of interest located in the study region.<sup>28</sup> These data created the first insights into settlement patterns, road systems, raw material exploitation, and so on.

With the completion of extensive surface surveys, we could then focus more on intensive investigations of the landscape without losing sight of the bigger regional developments. From 1999 to 2006, an innovative intensive field walking surveying programme was initiated in the suburbia and immediate vicinity of Sagalassos, representing a catchment area of two hours' walking distance from Sagalassos (Fig. 3).<sup>29</sup> The goal of this project was to reconstruct the occupation history and map the use of space in detail. It was attempted to use a similar gridded survey methodology throughout the different sections, but this was not achieved as it proved difficult to find a good balance between precision and sufficient coverage of the areas. In the first year, the survey was organised into grids of 50 x 50 m, but this proved to be not precise enough, after which grids of 10 x 10 m and 20 x 20 m were tried. The artefacts were collected together per grid. The results of the survey were plotted in artefact distribution maps in which changes in density were depicted (Fig. 3). The results of the suburban survey were in general very successful and gave good insights into the occupation of Sagalassos and its immediate vicinity as discussed above. Furthermore, the results laid a good foundation for further detailed prospection research (see below).

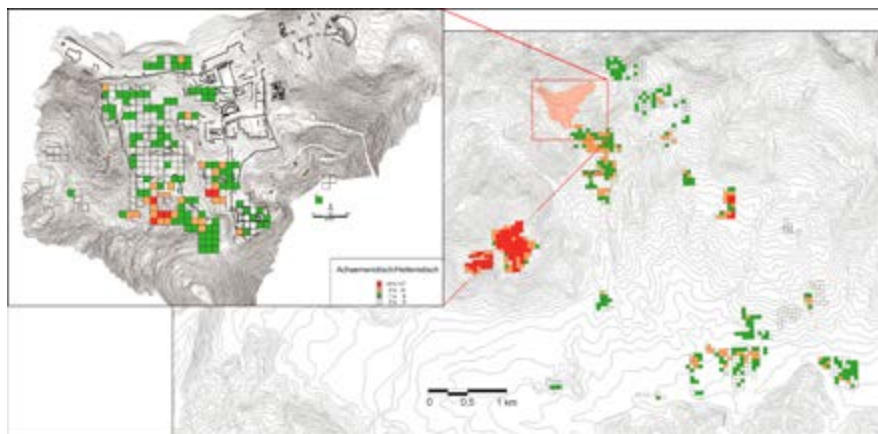


Fig. 3. Artefact distribution of the Achaemenid/Hellenistic period from the Urban and Suburban Survey.

From 2008 onwards, intensive surface surveys were introduced within the countryside and more specifically the outer reaches of the ancient territory of Sagalassos. The main aim of this programme was to increase our understanding of how peripheral areas evolved over time – before, during and after they were annexed by Sagalassos – and compare these outcomes with developments at



Sagalassos and its surroundings. In this light, the high intermountain Bereket valley (2008), the Bağsaray area (2009) and the Burdur Plain (2010–2012) were selected for intensive archaeological surveys. In the Bereket valley and Bağsaray, gridded surveys similar those used in the Sagalassos suburbia were implemented.<sup>30</sup> In the Burdur Plain, on the other hand, it was decided to organise the sample strategy around transects and to incorporate a true siteless survey approach with a high resolution.<sup>31</sup> Since our interest was in all types of sites, including very small concentrations and off-site patterns, a survey method was chosen in which the field walkers surveyed lines 1 m wide spaced 20 m apart (Fig. 4a). In this way, all concentrations that were larger than 20 m in extent could be detected. Furthermore, to detect changes in density along the survey lines, the lines were subdivided into sections of 50 m. The Burdur Plain survey provided a detailed overview of the occupation history, with the identification of 25 new sites ranging from small villages up to substantially large villages as well as other sites including cemeteries (Fig. 5).<sup>32</sup> The archaeological patterns detected in this western border area were rather different in comparison to the Sagalassos area, especially with the high occupation rates during late Prehistory and the Iron Age, while Roman imperial remains were very scarcely found.<sup>33</sup> The research illustrated well the value of an intensive survey, as all of these sites and patterns were not detected before by our extensive survey.

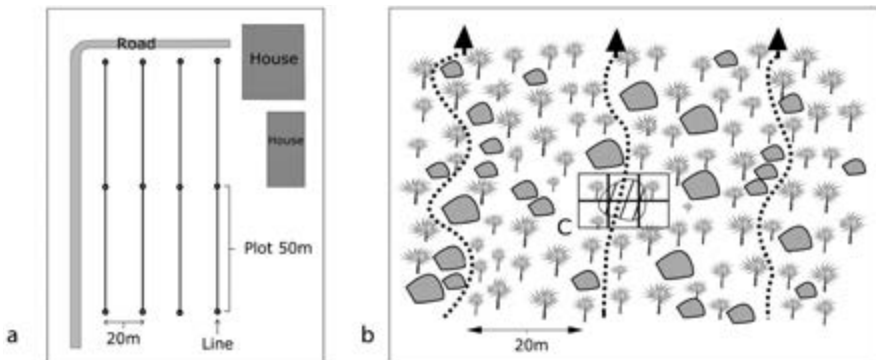


Fig. 4. Subsurface survey methodology from (a) the Burdur Plain and (a and b) the Dereköy Highlands.

