CONSTRUCTING MONUMENTS, PERCEIVING MONUMENTALITY & THE ECONOMICS OF BUILDING

THEORETICAL AND METHODOLOGICAL APPROACHES TO THE BUILT ENVIRONMENT

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5

Interpreting architecture from a survey context: recognising monumental structures

Yannick Boswinkel

5.1 Introduction

The site of ancient Koroneia was studied as part of the *Ancient Cities of Boeotia Project.* Alongside the pottery survey a separate architectural survey was conducted. This architectural survey went beyond documenting the few standing structures at the site, also a detailed recording of all individual architectural elements (not *in situ*) was part of the survey. In the end, over 2,000 objects were registered comprising a, potentially, useful dataset for more in-depth analyses, which could provide more insights about the build-up and infrastructure of the ancient city. Part of this detailed recording was the documentation of the dimensions of all these individual blocks. These data form the core of the current paper in which it will be assessed what insights the size of architectural elements can provide. One of the main aims is to see if larger blocks could be used as an indication of more imposing structures. In line with the workshop's subject of monumentality where this paper was first presented, it could be argued that larger, more imposing structures might be considered monumental. In other words, an attempt is made to see if through the study of the size of structural elements, monumentality can be recognized, even if these elements are no longer in their original context. This is done by looking at the distribution of size categories and how often each category is present at the site. Such a distribution could take various forms, such as a uniform, normal distribution or a multi-modal distribution (multiple peaks). From what is known of the site, a multi-modal distribution would be expected as each 'peak' would indicate a set of structures that have comparable building materials (in terms of size). It could be argued that the majority of the structures built at Koroneia were houses, of which at least the foundations were built in stone. Most likely these were fieldstones of limited size, which would thus amount a large part, if not the majority, of the material, creating the first peak. Secondly, it is known that various sanctuaries and more 'imposing' structures existed at Koroneia. These were, arguably, built with

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larger blocks and as such forming a second peak, showing the 'monumental' structures at the site. Using this idea of size-based differentiation, the material will be analysed, and an attempt is made to ascertain if the monumental constructions can be identified in this manner.

5.2 The site and the survey

The ancient settlement Koroneia lies in the province of Boeotia, Central Greece. It is located on a hill rising some 100 metres above the Lake Copaïs basin.[245] The hill is part of the outliers of the Helicon range. The site has human-made terraces on its east side which provides level building ground. The west side is much steeper and more prone to erosion.[246] On this side few architectural elements were found, except for some possible stretches of the Classical-Hellenistic city wall. Preliminary pottery studies show that the site has been used from prehistory up to the medieval period.[247] This long occupation history is also (partly) visible in the architectural remains, which date from the late Archaic period (early sixth century B.C.E.) to the Frankish period (14th century C.E.). Although small, Koroneia has been mentioned by ancient authors throughout early history, from Homer's catalogue of ships (eighth century B.C.E.) to the earliest Boeotian confederacy (sixth century B.C.E.) up to resisting Roman dominance (second century B.C.E.)[248] (see also Table 5.1). However, Koroneia's *in situ* architectural remains are few, and only traces remain of each of these periods.[249] Those architectural features that can be (roughly) dated, show that the city was small in the Archaic period, with finds mostly on and immediately around the acropolis. The settlement expanded, reaching its maximum extent during the Classical-Hellenistic age. Although larger than in the preceding periods, Koroneia remained small in comparison to Boeotian's main cities, Thebes and Orchomenos. By Late Antiquity the settlement is mostly confined to the acropolis once more. The only remnant from the even later Frankish period is the ruin of the 'Frankish Tower' on the northwest slope of the hill.[250]

Period	Dates[a]
Archaic	8th c. – 480 B.C.E.
Classical	480 – 323 B.C.E.
Hellenistic	323 – 160 B.C.E.
Roman	160 B.C.E. – 3rd c. C.E.
Late Antiquity	3rd c. – 6th c. C.E.
Byzantine	6th c. – 12th c. C.E.
Frankish	12th – 14th c. C.E.

Table 5.1: Chronological overview of the periods mentioned in the text.
a: Most of these dates are very rough and only meant to give a general indication of the placement in time of the various periods discussed in the text.

