Focus on Fortifications

New Research on Fortifications in the Ancient Mediterranean and the Near East

Monographs of the Danish Institute at Athens, Volume 18

edited by
Rune Frederiksen, Silke Müth, Peter I. Schneider and Mike Schnelle

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Fokus Fortifikation Studies: Volume 2

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Front cover: City wall of Herakleia on Latmos (photo: S. Müth)

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PREFACE

The present publication comprises the collected papers from a conference organised by the editors which took place over four intensive days, between the 6th and the 9th of December 2012, at the Acropolis Museum in Athens. The conference was organised through the Danish Institute at Athens (DIA) and the German Archaeological Institute (DAI) in Berlin, on behalf of the network *Fokus Fortifikation. Antike Befestigungen im* östlichen *Mittelmeerraum/Focus on Fortification. Ancient Fortifications in the Eastern Mediterranean*, and with much help from other network members. *Fokus Fortifikation*, which was sponsored by the *Deutsche Forschungsgemeinschaft* between 2009 and 2011[*], brought together 27 younger scholars from several countries, all of whom were working professionally in the field of ancient fortifications. The network was initiated and directed by Silke Müth, Peter Schneider and Mike Schnelle. As a member of the network, Rune Frederiksen proposed that the Danish Institute at Athens be involved in the organisation of the conference and its publication, which was happily accepted. The conference was an important step in the network's activities, which will be described in detail in the Introduction, and its publication coincides with that of the network's research, presented in S. Müth, P. Schneider, M. Schnelle and P. De Staebler (eds.), *Ancient Fortifications: A compendium of theory and practice*, *Fokus Fortifikation Studies* no. 1, Oxford 2016.

The call for papers, published a year before the conference, saw an overwhelming response. Although we extended the programme by a full fourth day, it was still not possible to host all the proposed talks. The inevitable result was that many solid and interesting proposals had to be rejected. This is of course to be regretted – but it also confirmed that there is currently a great need for the sharing of information about ancient fortifications.

In addition to the papers submitted in revised form as printable articles, this collection includes three extra contributions from scholars who were not able to participate in the conference: Jessica Böttcher Ebers, Chiara Blasetti Fantauzzi and Salvatore De Vincenzo. We are thankful we have been able to include their work in the printed volume.

We are greatly indebted to the *Deutsche Forschungsgemeinschaft* (DFG) and the Danish Agency for Science, Technology and Innovation for their financial support of the conference, and to both the Athens Department and the Division of Building Archaeology (*Architekturreferat*) of the German Archaeological Institute (DAI) for their cooperation. We also gratefully acknowledge the support of the many institutions based in Athens for lodging a considerable number of participants in their accommodation facilities during the conference: the French and Swiss Schools at Athens, the Athens Department of the German Archaeological Institute, and the Canadian, Irish, Netherlands, Norwegian and Swedish Institutes at Athens. The conference would not have been possible without the network members who helped with its organisation, from voting for the papers to introducing and chairing sessions or giving talks, for which we are deeply grateful. Warm thanks also go to the staff of the Danish Institute at Athens, Lone Gad, Søren Handberg, Hanna Lassen and Sine Riisager, for their effective work in the organisation and realisation of the conference. Furthermore, it was a great pleasure for us to hold our conference in the lecture theatre of the Acropolis Museum in Athens, and we would like to express our gratitude to its directorate for this opportunity.

Bringing more than 60 scholarly texts in three languages to publishable form for this volume has been an immense logistical task. We would like to express our gratitude to the more than 50 people who acted as anonymous peer reviewers, without pay, offering their efforts with the sole aim of improving the quality of research and furthering our common research culture. The copy-editing of the German and French texts for this volume was very carefully undertaken by Dorothee Fillies and Caroline Huguenot, and for the English texts by Liz Nichols, Anna Cara, Rune Frederiksen and Mia Gaudern. Last, but by no means least, we would like to thank Oxbow Books for publishing this book, and for their great patience, collaborative approach and friendly attitude.

The editors, March 2015

[*] DFG reference number: MU 2992/1-1; reference number of the conference grant: SCHN 1179/2-1.

INTRODUCTION

Rune Frederiksen, Silke Müth, Peter I. Schneider & Mike Schnelle

The network

Consisting of 15 main members and an additional number of associate scholars, all of whom were either classical archaeologists or *Bauforscher*, the network *Fokus Fortifikation. Antike Befestigungsanlagen im östlichen Mittelmeerraum* (in short: FoFo) underwent an intensive three-year working process between 2008 and 2011. It discussed in a comprehensive and systematic way matters of methodology, the nature of sources, interpretative strategies and all sorts of other questions related to researching and interpreting this specific genre of built structure.

Eight years ago, when the plans for the network were just getting underway, most of its future participants were in charge of investigating particular city walls, fortified regions or other kinds of fortification complexes. They were all facing the same challenges in the processes of extensively surveying, documenting and analysing the built fabric, and in their attempts at procuring hard evidence for proper dating.

One may wonder why the topic of fortification achieved such popularity among scholars in the first decade of the third millennium. Was it that considerable advances in information technology and the greater availability of modern survey equipment made it easier to investigate complex, large-scale objects? Or was it simply that these monuments had been largely overlooked by previous generations of scholars? Or perhaps the recent interest in fortifications is due to a shift in consciousness about their significance as a source of cultural history, in comparison with other works of public architecture? Whatever the reason, fortifications can no longer be neglected, as they represent the largest proportion of building activity undertaken in the ancient world.

Fortifications of the ancient world cannot be reduced to mere military necessities, following such worst-case scenarios as a pitched battle lost by the inhabitants of a town or city, or a sudden and unexpected attack from enemies appearing in the territory at the urban centre of a polity. In addition to the military aspects of fortification, it must be understood that the erection of a wall meant a serious alteration of the conditions of a site. The built structure had to fit into everyday life: not only in practical terms, but also considering the actual visual appearance of the place from an aesthetic perspective. For all these reasons it is impossible to regard the fortifications of the ancient world as a response to a single dimensional set of exigencies. Instead, fortifications as large-scale buildings serving distinct needs on different levels are now widely understood to deserve proper multi-perspective interpretations in order to evaluate sufficiently their particular role in historical-political, local-regional, physical-topographical, economical and practical contexts, which are all mirrored by the buildings' individual design, execution and use.

A workshop at the German Archaeological Institute (DAI) in Istanbul in 2007, published in 2010, gave impetus to many of its participants to develop more systematic assessments of ancient fortifications. As part of a scholarly network in the funding programme of the *Deutsche Forschungsgemeinschaft* (DFG), hosted by the Institute of Classical Archaeology and the Excellence Cluster 'Topoi' of the Free University of Berlin, as well as by the Division of Building Archaeology (*Architekturreferat*) of the DAI, members followed a three-year programme of six meetings in various places, each dedicated to one specific aspect of fortification research.

The first meeting at the Technical University in **Cottbus** in October 2008 was dedicated to methodological questions related to terminology, documentation and interpretation. The second meeting in April 2009 at the École Suisse d'Archéologie en Grèce in **Athens** was concerned with the ancient building experience, masonry techniques and the relevance of the natural environment to the concept, to the design and to the execution of fortifications. In the third meeting at the Ephesus excavation house of the Austrian Archaeological Institute (ÖAI) in **Selçuk** in October 2009, we debated the semantics of fortification, including its urbanistic, defensive and symbolic functions. Historical contexts were the topic of the fourth meeting at **Frankfurt** University in April 2010, where a critical debate took place about the quality of information procured from written sources and from the archaeological evidence. The fifth meeting at the Danish Institute in **Damascus** in October 2010 was centred on regional implications such as the fortification of whole regions, and regionally confined phenomena.

Our discussions of these questions were accompanied by three excursions to fortifications in mainland Greece, Asia Minor, Syria and Jordan, which followed or preceded the meetings in Athens, Ephesus and Damascus. The last meeting at the 'Topoi' house in **Berlin-Dahlem** in March 2011 was an opportunity to synthesise all the insights achieved and to discuss and agree on the best way of publishing our research.[1]

Purpose, Programme and Outputs of the Conference

The purpose of the conference was to present the results of the FoFo network, but also to discuss our findings with a larger international scholarly community. Furthermore, it was conceived to provide an overview of the variety of approaches in current research and for the detection of blind spots in the network's concept. Since, for example, the majority of the network members were focusing on fortifications in the Eastern Mediterranean, we were particularly interested in including examples from the western part of the ancient world in the conference. Similarly, scholars were invited to present research on fortifications from early periods in the Mediterranean and neighbouring regions. A wider perspective, in terms of both chronology and geographical limits, was intended to permit a better understanding of the development of fortification concepts through different cultural contexts and periods.

Basically, the programme of the conference with its seven sessions mirrored – more or less – the main topics of our network meetings. In addition we decided to include the origins of fortifications as a new topic, as well as reports on new research in Greece, where the conference took place and where many of the specimens of fortification architecture are actually located. Every session was chaired by a representative member of the network, who briefly introduced the outcomes and hypotheses derived from the network meetings and their comprehensive follow-up discussions over email and telephone. Other members contributed by exemplifying the basic issues within their own research.

Session 1: Origins of Fortifications

The first session, introduced by Rune Frederiksen, was dedicated to the origins of ancient fortifications in the Mediterranean and the Middle East. The paper by Pascal Butterlin (Paris), read by Sébastien Rey (Paris/Durham), presented the results of the excavations at Mari/Syria, focusing on the relationship between urbanisation and the development of fortifications in Mesopotamia in the Early and Middle Bronze Age. In his own paper, Rey presented his research on early responses to sieges and fortifications in Mesopotamia, which was based on the re-evaluation of archaeological evidence in the light of the latest discoveries at Mari. Using a philological-historical analysis of written sources, Nathan Morello (Udine) assessed the significance of building fortifications in the context of Assyrian polities, which were concerned both with the expansion of power and with securing borders. A different aspect was stressed by Mike Schnelle's (Berlin) paper on Sabaean fortifications, which concentrated on the collective significance connected to their erection as it can be recognised from the growing demands of representation and the rising efforts in execution. These first four papers on chronologically and geographically remote examples stimulated a comparative discussion on patterns of representation and development in classical antiquity, and on possible archetypes. These considerations were supplemented in the second session by the paper by Tobias Helms (Frankfurt/Main) on the fortification of Tell Chuera/Syria.

[1] In the preface, the *Deutsche Forschungsgemeinschaft* is mentioned as the supporting institution of the network. The Excellence Cluster 'Topoi' funded two of the three network excursions (Greece and Turkey), for which we are grateful. We are also indebted to all the institutions that hosted our meetings.

Thomas Alusik (Prague) shared the results of his latest investigations of prehistoric fortified sites in Crete, an island where fortification traditionally has been regarded as having had little significance in that era. Gabriele Cifani's (Rome) historical approach to assessing the early walls of Rome was complemented in the course of the fourth session by Peter Attema's and Timon de Haas' (Groningen) papers on early and middle Republican city walls in central Italy, and by Christian Winkle's (Stuttgart) reconsideration of the validity of Livius' writings as a historical source and its relevance for fortification studies. The current state of research on Iron Age fortifications in Central Anatolia during the early 1st millennium BC was discussed by Baptiste Vergnaud (Bordeaux), who emphasised their increased significance for urbanistic developments towards the middle of the millennium. Stefanie Hubert's (Erlangen) paper on early Mycenaean city walls pointed to burials immediately attached to gate buildings and integrated into the course of the curtains as a phenomenon particular to this culture. Parallels to this phenomenon were discussed during session 3.

The papers presented in session 1 and the ensuing discussions clearly demonstrated how the development of urban spaces and the building of fortifications were mutually influential until the rise of territorial states. Evidently, this interdependency in development can be recognised independently in all cultural contexts and across large stretches of time.

Session 2: Physical Surroundings and Technique: The Building Experience

The second session was concerned with the relationship between natural surroundings, building concepts and building techniques. In his introductory talk, Peter De Staebler (New York) presented the results of the network's discussions on this topic. The first paper, by Jean-Claude Bessac (Lattes), was dedicated to methods of investigating techniques for building with stone, and on economical considerations. Starting from this methodological background, Bessac then developed various perspectives connected to his approach. For the Mesopotamian case of early Bronze Age Tell Chuera/Syria, Tobias Helms and Jan-Waalke Meyer (Frankfurt/Main) described the fortifications with regard to their construction, maintenance and further development. Ritual aspects in the erection of monumental defensive architecture were considered by Ann Brysbaert (Heidelberg/Leicester),[2] who analysed the use of very large monolithic elements in the palace of Tiryns, such as the door lintels. According to her reasoning, the transport, location and use of such huge blocks are probably best understood by connecting them to ritual considerations. In this context it might be appropriate to assume a symbolic significance attached to the level of the building structure. The paper by Turgut Saner, Kaan Sağ and Ertunç Denktaş (Istanbul) focused on the walls of Larisa on Hermos. One of their central questions was whether the use of (Lesbian) polygonal masonry that features at certain segments can be limited to a particular period of construction and thus estimated as mirroring contingent conditions in the building process. Ayşe Dalyancı-Berns and Ulrike Goldmann (Berlin), together with Agnes Henning (Heidelberg), talked about economic and representational use of landscape and physical surroundings in the context of erecting the Acropolis wall on Monte Croccia in south Italy. The structure of the Late Roman Imperial Palace at Romuliana-Gamzigrad in Serbia was presented by Gerda Sommer von Bülow (Frankfurt/Main) at the end of the second session. With its two distinct successive fortifications, this palace provided an intriguing case study. In sharp contrast to the fortifications of the first building, those of the later one are much exaggerated. Thus, according to the author, the second fortification ought to be regarded as a more symbolic than functional piece of architecture, emphasising the character of the Imperial palace, "rhetorically" using the motif of the Castellum as signifier. In the course of the discussions in session 2 it was made clear, especially with regard to the contributions of Bessac, Brysbaert, Saner *et al.* and Dalyancı-Berns *et al.*, that applied techniques and forms of fortifications appear to have much more to do with practical physical aspects related to particular political and military requirements than has previously been considered.

Session 3: Functions and Semantics

The third session was introduced by Silke Müth (Athens), who presented the network's debate on functional aspects and semantic levels in the interpretation of fortifications. As a prominent example of impressive architecture, the Euryalos Fort at Syracuse/Italy was presented by Heinz-Jürgen Beste (Rome). While reporting on the building history of this highly defensive fort, Beste highlighted the development of its form and appearance and their

[2] This paper is published as "'Set in Stone'? Technical, socio-economic and symbolic considerations in the construction of the Cyclopean-style walls of the Late Bronze Age Citadel at Tiryns, Greece" in *Analecta Praehistorica Leidensia* Vol. 45, 2015.

visual effect with regard to the perception of the landscape. Another aspect was put forward by Jeanine Abdul Massih (Beirut) in her paper on Kyrrhos in Syria. This site allowed for an instructive assessment of the close interconnection of Hellenistic fortifications and urban layouts. The next two contributions were meant to challenge hitherto generally accepted assumptions on Hellenistic fortifications in Asia Minor. In his paper on the form, function and significance of the city walls of Perge in Pamphylia, Wolfram Martini (Gießen) explained plausibly that the southern part of the city wall, including the gate building on this side of the town, was strongly influenced by visual constraints. A significantly later dating of the city walls of Perge to early Imperial times, rather than the long-established earlier Hellenistic date, was supported by various kinds of evidence. Similarly, Peter Scherrer and Ute Lohner-Urban (Vienna) considered the phenomenon of Hellenistic pompous gates (*Prunktore*) as an erroneous artificial artefact created by earlier scholarship. In their contribution on the south-eastern gate of Side/Turkey, Scherrer and Lohner-Urban re-dated the building to the early Imperial Period, thus suggesting a generally later dating for the whole group of buildings of this type. Klaus Freyberger (Rome) then talked about the functions and semantics of fortification-like *temenos* walls in Hellenistic sanctuaries in the eastern Mediterranean. He demonstrated how the defensive character of the *temenos* walls served to maintain a perception of the sanctuaries as still being related to an urban community despite their remote location. Timm Radt (Stuttgart) then presented an overview of a particular group of Hellenistic fortification buildings, coining them as a special type of palace building. Though small in number, the buildings of this group have to be considered as a specific category, defined by their isolated position at remote sites at certain altitudes and by a particular combination of general fortifications and representational elements. The last two contributions to session 3 were concerned with the social-communicative qualities of Roman and Late Roman fortifications. Starting with the rites connected to the foundation of Roman towns, Saskia Stevens (Utrecht) investigated the significance of city walls as a symbolic medium. Melanie Jonasch (Berlin) then addressed the fortifications of rural communities in Late Antique Gaul, interpreting these walls as the result of a concentration of previously dispersed village communities that also used fortifications as a means for self-representation.

The discussions around the papers in the third session stressed the high significance of both the symbolic and urbanistic-functional aspects of every individual fortification concept. Representative aspects have to be regarded as much more important than has previously been recognised, necessitating a generally increased awareness and sensibility towards this aspect in research. Many fortifications that appear highly defensive in purpose may simultaneously be interpreted from a representational perspective (e.g. Epipolai/Beste). There are many examples – on the other hand – of defensive functions which are unlikely to be of primary relevance for the design. The case of Perge, where the curtains followed the construction of the towers with considerable delay, may serve as one such example. Sometimes urbanistic aspects are of particular relevance for the design or modification of city walls (Kyrrhos/Abdul Massih). Symbolic aspects can be clearly identified in the fortified residences or sanctuaries of the eastern Mediterranean (Radt, Freyberger); and also in the case of the Late Antique provincial fortifications in Gaul (Jonasch), the relevance of representational aspects seems to surpass military considerations. On the other hand, assumptions about the representative character of a well-known group of prominent buildings in Asia Minor connected hitherto to the Hellenistic period may be relocated to early Imperial Roman times, following the re-datings suggested for Perge (Martini) and Side (Lohner-Urban – Scherrer).

Session 4: Historical Context

The subject of the fourth session, the historical context of fortifications, was introduced by Eric Laufer (Vienna), with reference to the state of the network's research. Laufer explained both the potential advantages of and the problems with written sources and pictorial representations as regards research on fortifications. The archaeological evidence of the buildings themselves also belongs to this discussion, since it is understood as a primary source for a city's or a region's history. The implications for the reconstruction of the historical context, inherent in any interpretation derived from the assessment of archaeological evidence, have to be considered as the other side of the coin of source criticism.

The first paper presented by Micheael Kerschner (Vienna) departed from the archaeological evidence of the walls at Panayır Dağı in Ephesus, proposing a new hypothesis for the localisation of pre-Hellenistic Ephesus while simultaneously assessing the well-known written sources. Peter Attema and Timon de Haas (Groningen) explained their investigation of visual connectivity between the settlements in the Pontine Marshes. The results from this analysis were interpreted as a clue to the historical situation of the area, as a region affected by heavy conflict during the period of the Early Republic. Although general critical concerns about the validity of Livy's historical writing abound, Christian Winkle (Stuttgart) in the following talk re-evaluated the reliability of Livy's accounts of the Roman city walls of the Middle Republic. According to Winkle, Livy should be considered as a reliable source for research into fortifications as regards general information, despite the fact that his accounts are often untrustworthy when it comes to concrete events. Pierre Ducrey (Lausanne) aimed in his contribution at a re-evaluation of city walls in terms of protection, specifically with regard to their psychological effect on (potential) aggressors and defenders. Furthermore, he focused on the inhabitants as victims after the successful siege and conquering of a town and suggested a reading of representations of cruelty as elements of commonly shared images derived from other, earlier cultures (e.g. Assyria). The next paper was given by Caterina Parigi (Rome), about the Athenian fortifications in the first century BC. She demonstrated convincingly that the connected buildings were much more present in the city than has previously been noticed. Isabelle Pimouguet-Pédarros' (Nantes) paper on the defensive system of Myra-Andriaké (Lykia), kindly read by Baptiste Vergnaud, demonstrated an attempt at analysing the different construction periods in the historical and functional context of the fortifications. In the last talk of session 4, Catherine Hof (Berlin) presented an approach using building archaeology to analyse the fabric of the city wall of Reseafa/Syria. The critical assessment of the evidence allows for a plausible account of the building history of the walls with substantial implications for their functions and for a general understanding of the town's development.

Session 5: The Fortification of Regions

The issue of the regional dimension of ancient fortifications and the state of discussion within the network on this topic were presented by Sylvian Fachard (Providence). Claire Balandier (Avignon) then demonstrated the methodological considerations for the study of regional systems of defence and made explicit the implications inherent to her historically oriented archaeology of fortifications. Matthieu Guintrand's (Avignon) paper on Laconian fortifications in the Classical period served as an example of an investigation informed by a regional perspective on defences, showing that the Laconian territory was not as widely unfortified as is generally presumed, even though the defences mostly appear in connection with perioecic settlements in the border regions and were obviously only strong enough to hold off attackers for a little while until a rescue army arrived. As a further case study arguing for the relevance of a regional perspective, Yannis Nakas (Athens) talked about isolated tower buildings in Molossia in Greece, interpreting this group of single buildings as elements of a regional defence network. Pierre Moret (Toulouse) considered defensive buildings in Spain dating to the period between 236 and 19 BC, which were understood to reflect the tensions between imperial strategies and local concerns. Douglas Underwood (St. Andrews) assessed the city walls in the region of southern Languedoc in France with respect to their supposed role as instruments of regional and imperial strategies. With regards to a coherent regional system for the defence of the Mithridatic kingdom, Emine Sökmen (Ankara) interpreted the fortifications of the Tokat Region in Turkey as closely related elements. Josip Višnjić (Svetvinčenat) presented the barrier running through the Julian Alps (Claustra Alpium Iuliarum) as an extended fortification system from Late Antiquity, providing an example of a particular form of regional fortification not represented by any other paper in the conference. The last contribution to session 5 came from Mihailo Milinković (Belgrade), who discussed fortified settlements in Illyricum. Generally referred to as 'Early Byzantine Fortifications', Milinković instead regards these settlements as a basic unit pertinent to the migration period. Correspondingly, this paper also addressed the relation between settlement development and changes in threat scenarios.

As a result of the discussions of session 5, it was generally agreed that any reconstruction of regional fortification systems should be attempted with caution. In many cases a local rather than a regional significance can be identified with certainty (Fachard). Nevertheless it was still possible to recognise coherent systems in different regions, while e.g. in Laconia, the fortifications surrounding perioecic settlements were obviously erected on their own initiative (Guintrand).

Session 6: Regionally Confined Phenomena

The sixth session was concerned with regional characteristics of fortifications and with phenomena that qualify as regionally confined. The state of research on this topic, as discussed in the course of the network proceedings, was presented by Silke Müth in her introduction. Stephan Schmid and Caroline Huguenot (Berlin) talked about the defensive installations of Iron Age *oppida* in the southern Drôme region in France, and about their possible impact on the perception of the landscape. Keven Ouellet (Montreal) reflected on the possibility of recognising traditions and regionalism in military architecture, assessing the city walls of the colonies of Andros; some technical features observed in this context can be identified in other regions as well. Britta Özen-Kleine (Saarbrücken) presented the fortification system of the Lelego-Carian capital Pedasa, located on the Halikarnassos peninsula, and its regional particularities. Characteristics of this region were also discussed by Poul Pedersen (Odense) and Ulrich Ruppe (Frankfurt/Main) in their paper on the Late Classical and Hellenistic walls of Halikarnassos, Priene and other fortifications in Caria and Ionia, focusing on the validity of certain features as markers of regionalism. The application of polygonal masonry in fortifications in central Italy was addressed by Sophie Helas (Bonn), who defined the scope for the usage of this building technique in Italy and analysed its semantic aspects as a marker of the culture and history of Latium. Concerning the fortifications in the eastern Mediterranean, Michael Eisenberg (Haifa) presented their development in the Decapolis region based on the example of the city of Hippos on the eastern shore of the Sea of Galilee. Moving further east, Pierre Leriche and Segolène de Pontbriand (Paris) presented their reflections on the defensive architecture in Bactria, focusing on the brick architecture of the Kushan period.

As a result of these papers and the ensuing discussions, it was concluded that in rare cases particular phenomena can be regarded as confined to a specific region. This might in turn serve as an indicator for a nearly instantaneous spread of knowledge about defensive techniques even to remote regions, corresponding to the quick transmission of knowledge about poliorcetics. Though still a valuable category, regional characteristics are limited to the level of constructional details (e.g. 'double corner bond'/Pedersen – Ruppe, 'ladder pattern masonry' in the Andrian colonies/Ouellet). It was concluded, conversely, that particular forms of fortification should be described as trans-regional, since they were adapted in different regions with distinct purposes (polygonal walls in Italy/Helas, fortifications of places on prominently exposed sites in the Iron Age Oppida of the southern Drôme region/Schmid – Huguenot, 'Indented Trace'/Ruppe).

