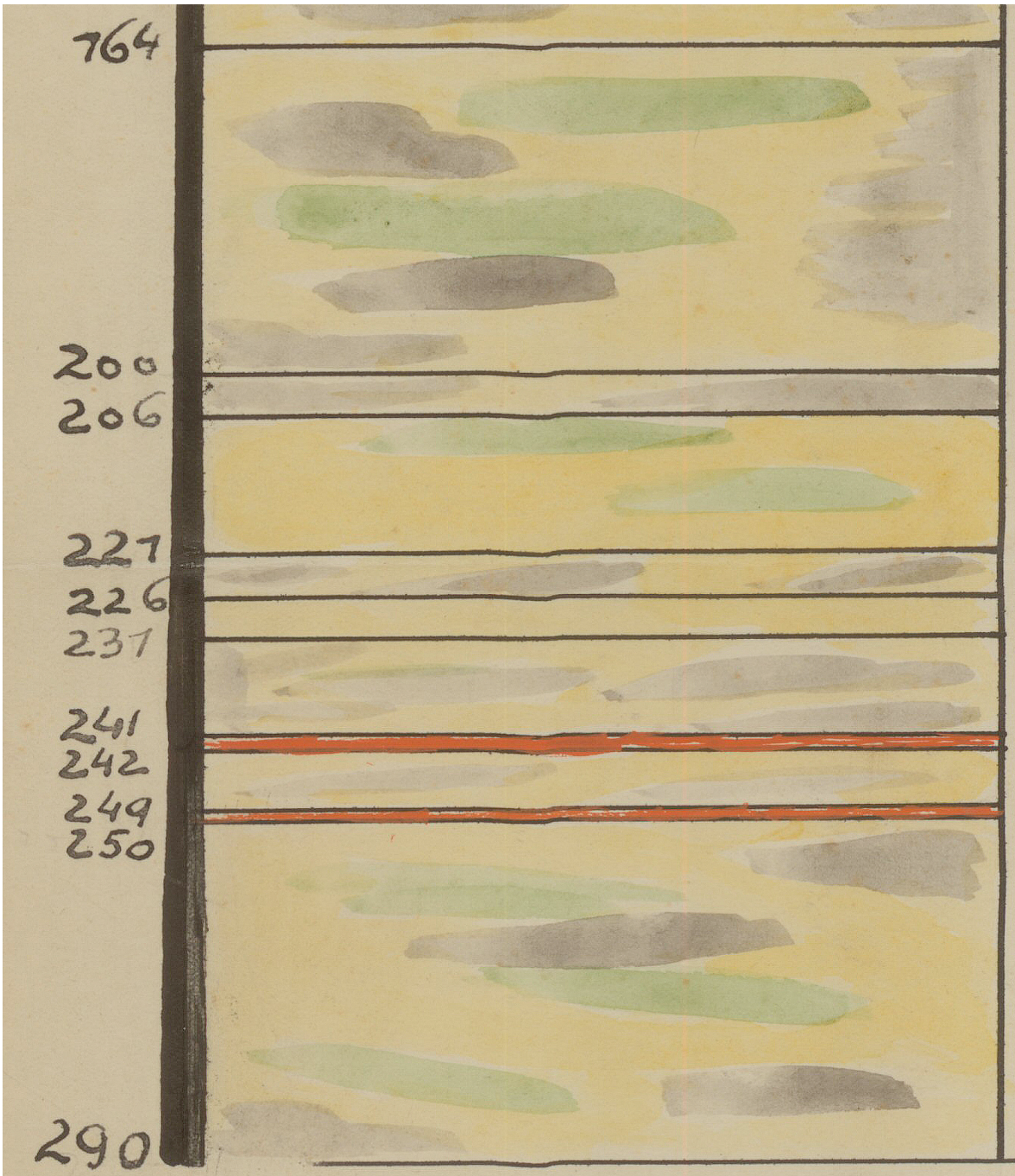
FOUNDATION FOR
THE **STUDY** AND **PRESERVATION** OF **TELLS**
IN THE PREHISTORIC OLD WORLD

Tätigkeitsbericht 2024



FOUNDATION FOR
THE STUDY AND PRESERVATION OF TELLS
IN THE PREHISTORIC OLD WORLD

Neuffenstraße 57 · D-73734 Esslingen am Neckar

An das
Regierungspräsidium Stuttgart
z.H. Herrn Marek Owens
Ruppmannstraße 21

70565 Stuttgart

6. Juni 2025

Tätigkeitsbericht der
Foundation for the Study and Preservation of Tells in the Prehistoric Old World
für das Jahr 2024

In Einklang mit den Vorgaben der Satzung erfolgte am Montag, den 22. Januar 2024, eine gemeinsame Sitzung von Beirat und Vorstand mit Aussprache über die im Vorfeld zirkulierten Förderanträge für 2024, gefolgt von einer Empfehlung in Bezug auf die Förderwürdigkeit der einzelnen Projekte unter Berücksichtigung von deren fachlicher Qualität und ihrer Passung mit dem Stiftungszweck (s. beigefügtes Protokoll).

Auf der anschließenden Sitzung des Vorstandes (s. Protokoll) erfolgte zunächst der jährliche Bericht des Vorsitzenden über die Finanz- und Ertragslage der Stiftung 2023 sowie die Beschlussfassung über die Höhe der Fördersumme für das Jahr 2024, gefolgt von der Entscheidung über die im Jahr 2024 zu fördernden Projekte.

Entsprechend der Empfehlungen des wissenschaftlichen Beirats wurde einstimmig beschlossen, fünf der beantragten sieben Projekte zu fördern, wobei es sich bei dreien dieser Projekte um Fortsetzungsanträge bereits 2023 geförderter Vorhaben handelt (Anträge Attila Gyucha et al., Danny Rosenberg und Tanja Zerl) und zwei weitere Neuanträge Berücksichtigung fanden (Anträge Marian Lie und Ákos Mengyán). Drei der bewilligten Projekte sollen im vollen Umfang der beantragten Summen gefördert werden (Anträge Marian Lie, Ákos Mengyán und Tanja Zerl), während bei den übrigen beiden Kürzungen gegenüber der beantragten Fördersumme vorgenommen wurden (Anträge Attila Gyucha et al. und Danny Rosenberg).

In Hinblick auf die Mehrjährigkeit einiger der geförderten Vorhaben betonte der Vorstand abschließend einmal mehr die Notwendigkeit, den Antragsstellern in den Bewilligungsschreiben zu

signalisieren, dass keine Garantie betreffs einer weiteren Förderung in den Folgejahren gegeben werden kann.

Entsprechend dieses Vorstandsbeschlusses wurden im Jahr 2024 die folgenden Projekte gefördert (zur inhaltlichen Begründung siehe das beigefügte Protokoll der Sitzung des wissenschaftlichen Beirats):

Time Will Tell: The Vésztő-Mágor Conservation and Exhibition Program (Attila Gyucha et al.) mit einer Fördersumme von **8.500** Euro.

C14 dates from the Toboliu Dâmbu Zănăcanului tell (Oradea, Bihor County, Romania) (Marian Lie) mit einer Fördersumme von **10.000** Euro.

Life after the tells: Radiocarbon dating Late Bronze Age sites in the Maklár region (NE Hungary) (Ákos Mengyán) mit einer Fördersumme von **10.000** Euro.

Private or public? A micro-archaeological study of the large-scale storage facilities at Tel Tsaf, Jordan Valley, Israel (Danny Rosenberg) mit einer Fördersumme von **5.500** Euro.

Archäobotanische Untersuchungen in Borsodivánka-Nagyhalom (Ungarn) (Tanja Zerl) mit einer Fördersumme von **6.000** Euro.

Die damit für 2024 bewilligte Fördersumme von insgesamt 40.000 Euro wurde bis Jahresende nicht vollständig abgerufen (z.B. Projekt Marian Lie aufgrund der ausstehenden Abrechnung des C14-Labors in Oxford); die abgerufenen Mittel sind der Stiftung gegenüber durch entsprechende Quittungen etc. belegt. Die zu Förderzwecken verausgabte Summe enthält die Kosten für Auslandsüberweisungen, die von der Stiftung übernommen wurden. Des Weiteren wurden Zahlungen in Zusammenhang mit der Aktualisierung der LEI der Stiftung sowie der Aktualisierung und Wartung der Stiftungshomepage vorgenommen.

Ende Januar erfolgte durch den Vorsitzenden eine Aktualisierung der Förderrichtlinie für das kommende Jahr 2025. Diese aktualisierte Förderrichtlinie wurde von dem Vorstand im Umlaufverfahren einstimmig gebilligt und über die Homepage der Stiftung veröffentlicht, sowie über academia.edu und die entsprechenden Netzwerke der Beirats- und Vorstandsmitglieder verbreitet. Die Antragsfrist für das Einreichen entsprechender Projektvorschläge endete am 30. November. Bis zum Stichtag wurden insgesamt acht Anträge eingereicht.

Mit freundlichen Grüßen,

(Prof. Dr. Tobias L. Kienlin)

Anlagen: Jahresrechnung, Protokolle, geförderte Projekte, Förderrichtline 2025

FOUNDATION FOR
THE **STUDY** AND **PRESERVATION** OF **TELLS**
IN THE PREHISTORIC OLD WORLD

Jahresrechnung 2024

Erstellt von:
WirtschaftsTreuhand GmbH
Schulze-Delitzsch-Straße 28
D-70565 Stuttgart

Jahresrechnung 2024
der Stiftung Foundation for the Study and Preservation of Tells in the Prehistoric Old World

Teil 1: Einnahmen-/Ausgabenrechnung vom 01.01.2024 bis 31.12.2024

Einnahmen				
I.	Kapitalerträge		€39.508,15	
1.	Zinsen	€5.816,68		
2.	Dividenden	€15.068,63		
3.	realisierte Kursgewinne aus Wertpapierverkäufen	€18.622,84		
4.	realisierte Gewinne aus Beteiligungen			
II.	sonstige Einnahmen		€0,00	
1.	Miete/Pacht			
2.	Umsatzerlöse			
III.	Zuwendungen		€0,00	
1.	Spenden			
2.	sonstige Zuwendungen (z.B.: Zustiftungen)			
Summe Einnahmen				€39.508,15

Ausgaben				
I.	Ausgaben für den Stiftungszweck (s. Bericht über Erfüllung Stiftungszweck)	€22.044,84	€22.044,84	
II.	Verwaltungsausgaben		€0,00	
1.	Vergütung des Vorstands			
2.	Vergütung weiterer Organmitglieder			
3.	Auslagen für Organmitglieder			
4.	sonstige Personalkosten			
III	Vermögensverwaltung			
IV.	Rechts- und Beratungskosten	€2.225,30	€2.225,30	
V.	sonstige Aufwendungen		€28.141,88	
1.	realisierte Kursverluste	€15.369,02		
2.	Zinsen	€616,67		
3.	Tilgung			
4.	Verwaltungsausgaben (laufende Ausgaben für Material, Telefon, Porto, usw.)	€11.498,40		
5.	Versicherungen			
6.	Steuern	€657,79		
VI.	Zustiftungen			
1.	Zuführung zum Stiftungsvermögen			
Summe Ausgaben				€52.412,02

Einnahmen gesamt	€39.508,15
./. Ausgaben gesamt	€52.412,02
Jahresüberschuss/Jahresfehlbetrag	-€12.903,87

Nachrichtlich:
Verwendung des Überschusses (+) Behandlung des Fehlbetrages (-)

Stiftungsvermögen	
zweckgebundene Rücklagen	
freie Rücklage	
Mittelvortrag	-€12.903,87
Gesamtsumme	-€12.903,87

FOUNDATION FOR
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IN THE PREHISTORIC OLD WORLD

Protokolle 2024

(Beirat und Vorstand)

FOUNDATION FOR
THE STUDY AND PRESERVATION OF TELLS
IN THE PREHISTORIC OLD WORLD

Neuffenstraße 57 · D-73734 Esslingen am Neckar

24.1.2024

Protokoll
zu der gemeinsamen Sitzung von Vorstand und Beirat
am Montag, den 22. Januar 2024, um 18.00 Uhr
(VIA ZOOM)

Protocol
of the joint meeting of the Executive Board and the Advisory Board
on Monday, January 22nd 2024 at 6.00 p.m. CET
(VIA ZOOM)

Anwesend/*present*: Monika Schweizer, Klára P. Fischl, Stella Souvatzi, Leonie C. Koch, Jana Anvari, Joseph Maran, Antonio Blanco-González,Tobias L. Kienlin (Vorstand und Beirat vollständig, Beirat beschlussfähig/*both boards fully present and quorate*)
Beginn: 18.00 Uhr – Ende: 19.15 Uhr

TOP 1: Begrüßung, Feststellung der Tagesordnung und satzungsgemäßen Ladung
Welcome, determination of the agenda and statutory summons

Begrüßung, Dank für die Bereitschaft aller Anwesenden sich für die Stiftung zu engagieren. Tagesordnung und Ladung werden einstimmig gebilligt; es gibt keine Ergänzungswünsche zur Tagesordnung
Welcome, thanks for the willingness of all present to commit themselves to the foundation. The agenda and invitation were unanimously approved; there were no requests for additions to the agenda

TOP 2: Aussprache über die vorliegenden Anträge, deren (wissenschaftliche) Qualität, Arbeitsplan und Finanzvolumen, sowie ihre Deckung mit dem Stiftungszweck; ggf. Formulierung einer Förderempfehlung
Discussion of the applications submitted, their quality, work plan and financial volume, as well as their compliance with the foundation's purpose; if applicable, formulation of a funding recommendation

Erläuterung zur Vorgehensweise und kurze Aussprache über die für 2024 zur Verfügung stehende Fördersumme; die Aussprache über die im Vorfeld zirkulierten Anträge soll neben der üblichen Beurteilung deren fachlicher Qualität immer auch deren Passung auf den Stiftungszweck und die geplante strategische Ausrichtung der Fördertätigkeit der Stiftung umfassen.
Explanation of the procedure and brief discussion of the funding amount available for 2024; the discussion on the applications circulated in advance should always include, in addition to the usual

assessment of their scientific quality, their fit with the foundation's purpose and the planned strategic orientation of the foundation's funding activities.

TOP 2A: Time Will Tell: The Vésztő-Mágor Conservation and Exhibition Program 2024 (Attila Gyucha et al.; 15,502 € / 2024; mehrjährig / *up to four years*)

Es handelt sich um den Fortsetzungsantrag eines bereits 2022 und 2023 geförderten Projektes. Über die 2023 erfolgten Arbeiten wurde ausführlich schriftlich Bericht erstattet. Sie werden nach wie vor als hoch professionell durchgeführt angesehen. Mit seinem Fokus auf der Instandsetzung und musealen Präsentation der Profile der Altgrabung von Vésztő-Mágor (Ungarn) entspricht dieses Projekt in besonderem Maße dem Anliegen der Stiftung, einen Beitrag zur Erhaltung prähistorischer, hier neolithischer Tellsiedlungen zu leisten. Wie bereits im Vorjahr wird kritisch angemerkt, dass die angestrebte Laufzeit und der Projektumfang die Möglichkeiten der Stiftung allein übersteigt. Konkret für 2024 werden einzelne Posten für zu hoch angesetzt angesehen und zur Kürzung vorgeschlagen. Wie im Vorjahr soll den Antragsstellern signalisiert werden, dass keine Garantie für eine weitere Förderung in den Folgejahren gegeben werden kann. Für 2024 wird das Projekt einstimmig als förderwürdig angesehen und zur Förderung empfohlen.
This is a continuation of a project that was already funded in 2022 and 2023. The work carried out in 2023 was reported on in detail in writing and is still considered to have been carried out in a highly professional manner. With its focus on the restoration and museum presentation of the profiles of the old excavation of Vésztő-Mágor (Hungary), this project is particularly in line with the Foundation's aim of contributing to the preservation of prehistoric, in this case Neolithic, tell settlements. As in the previous year, it was critically noted that the planned duration and scope of the project exceed the Foundation's resources alone. Specifically for 2024, individual items are considered too high and proposed for reduction. As in the previous year, the applicants will be signalled that no guarantee can be given for further funding in subsequent years. For 2024, the project is unanimously considered worthy of funding and recommended for funding.

