



Universiteit  
Leiden  
The Netherlands

## **Shaping cultural landscapes: connecting agriculture, crafts, construction, transport, and resilience strategies: introduction to the papers**

Brysbaert, A., Pakkanen, J., Vikatou, I.; Brysbaert, A.; Vikatou, I.; Pakkanen, J.

### **Citation**

Brysbaert, A. , P. , J. , V. , I. (2022). Shaping cultural landscapes: connecting agriculture, crafts, construction, transport, and resilience strategies: introduction to the papers. In A. Brysbaert, I. Vikatou, & J. Pakkanen (Eds.), *Shaping cultural landscapes: connecting agriculture, crafts, construction, transport, and resilience strategies* (pp. 15-20). Leiden: Sidestone Press. Retrieved from <https://hdl.handle.net/1887/3564956>

Version: Publisher's Version

License: [Creative Commons CC BY 4.0 license](https://creativecommons.org/licenses/by/4.0/)

Downloaded from: <https://hdl.handle.net/1887/3564956>

**Note:** To cite this publication please use the final published version (if applicable).

# SHAPING CULTURAL LANDSCAPES



This is a free offprint – as with all our publications the entire book is freely accessible on our website, and is available in print or as PDF e-book.

[www.sidestone.com](http://www.sidestone.com)

# **SHAPING CULTURAL LANDSCAPES**

*Connecting Agriculture, Crafts, Construction,  
Transport, and Resilience Strategies*

ANN BRYLSBAERT, IRENE VIKATOU & JARI PAKKANEN (EDS)

© 2022 Individual authors

Published by Sidestone Press, Leiden  
[www.sidestone.com](http://www.sidestone.com)

Lay-out & cover design: Sidestone Press

Photograph back cover: A. Brysbaert (View of the ancient vertical quarry face at Pendeli, Attica, Greece)

Photograph frontcover: Stock photo by Karsten Wentink (Northwest view of Tiryns citadel, Argolid, Greece)

ISBN 978-94-6426-095-3 (softcover)

ISBN 978-94-6426-096-0 (hardcover)

ISBN 978-94-6426-097-7 (PDF e-book)

# Contents

<b>Editors' biographies</b>	<b>7</b>
<b>List of contributors</b>	<b>9</b>
<b>Editors' acknowledgements</b>	<b>13</b>
<b>Shaping cultural landscapes through crafts, construction, infrastructure, agriculture and resilience strategies: introduction to the papers</b>	<b>15</b>
Ann Brysbaert, Jari Pakkanen and Irene Vikatou	
<b>The life of the Marble Mountain: agency and ecology in the marble quarries of ancient Tegea, Greece</b>	<b>21</b>
Jørgen Bakke	
<b>Building the tholos tomb in Tiryns, Greece: comparative labour costs and field methods</b>	<b>39</b>
Ann Brysbaert, Daniel Turner and Irene Vikatou	
<b>Mobility as a drive to shape cultural landscapes: prehistoric route-use in the Argolid and surroundings, Greece</b>	<b>65</b>
Ann Brysbaert and Irene Vikatou	
<b>Tracing the Mycenaean hinterlands. Refining the models of Mycenaean territoriality with insights from the cadastral maps of the Second Venetian Rule in the Peloponnese, Greece</b>	<b>85</b>
Kalliopi Efkleidou	
<b>Climate, carrying capacity and society: the quest for universal truths</b>	<b>103</b>
Paul Erdkamp	
<b>Encompassing islandscapes in southern Vanuatu</b>	<b>117</b>
James L. Flexner, Stuart Bedford, and Frederique Valentin	
<b>After the Preclassic Collapse. A socio-environmental contextualization of the rise of Naachtun (Guatemala)</b>	<b>133</b>
Julien Hiquet, Cyril Castanet, Lydie Dussol, Philippe Nondédéo, Marc Testé, Louise Purdue, Noémie Tomadini, Sandrine Grouard and Antoine Dorison	
<b>Placing the houses of the dead: the spatial setting of Late Helladic necropoleis in the Argive Plain, Greece</b>	<b>153</b>
Stefan Müller	