Session 7: The Fortifications of Athens and New Field Research

As a tribute to the venue of the conference, the seventh session was dedicated to the presentation of projects concerned with the city walls of Athens and with new research on fortifications in Greece. Konstantinos Kissas and Vassilis Tasinos (Corinth) presented the latest results of the excavations at the archaic city wall of Corinth. These recent excavations allow us to estimate the monumental vastness of the city's fortification in these early times. Vassilis Lambrinoudakis (Athens) then talked about the history of the ancient walls of Palaiomanina in Akarnania and about their function, before Anna Philippa-Touchais (Athens) shared her results on the Middle Bronze Age fortifications of the hill of Aspis, the lower of the two acropoleis of Argos. The contributions of Nikos Tsoniotis (Athens) and Elisa Bazzechi (Cologne/Bologna) broadened our knowledge about Late Antique fortifications in Greece, a topic rather neglected in past research. Tsoniotis presented the evidence resulting from excavations in the Venizeli house, explaining their relevance to the post-Herulian wall of Athens. Bazzechi's paper reflected on the often underestimated significance of fortification walls in the cities of Late Antiquity based on a case study on Athens. The discussion underlined how different research projects on city walls in Greece, carried out in these years, bring to light impressive new data on Greek fortifications, sometimes changing our knowledge and views considerably, here particularly for the very early and the very late periods of Antiquity.

Evening lecture

On the second day of the conference, Pierre Leriche was invited to give an evening lecture, as a scholar who has played a key role in advancing knowledge on ancient fortifications for several decades. Leriche described the advances in research since the 1970s and 1980s, drawing an arc through to the latest developments and up to the work presented at the conference itself. Starting with the ground-breaking colloquium *La fortification et sa place dans l'histoire politique, culturelle et sociale du monde grec* in Valbonne, France, in 1982,[3] Leriche detailed the developments in this field over the past three decades, pointing out many relevant aspects and new possibilities for research while emphasising the different ways in

[3] For the publication see P. Leriche and H. Tréziny (eds.), *La fortification dans l'histoire du monde grec*, Paris 1986.

which fortification studies contribute to the deepening of our understanding not only of political, but also of many social processes in the ancient world. Recognising the FoFo network's approach and achievements, he expressed the hope that it may provide a further impulse for stronger institutional backing for this field.

Final discussion and synopsis

In the course of the final discussion, participants generally appreciated the wide scope of the network's approach to investigating fortifications, both in terms of the issues addressed – methodological and interpretational considerations – and with regard to the chronological and geographical range of contributions, from Bronze Age buildings in Mesopotamia and Greece to case studies from Late Antiquity in France, the Balkans and Syria. It turned out that the basic patterns of approach and assessment, developed by members of the network alongside their own research activities on fortifications in the eastern Mediterranean, are generally applicable to all other fortifications of antiquity. The feedback from the conference's call for papers, which ultimately materialised at the conference, documents the variety of questions and approaches already being realised in current research. Against this background, the network's systematic approach to a comprehensive exploration of diverse but essential issues was recognised as a valuable step towards understanding and communicating the potential role of fortification studies in various other archaeological and historical fields.

Many participants, including the network members and additional interested scholars, expressed the wish and need for further networking in a broader framework, including the conference participants and additional interested scholars. It was therefore taken into consideration that after the publication of these conference papers, a larger network of fortification researchers ought to be set up and institutionalised by members of the *Fokus Fortifikation* network and the conference participants, offering a platform for the organisation of further meetings, workshops and conferences on particular topics or methodological questions. With these considerations in mind we hope that whereas the conference and its publication represent an immediate and concrete end goal of the fortification network, the publication may also serve as a significant impulse to sustain the focus on fortifications as well as to inspire the integration of this category of ancient architecture even more into the description and interpretation of the ancient world in general terms.

STUDYING ANCIENT FORTIFICATIONS: A PROMISING AND EXPANDING FIELD

Pierre Leriche[1]

Abstract

Interest in the study of fortifications is steadily developing and this Fokus Fortification symposium is the fifth on the topic since the Valbonne conference in 1982. We know today that this type of study is a potential carrier of information not only in terms of defensive architecture and techniques of war, but also on the history of a city or regional events, on society and on many other topics, the trace of which a fortification bears, from its construction to its abandonment or destruction. On the other hand, to the developing study of stone fortifications in the Mediterranean world, has now been added that of fortifications of adobe and rammed earth in the Near East, a technique which was reintroduced into Greek architecture by Alexander and his successors.

On the field itself, the old elementary techniques of clearing have given way to a more modern archaeology producing drawings and plans of good quality. Through observation of the stratigraphy, dating historical phases has become more reliable, allowing the revision of numerous old chronologies, verification of the relevance of historical texts or a review of the interpretation of inscriptions. The excavation of fortifications opens new research directions for the construction of fortifications of stone or earth, the functioning of a construction site, the speed of its implementation and the evaluation of the final cost of a fortification building. Archaeology also sheds light on the relationship of the fortification with town planning, the technique of city sieges, and on a fortification's heritage.

It is also essential that the archaeologists do not confine themselves to the stratigraphy, forgetting thus to characterize the fortification with all its architectural features and its technical specifications of construction. Finally, it is important to develop a strategy of excavation that will allow good preservation of the monument.

Many signs show that the study of fortifications is growing regularly. This makes us optimistic for the future of teichology - a still young discipline which seems to have a promising future.

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Ancient fortifications as major monuments

Studying fortifications was considered, until recently, a technical discipline best left to architects, retired military officers or specialists in building techniques, far removed from social, artistic or philosophical studies. However, as human creations, fortifications are, directly or indirectly, the result of the convergence of various social elements. That makes each fortification unique. Whatever the time of its construction and function, a fortification is a witness of a certain period and of a particular society. It is a monument that has been conceived and built during a specific moment of culture and human thought.

This polysemic character of any fortification opens the way to different studies exploring technical, political, social, historical and symbolic questions about fortifications. First, its appearance can inspire admiration for its strength or for the aesthetics of the construction. A rampart is supposed to convey to the enemy an impression of power and fear and to those who live behind the wall, a sense of reliance upon the commander and a feeling of security to the population.

A second aspect, often neglected in spite of its historical importance, is that an urban fortification is also the framework of city life during times of peace, which generally comprise the vast majority or even the entirety of a city's existence. A fortification has a major practical impact on the everyday life of the population in terms of circulation, communication with the countryside, water supply, drainage, evacuation of rubbish, and so on. This often means difficulties: if a rampart constitutes a barrier against outside danger, it can generate feelings of reclusion and even of exclusion for some parts of the population inside. This must be taken into account by historians.

The symbolic aspect of a fortification is, of course, also very important, combined with political, ideological and even religious functions, either in the civic context or in an imperial system (e.g. Babylonian, Hellenistic, Roman etc.). However, this dimension takes a distinctive form in each different society. That calls for a specific approach and a proper lexicon for each case.

All these aspects are important when we consider the role of a fortification. However, while re-examining the fundamental and epistemological aspects of teichology, it is important to underline the practical aspect (military, architectural, urbanistic) of this type of monument. We must keep in mind that ancient and medieval fortifications were not really works of art. A fortification is primarily a military monument, a functional building in which pragmatic necessity, as with every war creation, is paramount. It should principally be studied as such and I will focus mainly on this aspect after considerations on the history of teichology. Finally I shall share some reflections concerning new perspectives.

Teichology. The progressive birth of a science

1. The First Steps

The study of Classical fortifications through the ancient authors, was a source of inspiration for strategists until the 19th century (cf. de Folard's commentary on Polybius). Then, with the predominant role of artillery, it became mainly a hobby for retired officers interested in military architecture, strategy and weaponry. Finally, following the Contemporaneists and the Medievalists (like Viollet-le-Duc), the Classicists decided to consider the study of the history of war and of ancient fortifications as a genuine scientific discipline.

A particular discussion concerned the Greek attitude towards a fundamental choice: to fortify the city or to engage in active defence (cf. Athens/Sparta, Philip of Macedon). After the First World War, historians became interested in the question of siegecraft and defence systems in light of their recent experience in military trenches. This resulted in a re-examination of the texts in order to find descriptions or mentions of sieges. Then came debates about the relationship between a fortification and the image that a city wanted to project – cf. towns in Augustan Gaul asserting their presence through prestigious fortifications (e.g. Augustodunum) – and, of course, the question of Tyche with her turreted crown as an image of the city.

All this potential information gave way on a reflexion about the place of fortification in history. The Classicists, even if they were familiar with the *Iliad* and the Mycenaean fortifications of Tiryns and Mycenae, professed that the real beginning of Greek fortification was in Classical Greece. This conception, however, does not take into account the fact that in the Near East, the creation of fortifications is contemporaneous with the first towns since the third millennium BC. We know of the existence of strong, well-designed mudbrick fortifications at Habuba Kabira (Uruk Period) on the Euphrates river and, then, at various other sites in Mesopotamia, Anatolia[2] and so forth. In fact, in every ancient sedentary civilization, fortification was the normal solution for those in charge of a city or of a territory, the normal method of self-preservation.

An exception occurred in the first half of the first millennium BC in ancient Greece, when fortifications were considered a danger to the morale of the citizen-hoplites. However, after the Greco-Persian Wars for Athens, and the 4th century for Sparta, fortifications and poliorcetics played an increasing role in the history of the Greeks and reached their acme in the Hellenistic period, driven by Philip of Macedon's decisive action.

2. The Field

As I mentioned above, studying the remains of an ancient fortification can produce a considerable amount of data on various levels, due to the evolution of the scientific methods available at the start of our third millennium.

"In no other sphere of ancient Greek building do we possess such extensive remains".[3] Yet, in spite of such evidence, these monuments were depreciated in favour of temples, agorae, palaces or theatres, richer in inscriptions and masterpieces of art. This is the reason why, for so long, the study of stone fortifications was often the work of only a few scholars or groups of architects and designers (e.g. in the context of the Morea (Greece), the Phoenicia and Syria expeditions, conducted in the 19th century) who observed still-standing remains in the field and produced high quality drawings of specific details. Progressively, works focused on important sites; the number of publications on Greek and Italian fortifications began to grow after the First World War and included the fortifications of Messene, Mantinea, Attica and the Argolid, Paestum and Syracuse.

On the other hand, the study of clay or mudbrick fortifications, which are more difficult to explore, started in the 20th century, from Egypt to India, essentially by drawing plans of the mounds and by cutting trenches through them (Qadesh/Tell Nebi Mend, Charsadda, Jericho, Bactra, Samarkand and others).

Of course, stone fortifications offer the best opportunity for establishing their plan ("wall trace" whether geometric or adapted to the topography), their elevation and their characteristics (structure, aspect, masonry). It is generally easy to describe the different components of the defence (towers, curtain walls, gates, posterns, presence or absence of a moat, materials, decoration – if any), and to judge the aesthetic qualities of their design and execution. This was of particular interest to architects and military professionals who very precisely calculated the correspondence between the progress of artillery and the form of the towers, the distance between the towers or the influence of the hoplite equipment on the design of the gates and posterns (with the ritual mention of soldiers carrying their shield on the left arm, leaving their right side virtually uncovered).

It is sometimes possible to use inscriptions set in masonry ("Mauerbauinschriften"[4]), but these are generally scarce (except for Thasos) and must be used very cautiously. More frequently, dating was inferred via ancient historical or literary texts referring to the construction of walls, conflicts and sieges, among other things. The problem is that the references to historical events are sometimes used without enough caution: how can one be sure that the remains of a given rampart correspond exactly with a particular historical event (cf. mistakes about the identification of the sieges described by the texts at Troy or Jericho)? In the same manner, it is difficult to date the construction of a rampart using a reference to a conflict (which inevitably happened at a later date). Let us also mention texts which could be later reconstructions: e.g. the erroneous attribution of the construction of the walls of Jerusalem to Elias (cf. C. Balandier 2014).

The following step was the development of architectural and technical comparisons based on plans, wall stonework or mudbrickwork or art history. However, dating based on art history has little place in this context (e.g. it is nonsense to describe a Hellenistic fortress by reference to the golden number). Dating a plan (sometimes difficult to determine) by comparison with another fortification that has supposedly been dated (using what method?) or by analysing wall building techniques (R.L. Scranton 1941, often erroneous and now obsolete), remains a highly problematic approach.

[2] Rey 2012.
[3] Winter 1971, x.
[4] Maier 1959-1961.

Since the middle of the 20th century, using the significant body of documentation and new information resulting from the development of the archaeology of fortifications, specialists in ancient civilizations decided to conduct excavations on fortifications in the Mediterranean, the Near East (practically inaccessible before the First World War) and the Soviet territory.

The result of such an important activity is that Aymard and others after him called attention to the fact that war, and especially fortifications, were wonderful sources of fundamental data for historians.[5] Through its architecture and technical proficiency (building, tactical and strategic), through the type of weapons and machinery employed, a fortification informs us on the period of building, the potential enemy, and the political ambition and power of the sponsor of its construction. Traces of assault, of decay or restorations, can also provide important information on the general history of a city.

After 1970, in accordance with this evolution, there appeared fundamental studies by F.E. Winter (1971), Y. Garlan (1972), A.W. Lawrence (1979) and A. McNicoll and N.P. Miller (1997) as well as photographic or pictorial books by H.F. Musche (1963) and J.-P. Adam (1984) concerning the Greek military architecture. These were essentially based on external observation of the monuments and partly on texts by Aineias the Tactician and Philo of Byzantium.

3. The Scientific Archaeological Approach

This sudden abundance of descriptions and of scientific data bases opened the way for researchers to establish topo-chronological typologies which necessarily imply the dating of the fortifications in question. And it was precisely at this moment that a new dating process emerged: the techniques of modern archaeology.

In the middle of the 20th century, M. Wheeler excavated fortifications in India and founded scientific archaeology with a new method: the use of stratigraphical trenches and soundings which provided many new kinds of information on fortifications. With this technique it became possible to date the construction and the different phases of a fortification through their correspondence with soils and levels containing ceramics, coinage, etc. This method at last provided good quality datings.

Then, from the 1970s, numerous groups of archaeologists in collaboration with topographers, ceramologists and other specialists began to work on fortifications. Apart from the stratigraphical methods, other new methods were employed:

- Surveying the trace of the walls by kite, plane or satellite photographs, and magnetometry.
- Drawing fortifications with all the necessary details, like any other archaeological monument, with total stations, scanners and other precise instruments which give exact measurements and allow the realization of high quality plans. This precision can offer ways to determine the original graphic design used to build the city and the evolution of the original topography of the place.
- Establishing the carefully observed context of ceramics, coins or inscriptions to obtain good quality dated information; the content of an inscription will be interpreted differently if the inscription has been found in its right place, if it has been removed or if it has fallen from another place.
- More recently, archaeomagnetic dating techniques and C14 analysis.

All of these techniques are now widely employed worldwide, from the Mediterranean world to the Far East, and a strategy for excavating fortifications has now been seriously established (Leriche, Istanbul 1993).

An abundant literature

With such instruments, the archaeological research developed strongly, creating the need to assess the results and to publish.

This Fokus Fortification symposium is the fifth one dedicated to Ancient fortifications, since Valbonne colloquium (1983), followed by the two symposia in Istanbul (1993, 2007) and the round table in Paris (ENS 1999).

Two collective publications (Van de Maele and Fossey *Fortificationes Antiquae*, 1992, Prost (ed.), *Armées et sociétés de la Grèce classique*, Paris, 1999) have been dedicated to this topic.

[5] Aymard 1959, 3-15.

In the last twenty years, numerous new studies have been published about ancient fortifications, war and siegecraft in the Classical world and the Near East:

- 1992: Van de Maele, Fossey: Greek and Roman fortifications;
- 1993: Wightman, Fortifications of Jerusalem;
- 1994: Breton, Ancient fortifications of Southern Arabia;
- 1997: Moret: Iberic fortifications; Napoli: Linear Roman fortifications;
- 1999: Kern, *Ancient siege warfare;* Prost: Armies and societies in Ancient Greece;
- 2000: Rizza: Greek fortifications of Leontinoi; Pimouguet-Pédarros: Ancient fortifications of Caria;
- 2003: Morillo, Cadiou, Hourcade: Defence and territory in Roman Spain;
- 2004: Typaldou-Fakiris: Fortified cities of Phocis; Gras, Tréziny, Broise: Archaic Megara Hyblaea;
- 2005: d'Agostino, Fratta, Malpede, Fortifications of Cuma; Saez Abad: *Greek and Roman artillery and poliorcetics;*
- 2009: Ducrey: War and warriors in Ancient Greece;
- 2010: Cipriani, Pontrandolfo: Walls of Paestum; Fauchères, Pimouguet: Siegecrafts of Rhodes;
- 2011: Frederiksen: Archaic Greek city walls; Grandjean: Walls of Thasos;
- 2012: Fachard: Eretrian territory and its fortifications; Rey: Poliorcetics in Bronze Age Near East
- 2014: Balandier: Fortifications of Achaemenid and Lagid Syria-Palestina.

Since the 1993 symposium in Istanbul, many new discoveries or important works on ancient fortifications can be listed (without claiming completeness). Those of Marseilles (France) or Jebel Khalid (Syria) have already been published, others have preliminary publications: Roman Limes in Germany and Great Britain; Messene, Thasos (rampart and isolated towers) in Greece; Pergamon and Karasis in Anatolia; Amathous and Paphos in Cyprus; Apollonia in Albania; Merv, Kampyr Tepe, Termez, Samarkand and Bactra in Central Asia, etc.

Along with this expansion of precise research, we can also mention the emergence of new questions regarding the relationships between fortification and territory, fortifications and roads, frontiers, limes, water supply, and so forth. For example, the problem of the function of isolated towers like the ones between Attica and Boeotia; the typology and hierarchy of the functions of fortifications (regional walls/ urban fortifications/ *phrouria, ochyromata*; adaptation of defensive designs to artillery and siege machines; reflections on the *makrateiche* (long walls) and on the reduced defended urban territory; country long walls like those of Iasos; oasis walls like those around Merv or Bactra.

Studying fortifications: new directions appear

1. Architecture

Stone architecture

- Studying the stone building materials and their respective qualities used to erect the walls, as well as the technique of building can inform us about the history of fortifications and monuments.
- Important progress has been made on stone cutting in terms of quarries (Thasos, Europos-Dura, Petra, Yemen), choice of stone, instruments, organization of building, and workshops, by J.-Cl. Bessac and T. and M. Kozelj.
- Significant progress has also been made concerning stoneworks and their function, types of ashlar masonry, rubble techniques, *emplecton* walls, "Phoenician" walls. Special mention must be made of the modular header-and-stretcher technique as seen in the stone fortifications of Ibn Hani in Syria (Fig. 1), a building technique which was frequently employed in Near Eastern Hellenistic fortifications.
- However, many questions remain to be answered regarding the polygonal work, the plan and design of the fortifications.

Mudbrick architecture

Mudbrick fortifications, very common in the Bronze Age Mediterranean, continued to be built in Archaic Greece. On the other hand, from the end of the 5th century BC, Greek fortifications were all built in stone, thus giving rise to the idea that Greek fortifications were necessarily stone constructions. This resulted in a total lack of interest in the mudbrick fortifications which, nevertheless, were built by the Seleucids, the Parthians and the Kushans. Less than a century ago, A. Foucher found only mudbrick constructions on Bactra citadel and concluded from the lack of stone masonry that Greek Bactra was a mirage.[6]

[6] Foucher 1942, 113–5.

Fig. 1 Ibn Hani (Syria): Remains of the stone modular header-and-stretcher coffering of the southern curtain wall. View to the west (© AURORHE).

In reality, the Macedonians adapted their designs to mudbrick technology and built powerful ramparts in the East. The evolution of the mudbrick forms and sizes and the marks they sometimes bear – generally made by hand – provide us with useful data on the period of building fortifications.

2. General Aspects

Economy of the construction

Until recently, the cost of a rampart, the duration of the work, and the number of workers, were found through texts or inscriptions. However, experimental archaeology applied to the walls of Europos-Dura on the Euphrates under Bessac's supervision proved to be revealing. Rostovtzeff had written that the building of these fortifications was slow and remained unfinished after one and a half century.[7] In contrast, J.-C. Bessac proved that with one thousand workers, the Hellenistic stone fortification of Europos could have been completed in only three years.

Fortifications and urbanism

In the case of an urban fortification, the relationship between the military logic versus urban logic were mainly treated through general considerations (see Hoepfner and Schwandner, and E. Will on Europos-Dura).

Nowadays archaeology enables us to compare the process of fortification with that of town planning. Such type of question has been examined with careful consideration by Y. Grandjean in Thasos and H. Tréziny in Megara Hyblaea (both published). Some publications have been devoted to the ancient techniques of groma surveying. Regarding Europos-Dura, G. Thébault – a professional topographer-land surveyor who has supervised the design, creation and execution of urban projects – will shortly be publishing the method used to create the Hippodamian town according to the general defensive principles of this period and to the topographic reality of the plateau, wadis and river (Fig. 2).

Studying siegecraft

The archaeological traces (organization, materials, processes, breaches, saps) of assaults against fortifications have always been studied with great attention in the Greek, Roman and Near Eastern worlds. Since Marsden (1971) and Landels (1978), attention has been drawn to the progressive adaptation of conceptual and technical progress in building equipment and techniques such as scaffoldings, cranes, stone cutting and wall building, to the technology of siege machines (*helepoleis*, artillery etc.). We have a good knowledge of the *mekhanai* which were invented by engineers and skilful personalities from Archimedes to Philo of Byzantium or Hero of Alexandria, and described by Vitruvius or Pliny. The machines created to build enormous buildings or temples like that of Didyma were very quickly adapted to the art of war.

After the assault ramps that have been explored in Palaipaphos (Cyprus), and Lachish or Masada (Israel), a new opportunity is offered in Europos-Dura to study the construction of Sasanian and Roman assault ramps, tunnels and mining techniques (Fig. 3). Since S. Rey's publication on Near Eastern fortification, it appears clear that this technology was directly influenced by the technical knowledge of the previous periods.

[7] Rostovtzeff 1941, 484.

Heritage

When excavating a fortification, it is imperative to always consider the preservation of the remains and to design excavations which will result in the best possible preservation of the monument after digging.

Fortification and history

In the past, few scholars were really not concerned with the excavation of fortifications because of the dimensions of such monuments and many historians of the texts thought that the role of archaeology was only to illustrate history. Nowadays, the gap between different disciplines has been seriously reduced and, it is now generally accepted that the digging of a site's fortifications – whatever the period in question, but especially regarding ancient history – can contribute to determining and dating the main phases of a site. Thus, not only the general circumstances of the construction of a wall, but also a great deal of information on the life of a town or a region and even general politics in antiquity can be collected (see Balandier).

However, many questions remain to be addressed:

- What is the purpose of a fortification in relation to the historical period of its creation? Construction of military architecture cannot be the result of a private initiative. One has to determine who created the fortification. In the Greek world between the 8th and the 6th centuries BC it is the city itself. After the triumph of Macedonia, however, it is generally the king or the emperor. Inscriptions are therefore very useful for determining who paid for a fortification: the town or the imperial administration and why?[8]
- How can the history of a fortification be linked to the main events of the history of the town? Can we utilize data from the fortifications of a city (foundations, attacks, but also periods of power or of weakness, date of abandonment etc.) to check the texts relative to that city? (see later for a preliminary answer).
- What is the role of Near Eastern knowledge on the development of pre-Hellenistic Greek fortification? What happened to this knowledge after the Macedonian conquest of Asia? Did the Near Eastern science of warfare have any influence on Hellenistic, Parthian, Roman and Sasanian arts of fortification and poliorcetics? For example, how can we explain the fact that the design of the main fortification gate at Europos-Dura is exactly the same as that of the Near Eastern Bronze Age gates of type D (a corridor between two long parallel towers and a passage controlled by three gates reinforced by three pairs of pilasters) (Fig. 4). Or, is there a link between the embankments built on both faces of the Europos-Dura fortifications against the Sasanian attack and the ancient Mesopotamian tradition of embankments as described in S. Rey's recent publication?
- Studying the mentality: What does it mean to live in a fortified town? (cf. P. Gros in *Fortificationes Antiquae* 1992); what was the behaviour of the inside population during a siege in antiquity? Aineias the Tactician gives some information, but it seems to me that we can explore this question further.

Mistakes to avoid

In the course of my research, I have noticed some recurrent problems in the study of ancient fortifications.

1. The Field

- Paradoxically, the first thing I will refer to is the mistake of not studying the fortifications of a town in order to establish its chronology. This negligence results in ignoring a useful chronological framework for the monuments of the site under study. For example, the problems of the still imprecise chronology of the famous temple of Takht-i-Sangin in Tadjikistan (Fig. 5). On the other hand, compliments to P. Scherrer and U. Lohner-Urban who finally, on their initiative, closed the recurrent discussions about the dating of Side's fortifications.
- Another mistake is to describe a system of fortification by its general external aspect, without checking the chronology of its different parts. This leads to the integration of later extensions or modifications in the original system and, thus, to critical errors. For example, many considerations concern the *diateichismata* and the assumed different categories of population in a town. But, it appears that such considerations would not have been raised if their authors had checked the dates. I have in mind urban sites which supposedly present such *diateichismata* where, in reality, the internal walls were built long after the city's acme (Amathus) or even after its abandonment (Ai-Khanum).

[8] Rebuffat 2012.