245 Bintliff *et al.* 2009a, 18.
246 Wilkinson in Bintliff *et al.* 2009b, 50.
247 Bintliff *et al.* 2013, 7-8.
248 E.g. Hom. *Il.* 2.2.500; Hdt. 5.79.2; Thuc. 4. 93-96.
249 Boswinkel 2015, 68-85; Boswinkel 2015, 144-151.
250 Boswinkel 2015, 144-151.

Thus, within the context of such a multi-period site, a complete[251] surface survey was executed. Architecture, especially in Greece, is usually only studied in surveys when it comprises *in situ* architecture.[252] It may seem odd to disregard the non *in situ* architecture since the collected pottery is, obviously, also not in its original context. However, pottery fragments are stronger temporal and cultural markers than architectural elements. While there are elements in architecture that are traceable to their original position, such as columns, capitals and thresholds, generic blocks are nearly impossible to trace back to their original location within the building. This is most likely the reason why in many survey projects, architecture is only studied when structures can be identified. Individual elements are either disregarded, only mentioned briefly, or documented but not presented in fieldwork publications. At Koroneia, however, the *Ancient Cities of Boeotia Project* team decided to take a more elaborate approach. The survey started in 2007[253] focusing on collecting pottery in a systematic manner throughout the urban area that made up the ancient city.[254] Already during the pottery survey, the encountered architecture was documented with a GPS location, a photograph and a short description.[255] From 2009 the architectural documentation was executed parallel to the pottery survey by a separate team led by Dr. Inge Uytterhoeven. The team first revisited the original finds and later expanded the architectural survey, adding many more architectural finds.[256] The documentation of this new survey added extra information regarding dimensions, material, quality of the cuttings and tool marks. All these data were recorded in a database connected to a GIS, which allowed the creation of detailed thematic maps as well as performing various (spatial) analyses.[257] The architectural survey was finished in 2013 and almost 2,300 architectural features were recorded.

5.3 Size matters?

Over 90% of the architectural finds at Koroneia are not *in situ,* therefore, any study on size can only be conducted in relation to the individual building blocks, rather than the buildings themselves. While, in theory, larger buildings are not automatically built with larger blocks, a small overview of the size of some elements of various sites from Classical-Hellenistic Greece shows that public structures are generally built with larger materials than houses, often using blocks larger than 1 m in length.[258] The choice for using parallels from the Classical-Hellenistic era comes from the fact that Koroneia was at its largest then, therefore, this period covers the entire site and all documented material can be incorporated in the analysis. From the example of the public structures it could be argued that the hypothesis that 'monumental' structures might be recognisable based on the size of the building material seems valid. It is known that some

251 As far as the surface was accessible for survey.
252 Boswinkel 2015, 56-66.
253 Bintliff *et al.* 2014, 2.
254 Bintliff *et al.* 2009a, 19.
255 Bintliff *et al.* 2009b, 33.
256 Bintliff *et al.* 2012.
257 This was done as part of my master thesis, written at Leiden University.
258 Boswinkel 2015, table 7.2.

structures at Koroneia were built with larger blocks, some of which are up to 2 m. Also, through ancient descriptions of the site it is known that various sanctuaries and altars were present, indicating the occurrence of monumental structures. Thus, there is a presence of buildings with various functions and there is different sized building material, some of which might be deemed monumental.

In order to be able to differentiate between monumental and non-monumental blocks, based on size, there needs to be a threshold value. To determine this value one could turn to the frequency of the various size categories. Since Koroneia was, as far as we know, an urban site and not home to an important oracle (such as near-by Delphi), it can be assumed that the majority of the structures were domestic. Domestic structures usually only have a stone foundation on which walls were built of perishable materials.[259] The majority of the stone material would thus be small fieldstones/blocks (up to 30 cm), in comparison to the larger blocks for the more monumental structures. The latter might be built entirely of stone to highlight their monumentality in comparison to the other structures. Of course, this is era-specific and dependent on the available resources of a city, but it would be safe to state that more was invested in such buildings than in domestic structures. Finally, it should be noted that when it comes to the size of individual elements, a distinction should be made between 'generic' building material and 'specific' features. The 'generic' building material makes up all the normal blocks that form the walls of a structure whereas the 'specific' features refers to special blocks like thresholds, lintels, columns. Finds from the latter category are considered separately here since these objects are generally larger due to their specific function within the structure and should, therefore, be compared to similar features (*e.g.* the size of a threshold should be compared to the size of other thresholds). Hypothesising the distribution of monumental blocks based on size is thus established on three basic assumptions:

