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REZUMATUL TEZEI DE ABILITARE

TITLUL From Tells to Megaforts: Unraveling Social and Cultural Evolution in the Lower Mureș Region (2nd Millennium BCE)

Domeniul de abilitare: *Istorie*

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Chapter 1. Scientific, Professional, and Academic Achievements

1.1 Academic and Professional Achievements

My initial engagement with archaeology dates back to my secondary school years, when I spent several summer breaks working at the Museum in Oradea (Muzeul Țării Crișurilor). Far from being a simple extracurricular experience, this institutional environment played a decisive role in shaping my early academic orientation, as it exposed me both to historical inquiry and to the practical dimensions of archaeological research. Under the mentorship of specialists such as Călin Ghemiș, Gruia Fazecaș, and Doru Marta, I became familiar with specialized literature, acquired basic skills in ceramic conservation, and developed the ability to document material culture through technical drawing.

This early theoretical grounding was rapidly supplemented by systematic fieldwork. A particularly formative experience was my participation in the excavation at Voivozi–Lotul Pleșa, a settlement attributed to the Baden culture, where I gained firsthand insight into excavation strategies and the analytical significance of stratigraphic observation. Concurrently, my involvement in preventive archaeological interventions along the Oradea ring road introduced me to the methodological and ethical demands of rescue archaeology, especially the need for precise and comprehensive documentation under time constraints. These experiences were later reinforced through continued field research at Suplacu de Barcău.

In 2002, I enrolled in the History–Archaeology program at the Faculty of History and Philosophy, Babeș-Bolyai University in Cluj-Napoca. Throughout my undergraduate studies, I consolidated my academic training through sustained participation in a wide range of archaeological projects, including excavations at Turda, Sînandrei, and Vlaha-Pad. My bachelor's thesis, *Late Copper Age Settlements in the Western Plain of Romania*, defended in 2006, reflected my growing interest in prehistoric communities; in the same year, I continued my academic trajectory by commencing a master's program in Classical Antiquity at the same institution.

Upon completing my master's studies in 2007, I joined the Arad Museum Complex as a museum curator. This professional appointment marked a significant stage in my development as a researcher, providing long-term access to an extensive archaeological collection and to the documentary archives of previous excavations, which I examined, systematized, and integrated into my own research. Alongside curatorial responsibilities, I was actively involved in the organization, execution, and coordination of numerous archaeological investigations, ranging from systematic and preventive excavations to intrusive diagnostic operations and field surveys.

In 2009, I began my doctoral studies at Lucian Blaga University of Sibiu, culminating in the defense of my dissertation, *The Eneolithic of the Lower Mureș Valley*, in 2012. While my doctoral research focused on Eneolithic contexts, my broader scholarly interests increasingly converged on the Bronze Age, most notably through the long-term investigation of the megafort of Sântana–Cetatea Veche, which I have been investigating since 2008. I currently pursue my research activities at the “Titu Maiorescu” Institute for Socio-Human Research of the Romanian Academy (Timișoara branch), where my work contributes to a more nuanced understanding of the prehistoric dynamics of the Lower Mureș region.

1.2 Scientific Achievements

Over the course of a nineteen-year academic career, I have contributed to the advancement of archaeological research, with my scholarly output encompassing two single-authored monographs, three co-authored volumes, four edited volumes, and a total of ninety-

eight articles, studies, and book chapters presenting the results of my investigations. My research has been disseminated and critically discussed in international scholarly contexts through participation in twenty-eight international and thirty-six national conferences, which facilitated sustained academic dialogue and professional exchange. The impact of this activity is further reflected in my Hirsch index, which currently stands at 11 according to Google Scholar.

Following the defense of my doctoral dissertation in 2012, my research agenda focused primarily on the Neolithic and Eneolithic periods, key chronological frameworks for understanding the cultural and social development of communities in southeastern Europe. The outcomes of this research were synthesized in the volume *Neolithic and Eneolithic in the Lower Mureş Basin*, published in 2015, which integrates the results of my doctoral research and subsequent postdoctoral project. This work has made a substantial contribution to the study of prehistoric communities in the Lower Mureş region and has enhanced our understanding of cultural dynamics within a strategically significant area of southeastern Europe.