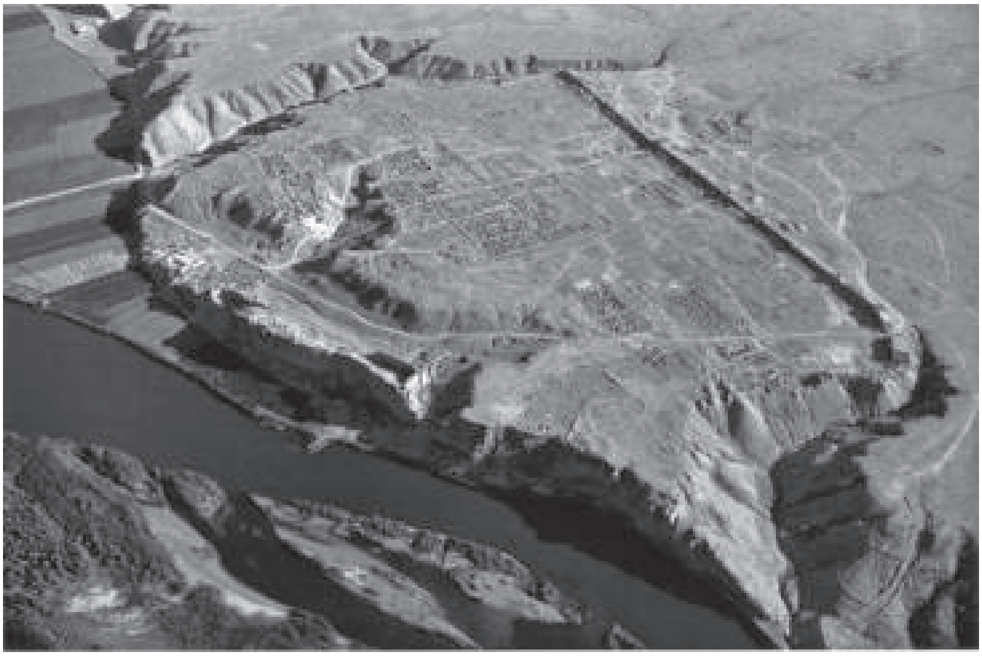


Fig. 2 Europos-Dura (Syria): Aerial view to the south (© MFSED).

Fig. 3 Europos-Dura: Internal face of stone modular header-and-stretcher coffering of the western curtain with remains of the parapet and tower 15. See the entry of two counter-mines and the top of the Sasanian assault ramp. View to the west (© MFSED).

– It is also strange to explain the building of a rampart by the existence of a current conflict: it is evident that a fortification must be erected in time of non-belligerence. However, it is significant to know whom the builders considered to be their potential enemy. A change in the type of enemy modified the design of Central Asian fortifications: they were massive in the Macedonian period to resist the Greek machines, but after the collapse of the Macedonian power, they became lighter, with galleries provided with numerous loopholes to better confront cavalry.

2. The Texts

– Similarly, we must be very cautious with texts, especially those written long after the event. How many authors cheerfully quote Malalas to describe the foundation processes of the four big cities of Northern Syria by Seleukos I, without taking seriously into account the fact that these events happened six centuries earlier?
– There is also the danger of misinterpretations due to schematic concepts. On the evidence of a mention in *Parthian Stations* by Isidoros of Charax, Cumont and Rostovtzeff concluded that Nikanor, general of

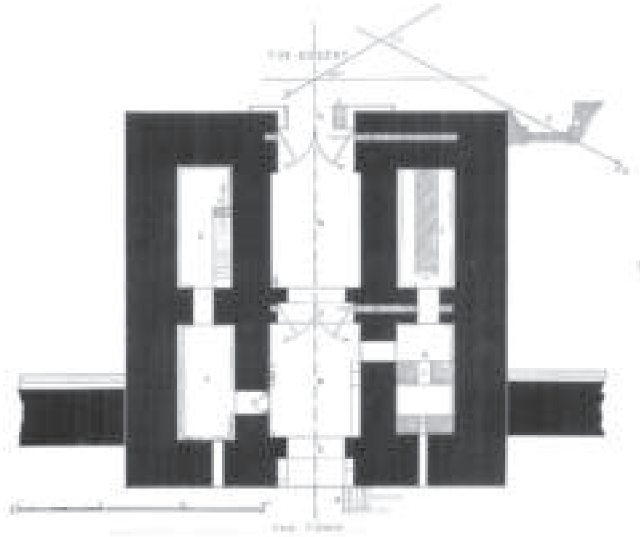
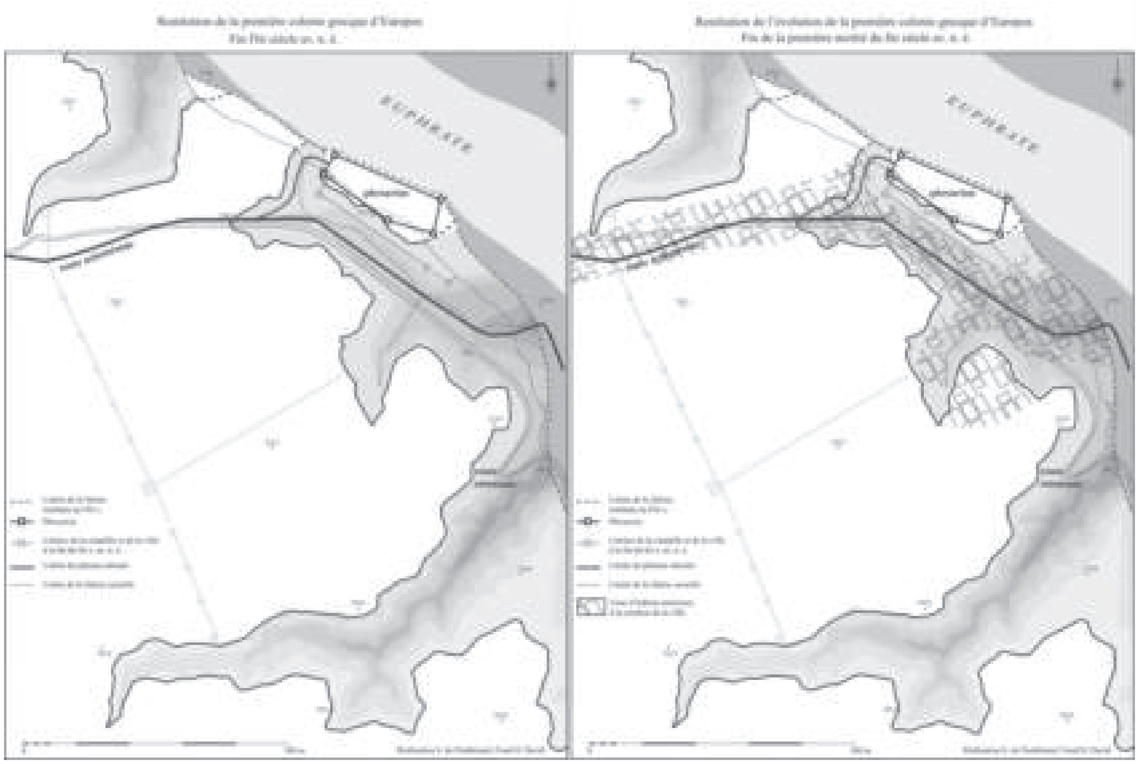


Fig. 4
Above: Near Eastern type of triple pincer gate (Rey 2012, fig. 65; © S. Rey).
Right: Europos-Dura: Schematic plan of Palmyra gate (drawing by M. Pillet; © MFSED).

Fig. 5 Taht-i-Sangin (Tajikistan): Aerial view of the excavation of the Oxus temple in the middle of an untouched fortified city. View to the south (© MAFOuz de Bactriane).

Seleukos I, had established the city of Europos at the end of the 4th century BC. However, the stratigraphy shows that the urban surrounding wall was built, in parallel with the town on Hippodamian plan, only in the middle of the 2nd century BC. In fact, what was founded at first was a *phrourion* populated with soldiers from Europos in Macedonia. One and a half centuries later, in the middle of the second century BC, this fortress became the citadel of a real city surrounded by the powerful rampart we still see today (Fig. 6). In this case, Cumont and Rostovtzeff followed the schema outlined by Plutarch, Appian or Libanios, put forward by Bouché-Leclerc, Tscherikower and many others historians, and illustrated by the then recent discovery of Olynthos and Priene. In this period of colonial ideology and when the only means to obtain dates



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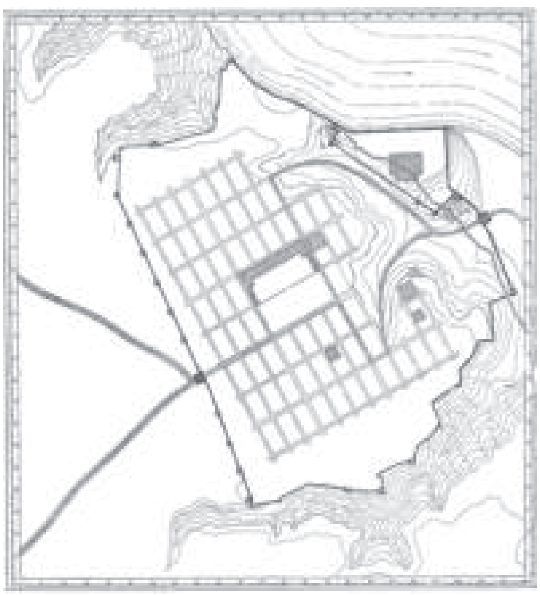

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Fig. 6 Europos-Dura: New restoration of the first foundation:

a: The original *phrourion* (300 BC) along the north–south road. The western wall of the future city is indicated by a straight dashed line (S. de Pontbriand; © MFSED).

b: One and a half centuries later, the *phrourion* was the centre of a spontaneous agglomeration (S. de Pontbriand; © MFSED).

c: Plan of the Hellenistic foundation according to the Yale University Expedition (© YUAG).

was the interpretation of texts and coins (stratigraphic excavation had not yet been introduced as a common tool in archaeology), they antedated the creation of the city of Europos, and hence the date of its fortifications.

– Nowadays, archaeological study of fortifications must be considered as a means to create solid data for the history of a city. With the results obtained by this method, we can examine the content of the written sources and not the reverse.

3. The Problematic Use of Archaeology

– The archaeological study must be done very accurately. For example, in Apamaea in Syria, Mertens had difficulty to understand his stratigraphical results but he did not attempt to dig another sounding. This led him to date the fortifications of the city, not from the middle Hellenistic period, but from the reign of Claudius.[9]

– In an excavation strategy, it is better to place the soundings along the inside face of the rampart (do not forget to indicate accurately on your drawings the inside and outside faces of the wall) to obtain a good stratigraphy; this is better than on the outside zone which has generally been disturbed by various elements like tombs (very frequent), late buildings,

[9] Leriche 1987.

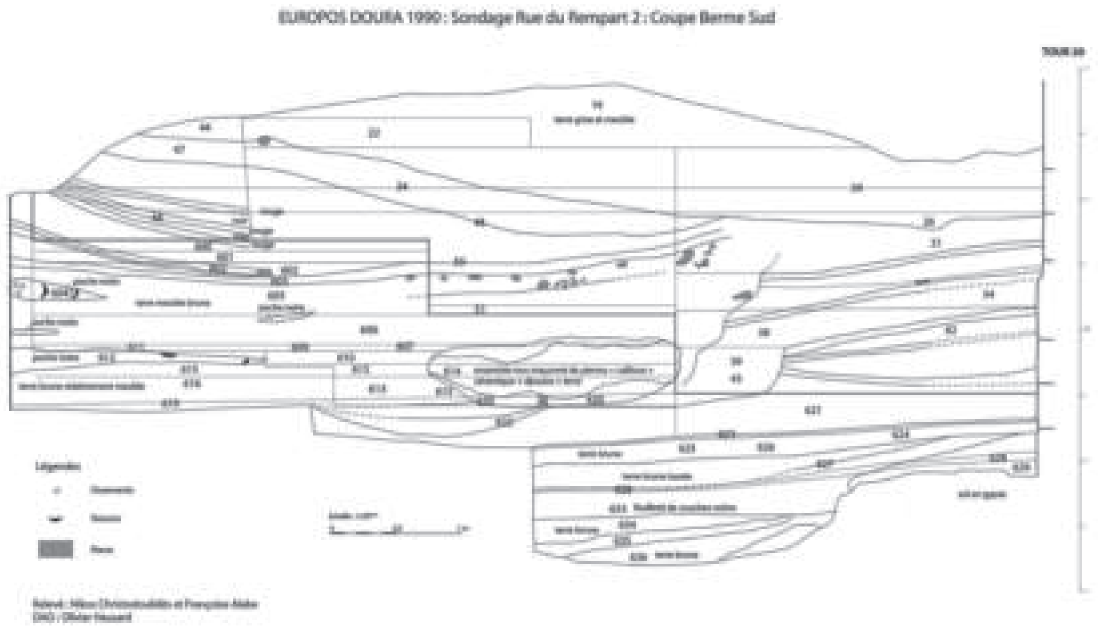

Fig. 7 Europos-Dura: Stratigraphy against the internal face of the western city wall to the right (© MFSED).

modern diggings etc. (Fig. 7). Nevertheless, remember to check the presence or absence of a moat and of *proteichisma* at some distance from the main wall, especially in the Classical period and later.

- In modern excavations, the danger is to limit the effort to stratigraphic soundings. A fortification must be evidenced on all its circuits (please do not hide the rampart under the spoils of your own excavations). However, if you are studying a mudbrick rampart, the best approach is to open up only the top of the curtain walls and towers to draw their plan, while avoiding destruction of the masonry by weather conditions.

4. More General Aspects

- The trend effects: When Mantinea and Eleusis were discovered with their mudbrick fortifications, A. von Gerkan used this model to explain the presence of a mudbrick portion in the western city wall in Europos-Dura (Fig. 8). He concluded that the mudbrick masonry was the only original part of the Hellenistic fortification of the city because the stone elevation was interpreted by him as a reconstruction by the Parthians terrified of the Roman threat. Today, we know that this mudbrick curtain had been built in a hurry by the Macedonians before the Parthian attack, in order to complete the Hellenistic stone wall under construction since half a century. This also shows the danger of integrating events known from the textual sources into the archaeological reality (a very common tendency in this period) in order to explain a phenomenon difficult to understand.[10]

Fig. 8 Europos-Dura: Ottoman breach through the Hellenistic mudbrick wall showing the mudbrick work laid on a cut-stone base and outer gypsum masonry plating from two different Roman periods. View to the south (© MFSED).

- We frequently find the general idea that when the Greeks occupied a city, the fortifications were systematically of Greek type, as if the Greeks could defend themselves only behind fortifications of Greek type. During the Achaemenid Empire, Bactra and Samarkand were capitals with powerful mudbrick

[10] von Gerkan 1939. *Contra*: Leriche & Al Mahmoud 1994.

ramparts. In the Hellenistic period, these fortifications were obviously reused, at least for some time, without any apparent Greek modification. It is thus better to study the structures *ex novo* (Ai-Khanoum, for example) to determine the characteristics of a Hellenistic Central Asian fortification.
- It is better to use common sense in evaluating the time required for the construction of a fortification of a city. Thus the brevity of the construction of Alexandria Eschate, built by Alexander in about 20 days, means that this foundation can only have been a modest *phrourion* and not a real city.
- It is also extraordinary to see how many serious historians could believe that Alexander had founded seventy towns (Plutarch) and that Seleucos I founded numerous fortified towns (Appian), given what we know about the cost of a fortification like that of Messene!

Conclusion

Thanks to new methods of studying fortifications, the time has come to reconsider all the old data on new bases. It is evident that we cannot use information about fortifications that has been acquired through their study more than half a century ago, without serious re-evaluation. It is an ambitious undertaking but it is imperative.

Here I would like to make an important remark. In spite of our efforts in 1986, we did not observe any progress on the question of the mutual obliviousness of two worlds: the Mediterranean world which thinks entirely in terms of stone architecture, and the Eastern world of mudbrick. These two worlds continue to ignore each other, as if they did not influence mutually in their evolution. When we are working in Europos-Dura, for example, in which of these two worlds are we operating? Here is a real research field for students.

Anyway, I find here many reasons to be optimistic. First, because we are here more numerous than in the Valbonne symposium. Of course the chronological period is wider, but, on the other hand, we are more concentrated on the Mediterranean and its border, except for S. Rey, S. de Pontbriand, P. Schneider, M. Schnelle and myself, the only ones who can present impressive Eastern mudbrick military architecture. Nevertheless, we can be satisfied here by this increasing number of archaeologists and historians interested in the study of antique fortification in all its aspects. And so, in the name of all the participants, I want to thank very warmly the organizers for this important initiative.

Second, I am sure that the publication of the proceedings – "Fokus Fortifikation 2" – represents a lot of work, dear organizing colleagues, but the way you directed this affair convinces me that it will be a success which will stand out. It is worth it indeed, because this meeting has allowed us to make a general assessment of the research. However, it also represents a new stage in the development of this still young discipline. Like the young Herakles, it is already full of energy and – I am sure – it will continue to grow in vigour, providing plentiful and promising harvests of future numerous brilliant achievements.

Thank you FoFo!

Pierre Leriche

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Origins of Fortifications

INTRODUCTION

Rune Frederiksen & Mike Schnelle

Fortification has been part of urban life from the time of the first settlements of the Neolithic Revolution.[1] In the Iron Age and historical periods towns and cities continued to be surrounded by fortification walls and it was in fact only in more recent times, around 1900, when modern artillery and later warfare with aeroplanes made fortifications obsolete, that they disappeared as an omnipresent urban phenomenon of our world. Up to that point, close to every town or city had had its own fortification, existing in many phases corresponding to the major active periods in the history of the individual cities from the time of their foundation onwards.

As was stated in the call for papers of this conference we understand *origins* both in connection with early civilizations as such in our part of the world, and more specifically of the origin of fortification in ancient Greek and Roman antiquity, since this is what most of our network participants concentrate on in their specific research. 'Origins of fortification' was not one of the research areas that was systematically scrutinized by our research network, but it was clear that it was too important a topic to leave out of this conference. The call for papers therefore asked for contributions under this heading, and, as was the case with the other sessions, we received many more proposals than we were able to include; and we were able to compose a session widely spread in time and space.

We have not at any point believed that we could get together something that would get anywhere near a comprehensive treatment of the origins of fortification. What we have been able to present are eight papers spanning in time from the Early Bronze Age to around the birth of Christ, and in geography from South Arabia over Mesopotamia to Rome and Anatolia to Crete. This includes some treatment of cultures outside the ancient Greek and Roman cultures, also in accordance with the research conducted by some of the network members. The study of cross-cultural interaction is important in any major investigation of a single phenomenon, as this one on fortification, and we thus include some treatment of the more important cultures contemporary with and neighbouring the Classical Mediterranean ones.

This section both brings into focus aspects of fortification that are particularly important for those early cultures, but also offers a prelude in terms of a number of issues and categories of question which the reader will encounter over and over again in the thematic sections in the rest of this volume.

The first two papers take us to some of the earliest urban civilizations on earth, namely Mesopotamia and Syria in the Early Bronze Age. Then we jump to a treatment of the Neo-Assyrian Empire. The Neo-Assyrians are known to world history as early masters of warfare and

[1] Tracy 2000, 1. For ancient Greece: Alusik 2007; Aslanis 2008; Runnels *et al.* 2008; Simpson and Dickinson 1979, 46–7, 174. For the ancient Near East: Wright 1985, 172–215, figs. 76–122; Cooper 2006.

their universe, one might say, was very much about fortifications and siege and much of what we encounter later in history was already put on stage by the Assyrians. The chapter on Neolithic and Bronze Age Crete takes us back in time again and into the Mediterranean, and a chapter is devoted to certain aspects of fortification of the Mycenaean World – a culture which has long been known for its fortifications. The early Iron Age is represented by a paper about the fortifications of Central Anatolia, and we then jump in geography to one article about the early fortification of the city of Rome. The section is rounded up with a treatment about the fortifications of the ancient South Arabic culture that spread on both sides of the Red Sea beginning in the early Iron Age towards the end of the 1st millennium BC.

It may be a banality, but general for fortification is that it follows settlement, at least settlement of some size. Next, it is interesting to observe that fortification as a phenomenon goes back to the dawn of civilization, or to put it in more dramatic terms: the development of the civilized part of human history reveals a most uncivilized element of human character, we must say, namely a constant need to develop and maintain profound protection in the form of walls, from other humans.

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MARI AND THE DEVELOPMENT OF COMPLEX DEFENSIVE SYSTEMS IN MESOPOTAMIA AT THE DAWN OF HISTORY

Pascal Butterlin & Sébastien Rey

Abstract

This article briefly discusses the historiography and current theories on ancient fortifications, Archaic warfare and the 'urban revolution' and advances some general arguments that Mesopotamia's trajectory of long-term social development and state formation was related to wars and military activity. Its principal aim is to reconstruct through an examination of the archaeological and epigraphic evidence – particularly the preliminary results of our excavations at Mari, metropolis of the Euphrates – the general sequence of the development of the earliest known complex defensive systems. If prehistoric and proto-urban fortifications frequently included baffles and bastions (active defences), we believe that the appearance of 'multivallation' (strategic defences) was closely linked to the emergence of complex urban-like stratified societies.

> [Gilgameš] built the wall of Uruk-the-Sheepfold, of holy Eanna, the pure storehouse. See its wall which is like a stand of wool, view its parapet which nobody can replicate! Take the stairway that has been there since ancient times, and draw near to Eanna, the seat of Ištar, that no later king can replicate, nor any man. Go up on to the wall of Uruk and walk around, survey the foundation platform, inspect the brickwork! (See) if its brickwork is not kiln-fired brick, and if the Seven Sages did not lay its foundations![1]

In most early Mesopotamian town-planning-related studies, and more specifically scholarly research on the general layout of settlements in the ancient Near East, it is commonly accepted that city boundaries are most frequently defined by enceintes, either fortification walls, constructed barriers or surrounding enclosures. Well-preserved large-scale curtain remnants are conspicuous topographic features enabling assessment of the settlement area's security or safety perimeter. These enceintes were obvious boundaries, both physical and symbolic, praised, for example, in the Gilgameš epic as emblems par excellence of the grandeur of the city of Uruk and the dignity of its tutelary goddess. The surface area of defended perimeters is often the sole indicator for determining the size of ancient settlements, once the extent of erosion has been estimated. Yet, this evaluation does not correspond to the proper built-up urban space, the assessment of which proves to be far more difficult, even after intensive fieldwork and post-survey pottery scatter analyses. It is nonetheless fairly safe to infer that although circumvallated areas often reached c. 300–400 ha

[1] George 2003, 539.

in Southern and Central Mesopotamia, they scarcely exceeded c. 80–100 ha in Northern Mesopotamia and the Levant (Fig. 1). Moreover, only a few rather remarkable large-scale political centres expanded beyond these thresholds between the late 4th and the mid-1st millennium BC – presumably Kiš, and very likely Uruk, Lagaš, Babylon and Nineveh. Of course these issues of scale are far from trivial, especially when it comes to defending these urban-like perimeters efficiently. It is also well-known that features such as defended gates and bastions (ballistic platforms) were particularly important, even magical, elements in fortifications, and objects of special devotion, as their security-related purposes were closely linked to magic and rituals in Antiquity. The naming convention for the ancient Mesopotamian capitals' city-gates in fact corresponded to their various tasks, as recorded by B. Pongratz-Leisten: politico-theological functions, topographical data (type of activity) or geographical layout of the city.[2]

Defensive systems in the greater Near East developed considerably over time and space, and these new advances in the art of fortifications – like other elite-related public-cultic large-scale constructions (i.e. palaces, temples, high terraces and ziggurats) – often were memorialized in commemorative royal inscriptions, epigraphic baked-bricks and other foundation deposits. Major developments of these fortification features were also accompanied by complex rites and other significant advances resulting from societal and demographic changes, as well as decisive innovations in the art of siege-craft.[3] Expansions and contractions of urban-type perimeters over the course of long-term periods were extremely common phenomena both for large-scale first-tier metropolises and second-tier smaller-scaled centres, particularly in Northern and Central Mesopotamia in the 3rd millennium BC.[4] The primary purpose of this article is to reconstruct, through an examination of the preliminary results of our excavations at Tell Hariri-Mari and the new archaeological evidence from Northern Syria (especially from Tell Chuera, perhaps ancient Abarsal), the general sequence of the development of these complex defensive systems. After a brief presentation of the history of the research on ancient fortifications, archaic warfare and the 'urban revolution', we advance some general arguments that Mesopotamia's trajectory of long-term social development and state formation was related to wars and military activity and that the development of multivallation (multiple-enclosures), i.e. strategic defences – Mari in this respect stands out as a primary locus of innovation – was closely linked to the emergence of complex, urban-like, stratified societies in Mesopotamia.