In recent years, the surface survey focused on the Dereköy Highlands, 8 km east of Sagalassos. With this new intensive survey programme, we wanted to focus our research on previously under-explored ‘marginal’ landscape units in the highlands.<sup>34</sup> By doing so, we wanted to investigate when and how communities operated in these landscapes in terms of subsistence, mobility and resource

exploitation, and to assess how these areas were integrated within the larger socio-economic system and how this may have changed over time. To facilitate a comparison between the survey results, it was decided to use a similar survey methodology as in the Burdur Plain. However, since we had to meet the varying topographies and visibilities of the highlands, we integrated a two-stage survey method – undulating transects and gridded (10 x 10 m) survey (Fig. 4b) – into our survey design for areas that were difficult to survey. To our surprise, the survey revealed more archaeological remains than in the lowlands, such as the Burdur Plain, and proved the archaeological value of the highlands.<sup>35</sup> Moreover, the survey results complemented the archaeological patterns of the lowlands a great deal. For instance, a large number of sites have been discovered that had a different nature or dating than the ones in the Burdur Plain. Palaeolithic and early Holocene sites, as well as other periods, were much better represented in the highlands than in the lowlands and *vice versa*.

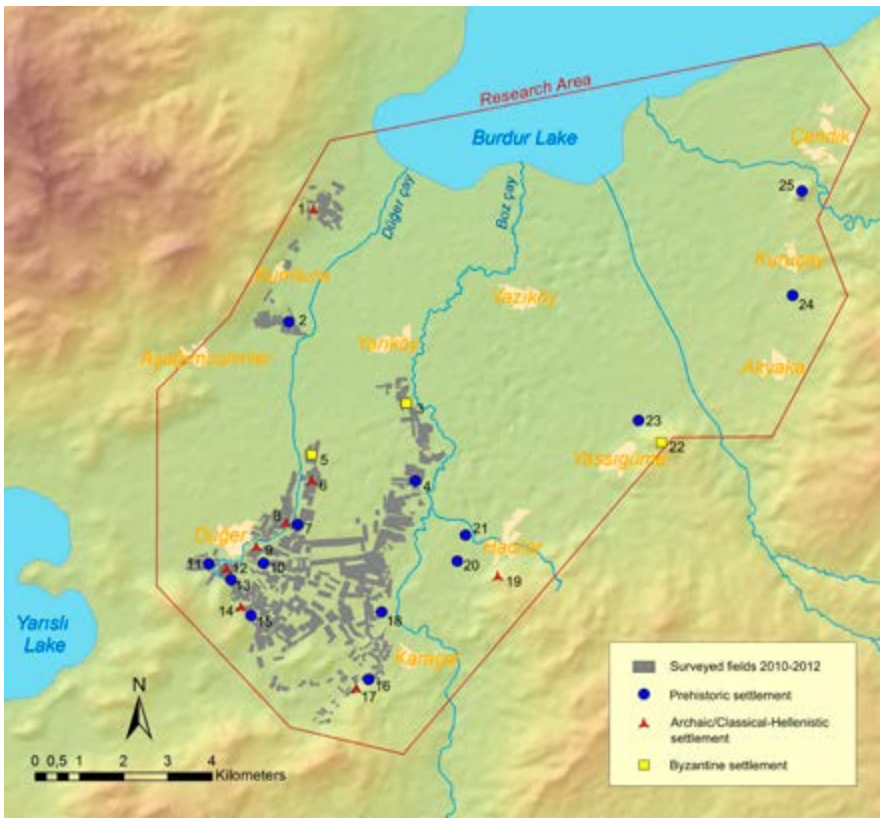


Fig. 5. Survey outcomes from the Burdur Plain.