Subsequently, the central axis of my research shifted toward the Bronze Age, with particular emphasis on the second millennium BC in the Lower Mureş region—a thematic focus that constitutes the core of my habilitation thesis. Archaeological investigations conducted at Sântana–Cetatea Veche, a reference site for the Late Bronze Age, have yielded critical data concerning settlement organization and everyday life approximately three millennia ago. These findings have been complemented by research at other contemporaneous settlements and Late Bronze Age cemeteries, including Sagu–Site A1_1 and Pecica–Site 14, which have provided new insights into social structures and ritual practices. Moreover, systematic fieldwork has led to the identification of a substantial number of previously unknown second-millennium BC settlements, significantly enriching the archaeological record of the region.

At present, this cumulative database comprises over one hundred archaeological sites investigated through a range of methodological approaches, including systematic and preventive excavations, field surveys, and minimally invasive prospection techniques. The results have been disseminated through numerous scholarly publications, some of which have been synthesized in monographic volumes, such as *Sub semnul apelor. Noi descoperiri arheologice în Câmpia joasă a Crişului Alb* (ed. V. Sava), highlighting the regional significance of this area within broader Bronze Age developments.

In parallel with my research activity, I have been actively involved in academic publishing, contributing to the development of the journal *Ziridava. Studia Archaeologica*, classified in the CNCS B category. Between 2012 and 2017, I served as editorial secretary, and since 2018 I have held the position of editor-in-chief, overseeing the editorial process and ensuring the maintenance of high academic standards. In addition, together with Dr. habil. Florin Gogâltan, I coordinate the book series *Archaeology in the Lower Mureş Basin / Arheologie la Mureşul de jos*, dedicated to the systematic investigation of this archaeological region.

My scholarly activity has been further complemented by participation in national and international research projects, as a member, partner, or consultant, all closely aligned with the thematic framework of my habilitation research. Currently, together with Dr. habil. Florin Gogâltan, I co-direct the project *The Bronze Age Tell/Tell-like Settlement at Sântana – La nord de oraş*, which focuses on the minimally invasive investigation of a major Bronze Age site. Collectively, these research directions reflect my sustained commitment to advancing the study of prehistory and to strengthening archaeology as a rigorous scientific discipline.

Chapter 2. From Tells to Megaforts: Unraveling Social and Cultural Evolution in the Lower Mureş Region (2nd Millennium BCE)

The thesis provides an in-depth and systematically structured archaeological synthesis of the LMR during the second millennium BC, focusing on long-term social, economic, and political transformations associated with the MBA and LBA. The central analytical framework of this thesis is the transition from MBA tell-based settlement systems to the emergence, development, and eventual destruction of large-scale LBA fortified complexes, known as megaforts. The LMR is defined as a coherent geographical and cultural region within the southeastern Carpathian Basin, extending from the point where the Mureş River exits the mountain corridor to its confluence with the Tisa. Its position at the intersection of major communication routes linking Central Europe, the Balkans, and Transylvania endowed the region with strategic importance throughout prehistory and facilitated the circulation of people, goods, and ideas.

The social and political developments observed during the LBA cannot be interpreted in isolation, but must be understood as the outcome of processes rooted in the preceding MBA. During the MBA, the settlement landscape of the LMR was dominated by multi-layered tell settlements and tell-like sites, particularly in lowland environments. These tells functioned as long-term habitation centers characterized by architectural continuity, repeated rebuilding, and sustained exploitation of surrounding resources. Archaeological evidence from ceramics, settlement organization, and metallurgical remains indicates that MBA communities had already developed complex economic systems, craft specialization, and social differentiation. These societies exhibited a strong attachment to place and territory, forming stable micro-regional networks that persisted over several centuries.

The abandonment or transformation of many tell settlements in the first half of the second millennium BC marks a major turning point in regional settlement organization. Rather than indicating a demographic collapse or cultural discontinuity, the thesis argues that this shift reflects a reorganization of settlement strategies in response to changing social, political, and environmental conditions. Beginning around 1500 BC, communities in the LMR embarked on the construction of monumental fortified complexes that enclosed exceptionally large areas, in some cases exceeding one hundred hectares. These megaforts, including sites such as Sântana-Cetatea Veche and Corneşti-Iarcuri, represent one of the most distinctive features of the LBA settlement landscape in the Carpathian Basin. Their scale, architectural complexity, and investment of labor far surpass anything previously attested in the region.