Early fortifications, archaic warfare and the urban revolution: historiography and theories

Since Childe's pioneering studies in the 1950s, it has become rather common to relate the so-called 'urban revolution' – i.e. a multiplicity and coalescence of major innovations occurred in the late 4th millennium BC in the southern part of present-day Iraq, such as the appearance of the state, of an integrated economy, the development of writing, of bronze manufacture, and the emergence of monumental art and architecture – with the construction of large-scale defensive enceintes.[5] If it is no longer a matter of allocating the first fortifications to this key period today, the fact remains that many, if not most, proto-urban centres of the Late Chalcolithic–Uruk period, and the first cities of the Early Dynastic–Bronze Age included complex-type defensive systems. Although the earliest known security perimeters of the Neolithic and Early Chalcolithic periods frequently included baffles and bastions, that is active defences, the appearance of multivallation – multi-layered defences composed of various and often cumulative fortification elements, such as earthen ramparts, enceintes, defended gates, firing platforms, each having a specific and complementary role – clearly was linked to the 'urban revolution'.

[2] Pongratz-Leisten 1994.
[3] Rey 2012.
[4] Butterlin 2009, 25–47.
[5] Childe 1950, 3–17.

Fig. 1 Mesopotamian geopolitics before the Akkadian conquest (author's map).

The evidence from the Pre-Pottery Neolithic Tell es-Sultan–Jericho in the Levant (c. 8000–6000 BC) – the earliest known defended ditch backed by massive rock enceinte almost 6 m high and a (later) large-scale circular tower-like inner structure at least 8 m high – and Tell es-Sawwan in Mesopotamia, featuring a 3 metre-deep enclosure moat backed by mud-brick curtain, reinforced by projecting bastion-like structures and pierced by a bent-axis defended gate in the 6th millennium BC, clearly indicates that prehistoric sedentary food-producing societies – the first agriculturalists – were able to find the means to protect their settlements against predatory foes. Yet, it is very likely that these primitive aggressors, at least up to the early 4th millennium BC, remained well-organized raiders, whose primary aim was not to capture and destroy but plunder on a regular and rather parasitic basis stored produce. Thus, prehistoric enceintes, even if some of them were reinforced by projecting towers or buttress-like abutting structures – it should be noted that the so-called watch-tower of Jericho is very poorly sited for defence, i.e. behind the wall – were not proper fortification systems, but security barrier-type enclosures, only designed to repel low-intensity threats. Recent studies conducted by C. Reichel and A. McMahon in Northern Mesopotamia, particularly at Tell Hamoukar and Tell Brak, shed new light on such threats.[6] Organized violence clearly becomes a widespread phenomenon in the Late Chalcolithic 3 period, c. 3700 BC. Hamoukar, for example, developed into a strong, fortified proto-urban centre, and greater Mesopotamia, in general, witnessed several decisive advances in the art of warfare, closely linked to the state formation process.

[6] Reichel 2006, 1–11 and McMahon, Sołtysiak & Weber 2011, 201–20.

Proto-urban societies progressively evolved between c. 3700 and 3100 BC into warring-like political entities. The fortifications of both Cheikh Hassan and Habuba Kabira included different complex-type features derived from long-term advancements in their construction and function. Habuba Kabira's defences comprised a main curtain wall and a second, probably low, outer line of walling – i.e. the earliest known *proteichisma*. The so-called 'Uruk expansion', perhaps driven by demographic crises and unrest in Southern Mesopotamia, clearly had a politico-military dimension: wide-scale destruction recently identified at several sites in Northern Mesopotamia has been related to sporadic manoeuvres, possibly led by Urukian settlers from their economic-defensive outposts. The stronghold of Tell Mashnaqa in the Late Uruk period may have been constructed to prevent access to Brak from the south along the Khabur River.[7] However, these Northern Mesopotamian fortification features of the late 4th millennium BC, such as curtain and low outwork walls, even if many of them clearly grew larger and stronger over the course of the Late Chalcolithic 5 period, remained fairly small-scale, ranging from c. 2 to 3 metres in width and circumvallating densely built-up proto-urban areas of only a few hectares (20 ha at the most for the colonial town of Habuba Kabira). The emergence of larger-scaled multi-layered defensive systems in the early 3rd millennium BC, thus, may be considered as one of the major aspects of the 'urban revolution'.

The development of these staggered-like fortification systems is ordinarily related to that of the so-called Kranzhügel-type cities of Northern Mesopotamia. Yet, important scale differences between even the largest among these wreath-shaped sites of c. 80–100 ha and other well-known double-walled cities, like Tell Hariri-Mari (originally c. 150–200 ha), must be emphasized once again. Moreover, it should be noted that these sub-circular configurations of urban layouts composed of a double line of walling appear not to have developed immediately in the remainder of greater Mesopotamia: the Land of Sumer witnessed different trajectories and urban dynamics from the Late Uruk period; yet, preconceived defensive systems probably emerged in Southern Mesopotamia only in the course of the 3rd millennium BC (Early Dynastic-Akkad-Ur III periods) and only a few sub-circular urban defences have been reported (e.g. Ur). In the remainder of Mesopotamia, the development of large-scale double-walled cities from the Early Bronze Age included massive concentric rings of defensive earthworks and constructions. Naram-Sîn of Akkad's famous royal inscription commemorating the destruction of the city of Armanum in Northern Mesopotamia is the earliest known epigraphic document providing unequivocal data relating specifically to these urban-type morphologic configurations (Fig. 2).[8] Armanum – either the present-day Bazi-Banat complex[9] or modern Samsat[10] – included multiple lines of fortification, from the Quay enceinte to the Citadel

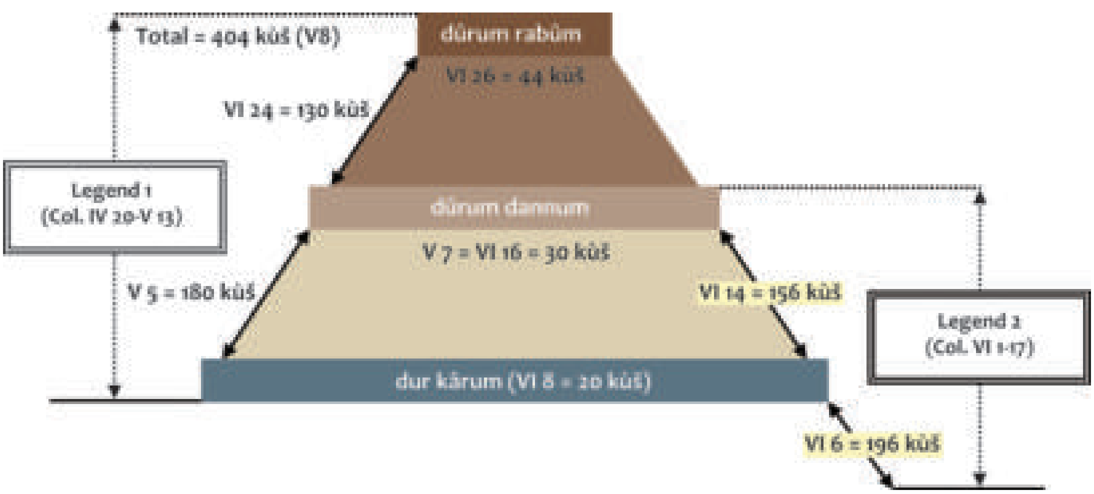

Fig. 2 Multiple-enclosures of the city of Armanum (after Foster 1982, 35).

[7] Butterlin 2003.
[8] Frayne 1993, 132–5.
[9] Otto 2006, 1–43.
[10] Archi in press.

enceinte and the Palace defended gate where the king of the city was defeated. Staggered and layered (sub-circular) defences, thus, clearly were major features of the first urban-type topologic landscapes in Northern and Central Mesopotamia. Multivallation itself, of course, may have been devised as a means of segregation, functional or hierarchical. Hence, our primary focus in the remainder of this paper is on the modalities of the evolution of these complex fortification systems.

Multivallation, state formation and alternative urbanization trajectories in Mesopotamia

It is a well-acknowledged fact today that the development of the so-called Round cities should be considered as one of the most characteristic Mesopotamian patterns of state formation and urbanization trajectories at the turn of the 4th and the 3rd millennium BC. Following the pioneering studies of J.-C. Margueron, Mari (modern Tell Hariri) has long been considered as the earliest known circular-shaped metropolis in Mesopotamia (Fig. 3).[11] Today, the site, situated on the right bank of the Euphrates River, is a c. 100 ha complex of mounds: the main tell (upper mound) covers an area of c. 40 ha; the lower town is surrounded by a south-eastern concentric levee. Excavations from 1933 to 2010 led to the identification of three main periods of occupation: Mari I (c. 2900–2650), Mari II of the Early Dynastic period (c. 2600–2300) and Mari III of the Šakkanakku and Lîm dynasties (c. 2300–1750). According to morphologic studies and stratigraphic step trenches on the northern and eastern edges of the main mound, the topography of the present-day site is the result of massive flooding

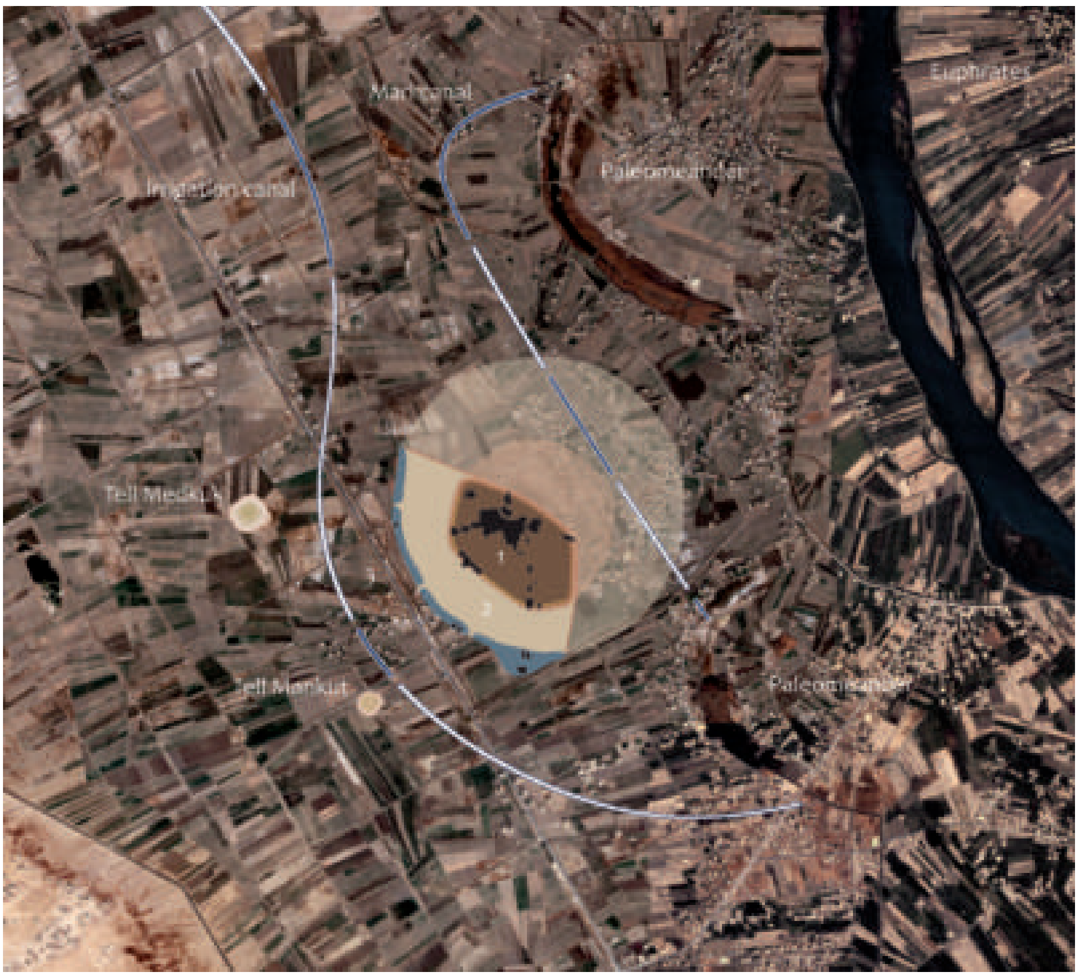

Fig. 3 Multivallate-rings of Tell Hariri-Mari (Mission archéologique française de Mari).

[11] Margueron 2004.

and erosion.[12] Hence, Mari I would have been originally a c. 150–200 ha double-walled city, including two separate lines of defence, the inner perimeter made of heavy stone foundations with superstructures of mud-brick enclosing the upper town – i.e. the proper urban-type space of combined pre-planned political-religious nuclei and densely occupied plebeian-like areas – and a second, outer earthen embankment or dyke-like structure surrounding the lower town, and made of layers of clay, broken mud-bricks, and other types of earth and soils, measuring 8 m in width, and featuring a 2 metre-wide stone core-wall – probably the foundation of a proper enceinte. This particular configuration of a double line of walling circumvallating the upper city – the so-called Amorite *kirhum* of the old-Babylonian epigraphic documents – and the lower city (the *adaššum*) occurs in the Mari royal archives of the early 2nd millennium BC.[13]

Yet, recent discoveries in Northern Mesopotamia at Tell Chuera, maybe ancient Abarsal, and Tell Beydar, ancient Nabada, but also at Mari itself, after the renewed exploration of the fortification in the East city, have prompted debate on the validity and relevance of the above-mentioned scenario that the latter site may be considered as the non-ambiguous precursor of the Round cities.[14] Preliminary results of the latest fieldwork conducted by J.-W. Meyer at Tell Chuera led to the identification of a pre-Kranzhügel phase dating to c. 3100 BC, i.e. immediately after the abandonment of the Urukian Euphrates colonies, or at least at a time close to this abandonment (Fig. 4). In any event, the foundation of Chuera (THC IA) clearly predates the construction of the earliest Mari I remains. Yet, this early settlement (proto-Kranzhügel) of sub-circular layout did not include two separate lines of defence. Only the main mound (the later upper town), covering an area of c. 50 ha, was inhabited and enclosed by a massive 4 metre-wide mud-brick enceinte. In fact, Chuera developed into a proper double-walled city of c. 90 ha only in the subsequent phase (THC IB). But shortly after the construction of the outer fortifications – an inset–outset bastioned 5 metre-wide mud-brick curtain wall and earthworks (rampart and glacis) – the inner enceinte fell out of use and was incorporated into adjacent domestic-type structures. One of the major preliminary conclusions of these recent finds is that, except of course for the immediate and transitional outer defences' post-construction phase, c. 2600 BC, Chuera never included inner and outer contemporaneous lines of fortification: the multivallate-rings, therefore, were the product of cumulative episodes of construction. Recent re-evaluation of the development of the defensive system of Tell Beydar–Nabada by M. Lebeau also led to a rather comparable conclusion, though in this case the reverse process occurred, since the outer enceinte appears to have been erected first and then abandoned. Nevertheless, it can be stated that the multivallation phenomenon clearly was not Kranzhügel-related.

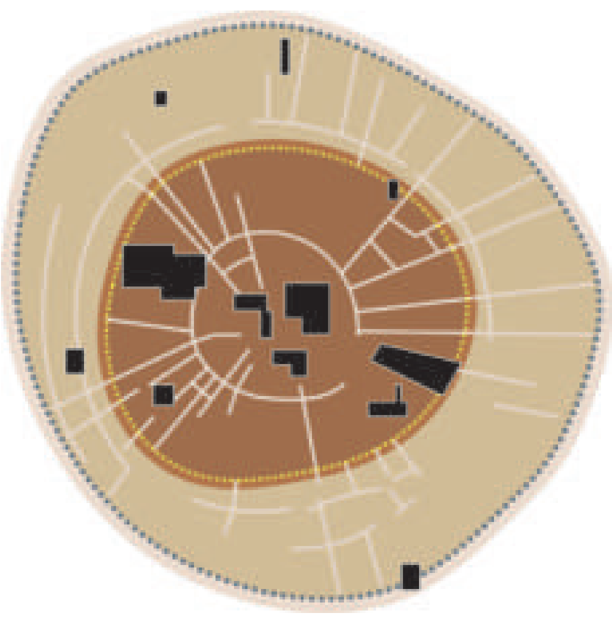

Fig. 4 Development of the complex defensive system of Tell Chuera (after Meyer in press).

As to Tell Hariri-Mari, preliminary results of our recent field-studies on the inner fortifications from 2006 to 2010 (operations N3, N4 and N5, situated along the south-eastern side of the upper town)[15] also led to the reassessment of the general sequence of the development of the entire defensive system, particularly of the earliest phases between c. 2900 and 2600 BC. Excavations in area N4, an L-shaped stratigraphic trench situated on the inner mounded ring – 30 m in length, 5 m in width in its northern part (at the crest of the mounded ring), and 10 m in width in its southern part (along the base of the ring's outer slope) – revealed a complete cross-section

[12] Butterlin 2011, 171–229.
[13] Durand 1998.
[14] Meyer in press and Lebeau 2005.
[15] See Butterlin 2007, 2008, 2010 and Rey in press.

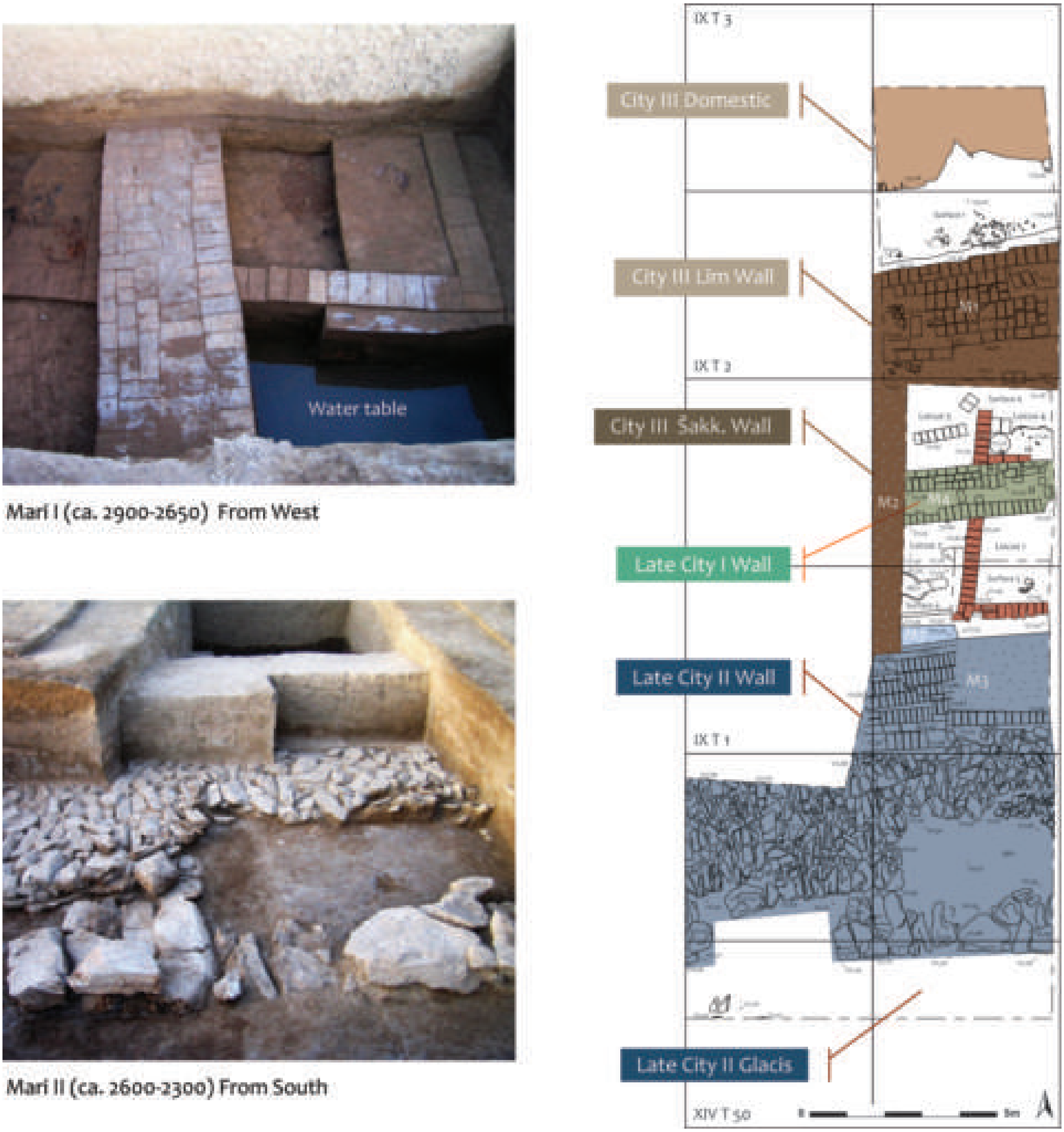

Fig. 5 Inner fortifications of Mari, Operation N4 (Mission archéologique française de Mari).

of the inner fortification system, from the modern surface down to bedrock (Fig. 5). A deep sounding in the central part of the trench, abutting the probable Mari II northern enceinte's façade, and just below the massive Mari III Šakkanakku foundations' earthworks, revealed a thick destruction layer composed of broken mud-bricks, detritus and other types of earth and ashy soils, as well as mid- to late 3rd-millennium BC diagnostic pottery. This layer sealed a sloping surface made of gypsum chips, which completely concealed earlier and well-preserved, yet levelled, and totally unsuspected architectural remains of Mari I. A 1.40 metre-wide truncated mud-brick barrier-like enceinte was exposed on top of earlier domestic-type remnants deposited on a thick layer made of alternating layers of varying types of fills directly laid out above bedrock.

This important find led to the following and likely hypothesis that the first large-scale inner fortifications made of massive stone foundations with superstructures of mud-brick were not constructed in the course of the Mari I period (c. 2900–2650 BC), but coincided with the re-foundation of the Mari II Early Dynastic city, c. 2600 BC. In fact no less than two main phases of construction of this 7 metre-wide enceinte, uncovered in the southern half of the trench and featuring (later) exterior 2 metre-deep projecting buttress-like structures, have been posited. Excavations in area N5, situated along the base of the inner mounded ring's outer slope, bordering the main southern wadi-like ravine of the East city and in alignment with the Early Dynastic bastioned curtain wall, that is, c. 20 m to the east of operation N4, also revealed the remains of a Mari II defended gate. This was dubbed Gate of Kiš owing to the fact it lay along the south-eastern side of the site in front of the major Southern route to Central Mesopotamia. Only the western part of this fortification feature was well preserved. It consisted of heavy stone and mud-brick composite foundations with a superstructure of mud-brick. The exterior façade was reinforced by several large unhewn blocks of gypsum completely sunk into the mud-brick superstructure, probably designed as an obstacle to breaching. Also, it was fronted by a tower-like salient buttress, 2 m wide and 11.50 m long. The eastern part extending into the adjacent topographic break was heavily eroded. Yet, a c. 4.60 metre-wide direct-axis entrance has been posited on the basis of a few *in situ* large slabs of stone – that is, of equal-width to the city's main streets, particularly of the *via sacra* exposed in the religious precinct along the Massif rouge. The Mari II Gate of Kiš appears therefore as a simple structure merely overlapping the inner curtain defences to form a straight and buttress-flanked passage-way featuring two central piers.

Remains of Mari III fortifications have been exposed in the northern half of the N4 stratigraphic trench and in area N3, situated c. 60 m to the west of the latter at the projecting mound-like massive structure of sub-quadrangular layout, abutting the inner line of defence, and more or less equidistant from the two main breaks of the East city. In operation N4, two main phases of construction have been identified: an early phase enceinte protected by a talus-like glacis probably of the Early Šakkanakku period, followed by a later phase, perhaps Late Šakkanakku, or more likely Lîm period. The early curtain wall, c. 7.50 m wide, consisted of a mud-brick superstructure set on massive foundations composed, as indicated above, of thick layers of earth, packed clay and heterogeneous courses of piled-up mud-bricks. It was fronted by a glacis characterized by thick, sloping layers of earth, thrown up against the exterior face of the curtain. In the following phase, the latter was reinforced by the addition of a new 3 metre-wide mud-brick interior façade. This phase, if of the Lîm period, would correspond to other developments of the inner line of defence, such as the construction in area N3 of the Southern Bastion. Of this large-scale firing platform only the southern façade was partially destroyed. Solely made from large square mud-bricks it measured c. 20 m wide and at least 22 m long, and thus would have covered an area of c. 450 m². It included a monumental staircase probably of six flights and a central square core. The latter was set in the southern part of the bastion's mud-brick superstructure only preserved in a few courses; the foundations, however, were over 1.50 m in thickness. The central core of 6.50 m side square layout rested on a composite casemate-like base of varying types of fills (pebbles, gravel, earth, etc.). Only the first series of steps made of baked mud-bricks have been exposed. They probably led from a corridor-type passageway accessible from an open square situated to the north of the bastion to the battlements' defences, conceivably c. 12 m above. Several deep soundings, including one along the northern façade revealing diagnostic Lîm-type sepultures buried in the edifice's massive foundation layer, thus providing a perfect *terminus ante quem*, have ascertained that it was constructed in the late Mari III period.

Having completed our brief presentation of the 2006–2010 operations in the East city, it is possible to draw some general conclusions about the development of multivallation and the fortification system of Tell Hariri-Mari in the 3rd and the early 2nd millennium BC.