1. Monumental structures are built with larger blocks
2. There are less monumental structures than domestic structures
3. There is a distinction between 'generic' and 'specific' building blocks

Considering these three assumptions as well as the fact that there is a large range in the dimension of the material recorded at Koroneia, it would seem that, ideally, a distribution of the finds according to size would yield a bimodal distribution. In other words, this would form a graph in which two peaks are present; one showing the large quantity of small stones, representing 'non-monumental' structures, and a second peak consisting of fewer, but larger blocks, signifying the 'monumental' structures (Figure 5.1). The width of both peaks indicates that there is a spread of values denoting each type of building material, while the 'dip' in the middle shows the threshold values separating the two types. Subsequently, these ranges would allow detecting clusters of monumental and non-monumental blocks. This could then serve as a means to locate possible monumental structures at the site.

A local test case to which the architectural elements might be compared, is an excavated structure near Koroneia. It comprises parts of a rectangular, temple-like

259 Adam 1994, 60-61; Malacrino 2010, 45-47.

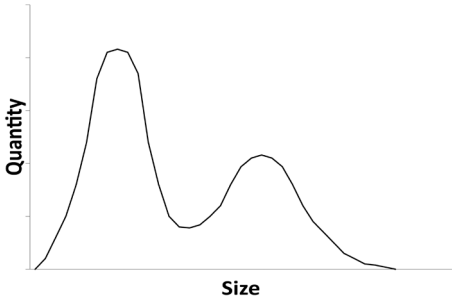

Figure 5.1: Hypothetical bi-modal distribution.

structure which was excavated in the 1970's by T. Spyropoulos.[260] It is a multiphase structure (sixth century B.C.E. – fifth century C.E.),[261] but for this comparison only material from one phase (second half of the fourth century B.C.E.) is used. The fact that Spyropoulos was convinced that this was a temple-like structure means that it should thus not be considered an 'average' structure. Yet, despite its 'public' nature (considering his designation of 'temple'), its building components are not remarkably large such as those used in other public structures in Greece, mentioned above. One of the interesting features of the walls of this building is the distinct size difference between the blocks of the outer and inner faces of the walls. The blocks on the inner face are smaller, not exceeding 0.5 m, while the blocks on the outer face are larger, up to 0.98 m. While there is an obvious differentiation in size, there is a grey area as well in which the block size of the two faces overlaps (between 0.2-0.5 m). The difference in size between the outer and inner faces is, furthermore, a conscious decision to show off these larger blocks, since there is no structural need for larger stones on the outside. Perhaps these larger blocks added prestige to the structure and thus represent indeed an expression of monumentality. This feature is important as it might mean that the peak representing 'monumental' material at Koroneia might be even smaller, due to the limited use of larger blocks, even within a 'public' building.

A secondary hypothetical distribution that could be the result of this dataset is a normal distribution. The Central Limit Theorem explains that there may be so many variables that influence the size of the block that it will result in a normal distribution[262] and thus not showing any sign of the factor that is actually being sought (monumentality). Technically, in the case of a distribution of only positive values (such as length) such a distribution would be log-normal, rather than normal.[263] Such a distribution is positively skewed, which means it has a high peak with low values, followed by a long tail towards the larger dimensions. Thus, the Central Limit Theorem would predict that throwing all the architectural finds on one pile 'always' results in a (log)normal distribution and thus never show the differentiation between *types* of architecture. There would, then, be a need to differentiate between these types in the data instead of putting all the architectural blocks together.

260 Spyropoulos 1975. Spyropolous was convinced it was a temple dedicated to Athena Itonia, later scholars have contradicted this (see e.g. Buckler 1996).
261 Spyropoulos 1975, 398.
262 Lyon 2014.
263 Lyon 2014, 628-630.

5.4 Data

Out of the almost 2,100 documented architectural fragments, 1,794 (85%) can be considered 'generic' building material and of these, 1,778 (99%) have recorded dimensions. The dimensions of the blocks, ranging from 0.1 to 2.0 m, are grouped in categories of 5 cm intervals. In this research the largest dimension of the block is used. Seeing that it is often unknown how the block was placed in a building, it is thus unknown which side would be the length, width, or height. The resulting distribution is shown in Figure 5.2. It is immediately clear that this distribution is very different from the hypothetical distribution from Figure 5.1. Rather than two distinct peaks, showing the difference between non-monumental and monumental building blocks, there is only one peak with a long 'tail' towards the larger dimensions. While this did not produce the anticipated result, it does show that the majority of the material is relatively small, and it fits well with the log-normal distribution, described in the second hypothesis.