TOP 2B: C14 dates from the Toboliu Dâmbu Zănăcanului tell (Oradea, Bihor County, Romania) (Marian Adrian Lie; 9,936 € / 2024)

Kienlin erläutert den Hintergrund des Antrages, die Tellgrabung von Toboliu im Rahmen eines Vorgängerprojektes des aktuellen Toboliu-Projektes an der UzK durch die rumänische Akademie der Wissenschaften (Leitung: Prof. Dr. F. Gogaltan). Es handelt sich um die einzige modern und sachgerecht ergrabene komplette bronzezeitliche Tellstratigraphie in NW-Rumänien, der somit eine große Bedeutung für die relative und absolute Chronologie dieser Raumes zukommen wird. Dazu sind allerdings weitere C14-Datierungen erforderlich, die im Rahmen des Vorgängerprojektes nicht finanziert werden konnten und durch das laufende Projekt an der UzK, das sich nur der Außensiedlung von Toboliu widmet, nicht abgedeckt sind. Dem Projekt wird besondere wissenschaftliche Bedeutung bescheinigt, versehen mit einigen Hinweisen zur Auswertung und Kontextualisierung der beantrangten C14-Datierungen. Herr Lie verfügt in hohem Maße über die Kompetenz zur Durchführung der vorgesehenen Untersuchungen, die Bestandteil seiner Dissertation werden sollen. Das Projekt wird einstimmig als förderwürdig angesehen und zur Förderung empfohlen.
Kienlin explains the background to the application, the Toboliu tell excavation as part of a predecessor project to the current Toboliu project at the UoC by the Romanian Academy of Sciences (headed by Prof. Dr. F. Gogaltan). This is the only modern and properly excavated complete Bronze Age tell stratigraphy in NW Romania, which will therefore be of great importance for the relative and absolute chronology of this area; however, this requires further C14 dating, which could not be financed within the framework of the predecessor project and is not covered by the current project at the UoC, which is only dedicated to the outer settlement at Toboliu. The project applied for is considered as being of particular scientific importance, with a few notes on the evaluation and contextualisation of the C14 dates applied for. Mr Lie is highly competent to carry out the requested investigations, which are to become part of his PhD thesis. The project is unanimously considered worthy of funding and recommended for funding.

TOP 2C: Life after the tells: Radiocarbon dating Late Bronze Age sites in the Maklár region (NE Hungary) (Ákos Mengyán; 9,964 € / 2024)

Fischl erläutert den Hintergrund des beantragten Projektes, die laufende Dissertation von A. Mengyán zu neu ergrabenen spätbronzezeitlichen Fundstellen in der Region Maklár, NO-Ungarn, im direkten Umfeld durch das BORBAS-Projekt in den vergangenen Jahren untersuchter mittelbronzezeitlicher Tellsiedungen. Das Projekt sieht vor, das aufgrund von Erosion und Zerstörung durch landwirtschaftliche Nutzung nur schwierig direkt zu erfassende Ende der Tellsiedlungen auf dem Umweg über die absolute Datierung zeitlich und kulturell anschließender spätbronzezeitlicher Kulturerscheinungen genauer einzugrenzen. Der Beirat diskutiert methodische Fragen und unterbreitet weiterführende Ratschläge zur Problematik der vorgesehenen Datierung unterschiedlicher Probenmaterialien (Knochen [Mensch/Tier], Großreste) und der als nicht unproblematisch angesehenen Korrelation von Tellstratigraphien und Flachsiedlungen bzw. Gräbern. Trotz dieser Einschränkungen wird die Frage nach dem Ende der Tells und ihrem Verhältnis zu nachfolgenden Siedlungs- und Kulturerscheinungen in einer bestimmten Mikoregion als von großem Interesse angesehen. Das Projekt wird einstimmig als förderwürdig angesehen und zur Förderung empfohlen.
Fischl explains the background to the proposed project, the ongoing dissertation by A. Mengyán on newly excavated Late Bronze Age sites in the Maklár region, NE Hungary, in the immediate vicinity of Middle Bronze Age tell settlements investigated by the BORBAS project in recent years. The project aims to narrow down the end of the tell settlements, which is difficult to record directly due to erosion and destruction by agricultural use, more precisely by means of the absolute dating of chronologically and culturally subsequent Late Bronze Age cultural phenomena. The advisory board discusses methodological questions and offers further advice on the problems of the proposed dating of different sample materials (bones [human/animal], macro remains) and the correlation of tell stratigraphies and open settlements or graves, which is regarded as not unproblematic. Despite these limitations, the question of the end of the tells and their relationship to subsequent settlement and cultural phenomena in a particular micro-region is considered to be of great interest. The project is unanimously considered worthy of funding and recommended for funding.

TOP 2D: Chronology, society and environment of the Neolithic tells in Pelagonia (Goce Naumov et al.; 20,000 € / 2024; mehrjährig / *up to three years*)

Es handelt sich um den Fortsetzungsantrag eines bereits 2022 und 2023 geförderten Projektes. Dem Projekt wird nach wie vor wissenschaftliche Qualität bescheinigt und das Potential, einen wichtigen Beitrag zu der Erforschung einer bislang nicht ausreichend verstandenen prähistorischen Siedlungslandschaft und ihrer Tellsiedlungen zu leisten. Negativ vermerkt wird dagegen die unzureichende Berichterstattung über die im Jahr 2023 konkret mit den Fördermitteln durchgeführten Arbeiten. Wie bereits im vergangenen Jahr werden Zweifel am Vorhandensein einer langfristigen Strategie und tellspezifischen Fragestellung jenseits der möglichst umfassenden Abdeckung der Landschaft Pelagonien geltend gemacht. Es wird kritisiert, dass der vorliegende Fortsetzungsantrag wie bereits im Vorjahr immer noch nur notdürftig auf die Möglichkeiten (Fördervolumen, Laufzeit) der FSPT abgestimmt wurde. Angesichts der beschränkten Fördermittel und der angesprochenen Monita spricht sich der Beirat einstimmig gegen eine Förderung dieses Projektes im Jahr 2024 aus. Den Antragstellern soll jedoch signalisiert werden, dass bei Vorlage eines entsprechend überarbeiteten und stärker fokusierten Antrages für das Folgejahr 2025 eine weitere Förderung in Betracht gezogen werden kann.
This is a continuation of a project already funded in 2022 and 2023. The project applied for is still recognised as being of high scientific quality and as having the potential to make an important contribution to research into a prehistoric settlement landscape and its tell settlements that have not yet been sufficiently understood. On the other hand, the inadequate reporting on the specific work carried out with the funding in 2023 was criticised. As in the previous year, doubts were expressed about the existence of a long-term strategy and tell-specific questions beyond the most comprehensive coverage of the Pelagonia landscape possible. It is criticised that, as in the previous year, the present application was still only poorly adapted to the possibilities (funding

volume, duration) of the FSPT. In view of the limited funding and the criticisms raised, the advisory board is unanimously against funding this project in 2024. However, the applicants should be signalled that further funding in 2025 may be considered if a correspondingly revised and more focused application is submitted for the following year.

TOP 2E: The organization and dissolution of the Bronze Age community of Kajászó. Multi-instrumental remote sensing survey of Kajászó-Várdomb, Hungary (Tamas Polanyi; 13,350 € / 2024)

Es handelt sich um die weitgehend unveränderte und redaktionell schlecht angepaßte Neuvorlage (z.B. Jahreszahlen) eines im letzen Jahr bereits abgelehnten Antrages. Der Mikroregion mit Siedlung und Nekropole um Kajászó wird nach wie vor wissenschaftliche Bedeutung zuerkannt und generelle Förderwürdigkeit bescheinigt. Im Vergleich mit anderen vorliegenden Projektskizzen wird jedoch negativ vermerkt, dass die Kalkulation des Projekts zu pauschal bleibt, so etwa hinsichtlich der Anzahl und Herkunft der Teilnehmer an den geplanten Kampagnen und der daraus sich ergebenden Kosten, und nicht speziell auf das Antragsformat der Stiftung zugeschnitten wurde. Vermeidbare Posten ergeben sich offenbar aufgrund des Fehlens einer lokalen Partnerinstitution und des Versuches, dieses Projekt im Wesentlichen aus den USA heraus durchzuführen. Angesichts der beschränkten Fördermittel, der angesprochenen Monita und der Förderung eines vergleichbar angelegten Projektes bronzezeitlicher Zeitstellung in der Region spricht sich der Beirat einstimmig gegen eine Förderung dieses Projekts aus.
This is a largely unchanged and editorially poorly adapted resubmission (e.g. year dates) of an application that was already rejected last year. The microregion with the settlement and necropolis around Kajászó is still recognised as being of scientific importance and generally eligible for funding. In comparison with other available project outlines, however, it is noted negatively that the calculation of the project remains too generalised, for example with regard to the number and origin of the participants in the planned campaigns and the resulting costs, and was not specifically tailored to the Foundation's application format. Avoidable items obviously arise due to the lack of a local partner institution and the attempt to carry out this project essentially from the USA. In view of the limited funding available, the monita mentioned above and the funding of a comparable Bronze Age project in the region, the advisory board is unanimously against funding this project.

TOP 2F: Private or public? A micro-archaeological study of the large-scale storage facilities at Tel Tsaf, Jordan Valley, Israel (Danny Rosenberg; 20,000 € / 2024)

Ein Teilaspekt der wichtigen laufenden Arbeiten in Tel Tsaf (Jordantal, Israel) wurde bereits im vergangenen Jahr finanziell unterstützt. Der nun vorliegenden Nachfolgeantrag fokusiert anhand der gut erhaltenen Vorratseinrichtungen des Fundortes nebst organischer Erhaltung auf die Mikro- und Makroprozesse der Akkumulation von landwirtschaftlichen Erträgen und deren Organisation durch die dort ansässige Gemeinschaft. Die nun beantragten Mittel sind für die Erhebung neuer kontextbezogener Felddaten über die Einrichtung, den Kontext und die Nutzung der Silos von Tel Tsaf vorgesehen. Der Beirat hebt hervor, dass hiermit eine konkrete, tellbezogene Fragestellung vorliegt, die anhand eines vorliegenden, klar umrissenen Datenbestandes mit einschlägigen naturwissenschaftlichen Methoden gut zu bearbeiten ist. Eine vollumfängliche Förderung im Sinne des Antrags wird als mit den Mitteln der Stiftung für 2024 nicht darstellbar angesehen, aber es wird vorgeschlagen, in beschränktem Umfang Mittel für die Durchführung der vorgesehenen Untersuchungen zur Verfügung zu stellen.
One aspect of the important ongoing work in Tel Tsaf (Jordan Valley, Israel) was already financially supported last year. The present follow-up application focuses on the micro- and macro-processes of the accumulation of agricultural yields and their organisation by the local community on the basis of the well-preserved storage facilities at the site, in addition to organic preservation. The funds now requested are intended for the collection of new contextual field data on the establishment, context and utilisation of the Tel Tsaf silos. The advisory board emphasises that this is a specific, tell-related question that can be dealt with well using relevant scientific methods on the basis of an existing, clearly defined data set. Full funding in the sense of the application is

not considered feasible with the foundation's funds for 2024, but it is proposed that a limited amount of funding be made available to carry out the planned investigations.

TOP 2G: Archäobotanische Untersuchungen in Borosdivánka-Nagyhalom (Ungarn) (Tanja Zerl; 6,000 € / 2024; mehrjährig / *up to three years*)

Es handelt sich um den angekündigten Fortsetzungsantrag der bereits 2022 und 2023 geförderten Auswertung der botanischen Großreste aus der Tellgrabung von Borsodivánka-Nagyhalom in Nordostungarn. Neben den guten Erhaltungsbedingungen und dem umfangreichen Datenbestand wird besonderes wissenschaftliches Potential in dem dadurch möglichen Vergleich der Wirtschaftsweise, Subsistenzstrategien und Umweltbedingungen von Borsodivánka mit dem Tell von Toboliu im benachbarten Rumänien gesehen, dem sich ein verwandtes Kölner Projekt widmet. Das Projekt wird einstimmig als förderwürdig angesehen und zur Förderung empfohlen.
This is the previously announced follow-up application of the evaluation of the large body of botanical remains from the tell excavation of Borsodivánka-Nagyhalom in north-eastern Hungary, which was already funded in 2022 and 2023. In addition to the good preservation conditions and the extensive data stock, special scientific potential is seen in the consequent possibility to compare economic strategies, subsistence strategies and environmental conditions of Borsodivánka with the tell of Toboliu in neighbouring Romania, which is the focus of a related Cologne project. The project is unanimously considered worthy of support and recommended for funding.

TOP 3: Verschiedenes
Miscellaneous

Allgemeine Aussprache über die Fördergrundsätze und den Umgang mit Anträgen, die zum Teil nicht gut auf Möglichkeiten der Stiftung abgestimmt sind (Volumen, Laufzeit etc.). Es wird festgehalten, dass natürlich auch größere traditionelle Ausgrabungsprojekte anteilig finanziert werden können, aber Projekte zu bevorzugen sind, die auch auf theoretischem Gebiet in ihrer Fragestellung einen besonderen Beitrag zum Verständnis der Lebensweise Tell erhoffen lassen.
General discussion about the funding principles and the handling of applications, some of which are not well adapted to the possibilities of the foundation (volume, duration, etc.). It is stated that traditional excavation projects can of course also be financed proportionally, but that preference should be given to projects that also make a special contribution to the understanding of tell-living in the theoretical field.

Mit freundlichen Grüßen,
With best wishes,

Euer

(Tobias L. Kienlin)

FOUNDATION FOR
THE STUDY AND PRESERVATION OF TELLS
IN THE PREHISTORIC OLD WORLD

Neuffenstraße 57 · D-73734 Esslingen am Neckar

24.1.24

Protokoll zur
4. ordentlichen Sitzung des Vorstandes
am Montag, den 22. Januar 2024, um 19.00 Uhr
(VIA ZOOM)

Anwesend: Monika Schweizer, Klára P. Fischl, Leonie C. Koch, Joseph Maran, Tobias L. Kienlin (Vorstand vollständig und beschlussfähig)
Beginn: 19.15 Uhr – Ende: 20.30 Uhr

TOP 1: Begrüßung, Feststellung der Tagesordnung und satzungsgemäßen Ladung

Beide Punkte werden einstimmig gebilligt; es gibt keine Ergänzungswünsche zur Tagesordnung

TOP 2: Bericht über die Finanz- und Ertragslage der Stiftung 2023 und Beschlußfassung über die Höhe der Fördersumme für das Jahr 2024

Bericht Kienlin und anschließende Aussprache über die Finanz- und Ertragslage der Stiftung auf der Basis der im Vorlauf zu dieser Sitzung zirkulierten Erträgnisaufstellung der Vermögensverwaltung für 2023 als Grundlage der Förderaktivitäten in 2024.

Die Erträge aus dem Stiftungsvermögen belaufen sich auf knapp 16.000 zuzüglich nicht realisierter Kursgewinne in Höhe von ca. 107.000 Euro.

Um die angestrebte Fördersumme von 40.000 pro Jahr darzustellen, wird diskutiert und einstimmig beschlossen, neben den o.g. Erträgen Kursgewinne in Höhe von 24.000 Euro zu realisieren und in die Förderung 2024 fließen zu lassen. Die übrigen Kursgewinne werden nicht realisiert und sollen dazu dienen, die durch die stark schwankenden Aktienkurse im Vorjahr entstandenen Verluste auszugleichen und das Stiftungsvermögen stabil zu halten.

Dieser Vorschlag wird vom Vorstand einstimmig angenommen und die Fördersumme für 2024 auf 40.000 Euro festgesetzt.

TOP 3: Aussprache über die Empfehlungen des wissenschaftlichen Beirats zu den Anträgen für das Jahr 2024 und die zukünftige Förderstrategie der Stiftung

Nach der vorangegangenen gemeinsamen Sitzung mit dem wissenschaftlichen Beirat wird an dieser Stelle kein weiterer Aussprachebedarf gesehen.

TOP 4: Beschlussfassung über die im Jahr 2024 zu fördernden Projekt sowie das Finanzvolumen der jeweiligen Förderung

Entsprechend der Empfehlungen des wissenschaftlichen Beirats wird beschlossen, fünf der beantragten sieben Projekte zu fördern, wobei es sich bei dreien dieser Projekte um Fortsetzungsanträge bereits 2023 geförderter Vorhaben handelt (Anträge Attila Gyucha et al., Danny Rosenberg und Tanja Zerl) und zwei weitere Neuanträge Berücksichtigung finden (Anträge Marian Lie und Ákos Mengyán).

Drei der bewilligten Projekte werden im vollen Umfang der beantragten Summen gefördert (Anträge Marian Lie, Ákos Mengyán und Tanja Zerl), während bei den übrigen Kürzungen gegenüber der beantragten Fördersumme vorgenommen werden (Anträge Attila Gyucha et al. und Danny Rosenberg).

Bei den Projekten Attila Gyucha et al. und Danny Rosenberg wird auf detaillierte Vorgaben, an welcher Stelle Kürzungen vorzunehmen sind, bewusst verzichtet. Bewilligt wird eine Gesamtsumme, deren konkrete Verwendung für die in den Anträgen genannten Posten den Antragstellern anheim gestellt wird.

Im Einzelnen werden also gefördert:

Time Will Tell: The Vésztő-Mágor Conservation and Exhibition Program (Attila Gyucha et al.) mit einer Fördersumme von **8.500** Euro für das Jahr 2024.

C14 dates from the Toboliu Dâmbu Zănăcanului tell (Oradea, Bihor County, Romania) (Marian Lie) mit einer Fördersumme von **10.000** Euro für das Jahr 2024.

Life after the tells: Radiocarbon dating Late Bronze Age sites in the Maklár region (NE Hungary) (Ákos Mengyán) mit einer Fördersumme von **10.000** Euro für das Jahr 2024.