Mari I, founded in the 29th century BC, was enclosed by an outer proto-earthen rampart or dyke-like embankment – the probable sub-structure of a barrier-type wall (Fig. 6). Although we lack wide-scale unequivocal remains of the earliest inner defensive features, we can infer on the basis of the N4 stratigraphic trench that the first 1.40 metre-wide mud-brick inner barrier-enceinte, circumvallating the densely built-up space, was constructed in the course of this period, set directly on top of the remnants of earlier domestic-like structures. Hence, Mari I appears

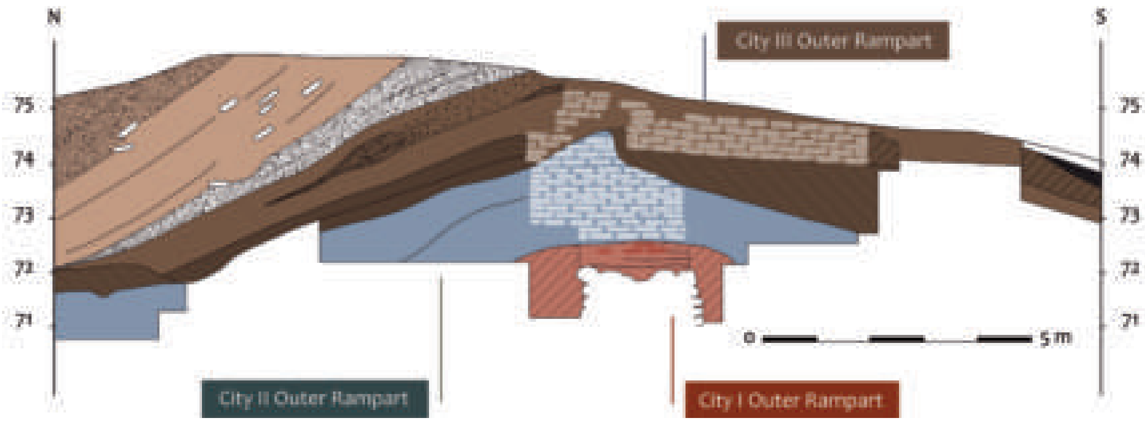

Fig. 6 Outer fortifications of Mari, Operation C5 (Mission archéologique française de Mari).

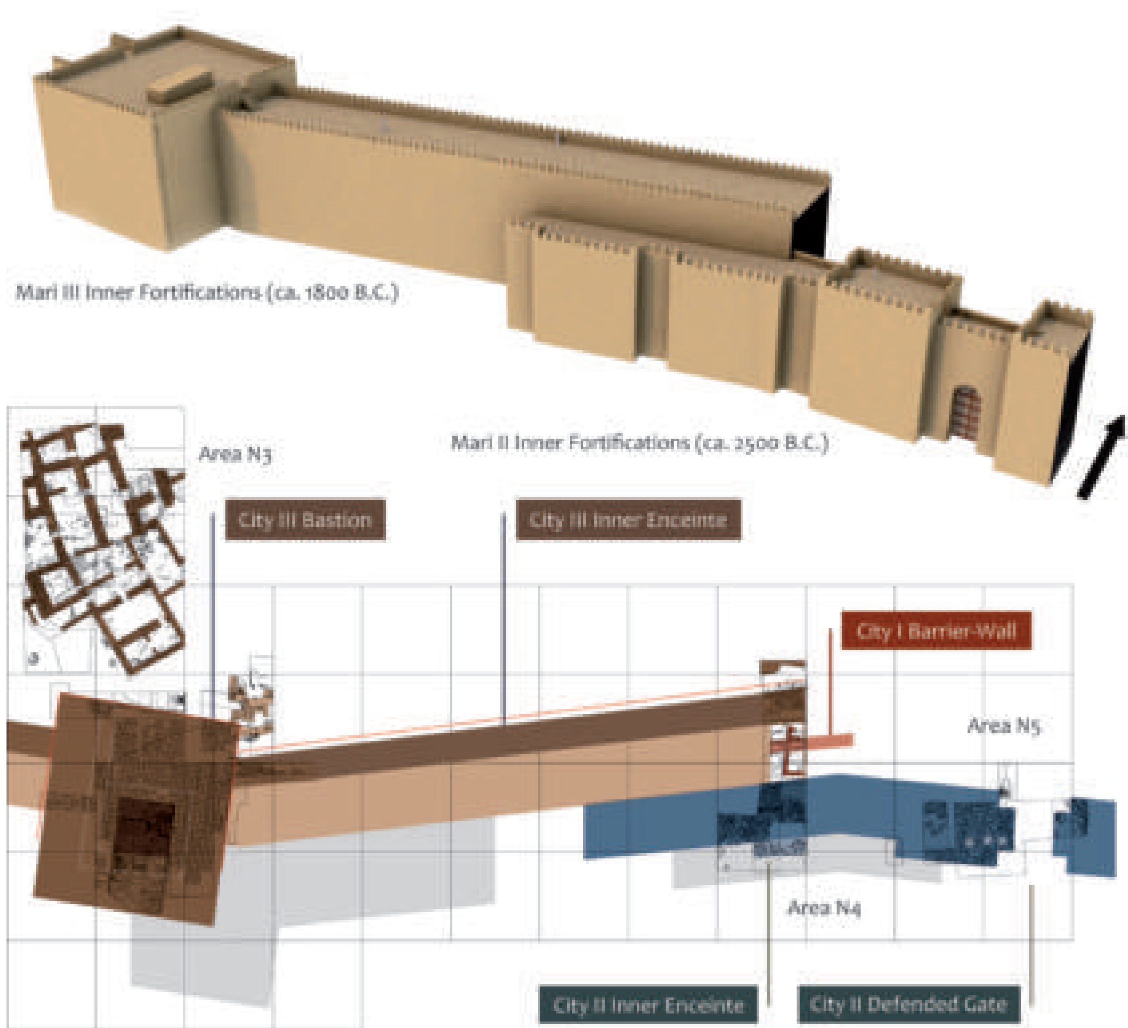

Fig. 7 Reconstruction of the defences of Mari (Mission archéologique française de Mari & artefacts-berlin.de).

as a characteristic proto-urban-type centre, including thereby an extended security perimeter (dyke and screen-enclosure), that developed into a proper double-walled city.

After a period of abandonment, Mari II was re-founded in the 26th century BC on the levelled remains of the previous city. The configuration of a double line of walling was preserved, yet the inner defences were considerably enlarged to form the main large-scale fortification system – a first 7 metre-wide mud-brick enceinte set on massive stone foundations protected by a talus-like glacis, followed by a second mud-brick curtain, including projecting buttresses, also made of mud-bricks on heavy stone foundations, and featuring, in front of the main Southern artery leading to Babylonia, a simple-type defended gate (Fig. 7). If the outer mounded ring also was rebuilt and surmounted by a 2 metre-wide mud-brick enceinte with inner buttresses, it nonetheless retained its passive-like safety-related function. Yet, building activities of this scale and complexity clearly should be evaluated as a whole as a manifestation of early state formation: multivallation, as has been suggested, may have been a measure of status and political power.

After the destruction of Mari II by Akkad in the 24th century BC, and a subsequent period of uncertainty, Mari III of the Šakkanakku dynasty was re-constructed on the razed ruins of the Early Dynastic city. Although the evidence of inner fortification features is very incomplete, it is likely, however, as mentioned above, that the early Mari III phase, characterized by a 7.50 metre-wide mud-brick enceinte, corresponded in fact to the first sub-phase Early Šakkanakku of the outer defences' chronological sequence. In the early sub-phase, a 2.4 metre-wide mud-brick defensive wall featuring both interior and exterior one-metre salient buttresses was added to the pre-existing earthen rampart; in the late sub-phase, the embankment's surface was expanded on both sides and new buttressed inner and outer façade walls were added to the pre-existing mud-brick enceinte resulting in a total width of 7 metres.

Mari III of the Lîm dynasty underwent important changes in the defensive system of both the upper town – *kirhum* and the lower town – *adaššum*. The construction of the earthen rampart's massive inner glacis coincided with the reinforcement of the inner defences, including the construction of a large-scale c. 450 m² bastion, and the enlargement of the previous curtain by addition of a 3 metre-wide new inner façade, resulting in a total width of 10.50 metres. These considerable developments of the site's defences in the late Amorite period may have been the work of the king Yahdun-Lîm who boasts in a famous royal inscription of having – like Gilgameš before him – reconstructed the fortifications of his city: 'I built the wall of Mari and dug its moat'.[16] Monumental defensive elements indeed have long been extremely powerful symbols of possession and independence: clearly, they were impregnated with a royal propagandistic content. Yet, the reconstruction of such defensive features also occurs in a year-name of Yahdun-Lîm.[17] Moreover, several non-official epistolary documents suggest that the Mari III-*kirhum* was enclosed by the 'Great enceinte' (bàd^{ki} gal, *dûrum rabûm*), and the *adaššum*, by the 'Middle enceinte' (*dûrum qablûm*).[18] If the construction of complex fortification systems served as a vehicle to enhance politico-social cohesion within these early warring kingdoms and to reinforce the kings' status, their destruction – also recorded, albeit in a laconic way, in many official documents – may be considered, through a dialectal process, as an allegorical expression of unification. The final outcome of Mari, thus, is crudely depicted in a royal inscription, in which the king of Babylon, after his military triumph, claims to have completely razed its defences and turned the Land of Mari into ruins and tells. Hammu-rabi's 35th year-name recalls: 'the year king Hammu-rabi, on the order of (the gods) An and Enlil, destroyed the (Great) city wall of Mari'.[19] If Mari today should hardly be considered as the proto-type of the Round cities, it is nonetheless possible to infer that it is at present one of the earliest known precursors of the Mesopotamian double-walled cities, and therefore a locus of innovation of deliberate multivallation for the purpose of defence.

[16] Frayne 1990, 602–4.
[17] Charpin & Ziegler 2003, 63.
[18] Ziegler 1994, 11–12.
[19] Charpin & Ziegler 2003, 244.

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MESOPOTAMIAN POLIORCETICS BEFORE ASSYRIA: GENESIS OF THE ART OF FORTIFICATION AND SIEGE WARFARE

Sébastien Rey

Abstract

This article's primary purpose is to present a general overview of the Early Mesopotamian art of fortification and siege warfare and to counter a long-standing tendency of military historians and archaeologists to consider that complex defensive systems and siege-craft machinery such as chariot-like battering-rams originated in the Late Assyrian period. Hence, we argue that Mesopotamia of the first warring kingdoms (Mari, Ebla, Lagaš, Uruk, Akkad), witnessed the emergence of poliorcetics. Our first focus is on various categories of fortification features such as enceintes, earthen ramparts, ballistic platforms and defended gates. Several typologies of these fundamental elements are advanced and we discuss briefly the impact of the development of siege-craft on the evolution of fortification systems.

> Sargon, king of Agade, bailiff of the goddess Aštar, king of the world, anointed priest of the god An, lord of the land, governor for the god Enlil, conquered the city of Uruk and destroyed its walls. He was victorious over Uruk in battle, conquered the city, captured Lugal-zage-si, king of Uruk, in battle and led him off to the gate of the god Enlil in a neck stock. Sargon, king of Agade, was victorious over Ur in battle, conquered the city and destroyed its wall. He conquered Eninmar, destroyed its walls, and conquered its district and Lagaš as far as the sea. He washed his weapons in the sea. He was victorious over Umma in battle, conquered the city, and destroyed its walls. To Sargon, lord of the land the god Enlil gave no rival. The god Enlil gave to him the Upper Sea and the Lower Sea, so that from the Lower Sea to the Upper Sea, citizens of Agade held the governorship of the land. Mari and Elam stood in obedience before Sargon, lord of the land.[1]

Most scholarly research seeking to address ancient fortifications and siege warfare in Antiquity lacks a comprehensive review of early Mesopotamian poliorcetics – that is, the art of fortifying and storming cities – before the Neo-Assyrian empire. Yet the 3rd millennium BC was an important period in the history of siege-craft and urban defences. Mesopotamia and the Levant witnessed several decisive advances: the appearance of siege engines, the emergence of standing armies, the first assault troops in close phalanx-type formation, and the development of complex defensive systems. Such major innovations clearly

[1] Frayne 1993, 10–12.

resulted from the formation of the first warring kingdoms[2] (Mari, Ebla, Kiš, Ur, Uruk) and by c. 2350 BC of the predatory state of Akkad (Fig. 1).[3] Sargon's relentless conquest, as recorded in numerous royal inscriptions, undoubtedly perpetuates, in term of ideology, both a policy of universal dominance and supreme control, already partially implemented by Lugal-zage-si of Uruk, and a policy of terrorization, forced relocation and mass decollation, probably initiated at Ebla a century earlier, and that is reflected in a unique epigraphic document, the letter of the king Enna-Dagan of Mari – the first enumeration of trophy-cities punctuated by a macabre-like recursive formula: 'he left mounds (tumuli) of corpses'.[4] After Sargon of Agade and systematically in the course of the remainder of Mesopotamian history, the ideology of urban conquest to which the wide-scale razing of fortifications is the evident manifestation stands as a clear expression of this early policy of terror.[5] The primary purpose of this article is to trace through an examination of the archaeological and epigraphic evidence the origins of Mesopotamian poliorcetics and state that many, if not most, 1st-millennium BC complex defensive systems composed of fortification features such as enceintes, earthen ramparts, ballistic platforms and defended gates, as well as military siege techniques, either blockades or assaults, often considered as Late Assyrian innovations, had clear antecedents in the Early Mesopotamian period.

Fig. 1 Distribution of Early Mesopotamian fortified sites (S. Rey).

2 Archi & Biga 2003, 1–44.
3 Sallaberger 2007, 417–56.
4 Fronzaroli 2003, 35–42.
5 Rey 2012.

Enceintes

Enceintes by definition are the main elements of complex defensive systems. The earliest known Mesopotamian fortification or curtain walls of the 3rd millennium BC can be traced back to the Jemdet Nasr and EBEB I periods (c. 3100–2900 BC). Although the evidence is very incomplete in both Central and Southern Mesopotamia, a few stretches of Jemdet Nasr city walls have been reported at Tell Asmar, Khafajah, Warka-Uruk and Abu Salabikh.[6] They appear to have been built solely of rectangular or plano-convex mud-bricks, and were of varying thickness, ranging from 4 to 15 metres. In Northern Mesopotamia, particularly the Jezirah, EB I curtains have been investigated at Tell Chuera (perhaps ancient Abarsal?)[7] and at several stronghold-like sites of the Upper Khabur (e.g. Tell Bderi, Tell 'Atij, Tell Rad Shaqrah, Tell Kerma).[8] Ordinarily they were built exclusively from mud-brick except at Tell Rad Shaqrah and Tell Kerma where both enceintes were made from mud-brick and stone.[9] The average width of these curtains was c. 3.5 metres.

Mesopotamian fortification walls clearly grew larger and stronger over the course of the Early Dynastic I–III and EB II–III periods. Many, if not most, of these enceintes also were fronted by ditches or fosses. The average width of these curtains was c. 4.5 metres. Many of them constructed between 2900 and 2300 BC consisted of heavy stone foundations with superstructures of mud-brick (e.g. Tell Hariri-Mari, Tell Ashara-Terqa, Tell el-'Abd, Tell Habuba Kabira, Tell Halawa, Jerablus Tahtani).[10] Some of them featured inner and/or outer projecting buttresses (e.g. Tell Hariri-Mari, Khafajah, Tell Chuera, Tell Habuba Kabira, Tell Bi'a-Tuttul). Accompanying many enceintes were glacis or defensive talus, which are characterized by thick, sloping layers of gravel, packed clay and earth, thrown up against the exterior face of curtains (e.g. Tell Hariri-Mari, Tell Ashara-Terqa, Tell Bderi, Tell Beydar-Nabada, Tell Chuera, Tell Rad Shaqrah, Tell Mozan-Urkeš, Tell Halawa, Jerablus Tahtani, Tell Bi'a-Tuttul). The earliest known casemate-type systems – that is, two parallel walls with compartmentalized spaces in between – were found at Tell Munbaqa and Tell Rad Shaqrah between 2600 and 2300 BC.[11] Both curtains of Tell Bi'a-Tuttul and Tell Ashara-Terqa also featured a second, probably low, outer line of walling.[12]

Solid defensive curtains continued to be constructed throughout the remainder of the 3rd millennium BC. The average width of Akkad-Ur III and Early Bronze IV A–B enceintes remained c. 4.5 metres. Most of them were constructed between 2300 and 2000 BC with mud-brick superstructures and stone foundations (e.g. Tell Taya, Kuyunjik-Niniveh, Tell Habuba Kabira, Tell Kannas, Tell es-Selenkahiye, Tell es-Sweyhat, El-Rawda),[13] except at Tell Munbaqa where the curtain wall was made solely from stone.[14] Many of these enceintes also were accompanied by defensive talus-like glacis (e.g. Tell Hariri-Mari, Tell Taya, Tell Halawa, Tell Kannas, Tell es-Selenkahiye). At Tell Habuba Kabira, the curtain wall featured inner projecting buttresses.[15] Casemate-like walls have been reported both at Tell Taya and Tell Abou Danné.[16]

Earthen ramparts

Earthen ramparts are artificial levees piled up around sites as independent or non-independent fortification elements of complex defensive systems (Fig. 2). Only a few Mesopotamian earthwork defences of the 3rd millennium BC have been recorded and excavated. The earliest known earthen embankment or dyke-like structure was found at Tell Hariri-Mari dating to between 2900 and 2800 BC (Mari I).[17] It was made of layers of clay, broken mud-bricks, and other types of earth and soils, measured 8 metres in width, and featured a 2 metre-wide stone core-wall – probably the foundation of a proper defensive enceinte. This outer mounded ring was rebuilt and considerably enlarged in the Early Dynastic period, c. 2600 BC (Mari II). It was

6 Rey 2012 and references therein.
7 Meyer in press.
8 Rey 2012 and references therein.
9 Bielinski 1992, 77–85; Fortin 1991, 5–15; Saghieh 1991, 171–84.
10 Rey 2012 and references therein.
11 Werner 1998; Bielinski 1992, 77–85.
12 Miglus & Strommenger 2002; Buccellati 1979.
13 Rey 2012 and references therein.
14 Werner 1998.
15 Heusch 1979, 159–99.
16 Reade 1982, 72–8; Tefnin 1983, 141–52.
17 Margueron 2004; Rey 2012.

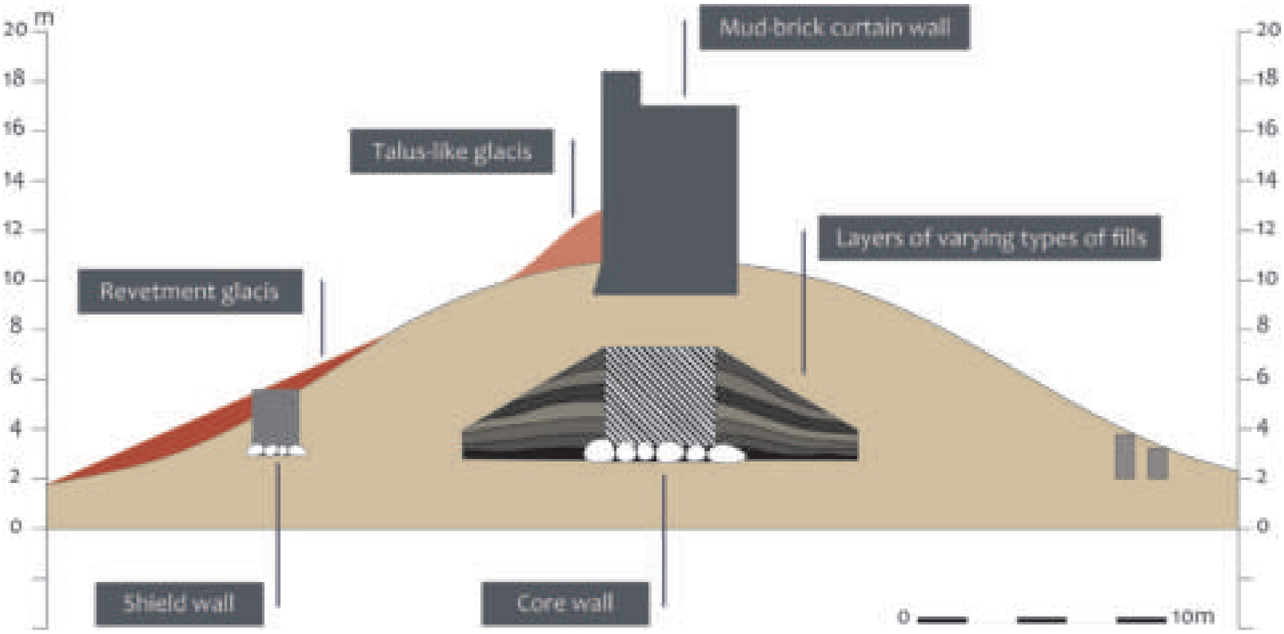

Fig. 2 Schematic cross-section of Early Mesopotamian earthen rampart (after Rey 2012, 89, fig. 55).

surmounted by a 2 metre-wide mud-brick enceinte with inner buttresses. The Šakkanakku and Lîm periods (Mari III) provide the best evidence for the development of the outer fortifications: in the first sub-phase (c. 2200 BC), a 2.4 metre-wide mud-brick defensive wall featuring both interior and exterior one-metre salient buttresses was added to the pre-existing earthen rampart; in the second sub-phase (c. 2100 BC), the embankment's surface was expanded on both sides and new buttressed inner and outer façade walls were added to the pre-existing mud-brick enceinte resulting in a total width of 7 metres; the final sub-phase (c. 1900 BC) was characterized by massive expansion of the inner slope reinforced by a revetment-like glacis made of gravel.

At Tell Leilan (ancient Šeḫna), between 2300 and 2100 BC, a 10 metre-wide irregular-shaped earthen rampart enclosed the lower town.[18] Like Tell Leilan, the defensive rampart at Tell es-Sweyhat was probably constructed in the EB IV A period (c. 2300 BC).[19] This outer fortification consisted of a massive levee made of alternating layers of gravel and clay packing, approximately 18.5 metres in width, that had been faced on the outside with a sloping stone revetment glacis, and was supported on the inside by a c. one metre-wide retaining mud-brick wall set on stone foundations. The construction of Umm el-Marra's sub-circular defensive embankment also dates to the EB IV A period.[20] Composed of various types of soils and alternating layers of ash, it measured approximately 25 metres in width and featured an outer glacis of earth supported by a 1.6 metre-wide stone revetment-wall. In the EB IV B period (c. 2100 BC), a new glacis composed of limestone chips and pebbles and held in place by a massive 5.3 metre-wide stone shield-wall was added outside the previous exterior glacis. If only a few 3rd-millennium BC earthen ramparts have been excavated, it is likely, however, that other contemporary sites also featured such defensive earthworks (e.g. Jerablus-Carchemiš, Tell Mozan-Urkeš, Tilbešar).

Ballistic platforms

Ballistic platforms are the main dynamic elements of complex defensive systems. Their purpose is to inflict flanking and suppressing fire. The distinction between projecting towers and bastions is essentially based

[18] Ristvet 2007, 198–204.
[19] Zettler 1997.
[20] Schwartz *et al.* 2000, 419–62.

on two empirical criteria: the size with a threshold of c. 100 m² and/or the ratio between the length and the width with a threshold of approximately 2 to 1. Thus, towers cover a maximum area of 100 m² and usually have a more or less square or semi-circular plan, while bastions are larger and more complex fortress-like structures, either hemi-circular or with a clear elongated layout having thereby a length roughly equal to twice the width. Mesopotamian firing platforms constructed throughout the 3rd millennium BC in fact were c. 35 m² area average salient towers (e.g. Tell Agrab, Tel Ashara-Terqa, Tell Halawa, Jerablus Tahtani, Tell es-Sweyhat, Tell es-Selenkahiye, El-Rawda).[21] Only at Tell Kannas, in the EB IV A period (c. 2200 BC), has a bastion-like hemi-circular 150 m² abutting structure been reported.[22] Also, the spacing between ballistic platforms was highly variable but not random, and to some degree predictable, ranging from c. 10 to 50 metres.

Defended gates

Defended gates by definition – that is, breaks in otherwise continuous or uninterrupted lines of walling – are the most vulnerable elements of complex defensive systems. Two main categories of entrance gates should be distinguished: the simple-type gate, either straight or baffled – that is, featuring a bent-axis passage – and the complex-type chambered gate, including four or six piers (Fig. 3). Simple-type gates merely overlap curtain defences to form direct or indirect and usually flanked and/or outset entrance passages, while complex-type gates usually command defensive enceintes, and form independent and self-contained fortified units with straight or direct-axis entrances, generally flanked on both sides by towers, and featuring two or three sets of buttress-like structures en vis-à-vis.