The chapter highlights significant elements of continuity between MBA tell communities and the builders of LBA megaforts. Ceramic assemblages, technological traditions, and evidence for metal production suggest that local populations remained largely stable and continued to occupy the same micro-regions over long periods. Rather than migrating or being replaced, these communities reorganized their settlement patterns and political structures. The construction of megaforts is interpreted as a response to increasing social stratification, territorial competition, and the need for collective defense, rather than as a purely defensive reaction to external threats. The author situates these developments within a broader European context, noting parallels with contemporaneous fortified sites in the Lower Tisza region, northern Italy, and the Aegean world.

Environmental and paleoecological factors form a crucial component of the analysis. The LMR lies at the interface between the eastern Pannonian Plain and the Western Romanian Carpathians and is characterized by river terraces, floodplains, and loess-covered surfaces shaped during the Pleistocene and Holocene. Regular flooding of the Mureş River played a central role in landscape formation and influenced settlement placement, agricultural productivity, and communication routes. Interdisciplinary research, including

geomorphological studies, palynological analyses, and sediment cores, reveals that human activity increasingly transformed the environment during the BA. Deforestation, agricultural expansion, and intensified land use gradually altered local ecosystems, contributing to both economic growth and new forms of environmental stress.

The text offers a detailed reconstruction of settlement dynamics during the MBA and LBA. MBA settlement patterns are characterized by densely occupied tells surrounded by agricultural hinterlands, while the LBA II period is marked by a notable expansion in both the number and spatial distribution of settlements. New sites were established in high plain areas and, to a lesser extent, in mountainous zones, reflecting both demographic growth and changing land-use strategies. Settlements varied widely in size, duration, and material culture, indicating a heterogeneous and flexible settlement system. Importantly, the spatial relationship between fortified and unfortified sites does not support a simple hierarchical model with megaforts functioning as centralized capitals controlling dependent satellite settlements. Instead, megaforts appear to have formed part of broader defensive or strategic networks, often located at the margins of settlement clusters and possibly serving regional or supra-regional functions.

A substantial portion of the thesis is devoted to the architecture, construction techniques, and development of Late Bronze Age fortification systems. Drawing on data from historical excavations, recent archaeological campaigns, and non-invasive methods such as magnetometry, aerial photography, drone-based surveys, and LiDAR scanning, could be reconstructed the internal layout and defensive features of key sites. Fortification systems typically consisted of massive earthen ramparts constructed from tamped soil, multiple ditches, and wooden palisades, often reinforced with clay and organic materials. Evidence of widespread burning indicates that many of these structures were destroyed violently.

Particular attention is given to Fortification III at Sântana-Cetatea Veche, which serves as a case study for understanding the construction and use of megaforts. Earlier interpretations based on the 1963 excavation suggested multiple construction phases, but recent stratigraphic analysis and improved documentation have led to a reassessment of these conclusions. The chapter integrates data from trenches excavated in 2009 and 2018 with results from magnetometric surveys to propose a more coherent model of fortification development. This model emphasizes the simultaneous construction of ramparts, palisades, and ditches as part of an integrated defensive system rather than as successive, unrelated phases.

Absolute chronology constitutes a major methodological contribution of the thesis. A series of AMS radiocarbon dates obtained from charcoal samples associated with palisades, ditches, and rampart fills were modeled using Bayesian statistical approaches. This allowed for the definition of precise chronological intervals for the construction, use, and destruction of Fortification III. The results indicate that the initial construction phase took place between the late 15th and early 14th centuries BC, followed by a period of use and maintenance, and culminating in destruction events toward the end of the 14th century BC and during the 13th century BC. These refined chronological frameworks not only clarify the development of individual sites but also enable more accurate regional and inter-regional comparisons.

Economic practices, particularly metal production and circulation, are examined as key indicators of social complexity. The LMR displays a highly uneven distribution of metal artifacts, with certain sites yielding exceptionally large quantities of bronze and gold objects. Evidence for metallurgical activity includes clay and stone molds, crucibles, slag, and installations associated with ore processing. The concentration of metal finds at major fortified sites suggests that these locations functioned as important production, storage, or redistribution centers. At the same time, the frequent discovery of metal objects outside well-defined archaeological contexts raises interpretative questions regarding hoarding practices, ritual deposition, and accidental loss.