Private or public? A micro-archaeological study of the large-scale storage facilities at Tel Tsaf, Jordan Valley, Israel (Danny Rosenberg) mit einer Fördersumme von **5.500** Euro für das Jahr 2024.

Archäobotanische Untersuchungen in Borsodivánka-Nagyhalom (Ungarn) (Tanja Zerl) mit einer Fördersumme von **6.000** Euro für das Jahr 2024.

TOP 5: Verschiedenes

Kienlin wird beauftragt die Antragsteller über die Förderentscheidung gemäß des vorliegenden Protokolls in Kenntnis zu setzen, verbunden, im Erfolgsfall, mit dem Hinweis auf die Förderbedingungen gemäß Förderrichtlinie der FSPT (Version 2024).

In Hinblick auf die Mehrjährigkeit einiger der geförderten Vorhaben wird die Notwendigkeit betont, den Antragsstellern zu signalisieren, dass keine Garantie betreffs einer weiteren Förderung in den Folgejahren gegeben werden kann.

Mit freundlichen Grüßen,

(Tobias L. Kienlin)

FOUNDATION FOR
THE **STUDY** AND **PRESERVATION** OF **TELLS**
IN THE PREHISTORIC OLD WORLD

Geförderte Projekte 2024

Time Will Tell: The Vésztő-Mágor Conservation and Exhibition Program 2024

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The University of Georgia Research Foundation, Inc. acknowledges the Foundation for the Study and Preservation of Tells in the Prehistoric Old World's restriction for overhead costs, and no overhead cost will be applied to this grant.

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SUMMARY

With this proposal, we seek funding for the 2024 season of the *Time Will Tell: The Vésztő-Mágor Conservation and Exhibition Program* (hereafter, Program). The primary goal of this multi-year initiative is to stabilize, preserve, and rejuvenate the exhibition of a unique, *in situ* trench excavated into the largest prehistoric tell on the Great Hungarian Plain. The Vésztő-Mágor tell is part of a historical park, the Vésztő-Mágor National Historical Park (hereafter, Park), that has a prominent cultural significance and economic weight for the local and regional community.

Tells are ideal archaeological settings not only for exploring prehistoric developments but also for their outstanding potential to become centers of public engagement and education. However, well-grounded methodological guidelines for how to preserve and present excavated trenches to the public currently do not exist. By exploring conservation and exhibition resolutions, the Program's work at Vésztő-Mágor will provide answers to these questions and encourage the creation of similar initiatives at other tell sites. The continued, generous support from FSPT has allowed us to implement the first stage of the Program's conservation work in the summers of 2022 and 2023.

The Program consists of multiple phases. The current proposal specifically requests funding for the continuation of the stabilization of stratigraphic profiles, along with archaeological documentation and sampling. Our activities in Summer 2024 will focus on the northern, central, and southern sections of the *in situ* exhibition. Upon the completion of conservation procedures across the trench in 2025, in Phase II, the shelter that covers the trench will be remodeled, and a climate control system and environmental monitoring system will be installed to ensure the long-term preservation of the trench. Finally, the most advanced approaches and technologies will be utilized to rejuvenate the exhibition in Phase III to enhance visitor engagement and attract more visitors to the Park.

The Park is an integral part of the local community, and the Program will help ensure that it will continue to be a thriving center for local identity and regional congregation. In addition, the Program develops best practice guidelines, shares equipment, and trains future specialists, as well as regional archaeologists and conservators, to enhance the preservation and exhibition of similar *in situ* contexts at tell sites throughout Southeast Europe and beyond.

The Program is an organic continuation of our previous research activities at Vésztő-Mágor, and across the Körös region, adding a heritage protection component of marked importance to it. We consider the Program to be our contribution to the community of Vésztő, which has supported our research in the area wholeheartedly over the past two decades.

THE CONTEXT

The Tell of Vésztő-Mágor: History and Significance

Encompassing an area of 4.25 ha and rising 9 m above a river terrace, Vésztő-Mágor is the largest tell on the Great Hungarian Plain (Figure 1). Currently, the site includes two mounds that, in prehistory, constituted a single prehistoric tell (Figure 2). Research at Vésztő-Mágor began at the end of the 1960's to explore both the Medieval Age monastery located on the southern mound and prehistoric developments across the tell (Figure 3; Frolking 2021; Gyucha et al. 2011; Hegedűs and Makkay 1987; Juhász 2000; Makkay 2004; Parkinson et al. 2018; Sarris et al. 2013).

These investigations indicate about 4,000 years of prehistoric occupation at the site. Habitation started during the Middle Neolithic, in the later sixth millennium BC, and continued into the Late Neolithic. About 4700 BC, Vésztő-Mágor was abandoned but then reoccupied ca. 4500/4400 BC, in the Early Copper Age. After a long hiatus, the transitional period between the Early and Middle Bronze Age, around 1900 BC, witnessed the final occupation phase in the prehistoric development of the site that lasted a few hundred years (Ecsedy et al. 1982:183–187; Hegedűs 1977; Makkay 2004). A total of 7 m stratified cultural deposits formed in the center of the tell, with the Neolithic layers measuring up to 3.5–3.7 m, the Copper Age layers 0.9–1 m, and the Bronze Age layers a maximum of 2 m. Between the eleventh and fourteenth centuries AD, a monastery was constructed in the southern zone of the site, on top of the Bronze Age layers (Hegedűs and Makkay 1987, 1990).

The *In Situ* Trench at Vésztő-Mágor: Significance and Problems

Besides its historical significance, a unique, *in situ* exhibition makes Vésztő-Mágor genuinely exceptional. In 1982, across an area of 13 ha, including the tell, the Vésztő-Mágor National Historical Park (henceforth, Park; https://www.vesztomagor.hu/) was founded. In addition to setting up a museum in a 19th-century wine cellar in the southern section of the tell, a 19-x-4.5-m trench was opened in 1986 specifically to create the *in situ* exhibition (see Figures 3 and 4; Makkay 2004). The trench was excavated to various depths, and archaeological features and objects representing each prehistoric period at the site were left exposed (Figure 5). The excavation was followed by the construction of a permanent shelter over the trench to protect the archaeological remains and facilitate public access. This exhibition quickly became the most frequently visited attraction of the Park, which hosts about 12,000 visitors annually. These visitors contribute significantly to the economic prosperity of the nearby farming town of Vésztő, home to 7,000 people.

Over the past decades, however, the exposed profiles of the *in situ* exhibition have dried out,

crumbled, and even collapsed in many areas. To halt deterioration, the Park applied clay plaster renders on several profiles about 15 years ago. These renders separated and further destroyed the profiles, and an attempt in 2014 to use chemicals to strengthen the walls also proved to be an inadequate preservation approach.

In 2021, to systematically explore mitigation opportunities, and preserve and rejuvenate the exhibition in the *in situ* trench, an international team of archaeologists and conservators established The Vésztő-Mágor Conservation and Exhibition Program (henceforth, Program).

THE PROGRAM

Program Significance, Goals, and Itinerary

In addition to directly benefiting the local community of Vésztő and Békés County, the Program is also a crucial platform for building, as well as transferring, knowledge of long-term preservation and exhibition resolutions on prehistoric tell sites. Tell excavations are incredibly time-consuming and costly. Due to the lack of research into how to stabilize and maintain fragile earthen profiles and features, trenches exposed on tells are backfilled at the end of the excavation campaigns. Thus, despite massive effort and expense, the social utility of tell research rarely goes beyond specialists. Results remain largely unknown to the public, and local and regional communities do not benefit from the excavations. The Program aims to offer resolutions to these problems.

In addition to 1) preserving the *in situ* trench at Vésztő-Mágor, 2) developing conservation techniques and procedures, as well as environmental and structural monitoring standards that are applicable to other tell sites, we will 3) create a state-of-the-art exhibition to increase visitor engagement and access to knowledge. To achieve these goals, the Program is divided into three distinct phases. The first two phases will ensure the stabilization and lasting preservation of the exposed tell profiles, archaeological features, and displayed objects, while the third phase entails the development of the new exhibition for the *in situ* trench. Knowledge transfer concerning each of these program elements, through first-hand training at the site as well as presentations and publications, is central to the Program.

Below, we summarize the methods and results from field seasons 2022-2023, and provide details about additional Phase I activities proposed for Season 2024, for which we seek funding from FSPT. Then, Phase II to III activities will be outlined. Note that a grant proposal to accomplish the rest of Phase I activities have been submitted to the Archaeological Institute of America (AIA; pending). In the coming years, we will apply to FSPT, the National Endowment for the Humanities (NEH), and several Hungarian and EU cultural infrastructure grants to complete the Program. For the archaeological studies of materials and samples from Phase I work, as well as for a related

initiative to scientifically assess and publish all materials from previous excavations at Vésztő-Mágor, funding has been and will be requested from the PIs' institutions, the National Science Foundation, the Rust Foundation, and the Wenner-Gren Foundation.

Phase I: Stabilization, Conservation, Environmental and Structural Data Collection, and Training

In our proposal submitted to FSPT in 2021, we assumed that two seasons would be sufficient to implement profile stabilization and conservation across the *in situ* trench at Vésztő-Mágor. In Seasons 2022 and 2023, however, we encountered major preservation problems and stabilization challenges that require more time-consuming resolutions. Therefore, the completion of Phase I demands a total of four field seasons. Over these years, we simultaneously conduct environmental and structural studies to better inform Phase II interventions by data collected through cutting-edge, evidence-based research. Additionally, the training of international students and regional heritage specialists in preserving earthen architecture is an integrated part of the Program.

<u>Seasons 2022 and 2023: Summary of Methods and Results</u>

Phase I Conservation Interventions

In Seasons 2022 and 2023, our activities predominantly concentrated on the most deteriorated, northern section of the *in situ* trench, advancing toward the central section. Four major methodological approaches were applied to conserve the earthen heritage: 1) cutting back profiles with better retention; 2) constructing sacrificial support structures in heavily eroding profile sections; 3) protecting platforms to prevent erosion; and 4) preventing further collapse by applying grouting to vulnerable areas. For documentation purposes, letter IDs were assigned to each profile and platform exposed during the original, 1986 excavation (Figure 6). Below, we summarize the conservation methods applied and Table 1 contains data on where these methods have been used in the *in situ* trench.

Cutting back profiles. With this method, our goal was to remove crumbling, dried-out sections and produce even vertical surfaces with highly visible stratigraphic layers to enhance visitor experience (Figure 7).

Constructing sacrificial support structures. These structures provide support for profiles experiencing severe basal deterioration, friable soil structure, and extremely poor retention. Support prevents accidents and further deterioration that could threaten the preservation of the entire *in situ* trench and possibly the shelter (Figure 8). We build these sacrificial support structures using mudbricks made of the tell's own soil by adding water, aged chaff, and perlite,

with the original archaeological interfaces lined with geotextile (Figures 9 and 10). This method ensures permeability for moisture and soluble salts to pass through to the surface. We improved output by mechanizing mudbrick production in 2023, greatly expediting the process.

Protecting platforms. To mitigate erosion due to moisture loss, geotextile is applied on platforms. Soil is spread across the geotextile for moisture retention and visual congruity (see Figure 10).

Preventing sheering and collapse. Filling profile cracks and gaps with grout provides support for areas in danger of collapse. Additionally, this grout can be used to provide 'pillar' support and moulded to stratigraphy in areas where mudbrick support is not possible or appropriate. The grouting mix contains Paraloid B44, screened soil from the trench, and perlite.

Additional conservation activities. Throughout Seasons 2022 and 2023, staged artifacts in the northern section of the *in situ* trench were cleaned using deionized water and ethanol, and, if necessary, were restored in the dig house. Features and objects that could not be removed from the trench were cleaned in place. In Season 2023, we began the restoration of a Bronze Age urn we exposed in Profile F. In addition, a deep sondage in the southeastern part of the trench, excavated in 2014 along Profile HH, was backfilled in 2022 to mitigate the impact of moisture wicking in this area. Finally, compact fluorescent lights were changed to much cooler LEDs to mitigate any deterioration caused by extreme thermal fluctuations (Figure 11).

Initiatives for the Implementation of Phases I and II

Environmental Data Collection. Seven TGP-4500 Tinytag Plus 2 dataloggers placed in November 2021 across the trench and four soil moisture profile probes (Delta-T PR2/6), purchased using FSPT funding and installed in Profile W in Season 2022, have been used to collect environmental information (Figure 12). This quantifiable research is instrumental in developing a long-term conservation management plan and establishing adequate environmental and structural monitoring programs. The collected data indicates that dew point issues are prominent across all areas. Additionally, there are distinct microclimates transversing the varying levels of the site, with temperature and relative humidity fluctuating extremely sharply in the northern and southern sections of the *in situ* trench. These are likely the leading causes of profile degradation. Data downloaded in Season 2023 indicates that the profile moisture content changes over time, with a tendency to be drier from early fall. By Season 2024, a unique, multi-year environmental dataset will be available to support well-grounded decisions about the parameters of a temperature and moisture control system, as well as air circulation, to be installed in the *in situ* trench.

Structural Data Collection. Following Season 2022, photogrammetric modeling was carried out. In Season 2023, a new instrument, an Artec Ray 3D laser site scanner was used to document

the trench's condition and its changes as a result of our work. The scanner features sub-millimeter accuracy, producing a highly detailed point-cloud map (Figure 13). This instrument is available for the Program in the years to come and allows us not only to recognize but also quantify material loss by measuring any volumetric difference. In Phase III, these scans can be incorporated into the visitor experience (i.e., augmented and virtual realities).

Training. During Seasons 2022 and 2023, we trained a total of 18 international undergraduate and graduate students specifically for tell trench stabilization and conservation. The environmental data collected from the trench was the basis for a Master's thesis that was successfully completed in Fall 2023. As evidenced by this project, students participating in the Program are able to effectively contribute to the success of future tell preservation projects.

Shelter Rehabilitation. Last year, we began working with a local structural engineering company (Construct Plan Ltd.) to assess the shelter's current condition and determine improvements that would enable constant environmental conditions to be maintained in the *in situ* trench. In 2022, a sondage was placed along the shelter foundation to examine structural stability, and a water leakage near the entrance was mitigated. In 2023, the condition survey continued and consultations concerning the details of shelter rehabilitation in Phase II of the Program commenced based on Construct Plan Ltd.'s assessments and our currently available environmental data. In addition, a quote for compiling the construction design documentation was received. Although we have already managed to secure funding for the preparation of this documentation, it will be completed at the end of Summer 2024, following the analysis of the multi-year environmental dataset being collected in the *in situ* exhibition. During Season 2023, in collaboration with the city of Vésztő, the shelter vents also were repaired to protect the trench from water ingress and bird droppings.

Exhibition Development. Pazirik Ltd., the most experienced company in Hungary in creating museum exhibitions, including visual design, interactive multimedia, and mobile applications, was invited to Vésztő-Mágor by the Park and the Program. The goal of this kick-off meeting was to start discussing Phase III ideas, including how to transform scientific data from the Vésztő-Mágor tell into captivating content for the public and how these contents could be conveyed using state-of-the-art methods in the new exhibition of the *in situ* trench. In December, representatives of the Park, the Program, Pazirik Ltd., and Construct Plan Ltd. will meet to discuss general exhibition technical requirements to be included in the construction design documentation.

Archaeological Results

Although conservation in the *in situ* trench is the Program's priority, we consider a research-based approach and the systematic collection of archaeological information to be vital. In Season 2022, we explored the uppermost, Bronze Age tell strata in the northernmost part of the trench, and in Season 2023, we advanced south in the trench into the Copper and Neolithic layers. During the cutting back of the profiles, we documented the stratigraphy, and took radiocarbon, micromorphological, flotation, and sediment samples. In Season 2022, we worked in Profiles A, B, C, F, H, and I, as well as Platforms D, E, G, and M. Over the course of Season 2023, Profiles F, J, and K, and Platforms G, E, and L were subject to archaeological work.

The Late Neolithic Tisza stratigraphy was parsed into three, the Early Copper Age Tiszapolgár into two, and the Early/Middle Bronze Age Ottomány and Gyulavarsánd into five stratigraphic units. Each of these stratigraphic units contained multiple distinct deposits. In the Late Neolithic and Early Copper Age layers, which so far have been subject to a more moderate exposure than the Early/Middle Bronze Age stratigraphy, we observed unburned and burned house floors, charcoal layers, and thermal features. We also documented house-building hiatuses between the Neolithic and Copper Age as well as the Copper Age and Bronze Age layers.

Our understanding of the development and use of the tell during the Bronze Age has significantly advanced in the past two seasons. A total of 2-5 buildings with frequently renewed floors, some with well-preserved phytolite layers, as well as hearths testify to similar construction practices at the scale of individual houses and a high degree of planning and coordination of space-use across the settlement. A rich inventory of charred grain remains was collected, an exceptionally well-preserved carbonized textile in the basketry technique was recovered (Figure 14), and a large urn was fully excavated (Figure 15). Medieval Age and/or modern features intrusive into the Bronze Age layers were also identified.