The most common form of Mesopotamian defended gates of the 3rd millennium BC was the simple straight or direct-axis type. The average width of these entrances was c. 2.5 metres. Rectangular tower-like structures flanked many of them (e.g. Tell Hariri-Mari, Tell Bderi, Jerablus Tahtani, Tell es-Selenkahiye, El-Rawda).[23] At Tell Hariri-Mari, a defended gate's passage-way also featured two central piers.[24] Only at Tell Habuba Kabira has a simple-type bent-axis gate been reported.[25] Complex-type chambered gates appear to have been constructed only in Northern and Central Mesopotamia. The earliest

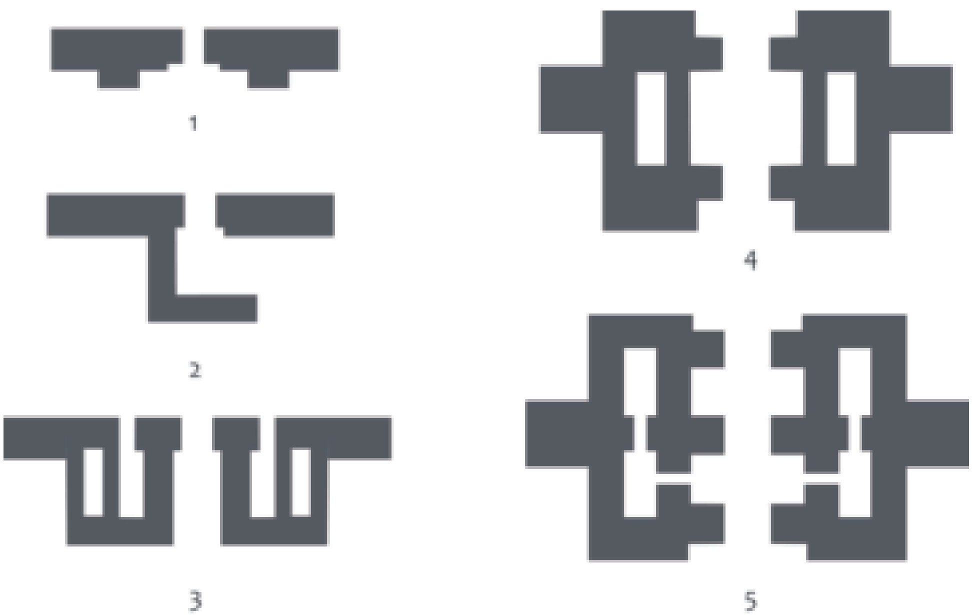

Fig. 3 Schematic plans of types of Early Mesopotamian defended gates (after Rey 2012, 112, fig. 67).

[21] Rey 2012 and references therein.
[22] Finet 1979, 79–97.
[23] Rey 2012 and references therein.
[24] Margueron 2004.
[25] Heusch 1979, 159–99.

known Mesopotamian prototypes of four-pier and six-pier gates were found respectively at Tell Bi'a-Tuttul and Tell Habuba Kabira between 2800 and 2500 BC.[26] In the Šakkanakku-EB IV A period (c. 2200 BC) a complex four-pier gate has been reported at Tell Hariri-Mari.[27] The EB IV B defended gate of Tell Taya, constructed between 2100 and 2000 BC was of the six-pier structure-type, and remains of corbelled arches indicate that it was at least partially vaulted.[28]

Siege-craft and the evolution of fortifications

Having completed our brief survey of Mesopotamian fortification features in the 3rd millennium BC, it is possible to advance some general conclusions about the development of Archaic siege-craft and its influence on the evolution of complex defensive systems. Although we emphasize the military function of these large-scale constructions and earthworks, we do not deny, of course, that they also possess a symbolic nature. Yet, we believe that this symbolism is secondary in purpose.

If we lack unequivocal epigraphic and iconographic evidence for the early 3rd millennium BC, we can infer, however, that hand-held proto-battering rams were probably employed, that is, in a primitive form, because solid enceintes reinforced by sloping construction glacis are amply attested in the Jemdet Nasr–Early Dynastic I and EB I–II periods (c. 3100–2600 BC). It is likely, thus, that early Mesopotamian siege-craft remained in effect quite rudimentary (e.g. siege ladders, siege poles), and that the capture of fortified sites mainly relied on the employment of ruse and blockade.

If Mesopotamian complex defensive systems from c. 3100 to 2600 BC would have been quite impregnable, or at least difficult to overrun by storm, to breach, and undermine, the Early Dynastic III–Bronze III (c. 2600–2300 BC) clearly was a period of major innovations in direct methods of assault. Mesopotamia and the Levant indeed witnessed several important advances: the appearance of battering rams and siege towers between 2500 and 2350 BC (Fig. 4). Four-wheeled chariot-like battering-rams are depicted on a unique Early Dynastic III seal-impression and many Tell Beydar-Nabada cylinder-seals[29] and occur in the so-called treaty between Ebla and Abarsal and several other administrative documents of Tell Mardikh-Ebla[30] as composite heavy-carts (gud-si-dili, literally 'one-horned-bull'), including four solid wheels and strong wooden poles (giš-gú-murgu), reinforced by bronze heads (giš-sag) and bronze tips (giš-eme). At Tell Beydar-Nabada, siege towers (an-zà-gar) are depicted either as four-wheeled simple-type platforms, or complex multi-floor platforms.

The Early Dynastic III–Bronze III period (c. 2600–2300 BC) also was a turning point both in the organization and the capabilities of military contingents: the probable emergence of standing armies consisting of professional soldiers (àga-ús) and conscripts (érin),[31] the first assault troops in close phalanx-type formation composed of archers with simple or complex bows (giš-ban)[32] – the range of which did not exceed 75 metres – and soldiers armed with long spear-like weapons bearing full-length top-curved siege-shields (kuš-e-íb-ùr),[33] the presence of support troops equipped with slings providing long-range barrages and covering fire, and engineer units and labourers entrusted with logistics and the construction of siege-ramps. Elite-like military contingents are depicted on the well-known Tell-Hariri-Mari pre-Sargonic relief[34] and occur in many official-type Sumerian epigraphic documents such as the Royal hymns of Šulgi, the Lamentations over the destruction of Sumer and Ur.[35]

Such major innovations significantly increased the offensive capacities of campaigning armies of the first warring kingdoms (Ebla, Mari, Kiš, Ur, Uruk) and the predatory state of Agade and their influence on the art of fortifications was considerable: the reinforcement from c. 2500 BC of defensive talus-like glacis heaped against the outer face of the footings of curtains, and

26 Miglus & Strommenger 2002; Heusch 1979, 159–99.
27 Margueron 2004.
28 Reade 1982, 72–8.
29 Nadali 2009, 39–52.
30 Steinkeller 1987, 14.
31 Lafont 2008, 23–48.
32 Civil 2003, 49–54.
33 Eicheler 1983, 95–102.
34 Parrot 1971, pl. XIV.4.
35 Michalowski 1989.

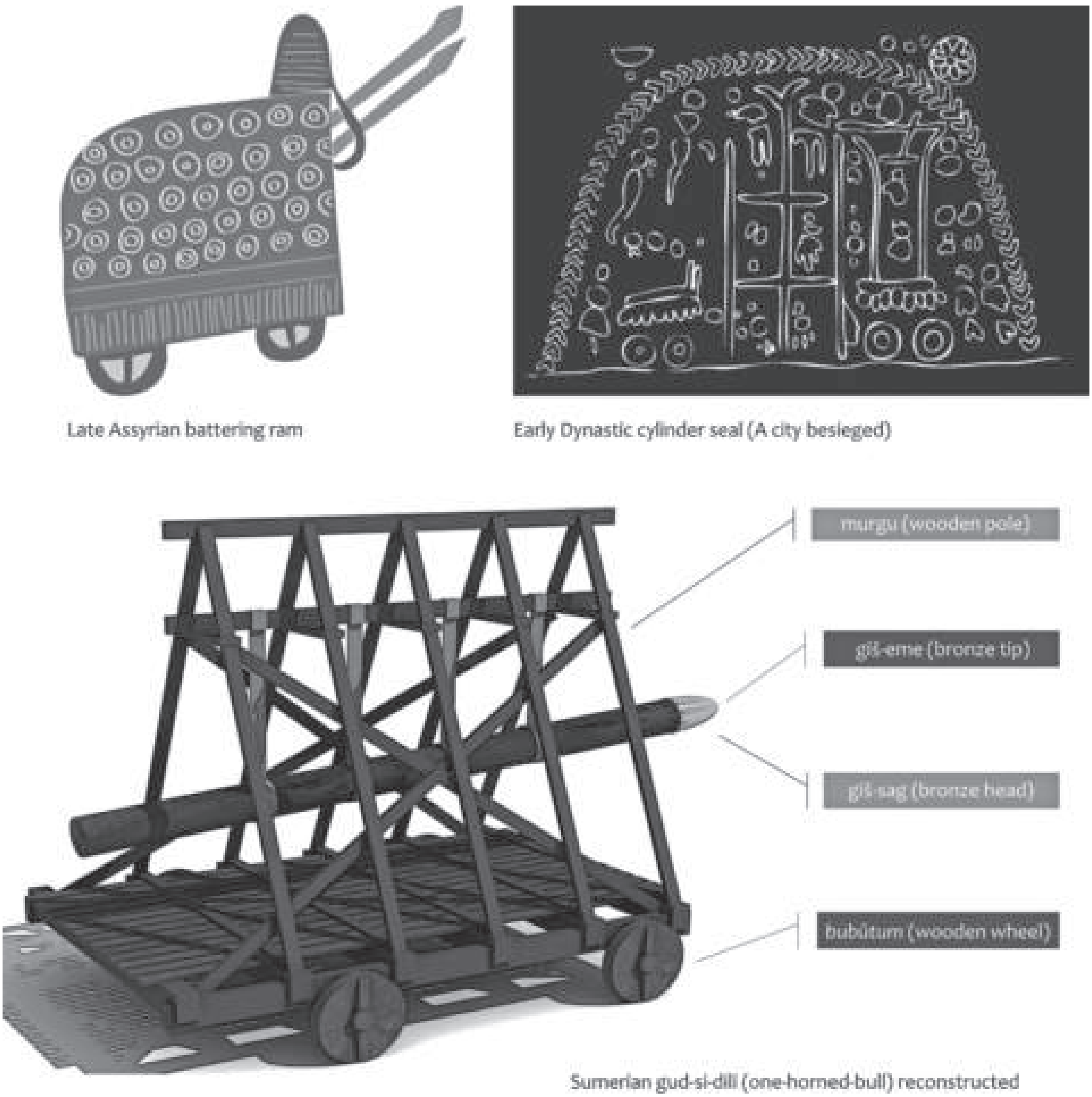

Fig. 4 Representations of Early Mesopotamian and Late Assyrian siege-engines. After Rey 2012, 134, fig. 67; 140, fig. 82; and redrawn from bas-relief of the palace of Teglath-Phalasar III (from J. Deshayes, Les civilisations de l'Orient ancien, Les grandes civilisations, Arthaud, Paris, 1969 p. 158, Fig. 58).

made of different materials such as earth, plaster, bricks, stone, primarily designed as an obstacle to breaching (e.g. Tell Hariri-Mari, Tell Ashara-Terqa, Tell Bderi, Tell Beydar-Nabada, Tell Chuera, Tell Rad Shaqrah, Tell Mozan-Urkeš, Tell Halawa, Jerablus Tahtani, Tell Bi'a-Tuttul, Tell Taya, Tell Kannas, Tell es-Selenkahiye); the spread from c. 2300 BC of massive defensive earthworks and embankments of alternating layers of varying types of fills, that featured both interior and exterior slopes, which raised the level of the base of the city fortifications above the surrounding plain significantly improving its defensibility both against gud-si-dili – battering rams and an-zà-gar – siege towers (e.g. Tell Hariri-Mari, Tell Leilan-Šeḫna, Tell es-Sweyhat, Umm el-Marra).

Major developments in siege-craft and fortifications, of course, are intrinsically linked as each evolves to counter advancements within the other. This dynamic process reaches crucial peaks in the Old Babylonian and Late Assyrian periods.[36] Both *yâšibum*–battering rams and *dimtum*–siege towers are perfected and become more systematic: they are extensively cited between 2000 and 1800 BC in the Mari royal archives and also occur in the Isin (modern Ishan Bahriyat) and Ešnunna (modern Tell Asmar) epigraphic documents;[37] they are depicted between 900 and 700 BC on Ašur-nasir-pal II and Tiglath-pileser III palaces' reliefs.[38] These new advances in siege-craft resulted in the well-known development phases of the so-called Amorite and Neo-Assyrian fortification systems: complex enceintes, earthen ramparts, ballistic platforms and defended gates – all of which, thus, having clear forerunners in the Early Mesopotamian period – become extremely common features throughout the Near East.

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[36] Charpin 1993, 193–203; Fales 2010.

[37] Kupper 1997, 121–32.

[38] Fuchs 2008, 45–99.

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BUILDING THE FRONTIER: FRONTIER FORTIFICATIONS IN THE ASSYRIAN EMPIRE*

Nathan Morello

Abstract

The purpose of this paper is to give a general picture of the different roles that the act of building fortified settlements had in the creation and maintenance of frontier areas in Assyria. As is well known, ancient frontiers are not easy to define and tend to correspond to broad areas where different polities exercise their hegemony, rather than territories crossed by borderlines of modern conception. Furthermore, the analysis of textual and archaeological sources reveal the existence of different kinds of frontier's scenario, according to the strategic, political, economic and cultural peculiarities of each region affected by Assyrian expansion. I will try to show how different kinds of frontiers were affected by different kinds of Assyrian territorial policies, which included the foundation or re-foundation of different typologies of fortifications. Major attention will be given to three types of fortified settlements: the 'fortified farmstead' (*dunnu*), a unit of rural habitation with very few military functions, the 'fortified military camp' (*ušmannu*, *madaktu*, *karāšu*), and the military 'fortress' (*birtu*). The 'fortified farmstead' is attested only for the Middle Assyrian period (14th–11th century BC), whereas the two military settlements are best attested in sources from the 1st millennium, during the great expansion of the Assyrian Empire (9th–7th century). Finally, in some cases, the act of 'building the frontier' can be recognized in the care and/or foundation of premises of political and cultural importance (palaces and temples), within fortified cities of regions that have been conquered by Assyria but are not completely under its control.

The title of this paper, 'Building the Frontier', might be misleading for two reasons. First, because the very idea of continuous borderlines between adjacent territories did not exist in the Ancient Near East.[1] However, even if no Great Wall was ever built during the Assyrian Empire, it appears clear how fortified settlements of various sizes and functions were the basic means through which frontiers were created. When set in strategic areas, they could defend a territory from possible invasions, be military outposts for further conquests, and slowly strengthen the territorial control on the regions of new conquest. A second possible misunderstanding, which should be clarified, is the idea that the Assyrian Empire dealt with only one type of frontier, located at the foremost limits of its territories, and that the only fortifications that had a role in frontier policies were those with primary military functions. Quite differently, the analysis of the Assyrian case reveals, on one hand,

* I am grateful to Prof. F.M. Fales for his kind general remarks and his correction of the English text. Any mistakes or slips should be ascribed to the present writer.

1 Cf. Parker 2001, 11, and Gandulla 2000.

the existence of different kinds of frontiers with peculiar geo-political, economic and cultural characteristics, and, on the other, an active role, in Assyrian frontier policies, of fortified settlements with both military and (also primary) civilian functions.

The purpose of this paper is to give a general picture of the relation between building a fortified settlement (but also specific premises within it) and the creation and maintenance of different kinds of frontier in the Assyrian Empire.

I will define 'fortified settlement' or 'fortification' as any settlement surrounded by defensive walls, independent of their size or typology of fortification (height of the walls, presence of one or more perimeters of walls). The mere existence of defensive walls, especially for minor centres, is a distinctive feature of (various possible degrees of) territorial instability. Furthermore, the analysis of military fortified settlements, in my opinion, can also be carried out by comparing fortifications of different sizes and primary functions, for two main reasons. First, they often share similar characteristics, in terms of use and structural features. Second, the possibility for a minor settlement to be enlarged and to become a bigger fortification is attested, which makes the comparison between the two less trivial.[2]

In royal inscriptions, human settlements are usually distinguished following a three-level hierarchy of classes of cities that defines the typical structure of a state in the eyes of the Assyrians.[3] They are the royal city (*āl šarrūti*, *āl bēlūti*), the fortified city (*āl dannūti*), both strongly fortified, and the cities in the neighbourhood (*ālāni ša limēti*), without defensive walls. On many occasions, a settlement is simply dubbed as *ālu*, a term that does not give any information about its size or fortified nature, and can correspond to a large city as well as to a simple rural village.[4] Nevertheless, there are other terms, which define more specifically some kinds of fortified settlements, typically found in frontier areas. They are the *dunnu* or 'fortified farmstead', a fortified unit of rural habitation with very few military functions – only attested for the Middle Assyrian times – and two military settlements, the fortified military camp (*ušmannu*, *madaktu*, *karāšu*) and the fortress (ḪAL.ṢU / *birtu*), both best attested especially in sources from the 1st millennium BC.

We may distinguish between three main frontier contexts, and ideally subsequent phases, in which it is possible to analyse the role of building fortified settlements. A first context is that of the military campaign led into a territory outside the limits of the empire, where there is no stable Assyrian centre. Here, we find the act of building temporary fortified camps for the settlement of the army, the act of conquering, rebuilding and often renaming cities which previously belonged to the enemy,[5] and that of building *ex novo* fortified cities and strongholds in the newly conquered land. This first phase may lead to two different scenarios. One is the slow territorialization of the region, through the creation of a network of Assyrian centres, cities and minor settlements, whose fortified nature depends on political conditions. Military penetration is followed by the creation of an administrative and political structure, which secures the Assyrian presence in the region, and ideally leads to a full territorial annexation. This is the case of the steppic region between the Tigris and Euphrates (modern Jezirah) during the Middle Assyrian period, and of other examples from the Neo-Assyrian Empire. In this context, beside the foundation of fortified settlements with functions related to political and economic colonization, it becomes significant, if not essential, to care for (or build *ex novo*) premises of political and cultural importance (palaces and temples) inside major fortified cities, aimed at a full integration of local peoples into Assyrian society.

The third context is typically encountered in regions that remain in the outer limits of the empire or within partially unstable sectors of Assyrian territory. These areas are often characterized by a strongly militarized frontier, where systems of strongholds, sometimes of massive size, are built as a stand against possible penetration of the territory and as outposts for possible punitive and expansionistic campaigns.

[2] For cases of territorial reorganization which involved the growing of minor settlements see, for example, Fales & Rigo 2014. Cf. also Gillmann 2005, for structural and functional comparisons between military fortifications of different sizes.
[3] Cf. Liverani 1992, 125 and Fales 1990, 91, 94.
[4] Cf. Van de Mieroop 1999, 10-1 and De Odorico 1995, 16.
[5] See Pongratz-Leisten 1997b for an analysis of the act of renaming conquered cities in the context of Assyrian ideology of conquest.

The Jezirah in the Middle Assyrian period

The first frontier area to be considered is the steppic region between the rivers Tigris and Euphrates (mod. Jezirah), which by the end of Tukulti-Ninurta I's reign (1244–1208 BC) had been put under Assyrian control (especially the Upper Tigris, Lower and Upper Khabur and Balikh river valleys), but was then gradually lost until the final decay of the Middle Assyrian kingdom, in the 11th century BC.

Following Mario Liverani's theory, the Middle Assyrian expansion in this area followed the so-called model of 'network-empire'. He observed the presence of a series of Assyrian enclaves (palaces and cities) 'embedded in a native world', interconnected by a complex but functional system of routes that allowed constant administrative, political and economic communication and linked them to the capital Assur. The intermediate areas between these enclaves were, in Liverani's eyes, largely unprotected and inhabited by peoples who were hostile or at least extraneous to Assyria.[6]

Recent studies on the area, based on textual and archaeological materials discovered in the past twenty years, have provided a slightly different picture. As we already knew, Assyrian control of the region (especially around two tributaries of the Euphrates, the Khabur and the Balikh) was entrusted, since the time of Shalmanaser I (1274–1245 BC), to the Assyrian Grand Vizier, or *sukkallu rabi'u*. This high official also held the title of King of Ḫanigalbat (*šar* [māt]*Ḫanigalbat*), from the name which the Assyrians called the region at the time, and was a viceroy of sorts, with administrative, legal, diplomatic and military functions. From his headquarters in the city of Dūr-Katlimmu (on the Lower Khabur) the Grand Vizier administered the territories of the Jezirah through a system of districts (*pāḫatu*), each one controlled by a governor (*bēl pāḫete*) and minor officials. Each governor was entrusted with a series of Assyrian settlements, defined according to their size and fortified nature as *ālu*, 'city', *birtu*, 'fortress', and *dunnu*, 'fortified farmstead'. The *dunnu* was a fortified unit of rural habitation, whose primary function was farming.[7] It was named after its founder and was granted by the Crown to a single owner (and possibly to his family), who lived in a major city (e.g. the capital of the district). The term included the fortification and the farmland around it, which was an inseparable part of it, and all the farmers working under its administration were the owner's dependents. According to textual and archaeological sources, the size of a *dunnu* could vary, from approximately 0.36 to 36 hectares (1 to 100 *ikû*).[8] The best-known *dunnu* so far is the one discovered at Tell Sabi Abyad, on the eastern side of the river Balikh. Here, archaeologists excavated a tower (used as storage, a treasury and a jail), the owner's residence, the residence of his 'chief steward' (*masennu*), who administered the farmstead in his absence, quarters for servants and scribes, and domestic premises.[9] Beside its farming purpose, the *dunnu* could have minor military functions, such as the provisioning of horses, cavalry and war chariots to the owner, for policing the surrounding region.[10]

The archaeological surveys of the region showed a series of similar fortified settlements of one or two hectares distributed along the river valleys.[11] Even though the presence of extraneous or hostile peoples is attested in the region until the end of Middle Assyrian domination, the network formed by cities, fortresses and *dunnu*s appears to have been well thickened. As a point of fact, textual sources retrieved from the archives of Tell Sabi Abyad and from those of the city of Dūr-Katlimmu, show the existence of 'stains' of continuous territorial power, located in many sectors of the Assyrian 'network', alternating with other areas where Assyrian presence could be guaranteed through diplomatic treaties.[12] Hence, the sources seem to give us an image of the area between Khabur and Balikh as that of a frontier region where Assyria was slowly obtaining territorial control through a system of fortified settlements, which had no significant military functions. On one hand, in fact, the *dunnu*s had a primary purpose of farming (i.e. agricultural colonization). On the other hand, their security was guaranteed by regional actions of

6 Liverani 1988, 90.
7 The *dunnu* probably developed from the Mitannian *dimtu* 'tower', a fortified farmstead with its own territory, see Wiggermann 2000, 172, with previous bibliography.
8 Cf. Wiggerman 2000, 173, with previous bibliography.
9 Akkermans 2006, 204.
10 Wiggermann 2000, 196. Another well-known *dunnu* of smaller size is Dunnu-ša-Uzibi/Giricano, on the Tigris riverbank, close to the site of Tušḫan/Zyaret Tepe. The site has produced a fully published archive belonged to a man called Aḫuni, which was in use during the reign of Aššur-bēl-kala (1074–1057 BC), the years of crisis of the Middle Assyrian kingdom that followed the reign of Tiglath-pileser I (1115–1077 BC). See Radner 2004, 52–3.
11 Akkermans 2006, 209. Cf. also Cancik-Kirschbaum 1996, 99; Duistermaat 2008, 23; and Ur 2002, 74.
12 See Fales 2011a, 21–3, with previous bibliography.

policy realized with the military equipment and personnel they provided to major cities.

A major concentration of *birtu*-type fortresses has been retrieved in southern Jezirah, on the Middle Euphrates, in the area of the ancient territory of Suḫu.[13] This was a highly militarized frontier with systems of fortifications set on both sides of the river. The settlements were discovered during the salvage excavations of the Haditha dam project in the 1980s, and included 17 fortified sites dated to the 2nd millennium (three on the islands of ʻAna, Telbis and Bijan, nine on the east bank of the river and five on the western one). Six of these sites were organized following a pattern of two triple fortification systems. One group is formed by two massive square and double walled fortresses (Sur Jur'eh and Glei'eh) facing each other on the opposite banks of the river, plus another one (Sur Mur'eh) close to the eastern bank. The second system is composed by the fortress on the island of Bijan (identified with the island of Sapirutu of Tiglath-pileser I's inscriptions[14]), and by those in the sites of ʻUsyeh (western bank) and Yemniyeh (eastern bank). Moreover, 40 sites had strata dated to the 1st millennium BC. Many of them were the same sites from Middle Assyrian times which provided evidence of Neo-Assyrian (e.g. Glei'eh) and Neo-Babylonian (e.g. ʻAna) presence.[15] This large number of fortified settlements proves the existence, all through the Middle and Neo-Assyrian period, of one of the most strategic frontier zones of Assyria.[16]

The programme of slow territorial penetration shown by the sources was never completed, since in 12th and 11th centuries Assyria was hit by a crisis that forced it back to its original borders. Only starting a century later, were the first Neo-Assyrian kings able to reconquer and finally obtain full control over the region. By the end of Shalmaneser III's kingdom (858–824 BC) the Jezirah was considered as part of the Assyrian Homeland, and archaeological surveys of the area attest, for the first millennium BC, a great proliferation of unwalled farming villages (*kapru*) and a visible decreasing in the number of fortified settlements.[17]

Building the frontier in Neo-Assyrian letters

With the great imperial expansion of 8th and 7th centuries, starting with Tiglath-pileser III (745–725 BC) and Sargon II (722–705 BC), a second block of conquest is visible outside the Homeland's limits. This area can be divided, as suggested by Fales, into three main regions.[18] To the west, beyond the Euphrates, were the Neo-Hittite states, resulting from the dissolution of the Hittite Empire during the 12th century, the Aramean polities from the Euphrates to the Mediterranean coast (Bit-Zamani, Bit-Baḫiani, Bit-Adini, Bit-Agusi and Bit-Gabbari/Sam'al), and the Levantine coast up to the border with Egypt. To the north and to the east, the chains that formed the mountain ranges of Taurus and Zagros surrounded Assyria with a plethora of states of minor size, which were forced to make an alliance with more powerful polities, like Urartu or Assyria itself. To the south, the Babylonian region remained as a never completely tamed frontier, at times supported by its eastern neighbour Elam.