The thesis places strong emphasis on the transformation of armed conflict during the Bronze Age. By systematically cataloging weapons, weapon-bearing graves, fortifications, and evidence of physical trauma on human remains, the author identifies a diachronic shift in the nature of warfare. During the MBA and early LBA, conflicts appear to have been relatively small in scale, with weapons often closely associated with individual identities and deposited in graves. From the LBA II onward, weapons are increasingly found in hoards or as isolated finds, reflecting a depersonalization of warfare and the mobilization of larger groups. The construction of massive fortifications and the archaeological evidence for violent destruction point to the emergence of organized, large-scale warfare requiring advanced planning, coordination, and leadership.

The siege and destruction of the Sântana-Cetatea Veche megafort are interpreted as emblematic of broader processes affecting much of Europe during the 13th and 12th centuries BC. Similar patterns of fortification construction, attack, and destruction are attested across a wide geographical area, from the Atlantic to the Aegean. The thesis argues that these events were closely linked to demographic growth, agricultural intensification, and broader climatic and economic changes, including the spread of millet cultivation. Increased population density and competition over resources likely intensified social tensions and contributed to the escalation of conflict.

In its concluding synthesis, the thesis argues that the evolution from MBA tell settlements to LBA megaforts in the Lower Mureş Basin represents a long-term process of transformation characterized by both continuity and innovation. The archaeological record documents increasing social stratification, economic specialization, political centralization, and the emergence of new forms of collective organization. These developments culminated in highly complex societies capable of mobilizing large labor forces, constructing monumental architecture, and conducting organized warfare, comparable in scale and complexity to contemporary societies in other parts of BA Europe. At the same time, significant gaps in the archaeological record remain, particularly regarding absolute chronology, inter-site relationships, and the social mechanisms underlying political authority. The thesis concludes by emphasizing the need for continued interdisciplinary research to further refine our understanding of BA social dynamics in the LMR and to situate these developments within broader European debates on prehistoric complexity, conflict, and societal change.

Chapter 3. Perspectives on the Development of a Research Career and Academic Teaching Activities

3.1. Research Perspectives and Ongoing Scientific Directions

Following the defense of my habilitation thesis, *From Tells to Megaforts: Cultural and Social Developments in the Lower Mureş Region during the Second Millennium BC*, my future research agenda will focus on the development of new projects that prioritize intensive fieldwork and the systematic integration of results into a coherent body of high-impact scholarly publications.

A central objective of this agenda is the continuation and expansion of archaeological research at the Late Bronze Age megafort of Sântana–Cetatea Veche, an exceptional site characterized by well-preserved and extensively documented archaeological contexts. This long-term project aims to address fundamental questions concerning Late Bronze Age societies in southeastern Europe: which factors led to the emergence of a highly complex fortification system extending over approximately 130 hectares? How were these defensive systems

conceived and operated, and what strategies may have been employed in attempts to conquer them? What was the nature of political authority within such large-scale settlements—was it centralized or dispersed? Can the rise of warrior elites be identified, and which social, economic, and political structures sustained them? To what extent were conflicts driven by the accumulation of prestige goods, control over communication routes, and access to natural resources? Particular attention will also be devoted to the functional interpretation of specific architectural features, including a building of approximately 1,700 m² located within the fortified area, as well as the funerary character of a structure identified beneath a mound.

These research questions are addressed through an explicitly multidisciplinary methodological framework, encompassing magnetometric surveys over 102 hectares, LiDAR scanning across 850 hectares, more than fifty AMS radiocarbon determinations from diverse contexts, palaeodietary studies, anthropological and archaeozoological analyses, and petrographic investigations. In parallel, palaeoenvironmental reconstructions—supported by geomorphological, pedological, and palynological analyses—will contribute to a refined understanding of living conditions and landscape use, while chemical analyses of glass bead compositions will shed light on production technologies and long-distance exchange networks. The results of these investigations will be disseminated through specialized articles and monographic publications, thereby advancing current knowledge of the Bronze Age in the region.

At the same time, I will continue minimally invasive investigations at the tell site of Sântana – La nord de oraş, within the framework of a project funded by the Foundation for the Study and Preservation of Tells in the Prehistoric Old World. This research will further elucidate the tell phenomenon characteristic of Middle Bronze Age settlements through magnetometric surveys, stratigraphic coring, and laboratory-based analyses. In the longer term, minimally invasive approaches will be extended to other second-millennium BC settlements in order to generate comparative datasets addressing social dynamics, economic organization, and environmental contexts in the Lower Mureş region.