Public Outreach and Professional Dissemination

Both in 2022 and 2023, we provided tours twice a week for visitors and gave interviews for regional newspapers. In November 2023, two bilingual (Hungarian and English) posters were produced to be placed along the viewing platform to inform visitors about the Program (Figure 16). The posters also have a QR code directing people to a bilingual (Hungarian and English) Google doc that collects visitor feedback to guide exhibition developments. Additionally, we established an Instagram account (@koros_consortium) to more informally and broadly publish news related to the Program; the QR code to the Instagram page is also available on the posters.

We presented our results at two international professional meetings in 2022, at the BORBAS 10 Workshop and the 28th Annual Meeting of the EAA in Budapest. In 2023, we gave one paper

and participated in a round table at the 29th Annual Meeting of the EAA in Belfast, as well as presented another paper at the ICOM-CC 20th Triennial Conference in Valencia. Preliminary results of the conservation work are included in a paper accepted for publication in the Journal of Field Archaeology (Seifert and Lingle, *in press*), and another one, on the Bronze Age textile remains, has been submitted to Antiquity Gallery (Duffy et al., *under review*).

Season 2024: Continuation of Stabilization, Conservation, Environmental and Structural Data Collection, and Training

The current proposal seeks funding for the continuation of our Phase I work in the *in situ* trench. Challenges related to severely unstable profile conditions necessitate two additional field seasons to complete the conservation work. As an essential component of the Program, we will continue training future conservators specializing in preserving excavated tell trenches and earthen techniques during the upcoming seasons. We intend to commence another active form of knowledge transfer by hosting archaeologists and conservators regularly involved in tell excavations from across southeastern Europe to learn first-hand about conservation practices and data collection methods applied at Vésztő-Mágor.

Season 2024 is scheduled for July 1 through 31. At the beginning of the season, we will use our 2023 closing photos in the Program's Conservation Database and the Artec Ray 3D laser site scanner to record and quantify deterioration in the trench since Season 2022 and compile a new condition report. We will pay particular attention to profiles and platforms subject to conservation interventions in 2022 and 2023 to explore the cogency of the methods used.

In Season 2024, our stabilization and conservation efforts will be directed to the northern, southern, and central sections of the *in situ* trench (see Table 1). Due to severe basal deterioration and friable sediment structure, some profiles are expected to require sacrificial support structures. As a result of the mechanization of mudbrick production in Season 2023, we can concentrate most of our labor force on in-trench stabilization and conservation activities in 2024. Owing to the relatively good condition of the central section, structural support might not need to be implemented there. In smaller areas across the trench, we will pursue the application of a grouting mixture to rectify sheering subject to potential collapse. Additionally, the restoration of the Bronze Age ceramic urn recovered from Profile F in 2023 will be completed, and the artifact will be returned to its original location in the trench.

Similar to past seasons, profile excavations will be carried out as a scientific archaeological investigation, and flotation, micromorphological, radiocarbon, and sediment samples will be taken for analyses; the excavation permit will be available by the middle of January 2024. For further

details concerning field and laboratory methods, refer to our FSPT proposal in 2021. After the completion of our fieldwork, the recovered artifacts will be stored at the Munkácsy Mihály Museum in Békéscsaba and will be accessible to other scholars.

Throughout Season 2024, we will continue recording our interventions in the Conservation Database and high-resolution 3D models will be produced weekly using the laser site scanner to detect and quantify micro-transformations in structural conditions. We also will review the environmental data collected by the dataloggers and the soil probes after Season 2024. The multi-year data on micro-environmental trends across the trench will be utilized to determine the technical parameters of a temperature and moisture control system that will ensure optimal conditions for preserving the earthen architecture, features, and displayed artifacts in the *in situ* trench. As noted above, the shelter construction design documentation, including the blueprint of a temperature, moisture, and air circulation control system, will be finalized upon the completion of the analysis of the multi-year environmental dataset following the closure of Season 2024. The Program directors and Construct Plan Ltd. will work closely with Pazirik Ltd. to ensure that the technical requirements for the rejuvenation of the exhibition are fully considered in the shelter construction design documentation. In cooperation with the town of Vésztő and the Park, in Fall 2024, we will start compiling grant proposals to secure funds to remodel the shelter and install the temperature, moisture, and air circulation control system.

Season 2025: Completion of Stabilization and Conservation, Environmental and Structural Data Collection, and Training

In 2025, we will complete the excavation and stabilization works throughout the *in situ* trench. A surface mortar layer on all the mudbrick renders constructed in preceding years will be applied to form an even and consistent view for the visitors. Environmental data collection will continue to verify our previous assessments. Finally, based on the construction design documentation compiled in 2024, the first stage of building modifications will be implemented after the Program's Season 2025. This work is not part of the current proposal, and funds will be requested from FSPT, AIA, NEH, and Hungarian and EU cultural infrastructure grants.

Phase II: Establishment of Environmental Control and Monitoring

In 2026, alterations to the shelter, as detailed in the construction design documentation, will be implemented. Besides remodeling the shelter, a temperature, moisture, and air circulation control system, as well as a monitoring system, will be installed to track and regulate environmental conditions. This work is not part of the current proposal, and funds for this phase will be requested from NEH, and Hungarian and EU cultural infrastructure grants in 2024 and 2025.

Phase III: Exhibition Development

As noted above, we have been collaborating with the Park to develop a new exhibition in the *in situ* trench. The trench is an ideal venue for innovative solutions, and our goal is to fully exploit the opportunities offered. We will solicit the design concept and a quote from Pazirik Ltd. in 2024. The data we have collected from visitors using the bilingual Google doc will be compiled, consulted, and provided to Pazirik Ltd. to consider as they create an exhibition mock-up. We will work closely with the Park to provide professional advice, grant writing, as well as managerial work to implement the exhibition. In addition, we will continue our active knowledge-sharing initiative, and during the construction phase, we will host archaeologists directing tell excavations and exhibition design specialists from across southeastern Europe to gain experience in hands-on design ideas and implementation methods applied in the exhibition of the *in situ* trench. In 2025, grant proposals for the exhibition will be submitted to Hungarian and EU grants, and the exhibition will be developed and opened in 2026. This phase is not part of the current proposal.

Program Personnel

The core team of Seasons 2022 and 2023 will continue to work together in Season 2024. See Table 2 for the responsibilities of key personnel (for CVs, see Appendix I). In addition, 14 students will participate in the Program in 2024 (see Budget and Budget Justification).

THE IMPACT

Dissemination

The progress and outcomes of the Program at Vésztő-Mágor have been and will be disseminated to the public and a broad international audience, including archaeologists, conservators, and heritage scholars. In addition to reports for the cultural heritage office, the archives of the Hungarian National Museum and the regional Munkácsy Mihály Museum, accounts specifically designed for the public will be made accessible through the Program's website (koros.uic.edu) and Instagram (@koros_consortium). We will continue to submit papers to peer-reviewed journals, such as *Journal of Cultural Heritage*, *Conservation and Management of Archaeological Sites*, *Journal of Field Archaeology*, international magazines, such as *National Geographic Magazine,* and Hungarian magazines, such as *Magyar Régészet*. A monograph synthesizing the results of previous and current research at Vésztő-Mágor will be published.

We will make Program databases accessible to academics via the open-access website Zenodo (zenodo.org) and through the Archaeological Database of the Hungarian National

Museum (archeodatabase.hnm.hu/en). We aim to integrate our digital data archives and maps so that other scholars can access our raw data and query it independently.

Similar to 2022 and 2023 (see above), we will present our results in a variety of forums, including lectures for local and regional communities, at universities in Hungary, Great Britain, Germany, and the US, at the meetings of the ICOM-CC, the European Association of Archaeologists and the Society of American Archaeology, as well as other international symposia.

Broader Impacts

The Vésztő-Mágor tell is one of the most important prehistoric sites in southeastern Europe, and the Program is a vital step for its preservation and promotion. Due to the extent of deterioration of the exposed profiles in the *in situ* exhibition, immediate action is required to keep this key element of the Park open for visitors. To enhance visitor engagement, the Program provides an opportunity for the Park to develop a new exhibition showcasing the archaeological features and objects excavated in 1986 as well as exposed during the course of the Program.

Similar to Seasons 2022 and 2023, we will actively incorporate the local community into the Program. In addition to hiring local entrepreneurs, purchasing locally produced goods, and using locally available services, with the assistance of the Park, we will advertise and provide tours twice a week to explain the goals and processes of the Program.

The Program specifically aims to promote the development of similar projects to preserve and exhibit tell sites across southeastern Europe. By sharing our experiences and equipment with other projects, the Program will promote and encourage the preservation and conservation of other prehistoric tell sites. In addition, our experiences will help us understand what works and what does not in these settings and will set the standards for similar future projects in Europe and beyond. Hosting and training tell specialists from Southeast Europe to gain firsthand experiences about conservation methods and exhibition techniques will critically increase the efficiency of knowledge transfer, facilitating the development of similar projects.

Last but not least, the farming community of Vésztő is economically dependent on the Park, with the number of annual visitors nearly doubling the population of the nearby town who visit not only the Park but utilize the services offered and purchase the goods produced and distributed in Vésztő. We expect that, as a result of the conservation of the *in situ* trench and the rejuvenated exhibition, as well as the broad publicity generated by the Program, the number of visitors to the Park will increase significantly in the years to come.

BUDGET JUSTIFICATION

In Summer 2024, the fieldwork season will consist of 31 days. In this proposal, we request funding for travel, meals, lodging, vehicle rental, gas, and materials and supplies for conservation. The costs below include all taxes.

A) Travel. *Airfare.* Round-trip airfare will be provided for non-Hungarian student technicians, including 2 archaeology students from Germany and 8 conservation students from the UK. Unit price based on an internet search in October 2023: 300 €/return ticket from Great Britain and Germany. Funds for airfare for Gyucha, Parkinson, Duffy, Riebe, Ridge, and 2 US archaeology students are not being requested from FSPT. *Train tickets.* Two Hungarian archaeology students will be reimbursed for their train tickets. Unit price: 30 €/return ticket.

Total…….....**3,060 € or $3,330**

B) Meals. Meals will be provided by local caterers in Vésztő. We request funding from FSPT for lunches for Gyucha, Parkinson, Duffy, Riebe, Ridge, and 6 European students at the local Varietas restaurant. Meals for Lingle and Seifert, 2 US and 4 UK students are not being requested from FSPT. Unit price: 12 €/person/day, total number of days: 31.

Total ……**4,092 € or $4,454**

C) Vehicle Rental. We will use two vans during the season to travel to the site and back from our base in Vésztő. Unit price: 75 €/van/day, total number of days: 31. Gas is also requested. Unit price: 500 €/van/season.

Total ……**5,650 € or $6,149**

D) Materials and Supplies for Conservation. Over 20+ years, the international projects conducting archaeological research in the region have acquired most of the necessary field equipment and it is stored in the City Gallery of Vésztő. Additional consumable conservation, personal protective, and lab materials (including geotextile, perlite, solvents and adhesives, paper bags, flotation bags, cardboard boxes, printer ink, and printing paper) will be purchased.

Total……**2,700 € or $2,938**

GRAND TOTAL ……**15,502 € or $16,871**

SCHEDULE

Season 2024 will occur between July 1 and July 31, with Sunday breaks.

Date (2024)	Tasks
7/1	• Participants arrive in Vésztő • Discussion of project plans • Equipment transport from the City Gallery, Vésztő
7/2 – 7/28	• Download and evaluation of data collected by the dataloggers and soil probes • Conservation interventions in the northern, central, and southern sections • Archaeological data and sample collection (micromorphology, radiocarbon, flotation sediment) • Mudbrick production and application of geotextile and sacrificial layers on selected profiles • Preparation of documentation
7/29 – 7/30	• Discussion of project results • Dataloggers and soil probes – Retrieval of data collected during the field season, off-season data collection program initialization • Equipment transport to the City Gallery, Vésztő • Deinstallation of pulley system • Photogrammetry modelling • Final discussion of shelter rehabilitation plan • Completion of documentation
7/31	Participants leave Vésztő

TABLES

Activity/Season	2022	2023	2024
Cutting back profiles	Profiles A, C, F	Profiles J (N half), K	Profiles H, II, J (S half), JJ, MM, N, Q, W
Constructing sacrificial support structures	Profiles B, I	Profiles F, K	Profiles H, J, and To Be Determined
Protecting platforms		Platforms E, D	Platforms G, L, M
Preventing sheering and collapse	Profiles F, H/G, J/G	Profiles AA, BB	To Be Determined

Table 1. Location of conservation methods applied in 2022 and 2023 and planned for 2024 in the *in situ* trench. Note that in 2024 the use of sacrificial support structures will depend on the conditions of profiles behind clay plaster renders constructed about 15 years ago.

Researcher	Affiliation	Responsibility
Attila Gyucha	University of Georgia, Athens, GA, USA	Director, PI Neolithic and Copper Age Specialist
William A. Parkinson	Field Museum of Natural History and University of Illinois at Chicago, Chicago, IL, USA	Director, Co-PI Neolithic and Copper Age Specialist
Paul R. Duffy	University of Kiel, Kiel, Germany	Director, Co-PI Bronze Age Specialist
Ashley Lingle	University of York, York, UK	Director, Co-PI, Conservation
Jerrod Seifert	Cardiff University, Cardiff, UK	Director, Co-PI, Conservation
Danielle J. Riebe	University of Georgia, Athens, GA, USA	Director, Co-PI, Public Outreach and Spatial Analyst
William P. Ridge	University of Illinois at Chicago, USA	Director, Co-PI, Lab Management

Table 2. Key personnel participating in Season 2024.

FIGURES

Figure 1. Map of Hungary with Vésztő-Mágor

Figure 2. Aerial photo of the Vésztő-Mágor tell

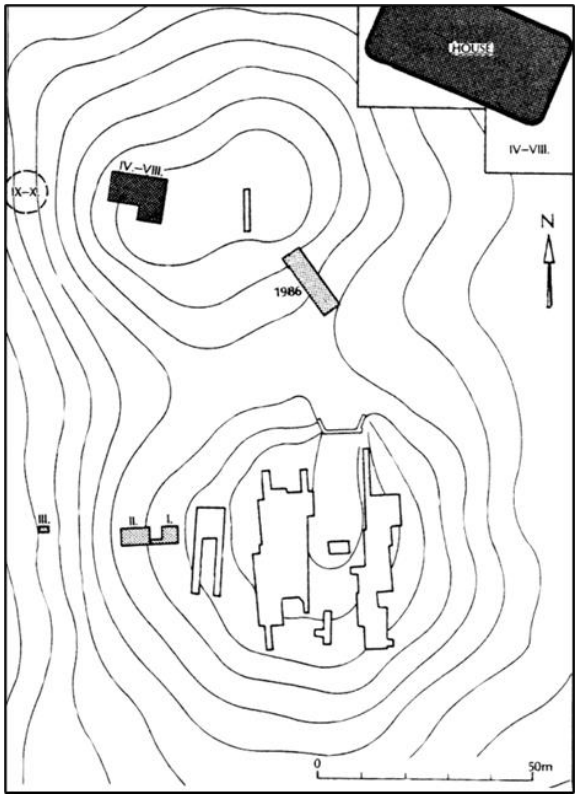

Figure 3. The Vésztő-Mágor tell with excavation trenches from the 1960s to 1980s. The *in situ* exhibition is located in the '1986' trench. After Hegedűs and Makkay 1987: Figure 1.

Figure 4. The entrance of the shelter to the *in situ* exhibition

Figure 5. The *in situ* exhibition viewing from the south. Photo taken in 2014.