## Geophysical surveys

From 2002, geophysical surveying techniques have been applied with reliable success within the urban area of the ancient town of Sagalassos (e.g. the Eastern Suburbium).<sup>36</sup> Only many years later, in 2011, were high-resolution shallow geophysical surveys incorporated within the study area to complement and enhance the results of the intensive surface collection. Geophysical surveys are based on physical sensing techniques (e.g. magnetism and electrical resistivity) and are used in archaeology for detecting, imaging and mapping subsurface features.<sup>37</sup> A major benefit of these surveys is that they are non-destructive. Three methods have been implemented on Sagalassos survey sites so far: geomagnetic surveying, geo-electric resistivity measuring and georadar (Fig. 6). It is well established that external conditions such as weather, geology, and topography have great effect on the success of each geophysical survey method.<sup>38</sup> Depending on those external conditions, different methods were tested for each site, but we intended to have outcomes from different methods per site as the outcomes of each complement one another enormously. For instance, a georadar survey allows for the assessment of the depth of the anomalies, while the magnetometer is an excellent tool for detecting fired clay structures like hearths or kilns. The selected sites for this type of research were mainly single-period sites so that the detected anomalies could be directly linked with the period under consideration. In 2011, we conducted a magnetic survey on a late Chalcolithic find scatter in the Burdur Plain, which we interpreted on the basis of the intensive surface survey outcomes as a small village. The site was divided into 40 x 40 m grids and surveyed by a magnetometer, which records anomalies in the vertical component of the Earth's magnetic field caused by variations in soil magnetic susceptibility, and permanent or thermoremanent (fire) magnetisation.<sup>39</sup> The geomagnetic survey gave us a unique insight into the structure and organisation of the prehistoric site without excavating. Based on magnetic field strength and their dimensions in the plan view, different categories of magnetic anomalies were distinguished, among which what we believe were two types of house remains and pits (Fig. 7).<sup>40</sup> Furthermore, the presence of several archaeologically meaningful anomalies at this site indicated that archaeological remains are still preserved, despite the intensive modern agricultural use of the land.



Fig. 6. Slovenian geophysical survey team, under the direction of B. Mušič, carrying out a ground-penetrating radar survey in the Burdur Plain in 2012.



Fig. 7. Field 61 – frayscale image of magnetic gradient data with positive anomalous magnetic responses outlined.

## Geochemical surveys

The Sagalassos Project has also experimented with geochemical surveys. With this survey method, ground samples are taken at intervals to measure their elemental composition. The principle behind this method is that human activities alter the natural chemical content.<sup>41</sup> Geochemical prospection can in this way be used for defining site boundaries, to characterise the nature of the site or to identify special-purpose activity areas within the site. Phosphate analysis is the most established type of geochemical survey and proved to be the most successful,<sup>42</sup> but over the last decade more multi-element surveys have found their way into archaeological projects. Despite the fact that it has a long history of research, geochemical prospections are only rarely integrated within survey programmes. This is the result of an interplay of factors that make this survey method less reliable to a degree.<sup>43</sup> First, there is often not a clear one-to-one relationship between archaeological activities and their chemical signatures in the soil. Second, the ‘lifecycles’ of many elements in the ground are also not well known. Lastly, there are many natural variations in the background soil processes and geology. Therefore, it is of importance to always determine the natural variation in the research area to which the samples of the site can be compared.

At Çatal Oluk, a Hellenistic to early Byzantine site 1 km south of Sagalassos, an integrated survey was carried out in 2010. In addition to an intensive surface survey, a magnetic and geochemical survey was conducted.<sup>44</sup> Over 100 soil samples were taken at 15 cm depth in a grid of 10 x 10 m and 20 x 20 m in areas with higher and lower find concentrations. Spatial and multivariate statistical analyses of the chemical data revealed anomalies of K, P, and Zn on a location where archaeological and geophysical results suggested the presence of ceramic producing kilns. These elemental enrichments are thought to result from burning wood or dung as fuel for the detected kilns. In addition, local anomalies of Co, Cr, Fe, Mg, Mn and Ni were found to reflect the working and storage of ophiolitic clays, employed as a raw material for ceramic production. These analyses illustrate well how this type of research can be of use within a survey project.

## **Conclusions**

This chapter illustrates how our study of the countryside of Sagalassos has grown organically. The reconstruction of the countryside has benefited greatly from the combination of both extensive and intensive surface surveys. First, we worked on a large and extensive scale, which has provided us with information about the general patterns within the countryside. This work then formed the

framework for further high-resolution intensive surveys. This proved to be useful as the extensive survey results allowed us to contextualise our detailed study results. On the other hand, the data generated from these intensive surveys illustrated how limited the extensive survey results really were. Gradually we incorporated other survey methods to enhance our surface results, which mainly aided the interpretation of the sites. Our research on the countryside has also benefited greatly from the interdisciplinary character of the Sagalassos Project. The survey results are always incorporated into other landscape-orientated research, which gives unique insights into the development of human–environment interactions within the region. The long history of survey research has created a unique regional archaeological database, which opens a lot of doors for future research such as modelling, which we have just initiated.