The penetration of these areas followed fluidly imperialistic policies, largely determined by existing geopolitical conditions and consequent opportunities, which brought to subjugation in vassalage or to the outright political annexation of conquered regions, case by case.[19] The conquered territories were gradually absorbed into the provincial system of the empire. All the empire was (at least in name) in the hands of the king, and the provinces were entrusted to his governors (*šaknu*) and magnates (*rabūte*). Each province had a capital and minor settlements, while military fortresses were positioned in unstable areas, on the outer limits of the empire and as guarding posts of the main routes that connected the core of Assyria with its foremost territories.

The letters from the royal correspondence of the 8th and 7th centuries represent an important source for the analysis of the many roles of military fortified settlements in frontier areas, defined with the term

13 Fales 2011a, 24–30 with previous bibliography.
14 *RIMA* 2, A.0.87.4, 41; A.0.87.10, 41–2.
15 See al-Shukri 1985, Abdul-Amir 1997 and Tenu 2008. Note that many of these forts were used in Roman and Islamic times also.
16 Fales 2011a, 24–30 with previous bibliography.
17 Cf. Wilkinson *et al.* 2005.
18 Fales 2001, 13–20.
19 Bagg 2013.

taḫūmu.[20] These letters deal especially with two types of fortifications, the fortified military camp and the fortress.

The temporary fortified camps (*ušmannu*, *madaktu*, *karāšu*) were exclusively for military use. They were built during the military campaigns as outposts on the way for the regions affected by Assyrian conquest. This type of fortification was small and its only masonry element comprised the encircling walls, within which officers and soldiers dwelt in temporary structures (tents and pavilions).[21] Once the campaign was over, the fortified camps were abandoned but not dismantled, in case of future use.[22] Except for one (not fully clarified[23]) case, there seem to be no archaeological remains of such camps and the best sources for their analysis are the textual documentation and the iconography of the decorative reliefs attached to the walls of the Assyrian royal palaces.[24] In such reliefs, the camps often appear to have been divided in two or four quarters, for higher officials and simple soldiers, separated by one or two crossing roads.

At a higher level, in terms of size and function, is the military fortress (ḪAL.ṢU, *birtu*), for which the archaeological finds are also very poor, whereas the textual references abound, both in royal inscriptions and, above all, royal correspondence. This type of fortification was big enough to host a permanent garrison and sufficient supplies for long periods of service or for military campaigns led beyond the territory under the fortress' control.

As for the military camps, the *birtu* type also proves to have been divided in quarters. In a letter (*SAA* XIX 60) sent by the governor of the city of Tušḫan (Ziyaret Tepe) Dūr-Aššur to Tiglath-pileser III (745–725 BC), the official reports to the king about the construction of two separate quarters, one for the officials (*bīt ubri*) and one for the troops (*bīt napṭarte*).[25] These kinds of fortifications were typically used as stands against possible invasions, administrative centres for the recruitment and training of new conscripts, bases for territorial exploitation and border listening posts, where every movement of the enemy could be watched, also through intelligence reports (what can be defined with the Assyrian term *maṣṣartu*[26]).

Beside the already mentioned discovery of fortification systems in the area of the Middle Euphrates, archaeological excavations in the south-west of the Palestinian region have revealed the existence of groups of fortresses around the area of the 'Brook of Egypt' (Naḫal Muṣri, some kilometres to the west of the modern border between Israel and Egypt). From here, the Assyrian strongholds could defend the region from possible invasions and control the main trade routes that led to Egypt.[27] Regroupments of fortifications in other border zones are found in textual sources. Several letters attest the presence of militarized frontier areas, on which stands of Assyrian fortifications were built right in front (*ina pān*) of similar fortified settlements held by the enemies (e.g. in modern south-east Turkey, on the frontier between Assyria and Urartu).[28] In royal inscriptions, the king sometimes celebrates the creation of such militarized areas by founding and rebuilding cities and fortresses, as in the case of Sargon II in the region of Kammanu – situated in the foremost north-west periphery of the

[20] *taḫūmu* is the Assyrian term for 'border, frontier, frontier-territory' mainly used in the royal correspondence of the 8th and 7th centuries. Other Akkadian terms for 'border/frontier' found in the Assyrian sources (in Standard Babylonian, Assyrian and Babylonian dialects) are *miṣru*, *itû*, *šiddu*, *qannu*, *pulukku*, *pāṭu*, *kisurru*, and *kudurru*. For almost every one of them, three general meanings are involved in translations: 'border(-line)', 'boundary-stone/mark' and 'territory'. For meaning and uses of the term *taḫūmu*, see Wazana 1996 (especially fn. 2), with previous bibliography.

[21] Fales & Rigo 2014.

[22] See the pictures of abandoned (but left standing) camps on the Shalmanser III Balawat doors in King 1915, pls (possibly) XIII, XXXVI, LIV and LX. A passage from a letter to King Esarhaddon (*SAA* XVIII 175: r. 8–22) seems to confirm the hypothesis of repeated use of fortified military camps: 'I have heard the Magnates say as follows: "We will set up camp in Dilbat". (But) if they set up camp in Dilbat, the people will starve. Also, no caravan will come to them; rather, their army will go out and plunder a caravan! Let them place camp within the enclosure of the camp of Babylon of last year, so that boats and water-skins may come to them.' See also Fales & Rigo 2014.

[23] Analysing the archaeological remains discovered during the Haditha Dam Salvation Project (1982–7) on the Middle Euphrates (see above), Tenu has identified many Neo-Assyrian fortified camps. However, not everybody agrees on the fact that they can be interpreted as permanent fortified camps (Nadali 2009, 104–5).

[24] See *passim* in Botta & Flandin 1846–50; Layard 1853a and 1853b; King 1915; Barnett & Falkner 1962; Barnett *et al.* 1998.

[25] See Parker 1997, where the letter is quoted under its former cataloguing number NL 67.

[26] The *maṣṣartu*, or 'vigilance', was the duty, on the part of any subject of the Assyrian king, to keep eyes and ears open and to report anything improper taking place, whether in the capital city or in the most remote military outpost of the empire. For the different meanings of *maṣṣartu*, see Fales 2001, 119 and Fales 2011b.

[27] Cf. Na'aman 1979 and more recently Bagg 2013, 132–9.

[28] See Dubovsky 2006, 33–72 for a summary of the Urarto-Assyrian frontier-conflicts.

empire – and Sennacherib (704–681 BC) in the area of Dēr, on the border between Babylonia and Elam.[29]

Among the letters of the royal correspondence of the 8th and 7th centuries BC, there are two kinds of texts that deal with the construction of new fortified settlements or the renewal of old ones. They are the orders of construction, written directly by the king, and the reports that kept the king informed about the progress of the works. The recipients of royal orders, and authors of reports, are high officials, like governors of provinces or their deputies, but also other kinds, like officials entrusted with imperial policies in various areas of the periphery of the empire (*SAA* V 152, 160),[30] or commanders of fortresses (*rab birti*) (*SAA* XV 136). Moreover, often the letters were written not directly by the person in charge of the construction, but by a third person, who oversaw (or simply observed) the works that were conducted in the territory of his jurisdiction (*SAA* XV 166).

Frequently, the Assyrian king attentively follows every detail of the building project. The official in charge must be fast and efficient, and any delay needs to be well justified. We often find apologies and excuses for any kind of trouble or delay during the works, including preventive ones, aimed at avoiding the king's wrath, and even timid protests against any possible accusation of supposed non-compliance. In a letter (*SAA* V 211) from the province of Mazāmua (mod. Sulaymānīya, in north-east Iraq), the deputy governor Nabû-ḫamatua justifies a possible delay in the work, but ensures: 'The king, my lord, should not say: "He is a negligent servant: he does not do (his) work". I drive the servants of the king, my lord, day and night, they are glazing kiln-[fired-bricks] all day long.'[31]

The right place for the construction had to be checked in advance, for practical reasons that could also have social implications.[32] The settlement had to be founded somewhere that was strategically secure and suitable for the self-sufficiency of the troops, whose livelihood was based on agriculture, i.e. preferably adjacent to farmland (*SAA* XV 136: 12–15) and to a water course (*SAA* XIX 60: 4–7).[33]

The choice of a suitable location was entrusted to governor officials (*SAA* XV 136: 12–15), or local experts. In a letter sent to Ashurbanipal from the Babylonian city of Kutê (*SAA* XVIII 154), the sender indicates two possible positions for the setting of a fortified camp, according to where the army should cross a river (Turna). A group of Arab allies will indicate the exact positions: 'My lord should pitch [ca]mp in two places, a[nd] they [should] cross (the river) [at] Upi and at Dūr-[Šarrukku]. Let the Ar[abs] indicate (the places) to h[i]m, and let him appo[int ...]'.[34]

In a letter sent to the southern frontier, Sargon II reassures his official about the place chosen for a fortified camp despite the proximity to the Elamite territory:

> [I am writing to you] right now: this suggestion, the [way he put it], is extremely good. You [know] that this pass [leading to] Urammu is [ver]y difficult [to march through]; there is absolutely no way the Elamite [troops] will be able to get at you. Don't be afraid; at the city of Urammu where you are to place the camp [there is] a plain which is [very] good for encamping; it is also [very] good for reconnaissance expeditions, there is [much] grass there, and it is a [good] place to rest.[35]

Often orders and reports bear technical details of the building projects. We have already mentioned letter *SAA* XIX 60, in which Dūr-Aššur from Tušḫan minutely reports the construction works of a fortress. On some occasions (*SAA* V 152, 160 and *SAA* XV 136) the officials responsible for the construction works draw sketches of the project in progress to be attached to the report. In one case, for instance, Nabû-šumu-iddina, the commander of the fortress (*rab birti*) of Laḫiru (on the Babylonian border)

[29] See Sargon II: Fuchs 1994, Ann. 216–20, and Sennacherib: *RINAP* 3/1, 23 iv 47–53.
[30] Cf. Parker & Radner 1998, 153.
[31] *SAA* V 211: r. 1–10
[32] That this kind of fortified settlement had a function in the mechanism of *Pax Assyriaca* (see below, note 46) may be shown by this fragmentary (and in fact difficult to interpret) letter sent to King Esarhaddon (681–669 BC) from the Babylonian region: 'In their rear we are constructing the f[or]t and bringing [*garrison troops*] into it, so the people will become reverent, turn to other matters and broken heart(s) will be put in place' (*SAA* XVIII 142: 16'-r. 3). Cf. also *SAA* XVIII 175: r. 8–22 (see above note 22).
[33] Parker 1997, 80–4.
[34] *SAA* XVIII 154: 5–8.
[35] *SAA* I 13: 5'–19'.

informs the king about the work done, probably, on the fortification's towers, and adds: '[Now then] I have drawn a sketch of the fort [on] leather (*mašku*) and am herewith sending it [to] the king, my lord'.[36]

In a letter written by Sargon II to one of his officials in Babylonia (*SAA* I 18), the king gives detailed instructions for the building of a new fortress. The letter shows a deep concern for the possible occurrence of dangerous circumstances during the construction works. According to Sargon's words, the walls that the villagers are going to build have to be strong enough not to be easily destroyed (probably providing them with ramparts).[37] The king also orders the digging of two concentric moats around the fort at a sufficient distance one from another to set a series of temporary huts. The function of the outer moat seems to be that of giving time to the local people to take refuge behind the inner moat and within the walls under construction, in case they were attacked by the enemy during the works.[38]

In a message (*SAA* I 29: 1–21) reported by the crown prince Sennacherib to his father Sargon II,[39] the vassal king of Kumme (mod. Cizre Palin, south-east Turkey) Arije, warns that the fortress that the governors of Assyria (*šaknūte ša šar māt Aššur*) are building in his territory could be attacked soon by Ukkean troops, allied to Urartu.[40] The period of the letter is presumably before the great campaign of Sargon II against Urartu in 714 BC, and the construction of a fortress by Assyrian governors in the area of Kumme might be ascribed to the atmosphere of hostility growing in the region.[41]

A pure military strategy is not the only reason behind the many building projects carried out in the frontier regions of the empire. In some letters, there are references to similar activities accomplished by provincial governors in the context of regional territorialization, through policies aimed at consolidating and increasing the Assyrian presence. In a letter (*SAA* XIX 22) found at Nimrud and dated to Tiglath-pileser III, Qurdi-Aššur-lāmur, most probably governor of the province of Ṣimirra,[42] apologizes for the delay in the reconstruction of part of the city of Kašpuna (modern Kusbā), at the foot of Mount Lebanon, saying that now he is personally dealing with the job. He claims to have cleared the site of debris and repaired the gate of the inner wall, and to have organized a garrison for its guard. The letter deals also with the Assyrian restrictions on Phoenician trade (by forcing them to pay taxes for the lumber brought down from Mount Lebanon and prohibiting them from selling it to the Egyptians or Philistines) and with the deportation of ten Isubean families via Immiu to Kašpuna. The letter should be dated after the defeat of Tyre in 734, and possibly after 732 when, according to the inscriptions of Tiglath-pileser III, the territory controlled by Kašpuna was entrusted to the governor of Ṣimirra.[43] It is, therefore, possible that the letter in question refers to the time when these territories passed into the hands of Qurdi-Aššur-Lāmur and that the work of reconstruction has to be considered as part of the territorial policies entrusted to this governor.

A different case is that of Lipḫur-Bēl (or Nasḫur/Nasḫir-Bēl), governor of Amīdi (modern Diyarbakir).[44] In his letter to Sargon II, he claims to have built a fortress and a city with a royal palace, on land that was formerly owned by another official (perhaps passed away). Now, the king requires the return of properties and lands, causing the governor's complaint.

> [As to] the fields of the patrimony of Aššur-remanni, about which the king, my lord, wrote me, the royal bodyguard shocked me when he said: give up the pro[perty] the well, and the arable land!

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[36] For other examples of similar sketches drawn on perishable material for the king's understanding see *SAA* V 160: 10', and especially, *SAA* V 152 r. 1–5, where Aššur-alik-pani, from the border with Urartu, informs the king that when he meets him at the city of Arpad he will carry with him a sketch of the works on a wooden panel ([GIŠ]*le'u*): 'I shall bring [wit]h me [the wr]iting-[bo]ard on the works (in progress) [which] the king wrote [I should bring], and I shall have it read to [the king], my lord'. Writing-boards made of ivory and wood were found by Max Mallowan during the excavations at Nimrud in 1953 (Wiseman 1955).

[37] *SAA* I 18: r. 10'–1'.

[38] *SAA* I 18: r. 1'–7'.

[39] Fales 2001, 51 'Sennacherib aveva il compito di ricevere e vagliare i rapporti spionistici circa la situazione alle frontiere con Urartu, e quindi trasmetterle al padre, assente dal paese (*SAA* I 29–40; *SAA* V 281)'.

[40] For the vassal state of Kumme and its role in the Assyrian frontier policies against Urartu, see Parker 2001, 89–90. Cf. also Parker & Schmitt 1998, 131.

[41] The campaign was recorded in Sargon II's *Letter to Ashur* (Thureau-Dangin 1912). See Zimansky 1998, 45–51 for a bibliographical summary of the many studies conducted on the subject.

[42] van Buylaere 2002, 1021.

[43] Tadmor 1994, 176 Summ. 8: 9'; cf. Radner 2006, 62.

[44] *SAA* V 15: 1–20. Cf. also Baker & Streck 2001, 932–3.

> (Regarding) the fields, the king, my lord, knows that [x] years ago I built a town in the king's field. Under the aegis of [the ki]ng, my lord, I have bought and added to it 400 (hectares of) field from [the sub]jects of [A]šipâ. I have erected a fort there. The perimeter of the town is [...] cubits; I have built a royal palace and drawn the king's likeness inside it. I have placed 200 stone slabs there and settled the king's subjects there.[45]

Lipḫur-Bēl carried out the works not following a royal order, but 'under the shade/aegis of the king my lord' (*ina ṣilli šarri bēlīya*), hence according to his own rights in administrating the territory within his jurisdiction. This included the construction of administrative palaces, which were decorated with the same kind of sculpted reliefs that one could find in the main Assyrian capitals, like Nimrud, Nineveh and Dūr Šarrukīn, and which were among the main instruments of imperial propaganda. The last phase of territorialization, as was pointed out at the beginning of this paper, included policies of political and cultural absorption of the local population. In this context, the fortified cities were the centres from which the *Pax Assyriaca* could be spread.[46] Examples from the Middle and Neo-Assyrian periods shed light on the significant impact brought with this kind of policy.

On one hand, recent discoveries in the Middle Assyrian frontier regions have shown a constant presence of bounds between local authorities and Assur, even after the crisis that hit the Assyrian kingdom in 12th and 11th centuries.[47] The inscriptions of the ruler of Ṭābētu (Tell Ṭāban, on the Lower Ḫabur), Aššur-reš-iši II (972–968 BC), and his successors prove the continuity of political relationships between some enclaves of Lower Ḫabur and the Assyrian core during the 'Dark Age'.[48] Similar cultural-political bounds are shown in the cities of Dūr Kathlimmu and Šaddikanni, where sculptures dated to the years of Assurnaṣirpal II (883–859 BC) were retrieved. Very recently, at the site of Satu Qala/Idu, on the Lower Zab (the Middle Assyrian south-eastern frontier), archaeologists found a series of bricks inscribed with the names of kings belonging to a local dynasty that developed after the Assyrian crisis. These bricks show a language (Assyrian dialect of Akkadian), ductus (Middle Assyrian), and some grammatical features very similar to those of the bricks found in other Assyrian provincial capitals (e.g. Tell Bderi/Dūr-Aššur-ketta-lēšer). As the authors of the report underline, 'palaeography as well as styles of the decorations reflect contemporary developments in Assyria, hinting at continued ties to the informal empire of Assyrian cultural dominance'.[49]

For the Neo-Assyrian period, in a letter (*SAA* X 349) written from the Babylonian city of Dēr on the frontier with Elam, the sender, Mar-Issār, urges the king about the need to finish the work on the city temple. Mar-Issār was the official responsible for the cult restoration of the region, he had to reorganize the cultic services and oversaw the reconstruction of the temples of Borsippa, Akkad, Uruk and other main urban centres in the region, including Dēr. For this city, Mar-Issār complains about the lack of cooperation between local Assyrian officials, which delays the works on the temple ('from the moment its foundations were laid, until now, the prelate and the officials of Dēr have been pushing it onto each other, and nobody has set about it. This year they have started to build, (but) one day they do the work, the next day they leave it.'[50]). Furthermore, the prince of Elam is taking advantage of this lack of cooperation between Assyrian officials by sending his brick masons to do the work. It is very important, then, that the king should send a troop and a master-builder to finish the work and ensure his control over the area.

As already shown by Pongratz-Leisten in her study on the Akitu festival in the context of Neo-Assyrian politics, Dēr was one of the cities situated at the limits of the Homeland's territory, which ideally represented the borders of the Assyrian empire, facing the external chaotic world.[51] By the end of his letter, Mar-Issār defines Dēr as a city 'on the frontier territory of another country' (*ina muḫḫi taḫūmu ša māt šaniti*). Here, the term *taḫūmu* seems to indicate, rather than a territorial area controlled by groups of opposing military fortresses, the degree of political and cultural/religious influence over the population of a major urban centre, which is not

[45] *SAA* V 15: 7–12.
[46] On the historical-political concept of *Pax Assyriaca* see Fales 2008.
[47] Fales 2011a, 31–2.
[48] The inscriptions were found at Tell Bedri and at Tell Ṭāban. See Maul 1992 and 2005.
[49] van Soldt *et al.* 2013, 219.
[50] *SAA* X 349 r. 11–18.
[51] Pongratz-Leisten 1997a, 248–9.

completely under Assyrian control.[52] In this context, the act of building a palace and/or a temple can be the most significant for the control of the frontier. A frontier that, we could say in this case, had to be built.

Abbreviations

RIMA 2	Grayson 1991
RINAP 3/1	Grayson & Novotny 2012
SAA I	Parpola 1987
SAA V	Lanfranchi & Parpola 1990
SAA X	Parpola 1993
SAA XV	Fuchs & Parpola 2001
SAA XVIII	Reynolds 2003
SAA XIX	Luukko 2012

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[52] This is not the only case in which cultic procedures and political control over an area are closely correlated. A well-known example from the same period is given by the letter of Urzana, the former king of Muṣaṣir who became an Assyrian vassal after Sargon II's conquest of the region (714). He reports that Urartean governors are coming to Muṣaṣir to do the service in the temple (of Ḫaldi). The importance of these practices is underlined by the fact that Sargon had explicitly forbidden any temple service without the king's permission, in order to avoid any Urartean control on the little kingdom through religious strategies (*SAA* V 147).

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FORTIFICATIONS OF PREHISTORIC CRETE: THE CURRENT STATE OF RESEARCH*

Tomas Alusik

Abstract

The fortifications, or rather 'defensive architecture', of Neolithic and Minoan Crete was the topic of the author's Ph.D. dissertation (2005), with the revised version published in 2007. In this paper, supplementary to the book, the state of study of Cretan prehistoric defensive architecture since 2006 is presented. The most important results of this research, both in the field (e.g. the sites of Gournia, Aphrodite's Kephali or the area of Kritsa–Kroustas–Katharo) and on a theoretical level (chronological studies, GIS and Space Syntax analyses), are summarized and then analysed here. These investigations cover and have bearing on all phases of Cretan prehistory – Neolithic until the end of the Minoan period (Postpalatial period). Unfortunately, even though the new research has introduced a great amount of data, helping us to answer some questions relating to the function and physical appearance of prehistoric fortifications, many of the basic problems relating to Cretan prehistoric defensive architecture, i.e. the methodological, chronological, functional and constructional questions, have not been clarified or answered fully and require further investigation, either by excavation or theoretical studies. There is still a great deal of scope for future work.

Introduction

Since the 1980s there has been greater attention and interest in the study of fortifications from the prehistoric era on Crete. The Minoan civilization of Bronze Age Crete has long been considered a peaceable one. From the beginning of the 20th century until the end of the 1970s the Minoans were believed to be a peace-loving nation. This assumed lack of interest in war[1] has meant that much less attention has been paid to the martial features of Minoan civilization, for example defensive or military architecture or warfare. Despite long-term research into Minoan defensive architecture, especially during the last 20 or 30 years, there are still many questions left and unresolved problems related to Minoan fortifications.

During the last 20 years many fieldwork projects (some on-going)[2] have uncovered, excavated or more closely documented a range of fortified sites or structures. Amongst the most significant results for the research of

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[1] The history of the research on Minoan defensive architecture is summarized in Alusik 2007, 9–11.

[2] See e.g. Alusik 2007, 12–13 (with further bibliography).

this period are the discoveries and closer examination of the fortified settlements of Livari Katharades,[3] Rogdia Kastrokefala,[4] Kritsa Kastello,[5] Oreino Kastri[6] and Aspro Nero stou Paletsi;[7] sections of fortification walls in Palaikastro,[8] Petras[9] and Gournia (see below); and peculiar buildings designated as 'guard houses' in the area of Sitia – Zakros[10] (the sites of Choiromandres[11] and Karoumes[12] were thoroughly excavated) and the Kritsa–Kroustas–Katharo plain[13] located at the foothills of the Lasithi Mountains. Therefore, it is possible to prove without doubt that defensive architecture existed on prehistoric Crete at least in certain periods. This research enables us to answer some further questions relating to the function, chronology and physical appearance of Minoan fortifications. Though a positive step forward in research, this causes many new problems concerning the wider or the general context of Minoan defensive architecture, for example the regional settings, chronological difficulties, relations between fortifications, defence strategies and so on.

Since 2000, the author has been concerned with the topic of Minoan defensive architecture, primarily during his Ph.D. studies, in 2007 publishing a book – a concise synthesis of the topic from an architectural viewpoint – based on his 2005 dissertation.[14] In this book, the author divided Minoan defensive architecture into five basic types.[15] Two of them (the so-called guardrooms and the so-called modifications of access systems) can be found within buildings. The remaining three types are enclosure/fortification walls,[16] towers or bastions and so-called guard houses – a specific type of building which is reminiscent of forts or strongholds. The most important discoveries of recent years enable the categorization of enclosure/fortification walls (in combination with towers or bastions) and guard houses.

This paper acts as an amendment to the presented book.[17] The author describes the most significant discoveries and results of research since 2006, both in the field and on a theoretical level, and the resulting new range of problems requiring research to be solved in the future. At the same time, it clearly presents a summary of the sphere of Minoan defensive architecture, reflecting the most up-to-date research.