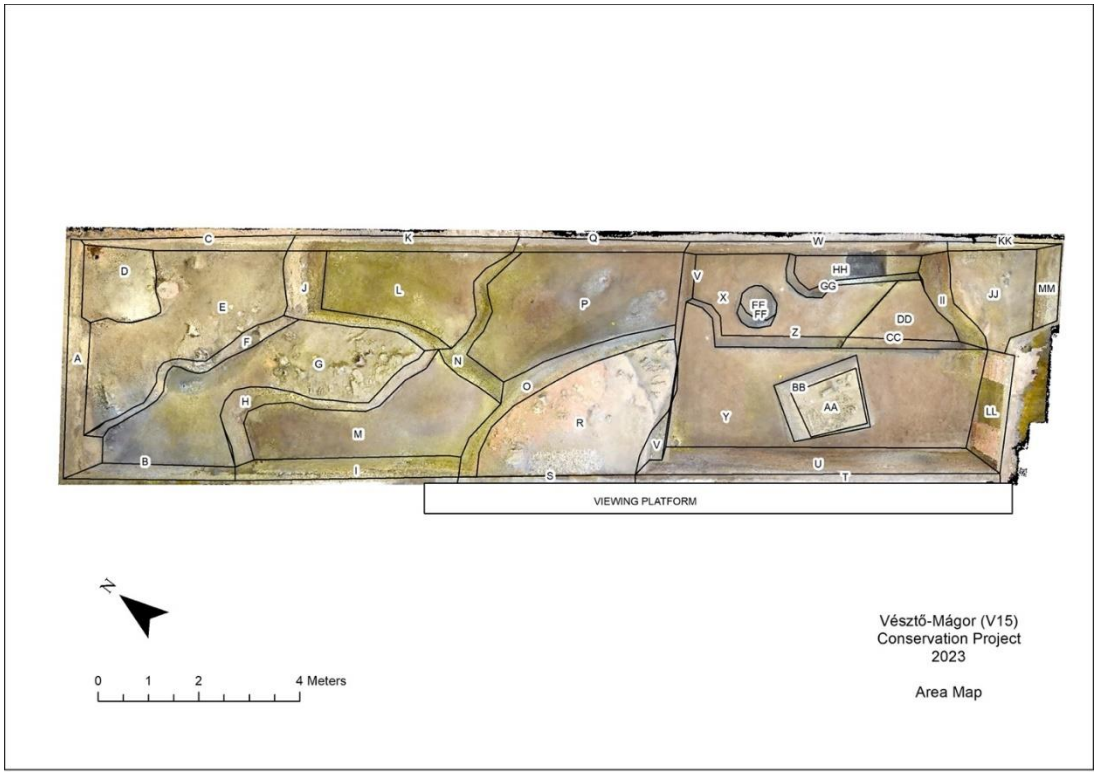

Figure 6. The *in situ* trench at Vésztő-Mágor with letter designations indicating profiles and platforms

Figure 7. Cutting back Profile J in Season 2023

Figure 8. The extremely poor condition of Profile B prior to sacrificial support construction in Season 2022

Figure 9. Mudbrick production for sacrificial support structures in Season 2023

Figure 10. Sacrificial support structures in Profiles F and K, and a protective geotextile layer on Platform E in Season 2023

Figure 12. Closing photograph of the northern and central part of the trench at the end of Season 2023

Figure 12. The soil probes at work in the southeastern part of the trench (Profile W) in Season 2023

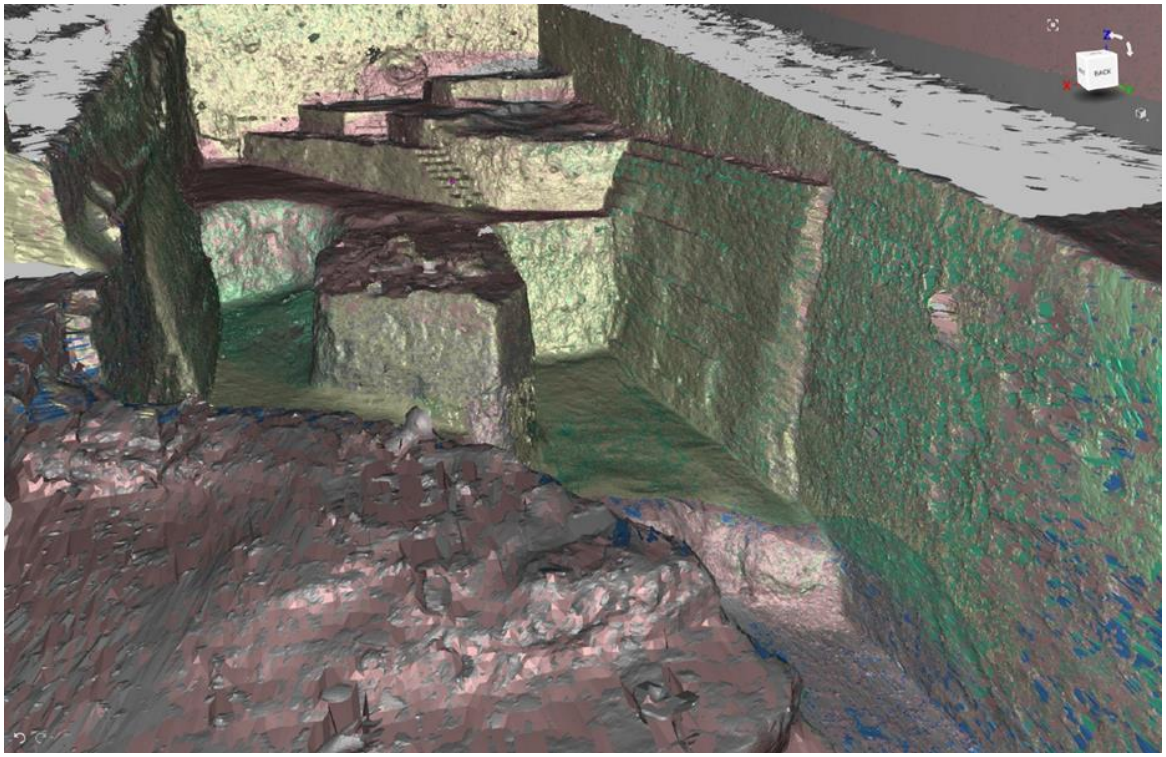

Figure 13. Image of the northern and central sections of the trench taken by the Artec Ray 3D laser site scanner in Season 2023

Figure 14. Bronze Age carbonized basketry layer embedded in a series of house floors in Profile C in Season 2022

Figure 15. Excavation of a Bronze Age urn in Profile F in Season 2023

Figure 16. Poster informing visitors about the ongoing conservation work in the *in situ* trench

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FOUNDATION FOR
THE **STUDY** AND **PRESERVATION** OF **TELLS**
IN THE PREHISTORIC OLD WORLD

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United States of America

25.01.2024

Subject: Time Will Tell: The Vésztő-Mágor Conservation and Exhibition Program

Dear Dr. Gyucha,

following the recent meeting of our boards, I would like to let you know that your proposal ‘Time Will Tell: The Vésztő-Mágor Conservation and Exhibition Program’ has found unanimous approval regarding the aims and the quality of your work proposed and your project’s match with the purpose of the foundation’s statutes. We also wish to congratulate you on the work done in 2023! However, our advisory board has also expressed concerns about the targeted duration and the project scope, which are considered problematic as they may exceed the foundation's possibilities alone.

We are pleased, nonetheless, to inform you that the foundation is ready to support your work in 2024 with funds amounting to **8.500** Euro for expenses as stated in your application and budget calculation.

Funding is subject to your written acceptance of our funding guidelines and general information for applicants attached to this letter. Please note, in particular, our invoicing regulations, and that we require receipts for all travel and material expenses *etc*. granted.

A final report and settlement on your work is to be submitted at the latest six weeks after expiry of the funding period, *i.e*. by February 2025.

Although we have taken note that your project is scheduled to be multi-annual, we kindly ask you to submit a follow-up application in case you should seek our support beyond the current funding period.

In our assessment of such a re-application we will certainly take the positive evaluation of your first two proposals into consideration. However, please do note that, at this point, for legal and fiscal reasons we cannot commit ourselves to funding the continuation of those projects that will be supported in 2024, since our funding activity will depend on the means available and the applications that we receive. So please make sure to also be in touch with other funding agencies and to inquire alternative options for ensuring the continuity of your work.

Should you have any questions please do not hesitate to get in touch.

We wish you every success in your work on this project and remain with best regards,
yours sincerely,

Prof. Dr. Tobias L. Kienlin
(Chairman)

Attachment: Funding Guidelines and General Information for Applicants (2024_25 version)

FINAL REPORT ON SEASON 2024 OF THE VÉSZTŐ-MÁGOR CONSERVATION AND EXHIBITION PROGRAM

VÉSZTŐ-MÁGOR, HUNGARY

INTRODUCTION

In 2021, the Körös Consortium—formed by four international archaeological projects conducting research in the Körös region of Southeast Hungary—along with conservation specialists from the UK, initiated the Vésztő-Mágor Conservation and Exhibition Program (hereafter referred to as the Program). The goal of the Program is to conserve, preserve, and revitalize the *in situ* trench at the Vésztő-Mágor tell site covered by a permanent shelter for exhibition purposes. This multi-year initiative involves close collaboration with the Vésztő-Mágor National Historical Park (hereafter, the Park), the Municipality of Vésztő, and the Munkácsy Mihály Museum in Békéscsaba.

Vésztő-Mágor, the largest tell in Hungary (Figure 1), consists of two mounds that were once a single tell during prehistoric times. Excavations in the 1960s and 1970s uncovered the site's Neolithic, Copper Age, and Bronze Age occupations, as well as a Medieval monastery on the southern mound. In 1986, a 19x4.5-meter trench was opened in the central part of the northern mound, which was later covered by a permanent structure to attract visitors (Figure 2). This distinctive sheltered trench is the focal point of the Program.

Since 1986, the exposed profiles in the *in situ* trench at Vésztő-Mágor have experienced significant drying, crumbling, and even collapsed in many areas. About 15 years ago, the Park implemented conservation efforts by applying clay renders on plastic mesh over several profiles within the trench. However, this method proved ineffective, as many renders detached and further damaged the profiles. In response to this ongoing deterioration, we launched the Vésztő-Mágor Conservation and Exhibition Program to prevent further damage, preserve the trench for the Park and the local community, and develop best practices for conserving and displaying exposed trenches at other tell sites across Southeast Europe and beyond.

The Program began with a preliminary site survey in November 2021, during which environmental dataloggers were also installed (see details below). The first field season took place in July 2022, focusing on the severely eroding northern third of the trench. For documentation, we assigned letter designations to each profile and platform exposed during the 1986 excavation (Figure 3). Excavation and conservation work then continued in the most deteriorated northern section during Season 2023.

In 2024, the field season ran from July 1 to 31, during which we completed the conservation work in the northern section and initiated new excavation and conservation efforts in the southeastern part of the trench. Funding for Season 2024 was provided by the Foundation for the Study and Preservation of Tells in the Prehistoric Old World (FSPT), the National Science Foundation (NSF), and the Municipality of Vésztő. Below, we summarize the various conservation and archaeological approaches, methods, and results from Season 2024, as well as our planned activities in Season 2025.

CONSERVATION INTERVENTION WORK

Initial work

At the start of Season 2024, necessary supplies were acquired, and site infrastructure was set up to ensure safe access and movement within the trench. Moveable artifacts were temporarily removed

from display to protect them during the excavation and conservation work, and were reinstalled once the work inside the shelter was completed.

Before excavation took place, a condition survey was conducted for each profile and platform. The survey provides qualitative tracking for both the condition of the archaeological surfaces, but also the newly built mudbrick walls. At the northern end of the shelter, Profiles B and F as well as Platforms D and E are in good condition following works in Seasons 2022 and 2023. Profiles A and C where limited excavation took place but no conservation interventions were carried out are showing minimal signs of desiccation. The structural modifications made last year to prevent damage caused by birds nesting in the vents proved effective. The work from last year on Profiles F and K is in good condition, while the additional rammed earth wall along Profile I had slumped and pulled away from the wall extensively around the edges. Platform G had further signs of deterioration and thus was the focus of the season as planned. The survey also identified ongoing issues with erosion and fragmentation in Profiles O, S, T, V, KK, and MM, which have not yet undergone mitigation efforts.

Environmental data was retrieved from the seven TinyTag TGP 4500 Plus 2 Temperature and Relative Humidity dataloggers placed at various parts of the trench and the four Delta-T PR2/6 soil probes embedded in the eastern profile. The analysis of data collected from the dataloggers since November 2021 indicates that dew point issues remain a significant concern throughout the entire trench. As noted in previous years, distinct microclimates are present across the different levels of the trench. There is a slight, but visible warming trend within the trench when comparing the previous years (Figure 4).

Data collected by the soil probes indicate a seasonal shift in moisture content, with the winter as the driest season, and summer the wettest part of the year. The most significant fluctuations occur in the upper sections of the profiles, which is crucial for stability and has important implications for designing the AC system for the trench.

Major Conservation Interventive Works

Similar to the past two years, four principal preservation and conservation approaches and methods were used during Season 2024: 1) cutting back profiles featured by better retention; 2) constructing sacrificial support structures in heavily eroding profile sections; 3) protecting platforms to prevent erosion; and 4) applying grouting, composed of acrylic resin, perlite, and screen trench soil, to counteract sheering in areas at risk of collapse.

At the start of the season, the rammed earth wall on Profile I was partially taken down to facilitate modification during this season. Following cutting back, the focus of this season was Platform G along with adjoining Profiles J, H, as well as F (Figure 5). Further work was needed to resolve cosmetic issues with the work carried out on Profile I. All the retaining structures in the northern part of the trench are now complete, and final smoothing and render application will occur next season.

Interim work was carried out to address issues with the rising damp at Area HH. The area was lined with geotextile and then approximately 10 cm of soil mixed with perlite and straw were deposited in the area, with a final layer of excavated soil for aesthetic purposes. This will help to reduce the amount of water ingress without creating a barrier that could result in water ingress causing damage elsewhere in the trench.

Trials were carried out with a floor sander to refine the render on Profile K constructed in Season 2023 (Figure 6). Testing was also carried out for wall render material to put a final finish

on the wall to further reduce the appearance of bricks across the retaining wall. Three different mixes of earth, perlite and straw were trialed.

Over the course of the season there was an intensified effort to utilize site material for the production of mudbricks (Figure 7). During this season, the team produced over 3500 mudbricks, in addition to the 800 remaining bricks from Season 2023.

In addition, 3D scanning was carried out by a Hungarian company after conservation work was fully completed.

ARCHAEOLOGICAL WORK

Overview

Although conservation in the *in situ* trench takes first priority during the Program, we consider a research-based approach and the systematic collection of archaeological information to be vital. The excavation goals for Season 2024 included 1) retrieving samples of ceramics and bone from prehistoric strata from where profiles needed to be cleaned back; 2) collecting special samples, including charcoal, bone for 14C dating, sediment, micromorphological and flotation samples; and 3) understanding the Copper Age and Neolithic use-history of the site.

The excavation took place over July 2 to 24, focusing on Profiles J and H around Platform G in the northern part of the trench and a small area in the southeast corner of the trench, Profiles KK and MM, as well as Platform JJ (see Figure 3). Profile H was cut back ca. 20 cm (Figure 9), while Profile J was cut back ca. 30 cm (Figure 10) , both through Copper Age and Neolithic layers. Profiles MM and KK was cut back ca. 5 cm (Figure 11), both through the plowzone and Neolithic layers. Platform JJ was cleaned and taken down ca. 10 cm on a Neolithic level.

Due to the slope of the tell, the Neolithic layers sit immediately beneath the plowzone in the southern part of the trench and are highly disturbed by Medieval/modern pits originating from the plowzone's base.

Methods

Excavation Unit (EUs) numbers were assigned initially for areas where failing renders were removed and later for more precise identifications of layers. Lot numbers were assigned to EUs to subdivide space further and allow us to process artifacts while EUs remained open. EUs often served as somewhat arbitrary contexts with lots within parsing the internal stratigraphy and depositional history, including multiple layers or different features observed during excavation.

Samples, including charcoal, sediment, micromorphological, and flotation samples, were given unique identifier numbers and shot in with a total station. Excavated areas were mapped or sketched, and completed EUs were photographed as work proceeded.

In 2022 and 2023, we parsed the vertical stratigraphy visible in the Bronze Age components of the profiles into five stratigraphic groups (BA1-5), each of which contained multiple distinct deposits, and employed a similar approach for the earlier occupational phases, recovering Copper Age layers as CA1 and CA2 and Neolithic layers as N1 to N4.

Plowzone and Medieval Layers

A plowzone of 60-70 cm in thickness was excavated in the southeast corner of the trench in Profiles KK and MM (Figure 12). It contains an abundant amount of daub flecking and a moderate amount of prehistoric material. In Profile KK, a burial (Burial KK-1) appears to originate in the base of

the plowzone and is cut into the top of the Neolithic layer. Just below is located another burial (Burial KK-2). Burial KK-1 was either cut into Burial KK-2, or the two are associated.

In Profile MM, another human burial (Burial MM-1) was exposed at the base of the plowzone, cutting into the Neolithic layer. The bones were found slightly jumbled, possibly indicating a secondary burial.

Copper Age Layers

Copper Age layers were excavated along the upper portions of Profiles J and H. This continuous layer ranges between 40 and 80 cm in thickness and contains Tiszapolgár style pottery. Most of this layer represents the Copper Age 2 layer designated in 2023. There were only a few small areas in which the Copper Age 1 layer may have been present. In most places along Profiles J and H, the Copper Age 2 layer consists of ca. 50-60 cm of light grey silty-clay divided into two levels. The upper half of the deposit is more regular, with fewer inclusions and slightly less material. The lower is characterized by many thin clay floors, ashy deposits with abundant charcoal and burnt bone, lenses/concentrations of shell, and many artifacts.

In the southern part of Profile H (the southern tip of Platform G), the Hiatus 1 level dives down below Platform M, and a series of sloping clay floors with very thick ashy deposits was observed. These ashy deposits are rich in charcoal and burnt bone, as well as an abundant amount of larger bone and ceramics. This area may have been used as a type of hearth that was periodically rebuilt. The best-preserved clay floor was ca. 10 cm above the bottom of the profile. This floor was completely exposed, photographed, and intensively sampled. At the very base of Profile H, there appears to be an earlier floor on the surface of Platform M. This area sits below the Early Copper Age 'house' level, which was originally exposed on Platform G in 1986, suggesting an extended period of reuse and rebuilding in this location.

In the northern part of Profile H, the Copper Age 2 layer sits on the very distinct Hiatus 1 and Neolithic 1 layers. A small concentration of daub in this area is probably associated with the house level exposed on Platform G.