## Notes

- 1 Terrenato 2012.
- 2 Daems and Poblome 2017, Poblome *et al.* 2017.
- 3 Talloen and Waelkens 2004.
- 4 Daems 2018; Kaptijn *et al.* 2012.
- 5 Duser *et al.* 2012.
- 6 Daems and Poblome 2017.
- 7 Horsley and Kearsley 1998; Waelkens *et al.* 1997, 54–55.
- 8 Daems 2018.
- 9 Vanhaverbeke and Waelkens 2003; Poblome *et al.* 2013.
- 10 Waelkens *et al.* 1997, 97–99; Vanhaverbeke and Waelkens 2003, 60–62.
- 11 Martens *et al.* 2008.
- 12 Poblome 2014.
- 13 Vandam *et al.* 2017.
- 14 Kaptijn *et al.* 2013.
- 15 Vandam *et al.* 2022.
- 16 Banning 2002.
- 17 Banning 2002.
- 18 Schofield 1991.
- 19 E.g. Hope Simpson 1983.
- 20 Attema *et al.* 2020.
- 21 E.g. Attema *et al.* 2020.
- 22 Conolly 2008; Gillings *et al.* 2020.
- 23 Banning 2002.
- 24 Cherry 1983.
- 25 Banning 2002.
- 26 Boismier 1991.
- 27 Vanhaverbeke and Waelkens 2003.
- 28 Vanhaverbeke and Waelkens 2003.
- 29 Martens 2005; Vanhaverbeke *et al.* 2007.
- 30 Vanhaverbeke *et al.* 2011.
- 31 Kaptijn *et al.* 2012; Vandam *et al.* 2013.
- 32 Vandam *et al.* 2022.
- 33 Vandam *et al.* 2022.
- 34 Vandam *et al.* 2022.
- 35 Vandam *et al.* 2022.
- 36 Martens *et al.* 2012a&b.
- 37 Kvamme 2003.
- 38 Witten 2006.
- 39 Kvamme 2006.
- 40 Vandam *et al.* 2019.
- 41 Oonk *et al.* 2009.
- 42 Sjöberg 1976.
- 43 Oonk *et al.* 2009.
- 44 Dirix *et al.* 2013.

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# How do we document the past natural environment?

*Patrick T. Willett*

## ***Introduction***

A fundamental concern of the Sagalassos Archaeological Research Project has long been the contextualisation of the site of ancient Sagalassos itself within the wider landscape surrounding it. This has compelled the project to conduct numerous intensive archaeological survey campaigns throughout the reaches of the expansive study area (c. 1,200 km<sup>2</sup>) in order to understand the evolution of the cultural landscape and settlement history in this key region of Anatolia. Essential, though, to interpreting both the motivations driving the choices of the past inhabitants of the study area and the physical potential of the landscapes in which they made these choices to support them is a thorough understanding of the natural environment that comprises the territory.

The study region is highly diverse topographically and with regard to water availability. Consequently, ecological potentials differ widely, resulting in disparate vegetative regimes between catchment areas (Fig. 1), ranging from semi-arid steppe lands and badlands in the western portions to wetlands, riparian forest stands and broadleaved woodlands in the uplands of the eastern parts, with oro-Mediterranean vegetation cover predominating on the hillslopes at the higher elevations.<sup>1</sup> The lowest points in the study region sit at c. 300 m asl, while the highest peaks reach over 2,600 m, creating a network of valley systems. As a result of the wide range in elevations, average annual temperatures observed in the lowlands (e.g. 13.2°C in Burdur) vary significantly from those of the highlands (e.g. 8.2°C at Sagalassos). Beyond elevation – though often related to it – hydrology is also a driver of ecological diversity in the study region. The average annual precipitation observed at Sagalassos (990 ml), falling mostly as winter snows,<sup>2</sup> greatly exceeds that of the Burdur Plain (438 mm). As a result, water availability oscillates seasonally from abundant to scarce conditions. The impact of this uneven watering is partially mitigated through the distribution of cold-water springs in parts of the study area and man-made cisterns and

wells in the locations that lack the geology for springs.<sup>3</sup> Marshlands formed in several of the upland valley bottoms (e.g. Ağlasun, Gravgaz and Bereket) due to the relatively poor natural drainage through the dense clay subsoils present there. These conditions have changed dramatically since the arrival of modern irrigation and agricultural practices,<sup>4</sup> resulting in the disappearance of the majority of wetland areas. Conversely, relatively better natural drainage in the plain areas and the thin topsoils covering the hillslopes have resulted in significantly dryer conditions for vegetation. In addition to the natural processes affecting the landscapes of the study region, human impact has played a significant role throughout the area beginning in the middle Holocene, which creates further complexity in researching the environment.



Fig. 1. The ecological diversity of the Sagalassos territory can be seen in (clockwise from top left) the semi-arid lowland plains, erosive badlands, oro-Mediterranean mountainscapes, and lush valley bottoms.

All of this variation across the territory of Sagalassos, further influenced by fluctuating regional climate patterns, has resulted in a multifarious and inconsistent environmental history for researchers to decipher. Over the decades since the project was initiated, many researchers specialising in various aspects of the natural environment have joined the effort to document and interpret the evidence relating to what the ancient landscapes of the study region looked like, and how they came to take their present shapes. In the following chapter, some of the methods used by environmental scientists on the Sagalassos team, and the history and outcomes of their usage will be discussed.

## **Methods**

Thoroughly documenting the natural environment of the past and present of a site involves using the methods of several different disciplines. The Sagalassos team has utilised a multidisciplinary approach to study the landscape comprising and surrounding the ancient settlement, beginning from the early years of the project and continuing through the present. Using the methods outlined below to document the natural landscape has allowed the project to assemble the data necessary to build models and conduct analyses that inform our interpretations about the environment and how it has changed over time.