To understand the topic of defensive architecture completely, it is necessary to set fortifications into a wider framework of Minoan warfare and understand their wider context(s) – particularly geographical, chronological, social and historical. A closer contextualization of defensible structures and their topography, together with archaeological findings must also be included. Consequently the author has given continued attention to the problem, in particular from the perspective of warfare and topography. In the following two sections the most important results of all fieldwork and theoretical studies related to defensive architecture since 2006 are presented according to the basic chronological periods of prehistoric Crete.

The most significant discoveries in the field

Final Neolithic period

In recent years many new defensible Final Neolithic settlements, some of which were fortified, have been found and published. In the westernmost part of Crete (nomos Chania) is the site of Sfinari Korakas, located on the summit of a ridge c. 100 m above sea level,

[3] Alusik 2007, 34–5 (cat. no. 44; with further bibliography).
[4] Alusik 2007, 73–4 (cat. no. 141; with further bibliography).
[5] Alusik 2007, 86–7 (cat. no. 151; with further bibliography).
[6] Alusik 2007, 43–4 (cat. no. 71; with further bibliography).
[7] Alusik 2007, 22–3 (cat. no. 15; with further bibliography); Schlager *et al.* 2010, 233–41.
[8] Alusik 2007, 45–6 (cat. no. 73; with further bibliography).
[9] Alusik 2007, 48–9 (cat. no. 77; with further bibliography); Tsipopoulou 2010; Tsipopoulou 2012, 55, fig. 9.
[10] For the basic overview of the architectural type see Tzedakis *et al.* 1989, 60–74; Chryssoulaki 1999, 78–83; Alusik 2007, 124–35.
[11] Alusik 2007, 27–9 (cat. no. 28; with further bibliography).
[12] Alusik 2007, 32–3 (cat. no. 39; with further bibliography); Vokotopoulos 2011.
[13] Beckmann 2012; Beckmann in press.
[14] Alusik 2007. He described here more than 200 sites with (more or less possible) examples of prehistoric defensive architecture in Crete.
[15] Alusik 2007. For the basic division and closer definition of Minoan defensive architecture into five types see esp. pp. 8, 115.
[16] These walls do not enclose the area completely in some sites. They just could have blocked the access to the site from one side only.
[17] The terminology used in this paper is based on Alusik 2007.

covering an area of c. 100 × 20–60 m. The remains of a fortification wall can be seen along the northern and north-eastern edges of the ridge, the other sides of which were protected by natural cliffs.[18] A site protected by a fortification wall on its southern side is situated on the so-called East Acropolis at Phalasarna, which is naturally defended on the other sides by high cliffs.[19] Both sites are dated to phase FN IV. The excavation results of a small and very defensible multi-period site of Monastiraki Katalimata (nomos Lasithi), also protected by specific examples of defensive architecture, were published in 2008.[20] Katalimata is one of a few examples of excavated defensible and/or fortified sites with predominantly Final Neolithic (III) and Postpalatial occupation.

Prepalatial period

All examples of newly discovered and/or published sites from the Prepalatial period are located on the Ierapetra Isthmus (nomos Lasithi). Aphrodite's Kephali (to the east of Kato Chorio), which dates back to the EM I period, is a very specific site which architecturally and functionally stands in-between enclosure walls and guard house type structures (Fig. 1).[21] The excavations conducted in 2007 discovered the remains of a house fortified by an enclosure wall which included small compartments along a part of its length. It is unlikely to be a usual domestic habitation site (there were no animal bones, stone utensils or other characteristic artefacts), but more probably a guard-post (to the north of the house remains, an area used for signal fires was located – the ground was coloured red because of burning) or possibly a special refuge site (many large strange jars up to 1485 kg in weight were discovered).

Aphrodite's Kephali is unique during the Prepalatial period not only because of the existence of fortifications, but also because of the signal fire area. This method of signalling was supposed to have developed and functioned specifically in connection with the Protopalatial guard houses.[22]

Kato Chorio Site 144 is situated on a ridge top overlooking the Episkopi valley close to Kato Chorio village and is surrounded by steep slopes on all sides except for the south-west.[23] Remains of walls of massive 'Cyclopean'/'oncolithic' masonry – probably a fortification – dated to the 'Late Prepalatial period' are visible along the ridge on the south-west and also at the other possible entrance on the north-east (in this case the walling may have originally formed a bastion). The area within these walls is c. 60 × 30 m.

Fig. 1 Aphrodite's Kephali, general view of the site from the east. EM I (photo: author).

[18] Nowicki 2008a, 216–17, fig. 13.18.
[19] Nowicki 2008a, 217, fig. 13.19.
[20] Nowicki 2008b. See also Alusik 2007, 42 (cat. no. 67, with further bibliography).
[21] Betancourt 2008; Betancourt 2009, 17–20, 78–83, 104–7; Betancourt 2013.
[22] Alusik 2007, e.g. 132–3, 147.
[23] Watrous *et al.* 2012, 132, pl. 8A (Site 144, Field 1265).

Epano Chorio Site 131 is located on a natural ledge within a ravine not far from Epano Chorio village.[24] The site has only one natural access route from the south, with cliffs on the other sides. The entrance is blocked by a rectangular structure built from 'Cyclopean'/'oncolithic' masonry – most probably a kind of a 'guard house'. Sections of fortification wall of the same construction technique are preserved on the northern and southern sides along the cliffs. The date of the defensive architecture is problematic, as the pottery from EM I–MM II phases is visible on the surface. Late Prepalatial pottery is scattered on the largest area (c. 80 × 80 m) of the site surface; on the other hand, the construction technique points to a Protopalatial date.

Protopalatial and Neopalatial periods

'Guard houses'

These are freestanding closed structures built from massive masonry (often called 'megalithic' or 'Cyclopean'), which usually resemble a small fortress or stronghold (often called 'phrourion'). Important discoveries have been made in sites with these 'guard house' structures.[25] So far several hundred of them have been mentioned or more closely described and documented. The structures often have an outer fortification and were usually part of a much larger system of guarding posts, enclosure walls or barriers, and roads. It is usually presumed that (the system of) these structures had a great importance for the monitoring and defence of a specific region. On the other hand, some of these structures have only a secondary defensive function – usually one of guarding. In this case, such structures have a simple layout like farmsteads (often called 'rural villas' or 'megalithic farmsteads') and they usually resemble common habitation architecture. Their possible defensive or guard purpose is shown mainly in the construction technique (including the system of periboloi) and/or appropriate topographical location (above a road or pass, near a spring etc.), but their purpose unfortunately cannot be proved with absolute certainty. Many guard houses had already been built in the Protopalatial period but they were used also during the Neopalatial period (and frequently reoccupied in LM III). Buildings of this type were for the first time properly documented in the area of Sitia–Zakros (nomos Lasithi) since 1984 within the Minoan Roads Research Programme (directed by Yannis Tzedakis and Stella Chryssoulaki).[26] Of the several dozen guard houses the research was focused on a smaller number of sites, mainly on Choiromandres (Fig. 2) and Karoumes (with two guard houses referred to as Metriko Phylakio (Fig. 3) and Phylakio tis Thalassas (Fig. 4)).[27] In the last two decades some preliminary

Fig. 2 Choiromandres, the main building of the guard house. Protopalatial–Neopalatial periods (photo: author).

[24] Watrous *et al.* 2012, 130, pls 4C, 5A–B (Site 131, Field 1220).
[25] For the basic overview of this architectural type see Tzedakis *et al.* 1989, 60–74; Chryssoulaki 1999, 78–83; Alusik 2007, 124–35.
[26] See e.g. Tzedakis *et al.* 1989, 60–74; Tzedakis *et al.* 1990, 43–62; Tzedakis *et al.* 1994–6.
[27] For references see above footnotes 11–12.

Fig. 3 Karoumes-Metriko Phylakio, the main building of the guard house. Protopalatial–Neopalatial periods (photo: author).

Fig. 4 Karoumes-Phylakio tis Thalassas, the main building of the guard house. Protopalatial–Neopalatial periods (photo: author).

reports have been published but excavations and studies of finds are still being carried out. This research, apart from basic understanding of this architectural type's structure and its chronology, has brought an understanding of a local context of discussed buildings in the given region: primarily the relationship between the main building of the guard house and the connected system of walls and watch posts. A series of short reports and specialized studies about various aspects of these sites has been published in recent years (e.g. household activities in Karoumes or a water management system in Choiromandres).[28] Many buildings resembling guard houses have been found in recent years by Sabine Beckmann in the Kritsa–Kroustas–Katharo plain

[28] See.e.g. *ARep* 2007–8, 94; Vokotopoulos 2011.

Fig. 5 One of the so-called guard houses in the area of Kritsa–Kroustas–Katharo plain (photo: author).

Fig. 6 One of the so-called guard houses in the area of Kritsa–Kroustas–Katharo plain (photo: author).

region (nomos Lasithi; on the eastern slopes of Lasithi Mountains).[29] Some of these buildings were mentioned in travel reports written by Arthur Evans and John Myres at the turn of 19th and 20th centuries (e.g. the site of Achladies/Kitten's Cistern).[30] Once again, these buildings are built of massive 'megalithic'/'oncolithic' masonry, often with connected periboloi (Figs 5–6). In many cases their topographic situation is not easily defensible and their density is so high that these buildings are situated only several dozens of metres from each other. These structures are usually of Protopalatial date, often also used during the Neopalatial period.[31] A structure of this kind (referred to as a 'fort'(?)) was also documented in Selima Site 120 on the Ierapetra Isthmus, on the slope of Thriphti massif above a pass to the Episkopi valley.[32] A building constructed from 'Cyclopean'/'oncolithic' masonry and consisting of two rooms was most probably built for guarding the important route through the pass (which is the main access eastwards in the southern part of the Ierapetra Isthmus). There is both Proto- and

[29] Beckmann 2012.
[30] Evans & Myres 1895; Brown 1993; Brown 2001.
[31] Beckmann 2012 and personal communication.
[32] Watrous *et al.* 2012, 128, pl. 6C (Site 119, Field 128).

Neopalatial pottery on the surface of the site; however, the construction technique points to the earlier date.

Gournia

During 2008 and 2009, in the coastal area of Gournia (nomos Lasithi, eparchy of Ierapetra, c. 1 km west of Pacheia Ammos on the north coast of the island), one of the Minoan palatial centres, extensive remains of walls discovered between 1992 and 1994 during the Gournia Survey Project[33] were cleaned and documented.[34] Some of these walls were already referred to as fortifications in preliminary reports from the end of 1990s.[35] On the coast approximately 400 m northwards from the excavated Gournia town, in the area between the Gournia river and the Alazzomouri ridge, the remains of the so-called Shore House are situated on the largest of four promontories (on the second from the west). Approximately 20 massive walls were documented to the south and east of the Shore House, and according to their location and construction details, four of them were interpreted as town fortification walls.[36] The first line of fortification is situated on the coast and is created by walls leading east–west through the width of promontory of the Shore House and the easternmost promontory next to the Alazzomouri ridge. A stretch of massive masonry referred to as Wall 3, approximately 40 m long and 1.2 m (at its western end) to 1.8/1.9 m wide (at its eastern end) (Fig. 7) is situated southwards of Shore House and attached to the eastern part of the promontory.[37] Its northern façade, in front of which are several stones suggesting the existence of a bastion or a tower, is created by large stone blocks, its southern façade is made of smaller stones and the interior of rubble. In the western part of the promontory, the wall is not so well preserved, but a group of large stones and rubble suggest its extension and therefore complete blocking of access from the Shore House to the southern direction. Across the easternmost promontory close to the Alazzomouri ridge, remains of a similar wall are preserved – so-called Wall 4 – approximately 27 m long and 1.3–1.7 m wide.[38] Both exterior façades are built from large stone blocks, the interior from rubble. In front of the northern façade there is situated a large semi-circular platform with a diameter of 8.8 m, consisting of several concentric rows of small stones forming most probably the foundation of a tower or bastion.

Fig. 7 Gournia, harbour area, Wall 3. Protopalatial period (?) (photo: author).

The second line of fortification is created by Walls 5 and 7 and is situated inland approximately 20–25 m southwards from Walls 3 and 4. The longest and most solid section is Wall 5 stretching from the edge of the river eastwards for a distance of 135 m (Fig. 8).[39] Its eastern part widens into a solid, roughly oblong tower salient for the line of south façade. The northern façade of the tower and whole wall is built of large blocks of dark-grey limestone; the southern façade is built of smaller stones and the

[33] Watrous *et al.* 2012.
[34] Watrous 2010; Watrous 2012; Watrous *et al.* 2012, 108.
[35] Watrous & Blitzer 1999, 906; Watrous *et al.* 2000, 475.
[36] Watrous 2010; Watrous 2012.
[37] Watrous 2012, 530–1.
[38] Watrous 2012, 531.
[39] Watrous 2012, 533–4.

Fig. 8 Gournia, harbour area, Wall 5 with the remains of a tower. Neopalatial period (?) (photo: author).

Fig. 9 Gournia, harbour area, Wall 7. Neopalatial period (?) (photo: author).

interior from rubble. Several metres westwards from the tower there used to be an access corridor (blocked at some later stage). The wall narrows in a westward direction from 3.7 m to approximately 2–2.5 m. The most interesting part of Wall 5 is the tower. Its northern façade is preserved up to two courses of masonry (approximately 0.9 m – it has the highest preserved height of masonry of the described enclosure walls). The interior is created by parallel rows of flat stones. On the eastern side, the Wall 5 boundary is on the paved street which was 1.4 m wide leading north–south from the harbour area to the ancient Gournia Town.[40] The so-called Wall 7 can be interpreted as a continuation of Wall 5 running eastwards to the Alazzomouri ridge (Fig. 9).[41] This wall consists of a shorter (8 m in length; 1.3 m in width) north–south section located several metres away from the eastern side of the street, but then it turns to east and runs in a west–east direction for a distance of 52 m. The width of this wall varies between 0.8 m in the middle to 1.1–1.4 m on its eastern and western ends. It shows the same construction as the above-mentioned walls – the northern façade is built of massive boulders, the southern one of smaller stones. A gate on the western part of the area in question belongs among others to the specific examples of defensive architecture.[42] A 2.2 m wide passageway with several paved steps is carved into the 5 m high bank of the river, to the northern part of which a wall is attached. These four walls and the gate together create a very interesting and, in some perspectives, specific fortification system.

No architectural remains suggesting the existence of fortification on the eastern and western side of the area have been found. It seems that in this area the inhabitants relied on the defensive features of the river gorge (with up to 15 m high cliffs) and the steep slope of Alazzomouri ridge. Regrettably, due to previous research, all walls in the area of the Gournia harbour were only cleaned and documented, not excavated; therefore their chronology is not clear. Their construction technique – large massive boulders of the outer façades set directly on the ground or (in places) on a levelling course of small stones, with a rubble core – and the construction of the towers or bastions show many parallels with East Cretan (defensive) structures of a Protopalatial date.[43] However, pottery collected in 2009 around the rectangular tower of

[40] Watrous 2012, 531–3.
[41] Watrous 2012, 531.
[42] Watrous 2012, 530.
[43] The same construction technique can be found e.g. in the sites of Aspro Nero stou Paletsi, Choiromandres or Karoumes – for references see footnotes 7, 11–12.

Wall 5 was exclusively of Neopalatial date.[44] In addition, this wall abuts the paved street, which would suggest that Wall 5 was constructed in the Neopalatial period only.[45] It is highly probable that the northern, coastal fortification line was already built in the Protopalatial period and the second – southern, inland one was added in the Neopalatial period.

The only significant results of fieldwork since 2006 related to the defensive architecture of the Postpalatial period, are the publication of the excavation of Monastiraki Katalimata (with its important Postpalatial occupation phase) and the documentation and excavation of the so-called guard houses in East Crete (some of which were reoccupied in LM III; see above)

The most significant results of theoretical studies

Recently, a new chronology of the Cretan Neolithic was published, which divides the Final Neolithic period into four phases (FN I–IV).[46] This enables us to date the FN sites more precisely and to differentiate the various phases of their foundation and/or abandonment. Concerning the theoretical studies dealing with the actual defensive architecture, the author has recently proved – in the case of topographic analysis of 22 chosen Prepalatial settlements – that the existence or absence of a good escape route and a refuge area is fundamentally interrelated with the existence or absence of defensive architecture.[47] In the cases of non-existent fortification walls (or other forms of defensive architecture) the inhabitants of such settlements had to rely on different complex defence measures, needing a suitably good escape route and area of refuge. Due to the way other sites are situated they do not have any functioning escape routes or refuge areas. In these cases their defence is ensured by fortification/enclosure walls.

Sander Brabander analysed the real defensibility of 17 guard houses in the Sitia–Zakros area on the basis of GIS and Space Syntax. He confirmed that these structures actually had defensive qualities, although the rate of defensibility differs per building and method.[48]

Analyses

The above described discoveries and the results of research on them have expanded our knowledge of Minoan defensive architecture. Sections of enclosure walls in Gournia are the longest and the best preserved parts of fortifications at palace centres of Minoan Crete. Therefore, it is clearly proved that at least some of these sites were fortified even in the Neopalatial period – the period of the greatest development of Minoan civilization, during which, according to tradition,[49] the Minoans lived in general peace. From the defensive (tactical) perspective, we can discuss the combination of two lines of enclosure walls: the older (forward) one is located directly on the coast and blocks access through the isthmus of promontories. The newer (inland) one is located several dozen metres away inland and is clearly delimited by the topographic constraints of the site (a river gorge on the west and the steep slopes of the Alazzomouri ridge on the east). From an architectural viewpoint, the enclosure walls are strengthened by semi-circular or oblong towers, which improve their defensive qualities, and – in case of the rectangular tower of Wall 5 – protect the most vulnerable parts, i.e. the access corridor and the paved street.

The closest parallels to the walls at Gournia are the enclosure walls with semi-circular/semi-oval or rectangular towers or bastions in Aghia Photia[50] (MM IA; Fig. 10) and in the palatial town of Petras (MM II to Neopalatial period; see above) in East Crete. Long stretches of (probable) town enclosure walls were also documented in Palaikastro (of Protopalatial and Neopalatial date; see above), Malia[51] (Protopalatial or even late Prepalatial (?) date) and Knossos[52] (Protopalatial date). It must be added that such massive enclosure walls of any kind of site do not occur again until LM IIIB–C phases.

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[44] Watrous 2012, 533.
[45] The paved street – as a part of the main street system of the town – dates most probably to MM IIIA – see Watrous 2012, 531, n. 35.
[46] Tomkins 2007; Tomkins 2008.
[47] Alusik in press.
[48] Brabander 2012. His thesis – together with author's above-mentioned research on Prepalatial sites – is among the first examples of such kind of topographical and architectural research of Minoan defensive architecture.
[49] Evans (1928, 60–92, esp. p. 79) called this concept 'Pax Minoica'. It was strongly maintained till the end of 1970s.
[50] Alusik 2007, 18 (cat. no. 4; with further bibliography).
[51] Alusik 2007, 89–92 (cat. no. 154/6–11; with further bibliography).
[52] Alusik 2007, 74–6, 82–3 (cat. no. 145/1–2, 7; with further bibliography).

Fig. 10 Aghia Photia, the detail of the enclosure wall with bastion/tower. MM IA (photo: author).

So-called guard houses are important and crucial not only for a better understanding of Minoan defensive architecture but also for comprehension of some aspects of Minoan warfare (such as attack and defence strategies) and of the details of the 'history' (the destructions, founding or abandonment of some sites or regions etc.) of some periods as well. These structures are usually interpreted as military stations – as one can assume from the term – controlling the area (including the road system).[53] From the general appearance and topography of guard houses three groups of functions of these structures can be deduced and summarized: military functions (e.g. the guarding and the military control of an area, keeping and securing the road system), political functions (e.g. the demonstration of power and presence in an area) and other, especially economic and administrative functions.[54] When presuming their military qualities, the defensive significance of the system of guard houses (together with roads and look-out posts) can be interpreted as forming the very first line of defence – which can be called 'demonstrative' – in case of danger. Thanks to their systematic placement in the landscape forthcoming danger could be identified in time, the information communicated and the danger reduced or stopped. The basic aim is apparent – to suppress any military actions or riots at the very beginning or, alternatively, to keep enemies far from centres or a settlement concentration.[55] However the dense concentration of such structures in the Kritsa–Kroustas–Katharo plain area documented by Beckmann does not testify in favour of an active monitoring and defence system.[56] There are too many of these buildings situated too close together and therefore they could not function as watch posts or fortresses. Consequently Beckmann interprets them as farmsteads.[57] A model of the complete control and monitoring of larger territories (or at least their borders) is, on the basis of these facts, more difficult to defend. On the other hand, as was recently proved by Brabander (see above), these structures had various grades of defensive qualities.

This shows that the problems related to guard houses are far more complex; that real functions and military significance were most probably different in various parts of Crete. It is necessary to create a different, more suitable and universal model of interpretation of these structures. One of the alternatives would be setting apart, within every study area, specific micro-regions to examine relationships between these buildings in question within their framework and subsequently in connection with neighbouring micro-regions. In the author´s opinion, within individual micro-regions with more sites and/or such structures, (at least) one building of this type could have had a defensive/military role

[53] See e.g. Tzedakis *et al.* 1989, 60–74; Chryssoulaki 1999, 78–83.
[54] Alusik 2007, 131–5.
[55] Alusik 2007, 147–8.
[56] The dense concentration of 'megalithic/oncolithic' structures was also observed in Karoumes bay – Vokotopoulos 2011, 138–9.
[57] Beckmann 2012; Beckmann in press. Vokotopoulos 2011, 143, also thinks that in Karoumes bay '... the most strongly defended and strategically sited buildings may be interpreted as guardhouses, but the majority of them were probably farmhouses.'

and functioned as what we perceive to be a military guard house or at least as a look-out post. It should be emphasized that these buildings were multi-storeyed (as it is proved by some of their remains and architectural details such as stairways) and we can imagine that there was a good view from their roofs (or some rooms adjusted particularly for this purpose).

The problems of guard houses are closely connected to questions regarding attack and defence strategies in the Minoan period. These strategies were very complex and related to the location and topography of the site and fortifications were built not only, but especially where such features did not provide adequate defence. All these aspects are interrelated and can highly influence the location and form of the settlements and this may not be the only factor in choosing a place where a settlement would be founded and built. Defence clearly had an important role in the choice of a location alongside economic reasons (presence of good sources of fresh water, fertile soil, grazing land and access to the sea for fishing and trade). But at the same time, defensive architecture (or its actual appearance) was not vital; the local topography with possible escape routes and a possible refuge area was equally, or even more important. A complete analysis of Minoan defensive architecture in relation to the methods of defence may help to improve our understanding of various aspects of Minoan civilization, for example of the character of some periods and the process of creating new territorial units. It may also contribute to our improved knowledge of the processes inside Minoan society (that gradually led to the formation of the palatial civilization) and especially of warfare (in a wider sense).

Conclusions

From what has been presented above it is clear that there are still many questions and problems relating to Minoan defensive architecture, particularly connected to the wider setting or rather the contextualization of it. Above all, a secure dating of many specimens of defensive architecture is missing: that is to say, the chronological specification is often based only upon the surface finds and analysis of construction techniques and architectural parallels. Without clear dating, it is not possible to understand fully some periods of the Minoan civilization (for example the turning horizons such as EM III/MM IA), especially from the historical and social point of view. The relationship between defensive architecture and warfare, primarily attack (besiegement) strategies is also not quite clear. In addition, the meaning of different types of defensive architecture used for defending territories and/or settlements still has – despite some progress – not been clarified in recent years. In this connection, it is necessary to take into serious consideration that those specific kinds of defensive strategies (or specific activities), like escape routes and refuge areas, may have been employed in Minoan Crete, leaving little archaeologically detectable evidence.[58] One of the important tasks of further research will be to understand a regional context of defensive architecture on the basis of detailed topographic analysis of sites with defensive architecture and analysis of their relationships with other sites within both the same micro-regions and the neighbouring ones. With regard to the great landform features of the Cretan landscape, too many specific and topographically well-defined micro-regions exist in some parts of the island. In such places, in the Minoan period, small local communities could have been created, which could have been independent at least in some phases.[59] However, they were often so distant from the nearest larger settlement or centre that in the most acute cases their inhabitants were forced to defend themselves.

To conclude, the discoveries made in recent years have brought a lot of new interesting and important facts to light which help us to better understand the topic of Minoan defensive architecture. The fortification walls in the harbour area of Gournia, without any doubt, prove that some of the palace centres were fortified during both the Proto- and Neopalatial periods. The so-called guard houses are key to understanding the complex meaning of defensive architecture and character of not only Minoan warfare (including attack and defensive strategies) but also of social questions.

It is obvious that to understand this further architectural and topographic/GIS analysis needs to be completed. Even though our knowledge in the field of defensive architecture has expanded in recent years, this topic – and some of its associated aspects – cannot be regarded as completely solved and explored. In following years, research should proceed both in the field -preferably with excavations which will result in a clear stratigraphy and chronology of some cases of defensive architecture - as well as on the theoretical level.

[58] Alusik in press.
[59] Schlager 1999, 176, suggested this for the site of Aspro Nero stou Paletsi.

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