Hiatus 1 Layer

Throughout most of the trench, there is a thin (ca. 10 cm) dark clayey hiatus layer between the Neolithic and Copper Age layers. This Hiatus 1 layer is very distinct in the northern part of Profile H but highly disturbed in the northern part of Profile J. In both profiles, the hiatus layer slopes down to the south roughly 30 cm. In Profile H, the Hiatus 1 layer appears to dive beneath Platform M. In the southern part of the trench, the Hiatus 1 layer seems to be mixed with the bottom of the plowzone in Profiles KK and MM.

Neolithic Layers

Below the Hiatus 1 layer, 30 to 80 cm of Neolithic deposit was excavated in Profiles J and H. This represents the uppermost Neolithic layers of the tell, all identified as Tisza based on the recovered pottery. The Neolithic layers are highly mixed and disturbed, likely due to continual episodes of destruction and redeposition. This made it difficult to discern the relationship between layers in different areas of the trench. We continued to use the layer distinctions created in Season 2023 based on the sondage in Profile J (EU 11-56).

The Neolithic sequence is more straightforward in the northeast corner of Profile J. The bottom of the profile came down on a burnt daub layer (Neolithic 4) that is associated with Platform L. This daub layer continues to the south in Profile J but contains few artifacts. Above

this daub layer, there is a ca. 20 cm clayey deposit (Neolithic 3) with some charcoal and daub but little other material. Above this, there is a 30-40 cm layer of grayish-yellow charcoal-rich layer (Neolithic 2). This deposit has distinct daub and floor levels and contains a lot of bone and Tisza pottery. The uppermost Neolithic layer (Neolithic 1) is a dark grey silty-clay deposit with some charcoal but relatively little material.

While the daub layer (Neolithic 4) continues in the southern part of Profile J, the Neolithic 2 and 3 layers are less distinct in this area. The Neolithic layers in the southern part of Profile J are characterized by a ca. 40 cm deposit of slightly mottled grey silty-clay with some charcoal and daub, and a series of thin clay floors (Neolithic 2/3). The uppermost Neolithic layer (Neolithic 1) is a mottled dark grey silty-clay with relatively little material.

Only the upper two Neolithic layers are present in Profile H. In the northern part of Profile H, the Neolithic layers are present beneath a very distinct Hiatus 1 layer. The Neolithic 2 layer is present in a small section of Profile H represented by a charcoal-rich deposit and large pieces of daub.

Excavations in the southeast corner of the trench revealed three Neolithic layers beneath the plowzone in Profiles KK and MM. Based on their relative elevations and composition, these Neolithic layers appear to correspond to Neolithic layers 2-4 in the northern section of the trench.

The uppermost Neolithic layer (Neolithic 2?) in the southeast corner of the trench is a c. 30 cm of light silty-clay deposit with a moderate amount of Tisza pottery. Near the bottom of this deposit, there is a thin, hard, brown lens that might be a burnt, packed-earth floor. This possible floor level runs non-contiguous along Profiles KK and MM and is best preserved in the corner of the two profiles. Below this layer is a highly mixed silty-clay deposit with some Tisza material (Neolithic 3?). This sits on a layer of daub and burnt deposits with very little material (Neolithic 4?). This destruction level is associated with the floor level that is exposed on Platform JJ.

SHELTER REHABILITATION

Maintaining a stable environment in the in situ trench heavily depends on the condition of the shelter. Although a condition survey conducted in 2022 found the shelter to be in generally good structural condition, rehabilitation work is necessary to address certain issues and modify the structure to support consistent environmental conditions. These improvements are essential for the success of the Program.

From Season 2022, we have been working with a local structural engineering company (Construct Plan Ltd.), and in 2024, consultations concerning the renovation plans for the shelter in Phase II of the Program continued. The multi-year data on micro-environmental trends across the trench will be utilized to determine the technical parameters of a temperature and moisture control system that will ensure optimal conditions for the preservation of the earthen architecture, features, and displayed artifacts in the *in situ* trench. The shelter construction design documentation, including the blueprint of a temperature, moisture, and air circulation control, as well as a monitoring system, operational steps, and related expenses, will be finalized by December 2024. In collaboration with the Municipality of Vésztő and the Park, we will begin drafting grant proposals based on the cost estimates outlined in the blueprint to secure the necessary funding for the reconstruction.

PUBLIC OUTREACH AND DISSEMINATION

We provided tours twice a week during the season for visitors and were interviewed by regional media (https://www.beol.hu/helyi-kozelet/2024/07/veszto-magor-latvanyszelveny). We maintained our Instagram page to publish news associated with the Program (@koros_consortium). In addition, in 2024, we presented two papers on the Program at the 30th Annual Meeting of the European Association of Archaeologists in Rome and another one at the 89th Annual Meeting of the Society of American Archaeology in New Orleans. Preliminary results of the conservation work were published in Journal of Field Archaeology, and another paper is in progress to be submitted to Hungarian Archaeology.

PARTICIPANTS

The following participated in Season 2024 of the Program: Attila Gyucha (University of Georgia, project director), Paul R. Duffy (Christian-Albrechts-Universität zu Kiel, co-director), Ashley Lingle (Univerity of York, co-director), Jerrod Seifert (University of Oslo, co-director), Danielle Riebe (University of Georgia, co-director), and William P. Ridge (University of Illinois at Chicago, co-director), as well as American, German, Hungarian, and British students.

ACTIVITIES PLANNED FOR SEASON 2025

The next field season will occur in July 2025. Our stabilization and conservation efforts will be directed to the southern and central sections of the *in situ* trench.

Our work will focus on the excavation and stabilization of Profiles KK, MM, O, S, V, Q and Platform R in the central section of the trench. Smaller interventive works will be undertaken to stabilize Profiles BB and W.

Similar to past seasons, profile excavations will be carried out as a scientific archaeological investigation, and flotation, micromorphological, radiocarbon, and sediment samples will be taken for analyses. After the completion of our fieldwork, the recovered artifacts will be stored at the Munkácsy Mihály Museum in Békéscsaba and will be accessible to other scholars.

Throughout Season 2025, we will continue recording our interventions in the Conservation Database, and a high-resolution 3D model will be produced to detect and quantify transformations in structural conditions. We also will review the data collected by the dataloggers and the soil probes after Season 2025.

January 6, 2025

Dr. Attila Gyucha, PI
Vésztő-Mágor Conservation and Exhibition Program

FIGURES

Figure 1. Aerial photo of the Vésztő-Mágor tell

Figure 2. The *in situ* trench at Vésztő-Mágor

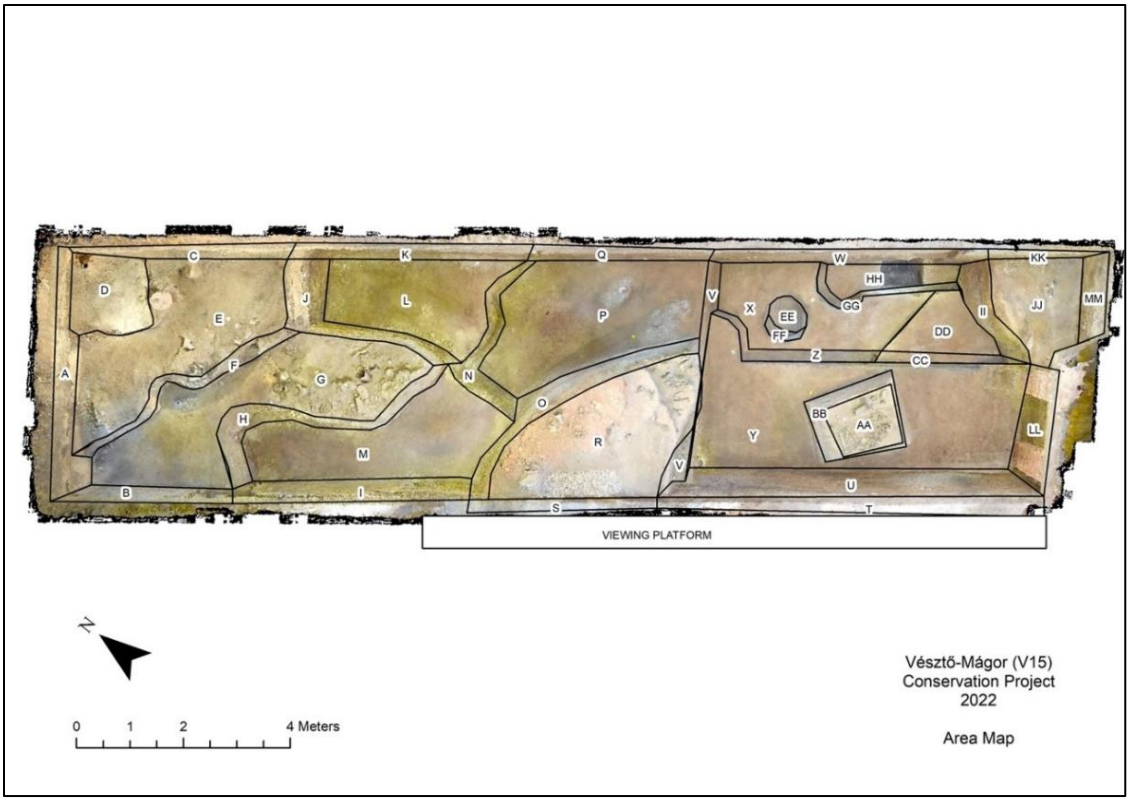

Figure 3. The *in situ* trench at Vésztő-Mágor with letter designations indicating profiles and platforms

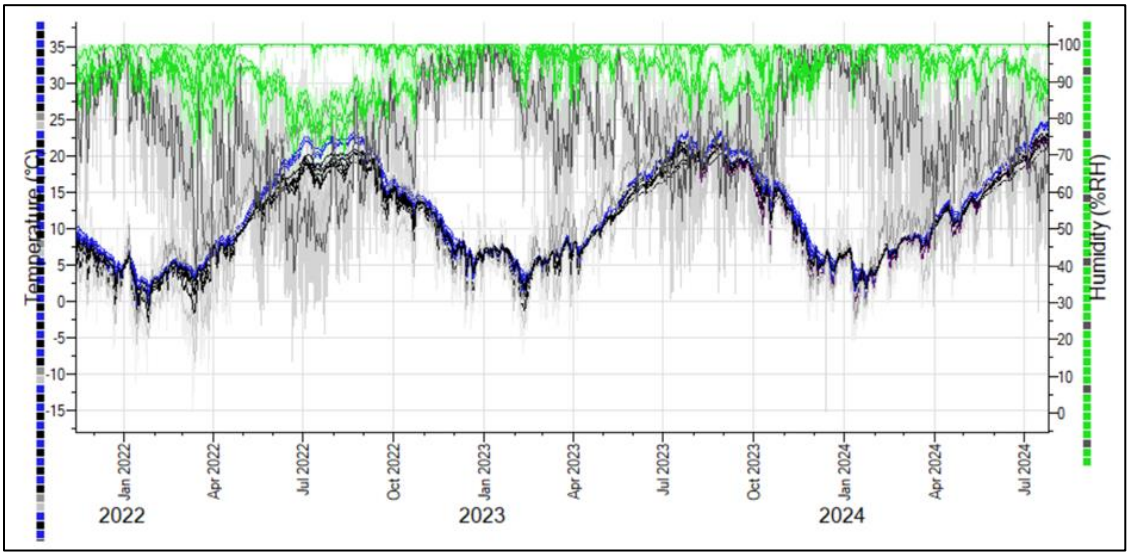

Figure 4. Environmental data collection to date. Greys represent outside environmental conditions, green is humidity, blue temperature, and black is dew point.

Figure 5. Construction of a sacrificial support structure along Profile H

Figure 6. Using floor sender on Profile K to smoothen the render surface

Figure 7. Mudbrick production for renders

Figure 8. Closing photo of the northern section of the trench at the end of Season 2024

Figure 9. Profile H after excavation


Figure 10. Excavation of an Early Copper Age pedestalled vessel in Profile J

Figure 11. Profile KK after excavation


Figure 12. Platform JJ and Profiles KK and MM in the southeastern corner of the trench

Figure 13. Taking a micromorphological sample in Profile J

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Applicant:

Marian Adrian Lie
-PhD student at the University of Cologne and junior scientific researcher at the Institute of Archaeology in Iași, Romanian Academy, Iași Branch
-Tel: 0040748654437
-Email: Quirinus_lie@yahoo.com; Lie.Marian@gmail.com

Application addressed to:

Foundation for the Study and Preservation of Tells in the Prehistoric Old World Neuffenstraße 57, D-73734 Esslingen am Neckar

Application for funding:

The application seeks funding from the Foundation for the Study and Preservation of Tells in the Prehistoric Old World for a batch of C14 dates from the Toboliu Dâmbu Zănăcanului tell (Oradea, Bihor County, Romania). This initiative aims to enhance the comprehension of the absolute chronological development of the site.

Date: 26.11.2023

1.Introduction

1.1 General presentation of the site

The site of Toboliu (Bihor County, Romania) is representative of the tell settlements that developed in the Carpathian Basin during a period encompassing the late Early Bronze Age (EBA) and the Middle Bronze Age (MBA) (c. 2300/2200–1500/1450 BC) according to the chronological system used in the region (Fischl et al. 2015a; Gogâltan 2015). As postulated 'central places' (see, for example, Kristiansen, Larsson 2005, 161–167; Gogâltan 2010, 37–40; Metzner-Nebelsick 2013, 332–336), these artificial mounds, which are still visible today in the flat landscape of the Hungarian Plain, have traditionally attracted much archaeological attention. However, recent research carried out in the region has brought significant new insights into the structure of these sites by revealing settlement activity beyond the mounds themselves and thus proving that tells were part of complex settlement systems. At least in some cases, it was be established that these systems consisted of several parts (tells, enclosures and associated outer settlements) whose relations vis-à- vis each other in social, chronological and functional terms remain to be determined. The Middle Bronze Age tell settlement from Toboliu lies close to the Romanian-Hungarian border in Bihor county, western Romania. From a geographic perspective, the site is located in the Great Hungarian Plain, more precisely at the boundary between the Crișul Repede floodplain and the high plain of Miersig (Berindei/Pop/Măhărea 1992:
127). South of the settlement flows a local stream, which today has a seasonal character and is being channelled downstream; west of the tell this stream flows into the Alceu river, forming an extensive marshland. Prior to the construction of dams and channels beginning with the 19th century, the wetland covered a more significant territory, resulting in a landscape considerably different from the one we see today, as depicted on the second Austrian-Hungarian topographic survey of the area. The archaeological site is a complex one, consisting of an artificial mound, two enclosing ditches, and a large outer settlement. The mound, which rises approximately 4 m above the surrounding plain, has a roundish shape and a diameter of c. 90 m. As previously mentioned, two concentric ditches enclose the tell. Based on the magnetometry and digital elevation model, we estimate that both ditches were approximately 10 to 15 m wide, enclosing an area of about 1.8 ha. Since the recent excavations have focused on the Terrain model of the mound at Toboliu mound itself, without incorporating any of the ditches, it remains unknown whether they were in use simultaneously or not.

1.2 History of research at the tell site of Toboliu

The tell from Toboliu Dâmbu Zănăcanului is known in previous research as Girișu de Criș Alceu (Fazecaș 2014: 113). The reason for this is that the settlement was previously part of the Girișu de Criș municipality; however, nowadays the site belongs to the administrative territory of the Toboliu municipality (as established in 2007). The tell has been known in the archaeological literature since the beginning of the previous century, as several artefacts were collected from the surface of the site in 1904. Other field-walks were conducted in the area by the history teacher Eugen Potoran, who also recorded the location of the settlement (Fazecaș 2014: 111). The first archaeological excavations were undertaken in 1960 by Nicolae Chidioșan (Chidioșan 1960). Subsequent excavations in 1965 and 1966 were led by Sever Dumitrașcu (Dumitrașcu 1989: 119).

In 1968 and 1972 N. Chidioșan returned to excavate at the site, this time accompanied by Doina Ignat (Chidioșan 1974: 156). Unfortunately, the results of the above investigations remained mostly unpublished, with the exception of several incomplete drawings of the stratigraphic sequence and a few notes regarding some artefacts and pottery ornaments. Based on vessel types and decoration, S. Dumitrașcu proposed a new cultural group in the area which he called Girișu de Criș Alceu (Dumitrașcu 1989: 120–126, pl. I–IX). In 1977 a stone axe was accidentally discovered on the surface of the site; the artefact was subsequently interpreted as a prestige object (Ghemiș 2001: 663–670). In 2007 a surface survey was conducted on the area of the settlement in order to confirm its cultural and chronological assignment (Fazecaș 2014: 112–113). Following these investigations, the site has been mentioned in several publications, either in relation to other Otomani sites (Ordentlich 1970: 621; 1971: 24; 1973: 209; Ignat-Sava 1974: 37; Fazecaș 1997:54) or when discussing Wietenberg, Suciu de Sus, Hatvan, Mureș and Vatina imports or influences in the area (Chidioșan 1970: 289, figs. 1–2; 1974: 155; 1980: 88–95; Bader 1972: 512; Ordentlich 1974: 143, 145–146;Boroffka 1994: 46, no. 211).