Figure 5.3 shows a cumulative graph of the amount per size category (as percentages) which shows that almost 80% of the blocks are smaller than 0.6 m. Compared to some known measurements from public structures from Classical-Hellenistic Greece, in which blocks are often longer than 1 m, this is certainly small material. Although material of the larger size category is present in the dataset, it seemingly represents such a small portion (less than 3%) that it does not show significantly in the distribution.

Setting these results side by side with the measurements from the blocks of the 'temple' at Koroneia, there are both dissimilarities and parallels. In Figure 5.4 the size distribution of the blocks is shown as the percentage of blocks at 10 cm intervals.[264] Clearly, the perceived difference in size between the blocks of the inner and outer faces is substantial. Yet, despite the clear difference in size, there is also an overlap in block size between the two faces. This overlap coincides with the overall distribution

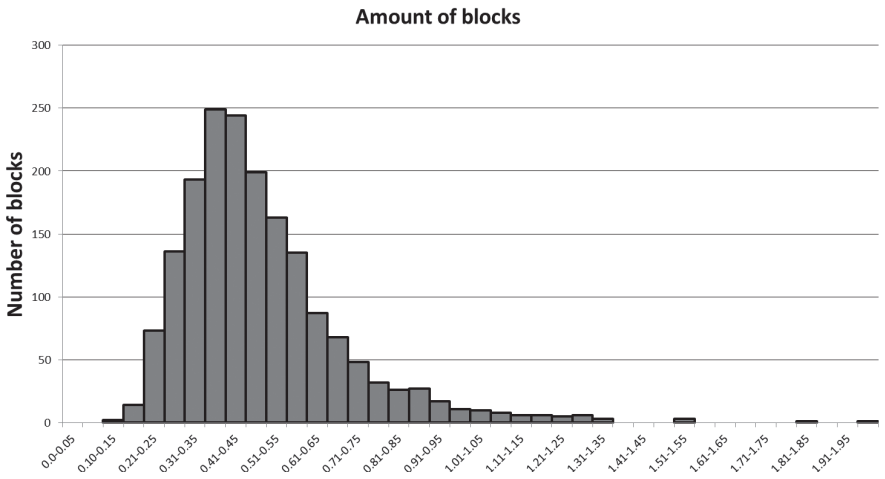

Figure 5.2: Distribution of the size of building blocks at Koroneia.

264 Due to the low number of blocks (n=48) percentages are used and the interval is 0.10 m instead of 0.05 m because it otherwise creates an unreadable graph.

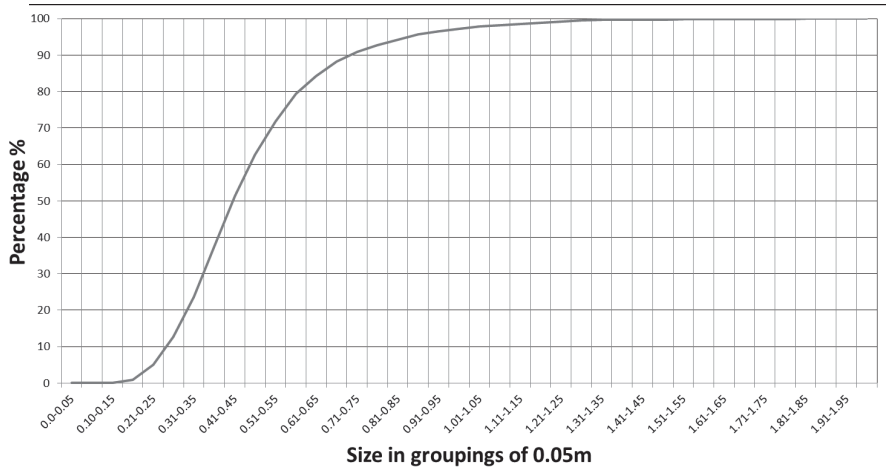

Figure 5.3: Cumulative distribution of the size of the building blocks at Koroneia.