### Mapping

Documenting the landscape first requires a sufficient spatial understanding with which to orient and execute the research agenda. Mapping and spatial data collection techniques allow us to gradually build up an ever more detailed picture of the research area. This data can then be used directly to run spatially based analyses in order to generate new kinds of information, and/or to inform and guide the planning of future research efforts and is generally essential to assure the usefulness and interpretability of our results for posterity. Documenting the environment by mapping can be done remotely or directly in the field, or most often a combination of the two.

### Remote sensing

Various remote sensing techniques have been used to help document the landscape of the Sagalassos territory. The most common form this takes is aerial and satellite photography. The project utilises many different public sources for such imagery, including Google and online databases. Researchers working on the

project have also commissioned the capture of satellite imagery specifically for Sagalassos, requiring coordination with commercial earth observation satellite companies.<sup>5</sup> These include super-high-resolution and multi-spectral images, which can reveal details about soil, land use and current vegetation. Remotely operated drones have also been used in recent years to capture low-altitude aerial photos. Aerial and satellite imagery also aid in the planning of fieldwork, such as survey activities, and the monitoring of sites for illicit excavation and looting activities and endangerment from development and agriculture.<sup>6</sup>

Another form of remote sensing that is heavily relied upon when documenting the landscape is high-accuracy GPS data collection. In order to build our own maps, we need to be able to locate the absolute positions of features observed in the field. This requires the use of handheld GPS systems, which can record the locations of environmental features as points, lines or areas (polygons). This information can then be entered into a geographical information system (GIS), and used to create maps and run analyses, and to allow researchers to locate them again in the future.

### Field survey

The way that researchers systematically explore and document the landscape directly on the ground is known as field survey. Surveying typically involves the planned and systematic traversing of an area by a researcher or team of researchers while recording observations and sometimes collecting samples of one variety or another. A less structured approach can also be taken, where the priority is covering the most terrain in the least amount of time, or visiting only specific places quickly rather than gaining a representative sample of the total landscape. The former is known as intensive survey (Fig. 2), which is best used when wanting to gain higher resolution data on a particular area, while the latter is called extensive survey and is useful when time, money or personnel are more restricted. Both types of survey usually begin by reviewing existing maps and terrain models and generating new spatial information about the environment to be added to them.

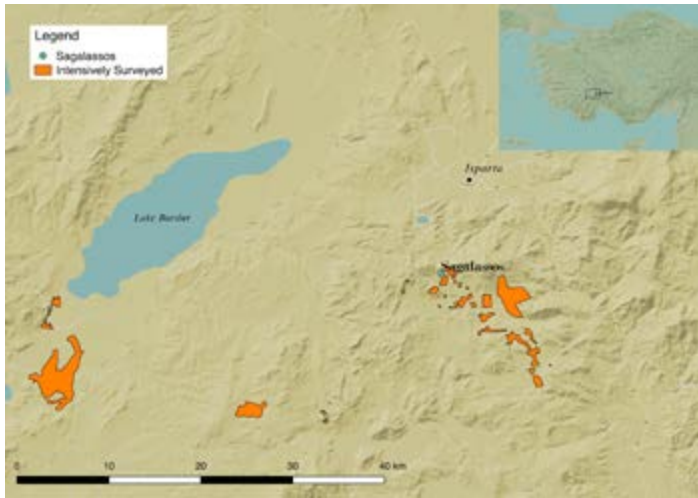


Fig. 2. Map of areas intensively surveyed within the Sagalassos territory from 1999 to 2017.

### Geoscience

In order to properly document and study the surrounding natural environment, the Sagalassos Project has incorporated research methods from the Earth Sciences, or Geosciences, such as Geology and Physical Geography. These methods have allowed us to better understand the origins and development of the physical settings within which the archaeology of the territory unfolded, and the degree to which human activity and practice impacted these processes (Fig. 3). Researchers on the project have employed in particular the fields of geomorphology, sedimentology, petrography, palynology, botany and dendrology.

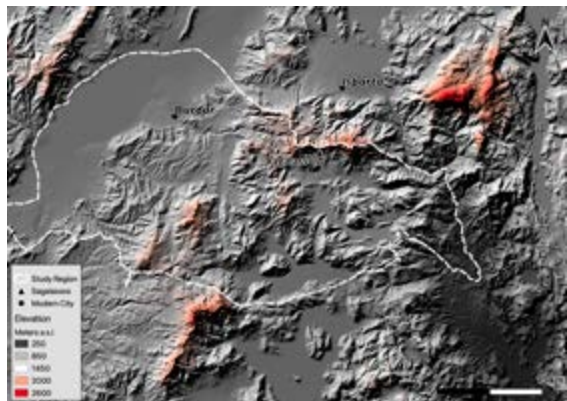


Fig. 3. Digital elevation map of the Sagalassos territory based on NASA's Shuttle Radar Topography Mission (SRTM) database.