<b>Marble in the mountains – econometrics of quarrying and transporting building stones for the temple of Athena Alea at Tegea, Greece</b>	<b>175</b>
Jari Pakkanen	
<b>Shaping a Mycenaean cultural landscape at Kalamianos, Greece</b>	<b>187</b>
Daniel J. Pullen	
<b>Time spent at the Heuneburg, Germany, between 600 and 540 BCE to build all their constructions</b>	<b>205</b>
François Remise	
<b>The agricultural hinterland of Aquincum and Brigetio, Hungary. Landscape, rural settlements, towns and their interactions</b>	<b>221</b>
Bence Simon	
<b>Classical and Hellenistic pottery kilns from Greek rural areas in their natural and human landscape</b>	<b>241</b>
Francesca Tomei	
<b>Towns in a sea of nomads: territory and trade in Central Somaliland during the Medieval period</b>	<b>255</b>
Jorge de Torres Rodríguez, Alfredo González-Ruibal, Manuel Antonio Franco Fernández, Candela Martínez Barrio, Pablo Gutiérrez de León Juberías	
<b>A cross-craft approach to ceramic, glass and iron in the Early Middle Ages. The resources of workshops from southern Belgium</b>	<b>275</b>
Line Van Wersch, Martine van Haperen and Gaspard Pagès	
<b>Did ancient building contractors work for free? Stone supply in fourth-century BCE Epidauros, Greece</b>	<b>285</b>
Jean Vanden Broeck-Parant	

# Shaping cultural landscapes through crafts, construction, infrastructure, agriculture and resilience strategies: introduction to the papers

Ann Brysbaert, Jari Pakkanen and Irene Vikatou

This edited volume has materialized out of a small workshop held at Leiden in November 2019 joint with a double session at the European Association of Archaeologists (EAA) conference at Budapest in September 2020. The differences between the two events could not have been greater. The first was designed as a small discussion session between the members of the European Research Council SETinSTONE project and several invited scholars on aspects of making and production in relation to landscapes. We were gathered at Leiden with a small but engaged audience, two people came from abroad, and the others were from the Netherlands, or even Leiden. In the EAA session, which was spread over two days, people from all around the world took part, from the US to Australia, and all over Europe. Even though attendance was restricted to participants of the EAA conference, the general audience never dropped below 75, and yet, we never met in person. Leiden in 2019 was a small student town, busy as ever, but in 2020 the place was devoid of activity and Budapest only existed on the conference website, its hosting conference platform and in our dreams, and we all wished to be there: to meet each other, to be able to discuss the topics also after the sessions, to visit the city's beautiful monuments, markets and baths. Even though everything had turned upside down, business went on 'as usual', as life went on, too. One could decide not to run sessions at conferences if they could not take place on location, and many people did so for plenty of good reasons. We decided to hold on to organising the double session online because we firmly believed that we would all gain from this by not losing the momentum. All authors of the 26 papers accepted for these two days had worked hard to be in this session: written an abstract, worked on highly informative PowerPoints, presented live or through a self-made video (how many of us knew how to do all this before COVID-19?), and more than two thirds wrote up their papers for this edited volume. An entire discussion could be opened here on how time and space are linked in producing contemporary cultural landscapes post 2019. However, what we took home from the experience is the enthusiasm that everyone demonstrated in joining and working hard throughout these two days, and it gave us energy. Despite technical hitches with the conference platform, despite the home-setting in which many of us had to find even more energy to concentrate during the conference and afterwards for writing up, the experience is imprinted in our memories.

Because of the positivity we felt throughout the process of working on this volume, we want to dedicate it to all its authors and those who were with us in person in Leiden and at virtual Budapest. Thank you all for the boundless support, willingness to go

## **Ann Brysbaert**

Department of Archaeological Sciences  
Material Culture Studies  
Leiden University

## **Jari Pakkanen**

Department of Classics  
Royal Holloway, University of London

## **Irene Vikatou**

Department of Archaeological Sciences  
Material Culture Studies  
Leiden University

through every step of the review, and your warm and true collegiality in these difficult times. We will not forget this, and we hope that the reader will be as enthusiastic as we all are with the result in our hands. This is not the usual introduction to an edited volume, but these were not usual times. We think we will be forgiven!