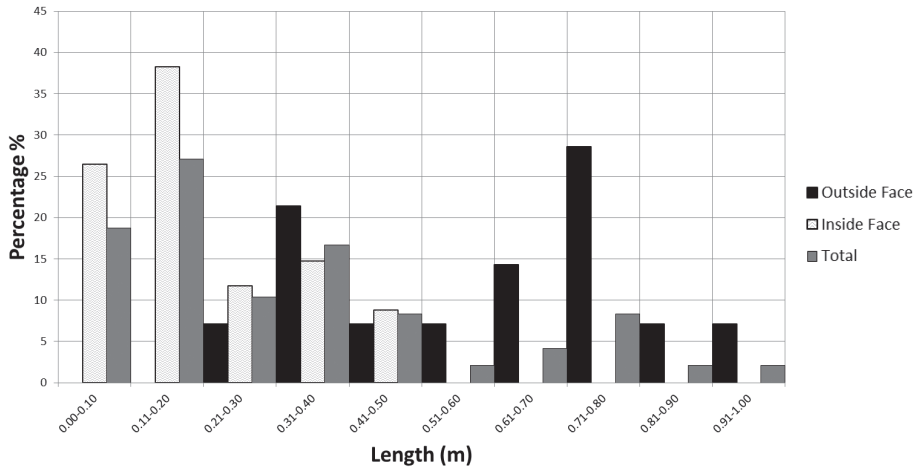

Figure 5.4: Distribution of the size of blocks of in- and outside faces of the temple structure.

at Koroneia which peaks between those same measurements (although somewhat narrower: 0.3-0.5m). On average the blocks at Koroneia are larger than those used in the inner face of the temple-like structure, but smaller than most of the blocks on the outer face of the structure. Furthermore, if this was a typical building and/or building style it would explain why the majority of the blocks at Koroneia are relatively small, since more smaller blocks are needed to cover the same distance with larger blocks (inside vs outside face). More than 50% of the blocks from the outer face of the 'temple' are larger than 0.6 m and thus larger than 80% of the loose blocks from the survey at Koroneia (Figure 5.3). Considering that over half of the blocks belong to the 20% largest blocks it might indicate some form of monumentality on a *local* scale. The large quantity of finds at Koroneia would eliminate peaks in extreme dimensions and thus it might not be strange that the largest quantity of finds is concentrated around the values in which both ranges overlap. Finally, Figure 5.4 also shows that there are less large blocks than

smaller ones and how this affects the overall distribution. Most of the blocks from the outer face fall in the range of 0.71-0.80 m (largest dimension). However, because the number of blocks in the outer face is less than half of those from the inner face,[265] this peak is only marginally present in the total distribution. This might underline the argument that there are simply not enough monumental structures to form a discernible peak in the distribution graph for the entire site. Furthermore, these 'larger' blocks in the temple-like structure are still smaller than those encountered in other public structures (1 m and up). So, interestingly, in terms of absolute measurements, it seems that overall the material used at Koroneia may have been smaller than at other sites.

5.5 Discussion

In a previous section it was stated that the hypothesised bi-modal distribution of the blocks was founded on three assumptions. Since the actual distribution is not in line with the bi-modal hypothesis, it follows that either the hypothesis is wrong, one of the assumptions may be wrong or the data is insufficient. Considering the dataset, firstly, there may simply not be enough 'monumental' material to cause a peak in the distribution graph. Although it is known that some public/monumental structures were present at the site, the amount may simply be so low in comparison to the rest of the material that it becomes 'invisible'. Secondly, all architectural elements are combined in the dataset, regardless of their characterization or age. Architectural elements are notoriously difficult to date; most often structures are dated based on style or better datable finds in and around the structure. This is no longer an option when one is studying loose individual blocks, out of their original context. Comparing material from multiple periods is problematic and might obscure any patterns possibly present in the material. The lack of dates is also a problem because it conceals possible reuse of material in later periods. For example, in some of the *in situ* structures from the Late Roman period at Koroneia, there are clear signs of reuse. This might also involve re-cutting the material into different shapes and making the blocks smaller. Recycling material is not limited to the site either, as some ancient material has been used in modern constructions in nearby villages,[266] possibly altering the size distribution of finds. Finally, the range of block size for both non-monumental and monumental constructions might be more wide-spread than assumed, which means that there is no real threshold value and both distributions overlap. While monumental structures might be built with larger blocks, this does not mean that there was a strict separation of what size blocks were used for monumental structures and what size was not. The 'temple' example shows this very well. Thus, it would seem that by not differentiating the material in a sufficient manner, the numerous variables that influence the size inevitably leads to a (log-)normal distribution.