## Geomorphology

Geomorphology is primarily concerned with the evolution of the visible landscape via its history of land formation processes. It is essential in archaeology in part for interpreting which landforms and features are the product of natural processes and which are the product of human agency, and also for understanding which processes have affected the archaeological record as it survives today.<sup>7</sup> For these reasons, geomorphological investigation is particularly helpful in the early stages of archaeological research and often precedes excavations. Using the methods of field survey and remote sensing outlined above, geomorphologists study the landscape and attempt to establish sets of morphological criteria on which to distinguish natural from anthropogenic features. This information both informs the process of archaeological investigation and contributes to the interpretation of the results.

## Sedimentology

Related to geomorphology, sedimentology considers the characteristics of stratified natural deposits of sediments such as sand, silt and clay, and their formation. It is also a key concern in this context for the Sagalassos research team to be able to determine which stratifications are the product of human activity and which are the product of natural processes. Stratified deposits can be documented through the excavation process, by sediment coring using probes and augers, or by the natural exposure of layers through processes such as erosion. The rates of sedimentation, or the accumulation of sediments of one type or another, provide important information for researchers on environmental conditions and the role of human impact.<sup>8</sup> Land-use activities such as forest clearing and farming on hillslopes can cause accelerated erosion, for example, which could be apparent in the sediment deposits downslope, allowing researchers to associate sediment layers with specific periods of human activity in the past by using various absolute and relative dating methods in order to date the individual strata. These include methods such as radiocarbon dating of botanical remains and tephra layers from volcanic eruptions, or association with artefacts which can be dated based on the characteristics of their construction. Increased rates of alluviation, or the deposition of sediments by the action of a river, might be a clue to higher flow rates, implying wetter climatic conditions for a catchment area during a certain period. Examining stratifications of clay might also provide researchers with insights into the sourcing of raw materials for ceramic production, and during which time periods certain sources were available to past communities.



## Petrography

The study of materials sourcing at Sagalassos additionally owes a great deal to the area of geology known as petrography, which focuses on analysing and describing rocks and minerals. Owing to its durability, petrological material is one of the most common classes of artefact discovered at Sagalassos through both excavation and field survey. Utilising the methods of documenting the landscape described above, outcrops of stone and mineral can be identified throughout the region. When man-made artefacts such as tools and building materials of a similar composition are discovered, they can be analysed in great detail to seek congruency with local or regional source outcrops.<sup>9</sup> This can be done using a suite of instruments and methods to analyse the material's micro-texture and chemistry, from petrographic microscopes to X-ray fluorescence, laser-induced breakdown spectroscopy (LIBS), and others. Because of the fine resolution of these analytical methods, they are able to not only provide valuable information on artefacts made entirely of stone, but also others such as pottery that commonly contain tiny petrological inclusions. This gives researchers at Sagalassos a window into which areas of the landscape people were accessing for different materials over time.

## Palynology

Related to sedimentology in practice, the field of palynology is concerned with analysing palynomorphs – organic particulate matter between 5 and 500 micrometres in size that is not susceptible to dissolution from hydrochloric and/or hydrofluoric acid (chemical digestion), in this context primarily contemporary and fossilised plant pollen and spores found in sediments. By measuring the abundance of palynomorphs and how their relative values change over time, researchers can gain insight into environmental and climatological conditions. The types of pollen and other palynomorphs present in a sediment core or soil deposit from an excavation context comprise key data for vegetation reconstructions. When these sediments are cross-dated as described above, shifts in the vegetative regime can be associated with events witnessed in the archaeological record, geological changes or shifts in regional climatic conditions. These factors can affect the production and transport of palynomorphs such as pollen, providing clues about human impact on the environment and changes in the ecological potential of the landscape over time. Following transport and deposition of pollen, a number of variables may affect preservation, but when conditions are appropriate, pollen is extremely durable and can last for millennia.<sup>10</sup> For this reason, it is one of the most accessible and reliable proxies for environmental change available to archaeologists.

## Botany and dendrology

In addition to archaeobotany or palaeo-ethnobotany, which specialise in studying plant remains encountered in archaeological contexts, including those types discussed above, and the interactions between people and plants in the past, studying the current botanical and dendrological landscape is also an important component of documenting the environment at Sagalassos. Documenting the current vegetation of the study area aids in the calibration of land cover reconstructions using proxies like fossilised pollen by providing information on the bioclimatic ranges present in the territory and gauging the current ecological potential. Documenting the current composition of plant and tree species of an area can also provide us with more direct evidence of past land use. This is possible by identifying species which indicate the presence of ancient woodlands – demarcating areas that were not cultivated in the past<sup>11</sup> – and, conversely, identifying currently wild examples of species that had previously been cultivated, which would indicate the past agricultural use of the land.<sup>12</sup> A further method used by archaeobotanical researchers to indicate the nature of past land use is the extraction and measurement of phosphorus from soil samples.<sup>13</sup> Phosphorus acts as a reliable and sensitive indicator of certain human activities, such as those associated with human waste and refuse as well as animal husbandry, and is quite stable and persistent under most conditions. The association with archaeobotanists comes from the strong indication that phosphorus provides of intentional soil enrichment by manuring to increase agricultural crop yields.