In organizing the papers, various orders were contemplated. In a chronological order, the Bronze Age papers would have been first, followed by the Archaic, Classical and Roman ones. This, however, would have been too Eurocentric and would have left the exciting papers on Central America, Africa and the Pacific without a logical place. Using a geographical order was another thought, but how to set this up: what first, and what next? A third one would have been thematic, but this was not satisfactory as several papers touch upon several themes. In the end, the decision was to order them alphabetically by the first author. Even though this is also a western approach, at least in this group of papers we use the same alphabet.

The paper by **Jørgen Bakke** describes the life of the Marble Mountain in the southern Peloponnesian peninsula in Greece. His work integrates the material agency of human activities and processes on the Doliana Marble Mountain. This special geological formation is connected with the long history of marble quarrying: from antiquity, when it was under control of the city-state Tegea located some ten kilometres north of from the quarries, until today. His study is based on a preliminary survey of the remains of the ancient quarries and of the surrounding physical and cultural landscape. Alongside natural erosion and sedimentation processes, plant and animal life and human activities are regarded as one of many ecological agents that act together in a local micro-ecology. Through providing examples of the biographies of marble objects, buildings, and plastic works that came out of the quarries of the Marble Mountain, Bakke illustrates this ecology of marble through sculpture from the Classical period. As such, objects made from the Marble Mountain take on new forms of vivid material agency in the display of cultural identity in the sanctuary of Athena Alea.

In the Middle and Late Bronze Age Aegean mainland, tholos tombs became a typical grave type for those who could afford to build these, often monumental, structures. While the phenomenon started in the mainland in Messenia, the largest ones were constructed in the Argolid: Mycenae featuring nine in total. The paper by **Ann Brysbaert, Daniel Turner and Irene Vikatou** discusses the labour efforts in the construction of and the methodologies employed in the study of one of two tholos tombs found near Tiryns in the Argolid. This large tholos, located east of Tiryns' citadel, was excavated and published by the German Archaeological Institute in the early 20th century. Their drawings, combined with new fieldwork carried out in 2018, form the core data for this paper. In overlaying

the existing drawings over the 3D model produced by photogrammetry, we compare the accuracy of modern fieldwork techniques in collecting 3D data with the hand drawings and assess whether the differences are significant to the final results. Next, we investigate, by means of architectural energetics or labour cost studies, how much effort went into the construction of this grave monument and what its potential impact on the available labour may have been. The data collected indicate that the stones employed in constructing this tomb were extracted nearby, directly from the hill in which the tomb was dug and cut. At least two main types of recognizable limestone were used while no conglomerate featured anywhere in the tomb entrance stomion, in contrast to most other nearby tholoi of the same period and the clear presence of conglomerate in the citadel. The door jambs of the stomion were embellished with plaster, possibly painted, a feature also noted on various other tombs of this period. Labour calculations cover all materials, including the plastering, and employ a relative index comparing the cost with that of other standard tomb types in southern Greece.

In the Late Bronze Age (LBA) Argolid, Greece, monumental architectural remains and some of the road remains exhibit a clear correlation between building activities and the exploitation of material, human and animal resources. The known Mycenaean highways were, however, far from the only communication ways that linked places in the region since these focus mainly on their monumental make-up and any remains alongside them. The paper by **Ann Brysbaert and Irene Vikatou** focuses on both these and the numerous lesser roads and paths that were in use, possibly for much longer periods of time. They aim to reconstruct the lesser roads and paths in the region and understand to what extent a more comprehensive road network contributed to the development of different types of settlements, only some of which turned into the dominating centres of the 13th-12th centuries BCE. Traveling and people's mobility were part and parcel of being sedentary and the perceived contrasts between these concepts are discussed through the case studies. In plotting the roads mentioned in the literature and the newly suggested ones, it became clear that the people, their animals, and their material resources were very mobile during the final centuries of the LBA in the Argolid prior to the demise of the Mycenaean societies around 1200 BCE. Many of their activities continued well after this date resulting in persistence of roads and paths, in some cases until the present day. As such, roads of any type are the grounded and materialized dynamic outcome of people's ever changing taskscapes.