265 Fourteen for the outer face vs 34 for the inner face (total is 48).
266 Fossey 1991.

5.6 Conclusion

A question that may arise is, why, despite the known issues with the material (discussed above), this study was conducted. First of all, it was unknown what the effect would be of the various issues on the outcome of the analyses. Secondly, while larger building materials are often found in larger, more public oriented structures, it does not necessarily define them. Therefore, recognizing these public structures within the current dataset through the size of the material may have oversimplified the issue of monumentality. Yet, some interesting aspects have come out of this study. As shown through the size of the elements from the example structures, the larger material is indicative of a structure of a more public nature. However, as the 'temple' at Koroneia shows so well, the outer face of a structure does not define all the material used. This might be an indication of why the larger material is so unnoticeable within the distribution of the material based on size: it was only used sparingly for highlights, rather than as a building material for an entire structure. Furthermore, the lack of differentiation of the material in this study results in the mentioned '(log-)normal' distribution. As such, it shows that monumentality is relative and should, therefore, be compared to contemporary finds. Just as the 'temple' shows that the size of the material can be an indication of a *local* monumentality, so too could contemporary material perhaps show monumentality in a specific era. This analysis focuses on the entire site, while on a smaller scale, a concentration of large material might still be a good indication of a possible location of a larger, public, or monumental structure.[267]

There are thus two interesting issues to take into account: 1) the local nature of monumentality and 2) available data on the size of the building materials that are still *in situ*. These two form a somewhat problematic contradiction for sites such as Koroneia, where so few structures are preserved. More data on *in situ* material would thus have to come from outside, yet this clashes with the possible local nature of the monumentality. While the use of reference collections are part of studying other find-types (*e.g.* pottery, flint and bone), these do not exist in the same fashion for architecture. This has mostly to do with the fact that architecture is often studied in respect to style and layout. Subsequently, little attention is given to the characteristics of individual parts of a building. Even when these data are recorded they are often not published and, therefore, less available for comparative studies. These data would give more insights, though, into the relation between material and structures as well as insights on temporal trends regarding the used building material. More detailed data on the variety of size in building material in different buildings and from different periods is thus needed to distinguish between various types of architecture and to come to a more conclusive hypothesis on the distinction between monumental and non-monumental architectural elements.

267 Boswinkel 2015, 88-91; Uytterhoeven 2014, 2-4.

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CONSTRUCTING MONUMENTS, PERCEIVING MONUMENTALITY & THE ECONOMICS OF BUILDING

In many societies monuments are associated with dynamic socio-economic and political processes that these societies underwent and/or instrumentalised. Due to the often large human and other resources input involved in their construction and maintenance, such constructions form an useful research target in order to investigate both their associated societies as well as the underlying processes that generated differential construction levels. Monumental constructions may physically remain the same for some time but certainly not forever. The actual meaning, too, that people associate with these may change regularly due to changing contexts in which people perceived, assessed, and interacted with such constructions.

These changes of meaning may occur diachronically, geographically but also socially. Realising that such shifts may occur forces us to rethink the meaning and the roles that past technologies may play in constructing, consuming and perceiving something monumental. In fact, it is through investigating the processes, the practices of building and crafting, and selecting the specific locales in which these activities took place, that we can argue convincingly that meaning may already become formulated while the form itself is still being created. As such, meaning-making and -giving may also influence the shaping of the monument in each of its facets: spatially, materially, technologically, socially and diachronically.

The volume varies widely in regional and chronological focus and forms a useful manual to studying both the acts of building and the constructions themselves across cultural contexts. A range of theoretical and practical methods are discussed, and papers illustrate that these are applicable to both small or large architectural expressions, making it useful for scholars investigating urban, architectural, landscape and human resources in archaeological and historical contexts. The ultimate goal of this book is to place architectural studies, in which people's interactions with each other and material resources are key, at the crossing of both landscape studies and material culture studies, where it belongs.

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