### **Research outcomes**

Documentation of the natural environment at and around Sagalassos was initiated by the project in the early 1990s with the reconnaissance survey of E. Paulissen *et al.*<sup>14</sup> This project focused generally on the site itself and its immediate surroundings, assessing the geomorphology, climate, and both current and potential vegetation. In the following two and a half decades since these efforts, many more specifically focused investigations of the landscape have been conducted, producing a number of distinct outcomes relating to the nature of the physical environment.

## Geomorphology and human impact

Erosion processes have been studied by members of the project as a controlling factor of geomorphology, as an indicator of human impact on the environment, and as a post-depositional process affecting the archaeological record (Fig. 4). Following the reconnaissance survey, a detailed study of erosion at Sagalassos, which focused mainly on the risk that it posed directly to the site, was carried out.<sup>15</sup> This investigation highlighted the combined role of deforestation and livestock grazing on the mountain slopes and heavy seasonal precipitation as the prime drivers of significant erosion events around Sagalassos. Substantial winter snowpack and spring rainfall help sustain the many springs in the area of the site, which in a study of the local hydrology were measured to have a flow of more than 5 million litres of fresh water per day,<sup>16</sup> enough to sustain the population of the settlement and justify the construction of the known aqueducts to facilitate it. One such aqueduct was postulated to have been damaged through one of the major rock mass slides that formed the limestone platforms that distinguish the geomorphology of the area, calculated at millions to tens of millions of cubic metres of limestone transported through sliding in a study of the topography and lithology.<sup>17</sup>

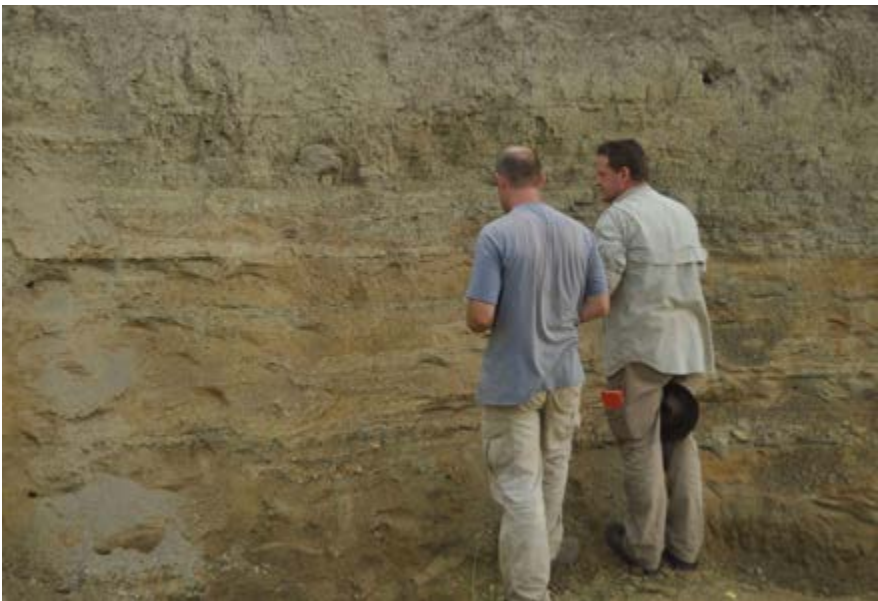


Fig. 4. Geologists working with the Sagalassos team studying stratified deposits in the Burdur Plain.

Sedimentological research in the Sagalassos territory has sought to disentangle the geomorphological influences of climate and human impact, and identify the major periods of change in the environment. Large sediment archives were acquired via coring by, for example, Six *et al.*,<sup>18</sup> which acted as a foundation for studying environmental change and the geomorphological system. These cores were also dated using radiocarbon methods and some used for palynological study, providing a basic chronological framework of landscape change for some areas of the territory (e.g. Gravgaz, Ağlasun and Mamak). Using these sediment archives, modelling approaches have been employed to assess the impact of climate and human activity on the landscape,<sup>19</sup> determining that the latter had a far more significant impact on sediment dynamics in the Gravgaz catchment. Recently, the implications of human impact on the environment on crop yields in the Gravgaz, Bereket and Bayındır catchments have been investigated by Van Loo *et al.*,<sup>20</sup> also using modelling techniques and the existing sediment archives. This work determined that in these landscapes, the loss of soil caused by human induced erosion on the hillslopes is buffered by the ability of the valley bottoms to retain the sediments, not significantly impacting crop yields over the past 4,000 years.