Another major objective is the monographic publication of the cemetery at Pecica–Site 14. Although relatively small in scale (38 graves), this burial ground provides crucial evidence for social stratification, exchange networks, and population mobility. To date, the research program has produced nineteen AMS dates, provenance analyses of metal objects, ancient DNA sequencing, palaeodietary studies, and comprehensive anthropological and archaeozoological assessments.

In the long term, I intend to develop a comprehensive archaeological database covering the entire Lower Mureş region during the second millennium BC. This resource will facilitate large-scale comparative analyses with other European regions, such as the Terramare culture of northern Italy and the Aegean world. Research outcomes will be disseminated through participation in international conferences and publication in high-impact journals and monographic series.

Concurrently, I will continue my editorial activities with *Ziridava*, *Studia Archaeologica* and the *Arheologie la Mureşul de Jos* series, as well as my collaboration with *Studia Banatica*, *Seria Historia*, thereby contributing to the promotion of archaeological research and to the recognition of the Lower Mureş region as a key area for the study of European prehistory.

3.2. Perspectives on Academic Teaching and the Training of Future Specialists

My scientific and professional activity, spanning nearly two decades, provides a solid foundation for the development of a teaching career dedicated to the training of specialists in prehistoric archaeology, with a particular emphasis on the Bronze Age in the Carpathian Basin. My academic trajectory—shaped by extensive field research, museum-based professional practice, scholarly production, and participation in national and international research

projects—equips me with the necessary framework to assume teaching responsibilities and to supervise doctoral research.

My early professional experience in museum institutions, combined with sustained involvement in systematic and preventive archaeological investigations, has enabled me to develop an integrated perspective on archaeological research, one that closely intertwines theoretical knowledge with field-based practice. This dual approach is essential for doctoral training, as it fosters not only the acquisition of information, but also a critical understanding of archaeological contexts, methodological choices, and interpretative frameworks.

My future teaching activity, closely connected to the doctoral school, will focus on the training of specialists in the prehistory of Central and Southeastern Europe. This pedagogical engagement will draw directly on my research concerning multi-layered Middle Bronze Age settlements, the transition to the Late Bronze Age, and the emergence of megaforts, thereby providing a coherent conceptual and empirical framework for doctoral projects addressing settlement dynamics and social organization.

Sites such as Sântana–La nord de oraş and Sântana–Cetatea Veche function as long-term research laboratories, allowing for the direct application of modern archaeological methodologies and the active involvement of doctoral candidates in excavations, minimally invasive investigations, and systematic field surveys. My experience in coordinating field projects offers a strong foundation for doctoral supervision and for guiding research focused on settlement development, cultural continuity, and the interaction between social and environmental factors.

Mentorship constitutes a central component of my academic activity. To date, I have collaborated with students and early-career researchers, supporting them in the preparation of academic manuscripts and their first scholarly publications. In the future, I intend to further strengthen this dimension through the supervision of doctoral dissertations on topics such as tells, tell-like settlements, and prehistoric fortifications, thereby contributing to the formation of a research school dedicated to the study of prehistoric communities in the southeastern Carpathian Basin.

The role of doctoral supervisors extends beyond teaching to include guiding early-career scholars in the development of sustainable academic and professional trajectories. My experience in the museum sector, heritage management, and archaeological decision-making bodies enables me to provide doctoral candidates with an applied perspective on career paths in archaeology, both within and beyond academia.

Internationalization represents a key objective of my academic agenda. My participation in national and international research projects—such as *Living in the Bronze Age Tell Settlements*, *PALEORIDER*, and *The Fall of 1200 BC*—highlights the importance of international collaboration, and I will actively encourage doctoral candidates to engage in research mobility and comparative, cross-regional projects.

My editorial activity within *Ziridava. Studia Archaeologica* and the *Arheologie la Mureşul de Jos* series further enables me to mentor doctoral candidates in academic writing, publication strategies, and research ethics, familiarizing them with international standards and the peer-review process.

In conclusion, the development of my teaching career is grounded in the integration of research, instruction, mentorship, and doctoral supervision, with the aim of providing doctoral candidates with rigorous and coherent training in prehistoric archaeology, in accordance with the academic standards required by the habilitation process.