**Kalliopi Efkleidou's** study investigates new sources of information capturing the Mycenaean territories that people identified with in the past. Previous studies have systematically missed the bottom-up approach and

how the non-elites conceptualized and spontaneously enacted territory. Past research has emphasized mostly a top-down view from the palaces in the 13th century BCE when they reached the maximum territorial extent and political and economic integration. The cadastral maps in the archives of the Second Venetian Rule (1687-1715 CE) in the Peloponnese depict settlement territories as local communities communicated them to the Venetian officers. Thus, these maps form the earliest accurately measured, visually depicted and textually described evidence of common peoples' notions of territoriality. Efkleidou discusses the cadastral map of the Territorio of Argos as the only surviving such map of the wider region of the Argive Plain with its LBA Mycenaean palaces and important settlements. The insights derived from the maps' study aids in refining current models of Mycenaean territoriality and contribute to discussions of communities' land management strategies and efficiency, and demographics.

**Paul Erdkamp** gave the keynote address in our EAA session on Cultural Landscapes. His paper presents a critical discussion of two manifestations of approaches advocating universal truths and universally valid models: Malthusian scenarios and the Adaptive Cycle Model. These types of approaches grew historically, and this paper discusses the origins of the social sciences which lies with 18th-century investigators who strove to discover the general principles that governed the functioning of society. Approaches to the past within the social sciences reflect these roots because it seems that their interest in the past is not constructing historical narratives, but to uncover universal laws of history. Erdkamp maintains that many historians, who are also determined by their discipline's past, are weary of universal truths and tend to emphasize the uniqueness of past societies, and that archaeologists often side with the social sciences in their attempts to identify general patterns. The quest for universal truths in the past has influenced the relatively recent trends to study the impact of climate change on early societies. To him, many archaeologists and anthropologists working on early societies explain the societal impact of climate change on the basis of universal truths and universally valid models. According to Erdkamp, automatic adherence to Malthusian models steers analysis of the impact of climate change in a predetermined direction while the Adaptive Cycle Model adds little to our understanding of early societies. The latter model often just functions as a 'one size fits all' model that is used less to interpret the empirical data than to replace the data where they are missing.

**James Flexner, Stuart Bedford and Frederique Valentin's** many years of archaeological research in the South Pacific aims to contribute to a broader story of the ways that people have adapted to island and coastal environments in the past. Rather than separating land from

sea, these environments lend themselves to the creation of 'landscapes', integrating the terrestrial and maritime worlds as people adapted to a geographic region dominated by ocean. Over a 3000-year period, Pacific Islanders have shaped the land and seascapes of Southern Vanuatu and developed their own senses of 'historicity', the complex expressions of relationships between past and present according to local reckonings. The authors present some of the results of their work on the islands of Tanna, Futuna, and Aniwa in the south Vanuatu region. Survey and excavations have recovered evidence for Lapita and post-Lapita ceramic traditions and settlement, investment in large-scale agricultural and marine resource management strategies, and interaction with and integration of outsiders, including Polynesian settlers around 1000 CE and European Missionaries in the 1800s. Greg Denning's concept of 'encompassing' is employed to expand the archaeological narrative to account more for lived human experience on the ground and among the ocean waves.

At Naachtun in the Maya Lowlands (Guatemala), the Early Classic period represented an apex of monumental construction with temples and pyramids built on human-modified hilltops. Just after the 'Preclassic Collapse', in which an elaborate system of massive cities became abandoned, conspicuous architecture appeared again. In this context, **Julien Hiquet and co-authors** gather recent data on the human-environment dynamics during the emergence of Naachtun in order to shed light on the ecological consequences and the strategies implemented to face these. The question why Naachtun arose at the exact moment that the neighbouring cities of the Mirador region declined has been explained by overexploitation of the natural landscape. The question also arose whether the Maya behaved in a predatory way, exhausting one region before starting again. The authors combine a quantification of Early Classic monumental architecture of the Naachtun area, an estimate of the local population, and a thorough study of local resources in order to understand the long-term management of the environment in the context of the rise of Classic Maya polities. Questions of resource management in a context of growing consumption for subsistence and architecture are key issues in our understanding of the local dynamics. The local socio-ecosystem was probably the result of a very complex balance, more or less controlled by local populations.