2.Recent Research at Toboliu

2.1 General information

Excavations in Toboliu were resumed in 2014. These recent investigations were conducted at first within the project Living in the Bronze Age tell settlements. A study of settlement archaeology at the eastern frontier of the Carpathian Basin (CNCS–UE FSCDI–PN-II–ID–PCE-2012–4020) developed by the Institute of Archaeology and History of Art Cluj-Napoca in collaboration with the Criș County Museum (Gogâltan/Cordoș/Ignat 2014). Since 2016 the Chair for the Archaeology of the Metal Ages, Department of Prehistoric Archaeology at the University of Cologne is also involved in the research of the site, thus securing the continuity of the Toboliu Project until the present day. The investigations undertaken within these projects consisted of excavations, topographic surveys, systematic field-walking, geomagnetic survey, test drillings and aerial photography (Fazecaș et al. 2015: 235–236; 2016: 101–102; 2017: 146–147; Găvan et al. 2018).Recent investigations at the Bronze Age tell of Toboliu have also confirmed the existence of a complex settlement system. Through a series of non-invasive fieldwork methods (surface surveys, aerial photography and magnetometer survey), it was established that the central mound was enclosed by two concentric ditches, beyond which extended a substantial outer settlement (Fazecaș, Lie 2018; Lie et al. 2019, 356–357). As a result of systematic excavations undertaken on the mound between 2014 and 2017, we know that its evolution can be dated between the 19th and 16th centuries BC (Lie et al. 2019, 363), being thus largely parallel to the evolution of the MBA according to the regional chronology (see above). The last phase identified on the tell can be tentatively ascribed to the beginning of the Late Bronze Age (LBA) (Gogâltan et al. 2020, 87; Găvan et al. 2021, 64–65). On the other hand, the surface survey conducted on the outer settlement (Fazecaș, Lie 2018) has revealed material that can be mostly dated to the MBA, possibly even the early LBA, suggesting that the outer settlement was at least partly contemporary with the occupation on the central mound. Hence, this site offers a unique opportunity to uncover in detail how a Bronze Age tell together with its surrounding settlement developed through time. This is one of the main goals of our new interdisciplinary project funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation).

2.2 Excavation on the tell

Recent excavations at Toboliu, conducted between 2014–2017, have focused on the mound itself and consisted of three main excavation units. Trench 1, measuring 7x5 m, was located on the highest point of the tell settlement. Trench 2, measuring 4x2 m, intentionally overlapped an older archaeological trench (the only one still visible on the surface) and was intended as a means to re-examine the stratigraphic sequence and to obtain a quick overview of the site formation processes without damaging undisturbed layers. The third trench (measuring 7x5 m) was excavated in the north-eastern part of the mound in a rather marginal area. After removing the top soil, we had the unpleasant surprise of uncovering an older archaeological trench which basically cut our own trench in two. Trench 2 was completed in 2015, revealing a stratigraphic sequence consisting of five occupation phases. The maximum depth of the trench was 4.8 m. However, excluding the top eroded layer and the virgin soil at the bottom, the actual thickness of the cultural deposits was only about 3.2 m. Considering the nature of this trench, only a few archaeological features were still in situ, while the limited width of the trench did not allow any further interpretations regarding potential architecture elements. Nonetheless, this trench proved to be very helpful in understanding the site and its formation. It also provided us with an overview of the general chronology as well as the pottery styles encountered on the tell. Excavations in the third trench were conducted over the course of three campaigns. Underneath the topsoil, patches of compact daub were identified, most likely representing the debris of a collapsed house. The pottery uncovered here orresponds to the last stages of the Otomani ceramic style. After removing the debris, fragments from a yellow clay floor were revealed in the NW corner of the excavation block, covering a surface of approximately 1.5x3 m. Unfortunately, we cannot make any assumptions regarding the original measurements of the entire structure. On top of the yellow floor there were two oval hearths with embedded pottery fragments. One of the hearths had two phases and probably functioned over a longer period of time. Due to logistical constraints, we were unable to continue working in this trench and decided to focus our efforts in completing trench 1, which at the time was in a more advanced state of investigation and also had the potential to offer more data. Trench 1, located in the central part of the tell, was completed in 2017. In this area, the tell was overlapped by a modern cemetery corresponding to a nearby farm which was in use during the 19th century (Lie/Radu/Faze caș 2015). In total, 13 graves were identified, out of which seven were fully excavated. The other six were extending outside the limits of our trench. The graves were disposed on three parallel rows with an orientation that follows the Christian norm. Only one of them contained an adult, the rest being infant and child burials (Lie/Radu/Fazecaș 2015: 261–282). The uppermost Bronze Age layers were partially disturbed by these graves, however some in situ features were still preserved. The prehistoric settlement phases were labelled with numbers starting from the uppermost (youngest) phase. A total of seven occupation phases (corresponding to architectural construction, use and destruction sequences) were documented in a 4 m thick stratigraphic sequence. Although they do not rigidly follow the same pattern, these phases are characterized by the existence of clay floors, debris coming from household activities, as well as collapsed walls. Separating the different architectural phases there is a deposition layer containing a lot of debris as well as various fragmented finds. Only in some instances the collapsed structures were unburned (phases 5 and 7), while phase 6 contained both burnt and unburned structures. Regarding architectural elements, for phases 1 and 2 we were unable to determine the size and orientation of the surface constructions, due to disturbances caused by the aforementioned graves as well as further postdepositional processes. A rather uncommon feature uncovered in phase 2 was a dugout

rectangular structure (exposed on an area measuring 2.4x3 m), which cut through the older archaeological deposits in the SE part of the excavation block. The construction uncovered within the third phase was by far the most substantial one, showing evidence of floor renewal. Both floor phases were made of wooden planks with clay substructures. Thanks to the second clay substructure, the initial wooden floor was very well preserved. The structure corresponding to this floor was probably oriented on a E-W axis, measuring at least 4.8 m in width and more than 5.8 m in length (since its initial margins extended outside of the excavated area). The wooden planks were oriented N-S and measured approximately 0.2x3.40 m. Both wooden floors had an associated hearth build on top of the planks, with six, respectively five renewal phases. Underneath this construction, the entire surface of the trench was covered by the burnt debris from the collapsed walls of another house corresponding to the previous occupation phase of the tell (phase 4). Among the debris we uncovered many complete pottery vessels, while underneath it there was another hearth, built on the house floor. Based on the outline of its corresponding clay floor, we estimate that this house was larger than 5.8x8 m, and it was oriented on an N-S axis. On the southern part of this structure, there was a potential porch or small hall way separated from the main compartment by beam impressions and a row of postholes. In phase 5 we found the first unburned structure, whose collapsed walls consisted of chunks of yellow as well as dark clay and daub bearing twig impressions. On the southern side of the structure we also uncovered evidence of large preserved wooden elements. The size of the clay floor corresponding to this sequence is 4.2x7.6 m. The original length of the house was greater, as, again, its northern part continued outside the limits of the trench. Furthermore, the structure had three separate rooms, well defined by rows of postholes and beam impressions. Both the southern and northern rooms had an individual hearth. The subsequent house, corresponding to phase 6, was also unburned, with debris very similar to the preceding one. However, in the northern corner of the trench we unearthed remains of a further, burnt structure. The clay platform associated with the unburned house from this phase measured 5 m in width and more than 6.6 m in length, being oriented on a E-W axis. Traces of a dividing wall were still visible inside the structure; therefore, the house must have had at least two rooms. A circular hearth was identified in its western room. In the northern corner of the unit, at a distance of 1.6 m and roughly parallel, a second clay platform was uncovered. Due to the small exposed area we cannot make any comments regarding the initial size and function of this structure. The oldest occupation phase identified on the tell (phase 7) had a similar destruction layer to the aforementioned ones, with chunks of mixed unburned clay. The structure was oriented similarly to the pre vious one (E-W), being 4.6 m wide and at least 8 m long. The house had three visible rooms separated by beam impressions. A large circular hearth was unearthed in the southern room. In the central compartment, an atypical, U-shaped hearth was documented. Underneath the floor of this house we reached the virgin soil, and no further archaeological material or features were uncovered.

2.3 Present knowledge of the absolute chronology on the tell

At the moment we have 13 samples of C14 already analysed by three different laboratories (Poznan Radiocarbon Laboratory, ul. Rubiez 46, 61-612 Poznan, Poland; ISOTOPTECH ZRT. H-4025 Debrecen, Piac utca. 53. I I / 9; Beta Analytic Inc. 4985 SW 74th Court Miami, Florida 33155 USA). Eleven of these samples were taken from trench 1 and the remaining two from trench 2. Sample results are presented in the table below:

Nr.	Lab.No.	Trench	14C age [year BP]	+/-	Cal BC σ1	Cal BC σ2	Material	Context	Phase
1	DeA-5092	1	3323	26	1617-1542	1677-1514	bone	12	1
2	DeA-7117	2	3383	35	1736-1622	1862-1542	bone	58	5
3	DeA-7116	2	3487	34	1879-1751	1897-1693	bone	83	6
4	Poz-104088	1	3440	35	1872-1688	1879-1630	bone	173	3
5	Poz-104089	1	3670	35	2135-1978	2152-1947	bone	147	3
6	Poz-104090	1	3465	35	1876-1699	1889-1686	bone	402	ante 7
7	Poz-104967	1	3415	35	1748-1632	1874-1617	seed	213	4
8	Poz-104091	1	3545	35	1941-1779	2015-1751	bone	376	7
9	Poz-104092	1	3560	30	1952-1827	2020-1774	bone	383	7
10	Poz-104093	1	3500	35	1884-1768	1924-1699	bone	400	7
11	Beta - 565236	1	3450	30	1873-1693	1881-1642	bone	10	1
12	Beta - 565237	1	3350	30	1686-1545	1736-1536	bone	11	1
13	Beta - 565238	1	3380	30	1733-1623	1747-1544	bone	35	2

3. The purpose and cost of the funding

3.1 The problem with the existing C14 samples and why there is a need for new ones

Although there are already 13 C14 samples available for the chronostratigraphic model at the Toboliu tell site, there are some problems that need to be mentioned. To build a viable Bayesian model of the chronological sequence at the tell, at least five samples per stratigraphic phase are required (see detailed description of phases above). Samples 2 and 3 in the table above were collected from Trench 2. Although they are correlated with phases 5 and 6 (last column in the table), no physical correlation has been investigated between trench 1 and 2, so these two samples must be excluded from the model, leaving phases 5 and 6 unrepresented. Furthermore, when fitting the remaining samples within the chronostratigraphic model, 3 of the samples are represented as outliers (biased) due to a wide range of depositional/postdepositional effects, where these 3 samples show either earlier or later dates than expected in the Bayesian model when confronted with the stratigraphic data. In conclusion, a further 27 C14 dates are required to build a workable chronostratigraphic model of the Toboliu tell (5 samples per phase x 7 phases = 35 - 8 existing and workable samples = 27 new C14 dates).

3.2 Cost of samples

The samples consist of faunal osteological remains and will be sent to the Poznan Radiocarbon Laboratory.

Costs per sample (as detailed on 26.11.2023 on the website of the laboratory https://radiocarbon.pl/en/submission-info-and-price-list/):

Radiocarbon dating - 320 Euro per sample (+ 23% VAT if applicable)
Collagen extraction - 48 Euros per sample (+ 23% VAT if applicable)

Total 368 Euros per sample (+ 23% VAT if applicable)

Total cost: 368 Euros x 27 samples = 9936 Euros (+ 23% VAT if applicable)
(A -10% discount may apply for this number of samples and for researchers who have previously worked with the Poznan laboratory)

Additional costs may be incurred for shipping the samples from the Zooarchaeology Laboratory in Cologne to the laboratory in Poznan.

3.3 Procedure

The applicant together with Dr. Nadine Nolde (Department of Zooarchaeology at the University of Cologne) will select the relevant bone samples as relevant and consistent with the information required above.

Dr. Alexandra Găvan will submit the request for sample dating to the Poznan laboratory in order to receive the 10% discount mentioned above.

3.4 Use of the data obtained

The data obtained from the Poznan Radiocarbon Laboratory will be used by the applicant, Marian Adrian Lie, in his doctoral thesis Cultural Developments in Bronze Age Tell Settlements - Case Study Toboliu Dâmbu Zănăcanului.

Trench1 Northern Profile at Toboliu

Trench 1 House in Phase 3

Trench 1 Destruction of Phase 4

Trench 1 House Layout in Phase 7

FOUNDATION FOR
THE **STUDY** AND **PRESERVATION** OF **TELLS**
IN THE PREHISTORIC OLD WORLD

Neuffenstraße 57 · D-73734 Esslingen am Neckar

Marian Adrian Lie M.A
Institutul de Arheologie
Pavilion H
str. Codrescu nr. 6
RO-700479 Iasi

25.01.2024

Subject: C14 dates from the Toboliu Dâmbu Zănăcanului tell

Dear Mr. Lie,

following the recent meeting of our boards, I would like to let you know that your proposal ‘C14 dates from the Toboliu Dâmbu Zănăcanului tell’ has found unanimous approval regarding the aims and the quality of your work proposed and your project’s match with the purpose of the foundation’s statutes.

We are pleased, therefore, to inform you that the foundation is ready to support your work in 2024 with funds amounting to **10.000** Euro for expenses as stated in your application and budget calculation.

Funding is subject to your written acceptance of our funding guidelines and general information for applicants attached to this letter. Please note, in particular, our invoicing regulations, and that we require receipts for all travel and material expenses *etc*. granted.

A final report and settlement on your work is to be submitted at the latest six weeks after expiry of the funding period, *i.e*. by February 2025.

We would also kindly ask you to let us have a short text (*c*. 1–2 pages) and a couple of images for the presentation of your project in the ‘funded projects’ section of our homepage.

Should you have any questions please do not hesitate to get in touch.

We wish you every success in your work on this project and remain with best regards,
yours sincerely,

Prof. Dr. Tobias L. Kienlin
(Chairman)

Attachment: Funding Guidelines and General Information for Applicants (2024_25 version)

FOUNDATION FOR THE STUDY AND PRESERVATION OF TELLS IN THE PREHISTORIC OLD WORLD (FSPT)

DESCRIPTION OF RESEARCH

LIFE AFTER THE TELLS:

Radiocarbon dating Late Bronze Age sites in the Maklár region (NE Hungary)

ÁKOS MENGYÁN

UNIVERSITY OF MISKOLC, HUNGARIAN NATIONAL MUSEUM

2024

Abstract

The abandonment of Middle Bronze Age (Hungarian chronology) tell sites and the first appearance of the Tumulus culture in the Eastern Carpathian Basin is strongly related topics. In this one-year FSPT project, Late Bronze Age sites in the Maklár microregion (North-Eastern Hungary) would be analysed by AMS radiocarbon dating, in order to examine the appearance of the Tumulus culture and the temporal position of the Tumulus and Piliny pottery styles in this region. For this analysis, 35 radiocarbon dates would be taken, costing **9 964.5 €**. The results of this project could absolute date the excavated Late Bronze Age sites, Maklár-Nagyrét, Maklár-Nagyrét II. and Maklár-Koszpérium and can reveal its temporal depth. Furthermore, the results will be comparable with the absolute dates of the systematic core drilling programme by the BORBAS taken at Maklár-Baglyashalom, among others, to shed light on continuity or discontinuity of habitation in the Maklár microregion.