#### Land cover reconstructions and climate assessments

Building on the aforementioned sediment archives, additional sediment cores were taken within the territory with a focus on palynological analysis and the potential for land cover reconstructions and assessment of past climatic conditions.<sup>21</sup> Useable pollen data was acquired for the Ağlasun, Bereket and Gravgaz catchments, providing insights into the changing vegetation over the past several millennia (Fig. 5). This revealed information on both the ancient climate and on the history of land use and human impact in these areas.<sup>22</sup> The records indicated that the currently observable distribution of vegetation in the study region developed only relatively recently, and that there has been considerable variability throughout the Holocene epoch. The earliest pollen data dates to the early seventh millennium BCE,<sup>23</sup> during the Neolithic period. The species indicated present a picture of abundant moisture availability even on the high slopes, represented by high levels of deciduous oak (*Quercus coccifera*) and *Pistacia*, while *Poaceae* and wetland species further indicated moist conditions at the valley bottoms. In the later Chalcolithic and Bronze Age periods, a great reduction in wetland and deciduous tree species coincided with a rise in Cerealia-type pollens and secondary anthropogenic indicator species, while sedimentary evidence corroborated the shrinking of wetlands particularly between c. 4000–2500 BCE in the Ağlasun valley.<sup>24</sup> Indications of anthropogenic

activity, including greater amounts of *Cerealia*-type pollens and cultivated tree species, as well as evidence of local deforestation and increased fire activity, continued to increase from c. 1000 BCE to the mid-seventh century CE, encompassing the Iron Age to early Byzantine periods. These activities likely resulted in the establishment of shrub-steppe vegetation, despite increases in deciduous oak and higher sedimentation rates indicating wetter conditions at the time.<sup>25</sup> Following this, a sharp reduction in anthropogenic indicators was observed, as *Pinus* dominated woodlands spread throughout the uplands, only to be later reduced by the spread of *Juniperus* shrub and woodland leading into the modern era and the currently observable distributions.



Fig. 5. Aerial photo map showing coring sites which yielded pollen data for land cover reconstructions.

The land cover reconstructions resulting from the study of ancient pollen have revealed a cycle of variable moisture availability in three valleys within the Sagalassos territory. These climatic conditions combined with human influences such as deforestation and agricultural activities were seen to have drastically impacted the variety and distribution of vegetation across the region over the past several millennia. Such outcomes are fundamental to the understanding of the landscapes in which we encounter archaeological remains and the environmental contexts in which those remains were originally produced, i.e. how the

natural environment of the Sagalassos territory was experienced by the people who inhabited it throughout history.

### ***Current and future outlook***

The Sagalassos Archaeological Research Project continues to seek an ever-better awareness of the site in the context of the surrounding cultural and natural landscapes. Building upon previous efforts, including those outlined above, the project has several emerging initiatives towards advancing that objective further. Current projects to this end include a survey of the distribution of modern tree and plant species, as well as a sampling of soil phosphorus content, with a study of soil depth also in consideration.<sup>26</sup> An effort to integrate the environmental and archaeological datasets is currently underway, with the aim of producing more comprehensive land cover reconstructions for the territory and better correlating the settlement history with the observable environmental trends. The wider project continues to use archaeological survey to better understand the spatial and chronological range of human occupation of the territory, having fielded multiple survey teams with wide-ranging research agendas during recent campaigns, which provide invaluable information on human and environmental interactions for the array of landscapes present. A future effort that may be employed by the project that could benefit a wide number of environmental inquiries is the application of aerial LiDAR (light detection and ranging) survey, which, in addition to providing high-precision topographic data useful for revealing archaeological features, is also effective at classifying and recording distributions of plant types rapidly over large areas.<sup>27</sup>

### ***Conclusion***

Since its inception, the Sagalassos Project has made it a central aim to document the natural environment, past and present, of the site and its surrounding region. Employing techniques from the geosciences, as well remote sensing and archaeology, these efforts have produced significant insights into the diverse landscapes that comprise the territory and their evolution over time. Enlisting specialists from a wide range of fields has allowed for a truly interdisciplinary approach to questions relating to climate, subsistence and anthropogenic impact. Continuing work will seek to build upon these results by both adding to this body of data and by finding new analytical methods to maximise its informative potential.

## Notes

- 1 De Laet 2007.
- 2 Paulissen *et al.* 1993.
- 3 Vandam *et al.* 2017.
- 4 Six 2004.
- 5 De Laet 2007; Bakker 2012.
- 6 Vandam *et al.* 2017.
- 7 Hassan 1979.
- 8 Courty *et al.* 1990.
- 9 Muchez *et al.* 2008.
- 10 Bryant and Holloway 1983.
- 11 Hermy *et al.* 1999.
- 12 Vanwallegem *et al.* 2004.
- 13 Depouey *et al.* 2002.
- 14 Paulissen *et al.* 1993.
- 15 Poesen *et al.* 1995.
- 16 Steegen *et al.* 2000.
- 17 Verstraeten *et al.* 2000.
- 18 Six *et al.* 2008.
- 19 Dusat *et al.* 2012.
- 20 Van Loo *et al.* 2017.
- 21 Bakker *et al.* 2011; Kaniewski *et al.* 2007; Vermoere 2004; Vermoere *et al.* 2002.
- 22 Bakker *et al.* 2011.
- 23 Vermoere 2004.
- 24 Bakker *et al.* 2011b.
- 25 Kaniewski *et al.* 2007.
- 26 B. Muys, personal communication, 2022.
- 27 Weiss *et al.* 2010.

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