**Stefan Müller's** paper examines the location of chamber tomb necropoleis, the spatial organisation of their tombs, and their distribution during the different Late Helladic phases. Furthermore, it aims to draw together evidence concerning the relationship between the necropolis and the settlement. The focus is on five locations from the Argive Plain, including both palatial and non-palatial sites: Prosymna, Tiryns, Dendra, the Berbati valley and Argos. Since the most basic requirement for

digging a chamber tomb was access to usable geology, i.e., a slope of exposed bedrock, it was vital for communities to search for such places nearby the settlements. Moreover, easy access to the tombs was needed as well, perhaps in the form of paths and roads that split away from larger roads in the vicinity. Of equal importance in the spatial organization of tombs is the clustering of what seems to be family- or clan-related burials grouped together.

The paper by **Jari Pakkanen** concentrates on the temple of Athena Alea at Tegea in southern Greece and the supply of quarry stones to the fourth-century BCE building project. The main aim is to present a model of how the quarrying and transport of building materials can be quantified. Even though nearly nothing remains *in situ* of the temple above the foundations, the previous studies by the early 20th-century French team and the paper's author make possible a reliable reconstruction of the monument and the volume of stone used in its construction. Comparative labour cost analyses presented in the paper are based on rates derived from Greek building accounts and Pegoretti's 19th-century architectural handbook. The cost of quarrying marble at Doliana is estimated as circa four times as high as conglomerate. In both cases the cost of transport from the quarries to the building site was more expensive part of the building project than quarrying. With a workforce of 12 skilled and 12 unskilled labourers it would have been possible to quarry the foundation blocks in approximately one year: if the size of the quarry team was doubled, the marble for the temple could have been extracted in five to six years.

**Daniel Pullen** explores the social exploitation of a newly created cultural landscape of the Mycenaean harbour settlement of Kalamianos and its hinterland in the Aegean. This area was 'colonized' by people from the Argolid as they expanded their economic and political interests into the Saronic Gulf in the Late Bronze Age. Both capital and labour into infrastructure transformed a sparsely occupied territory in the Early and Middle Bronze Age into a Mycenaean cultural landscape with a walled urban settlement at Kalamianos, featuring elite style architecture, satellite settlements, and agricultural terraces. Such construction programmes suggest elite involvement commanding a range of resources. Despite large-scale terracing, there were insufficient daily food supplies for the urban population at Kalamianos. As a port, the town competed in the market system within and beyond the Saronic Gulf. Through the studies of ceramic assemblages and its architecture, Pullen suggests that people had multiple and multi-scale strategies to cope with the realities of living. Rather than producing their own, Kalamianos imported pottery from the Corinthia, Attica, and Aigina, but not from the Argolid. Architectural studies showed that workshops and storage facilities were present, but it is unknown what Kalamianos offered in

exchange for the received merchandise. Markets are social strategies that operate in networks alongside and independent of centralized power and economic control by elites, such as those from the Argolid.

**François Remise** presents a detailed analysis of the labour and time spent to construct parts of building projects executed by the Heuneburg community in 600-540 BCE. The most appropriate labour rates are used from a large range of published values starting from raw material supply to building. The site is located in the Upper Danube valley in southwestern Germany and the upper town was protected by a mudbrick fortification and the lower town by an earth embankment. The outer settlement was divided into distinct areas by a system of banks and ditches. The types of structures built include fortifications, earthworks, dwellings and agricultural buildings. The paper takes into account maintenance, modification and rebuilding of structures, and the time spent on agricultural and artisanal activities. An estimate of the total time used for the constructions demonstrates that it was a highly impressive labour investment by the aristocracy and the whole community.

In his paper, **Bence Simon** integrates the results of a study about site hierarchy, settlement patterns and location preferences of rural Roman Pannonia into a broader methodological and theoretical narrative. He presents the role of socio-cultural conditions, physical space, and natural environmental factors in the formation and change of the settlement system and economic relations in the hinterland of Aquincum (Óbuda, Hungary) and Brigetio (Komárom-Szöny, Hungary). In this study, he questions the role of the rural settlements in the economy of Pannonia, and how the archaeological record may be able to indicate regional and local interactions between towns and their hinterland. He investigates how the hinterland's settlement patterns changed from the first to the third century CE, and why did certain places survive while others reorganized after crises. Finally, he looks into the roles played by the natural environment and the proximity of towns in these settlement pattern changes. He approaches these questions through analysing the location of the archaeological find material and using a GIS-based land evaluation model.

**Francesca Tomei** aims to show the cross-craft interactions between pottery production and agricultural practices, and how they influenced the locational choices of ceramic workshops in Classical-Hellenistic rural regions. She addresses these questions with the examination of two sites, Sant'Angelo Vecchio (Metapontine chora, Basilicata, Southern Italy) and Pyrgouthi (Berbati Valley, Argolid, Peloponnese) with evidence of pottery production for the presence of kilns. The palaeoenvironmental data provide information on the agricultural practices and land use in both regions. Comparison of these data with

ethnoarchaeology and ancient literary sources shows that agricultural residues and wild vegetation could be resources for both pottery production and grazing. Finally, the location of pottery workshops in relation to settlements, sanctuaries and roads is analysed with the use of GIS spatial analysis tools, such as buffer analysis and least cost path analyses.

Based on more than half a decade of research of the Spanish Archaeological Mission in Somaliland, **Jorge de Torres Rodríguez and co-authors** analyse the territorial organization of central Somaliland, a region that, during the medieval period (11th-16th centuries CE), was an active trading hub in the Red Sea. Based on the archaeological evidence for this period, they explore the materiality of the different groups and stakeholders, and their interactions through time in order to understand better the different communities that inhabited the region, the evidence of international trade throughout Somaliland, and the changes of settlement patterns over time. Commerce in Somaliland was managed mostly by nomads and regulated by their seasonal movements along the Horn of Africa and the monsoons regimes, which framed the appropriate moments for trade. The medieval period in Somaliland saw some paramount changes in the history of the region, including the expansion of international trade, the arrival of Islam, the emergence of permanent settlements and the increasing involvement of states in the nomads' lives. Of great interest is that these major changes did not evolve into conflict due to the existence of the key activity of trade. For commerce to thrive, collaboration of all the involved agents was crucial and it provided a common ground for understanding of the individual players.

**Line van Wersch, Martine van Haperen and Gaspard Pagès** study the changes in ceramics, glass and iron during the Early Middle Ages in northwestern Europe. During this period, the places in Belgium moved

from the Merovingian agglomerations to the aristocratic rural domains, the monasteries and the emporia, and these crafts saw major technical changes as well. Even though these modifications are attested in the material, the underlying factors involved are still not understood. By means of studying these materials through cross-craft interaction model, some of the triggers for innovation may be revealed, as has also been seen in many other crafting contexts. This paper approaches these crafts and their interactions, identifying potential exchanges between them, and how these may have fuelled change.

The question of profit making in the context of stone supply in Ancient Greece has not been addressed properly since the work on the building inscriptions of Epidauros by Alison Burford. **Jean Vanden Broeck-Parant** argues that labour cost estimations provide a new way to approach this issue. By comparing labour costs (converted to financial costs) with contract prices mentioned in the Epidaurian inscriptions, it becomes possible to measure the extent of the potential profits made by the entrepreneurs involved in stone supply more accurately. He discusses the arguments of Burford, who suggested that the entrepreneurs did not systematically look for profit. Through the case study of the sekos of the temple of Asklepios at Epidauros (early fourth century BCE), he estimates the amount of (human and animal) energy needed to quarry the blocks and transport them to the sanctuary of Asklepios. Where labour costs are difficult to estimate, he compares the contract prices with other known prices to perform similar tasks. The comparison of the estimated costs with the contract prices shows that the prices probably included a substantial portion of profits for the entrepreneurs who took up those contracts. The method described in this paper can contribute to our understanding of stone supply as an industry in fourth century BCE Greece.