Introduction

The origin of the Tumulus culture is still the subject of discussion, although in the last few decades our understanding about this period became clearer (Makarowicz 2017). Earlier, the abandonment of Middle Bronze Age (according to the Hungarian chronology) tell settlements in the Carpathian Basin was described as a quick, short period, caused by the immigration and "conquest" of the Tumulus culture, from Central Europe (Bóna 1975). Recent studies suggest that several reasons could have played an important role in the development of the Tumulus culture in the Eastern part of the Carpathian Basin, including, but not limited to the regional and local transformations of Middle Bronze Age communities, low-scale migration from north-western direction, spread of new social customs and funerary practices, and climate changes (Dzięgielewski, Pryzbyła & Gawlik 2010; Hajdu 2012; P. Fischl *et al.* 2013 Makarowicz 2017). The new pan-European cultural phenomenon became widespread in a few decades, but included regional diversity that could be originating from the previous local cultures (Bóna 1975). The Tumulus culture spread through vast areas in Central Europe, but it is important to investigate smaller regions in order to understand this cultural change. It is specifically true in the Eastern Carpathian Basin, where long-lived tell settlements were abandoned and the material of the Tumulus culture began to appear in the so-called Koszider period and most tell settlements were abandoned around 1500 BC (Duffy *et al.* 2019; Gogaltan 2019; Staniuk 2021). Thus, the absolute dating and detailed analysis of Middle and Late Bronze Age sites is crucial to interpret this period, because some scholars have assumed that the abandonment of the tell sites led to depopulation (Duffy *et al.* 2019). Therefore, the southern

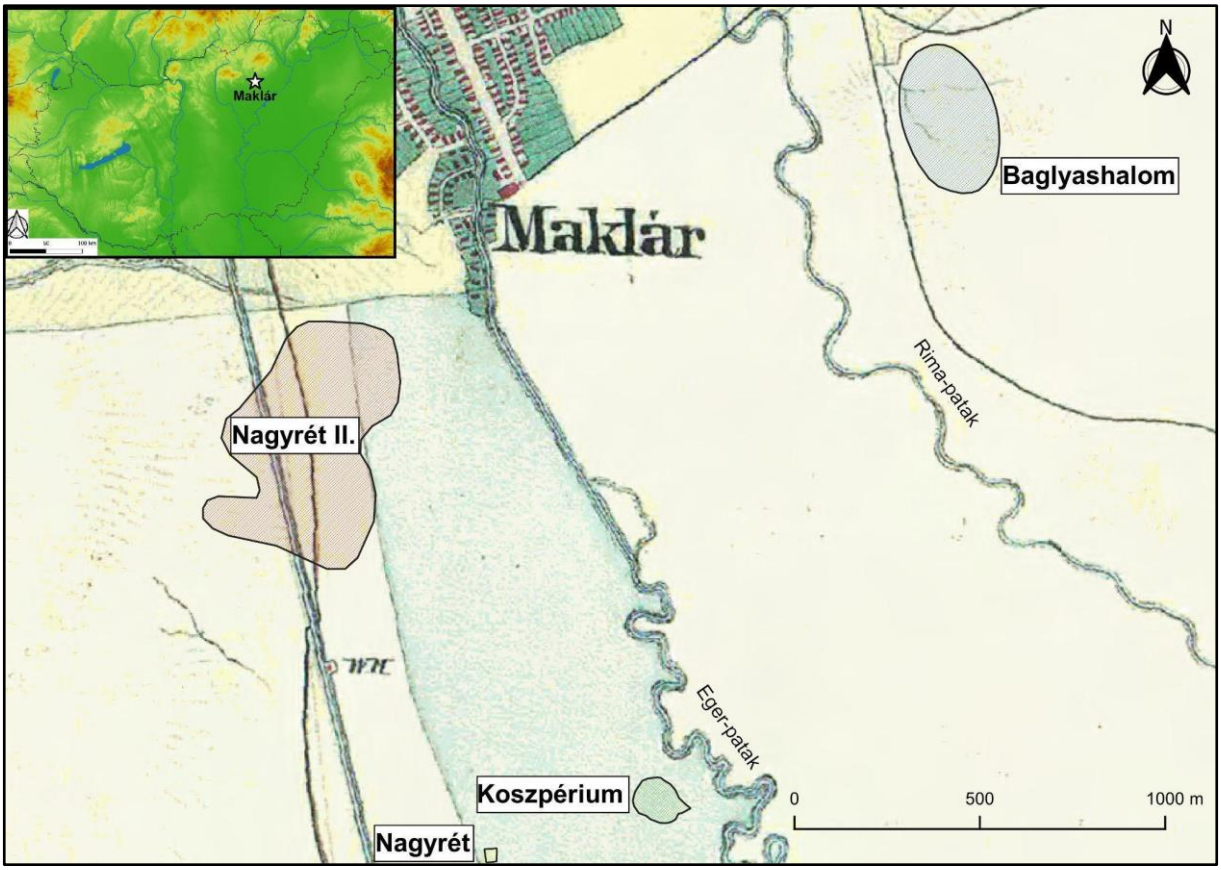

Figure 1. The research area: Bronze Age sites at Maklár, on a map of the Second Military Survey of the Habsburg Empire (1819–1869). Legend: red: Maklár–Nagyrét II, green: Maklár–Koszpérium, blue: Maklár–Baglyashalom, yellow: Maklár–Nagyrét (after Mengyán and Hrabák 2023, Fig. 1)

foothills of the Bükk mountains and the lowlands of the Borsod plain, where the settlement system of the Hatvan and Füzesabony periods is well-studied, can be a great starting point for this topic (Kienlin, P. Fischl & Pusztai 2018).

For that reason, the focus of this one-year project would be on the Northern Great Hungarian Plain, specifically on the Maklár microregion, where four Bronze Age sites are known within a few square kilometres (Fig. 1). The earliest chronologically is Maklár–Baglyashalom, situating on a slight elevation on the left bank of the Rima stream. It is a multi-layered, fortified tell settlement of the Hatvan and Füzesabony cultures, dated between 2000–1500 BC, which is analysed in the BORBAS project (Kalicz 1968; Kienlin, P. Fischl & Pusztai 2018; Mengyán 2019). The second site is Maklár–Koszpérium, located on a small, natural mound on the right bank of the Eger Stream. It is a multi-period cemetery where around 130 cremation graves of the Tumulus culture, along with burials from other periods, were excavated in 1960 and 1962 (Szabó 1963; Kovács 2001). Furthermore, Maklár–Nagyrét II is situated on a low plateau at the right bank of the Eger Stream (Fig. 1). Here, 210 cremation Bronze Age burials were found in 2021 and 2022, dated to the Tumulus culture, between ca. 1500–1300 BC. In addition, a small part of a Late Bronze Age settlement was also unearthed with Piliny

style ceramics (Mengyán & Hrabák 2023). Finally, a small part of a Bronze Age settlement was excavated on Maklár–Nagyrét, 300 m to the west of Maklár–Koszpérium, by Ágota Sz. Kállay in 1983. This site was assigned to the Piliny culture, based on pottery finds (Sz. Kállay 1984). In this FSPT project, the mentioned Late Bronze Age, Tumulus and Piliny culture sites would be analysed by AMS radiocarbon dating in the Maklár microregion. This work could examine the leaving of the Middle Bronze Age tell sites from a Late Bronze Age Tumulus culture point of view. Similar research was taken in Eastern Slovakia (Tóth, Oravkinová & Pokutta 2019). The systematic core drilling programme by the BORBAS will provide information about the start and end date of Middle Bronze Age tell sites, including Maklár-Bagylashalom (Kienlin, Lie & Fischl 2019). Therefore, we would get information about the first appearance of Tumulus culture sites in Maklár, based on radiocarbon dates. Thus, it will be possible to build an absolute chronology for the Late Bronze Age, Tumulus and Piliny pottery style and we will be able to investigate the continuity or discontinuity of habitation in Maklár. In addition, the possible absolute dates from Maklár-Baglyashalom by the BORBAS, it will be possible to build an absolute chronology from ca. 2000 BC until ca. 1300/1200 BC. As a result, the Hatvan and/or Füzesabony, the Tumulus and the Piliny pottery styles would be absolute dated in the same microregion.

In my PhD program at the University of Miskolc, Mikoviny Sámuel Doctoral School of Earth Sciences, I am analysing three Bronze Age cemetery, dated around 1500–1300 BC, Maklár-Koszpérium, Maklár–Nagyrét II. and Tiszagyenda–Hármas-halom. In my thesis, I am investigating the archaeological aspects of the sites, and the ceramic technology, including raw material choice, fabric techniques and firing conditions by thin section petrography, X-ray powder diffraction and geochemical analysis. The question of this work is to determine the ceramic raw material choice in the sites and to compare my results with Middle Bronze Age (such as Füzesabony, Vatya…etc.) technological observations, in order to observe changes or continuity of traditions between the Middle and Late Bronze Age ceramic technology.

Furthermore, I am analysing the settlement materials of Maklár–Nagyrét and Maklár–Nagyrét II., supported by the ÚNKP-23-3-1 new national excellence program of the ministry for culture and innovation from the source of the national research, development and innovation fund. This project focuses on the archaeological analysis of the Bronze Age settlement features excavated in 1983 and 2022, and investigating the ceramic technology, including the raw materials and fabric techniques and investigating the spatial dimension of the sites, using surface survey and metal detector analysis. One of the most important questions in this analysis is to detect possible correlation between the function (consumption, serving, storing,

cooking…etc) and the raw material choice and/or the fabric techniques of the vessels. Moreover, it will be possible to investigate and compare the fabric techniques of Tumulus and Piliny style potteries.

Materials and Methods

In this research, three sites would be analysed by AMS radiocarbon dating. Firstly, Maklár–Nagyrét II. where 210 Bronze Age cremation burials and five settlement features were found during a rescue excavation in 2021 and 2022 (Fig. 2). From the graves, 112 were urns, 95 scattered cremation burials, and three were found without any human remains. The northern, western, and southwestern boundaries of the cemetery could be identified, but the eastern, southeastern boundary was outside the excavated area and has remained unknown. Moreover, a dense part of it probably lay between the two main excavation areas that was unaffected by the construction work (Fig. 2). Five graves were surrounded by circular ditches (3–3.5 m in diameter and 30–40 cm wide), four in the western excavation zone and one in the eastern. In this site, 34 blue glass beads were found in 11 graves that could indicate complex trade networks (Mengyán and Hrabák 2023, Fig. 12). The finds of the cemetery typologically suggest an early date for the burial ground, around 1500–1400 BC, similarly to Jánoshida–Berek (Csányi 1980; 2019), but the typological observations of the excavated settlement indicate early Piliny pottery style. However, there are many scattered cremation burials in the cemetery without grave goods that cannot be dated by relative chronology, thus it can be possible that the cemetery and the settlement are at least partly contemporary. Therefore, it is important to date the cemetery by absolute chronology.

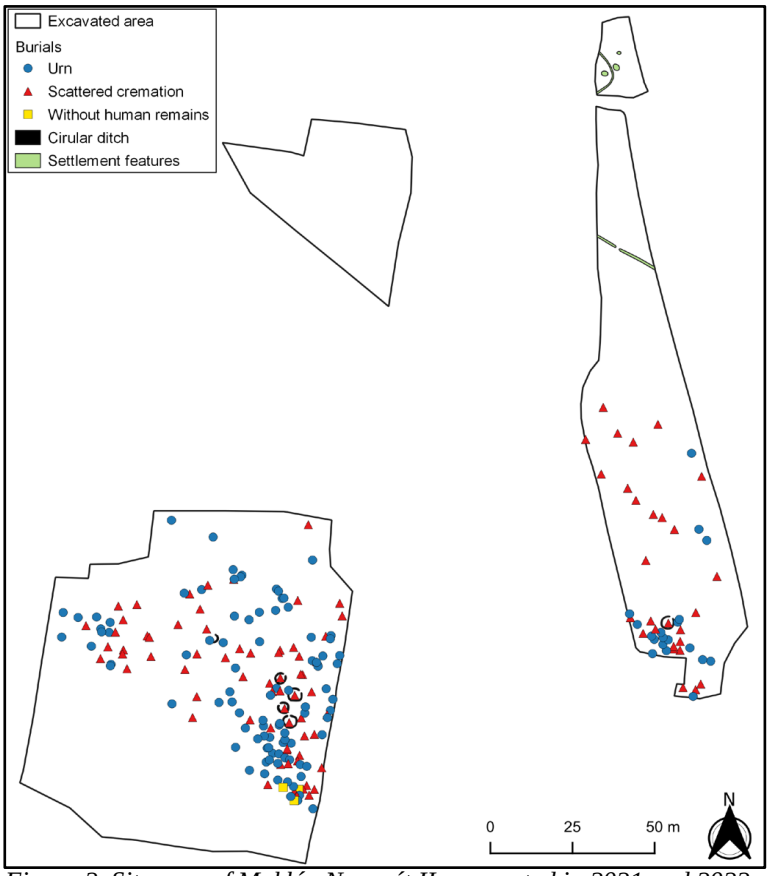

Figure 2. Site map of Maklár-Nagyrét II. excavated in 2021 and 2022 (after Mengyán and Hrabák 2023, Fig. 3)

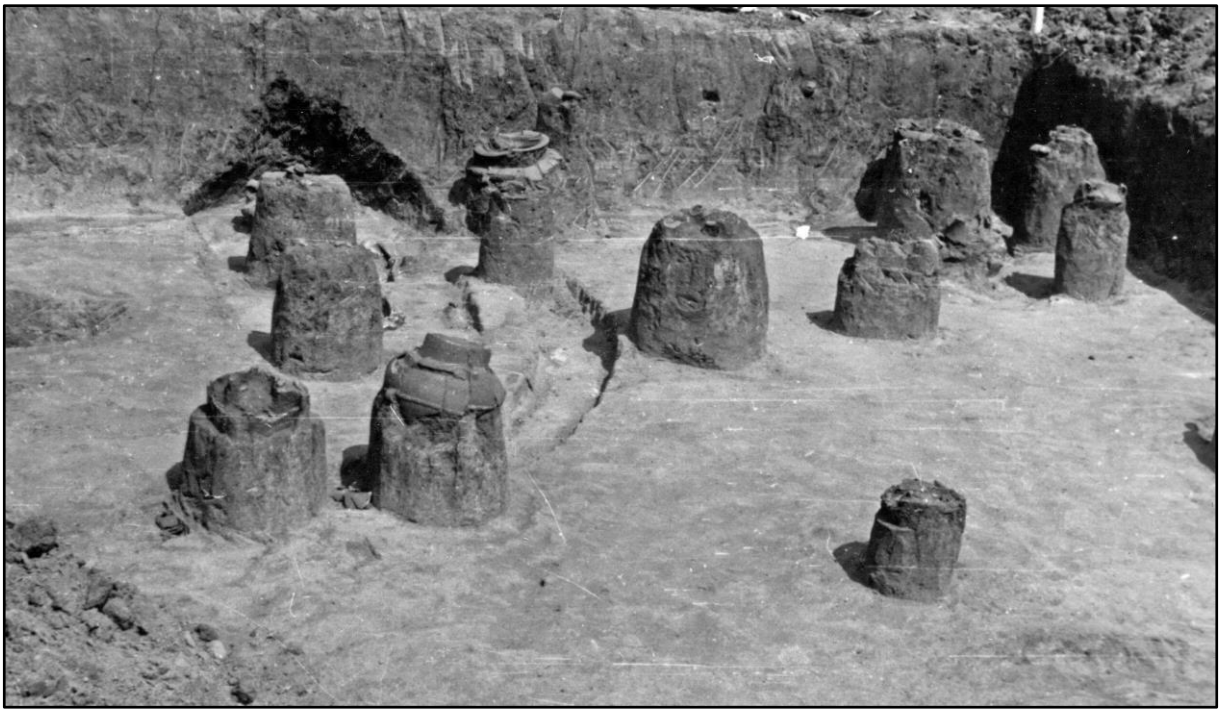

Figure 3. Bronze Age burials at Maklár-Koszprium (Archive of the István Dobó Castle Museum, Eger)

The second site is Maklár–Koszpérium (Fig. 1 and 3), where 121 Bronze Age cremation burials were found in 1960 and 1962 (Szabó 1963; Kovács 2001). On this site, 80 were urns, 28 scattered cremations and 13 burials were unearthed without human remains. Furthermore, 13 scattered cremation burials were found surrounded by circular ditches, such as at Maklár–Nagyrét II. In the Bronze Age, this burial rite began to appear around 1600–1500 BC and can be attributed to the Tumulus culture in Central Europe (Bátora 2004). Every burial surrounded with circular ditches in the Maklár burial grounds can be described by scattered cremation rites, and based on stratigraphy, they could be one of the earliest burials in the cemeteries. However, there are two differences between them, the number of burials within the ditch and the dimensions of the ditches. Besides Maklár, similar burials are known from 4 sites from the territory of Hungary (Mengyán & Hrabák 2023).

Thirdly, Maklár–Nagyrét (Fig. 1), where Bronze Age settlement features, two pits and a possible house floor were found in 1983 (Sz. Kállay 1984) in addition to a relatively large number of finds, including 22 boxes of ceramics, 4 boxes of animal bones, 1 box of grinding stone and 1 box of daub were unearthed. The archaeological evaluation is ongoing and recent observations suggest Piliny style pottery were used in this settlement.

The duration of this project is one year. The AMS radiocarbon dating would be taken in the Hungarian Research Network's Institute for Nuclear Research (ATOMKI) laboratory on bone samples (Molnár *et al.* 2013; Major *et al.* 2019). Altogether, 35 samples will be taken from the analysed sites from cremated human remains and animal bones (Table 1). Earlier, the accuracy

of radiocarbon results made of cremated bones were debated owing to the old wood effect, but recently with adequate sample strategy it is reliable (Olsen *et al.* 2013; Dani *et al.* 2019). From settlement features, 8 samples would be taken, including 3 from Maklár-Nagyrét II. and 5 from Maklár-Nagyrét. Sample strategy in the cemeteries will be more complex, altogether 27 samples would be taken mostly from cremated human remains and animal bones (food grave goods from burials). The basis of the sampling strategy will be the graves' attributes and characteristics, including the location of the burial (burials in superposition and dating each grave group within the cemeteries), graves with special character (dating at least 3–3 burials surrounded by circular ditch) and burials that contains specific grave goods, such as unique ceramics, bronze artefacts and glass beads. The importance of dating burials with circular ditches is crucial because these could have been the earliest, founder graves in Maklár-Nagyrét II. and Maklár-Koszpérium. In this manner, the temporal depth of the cemeteries will be examined, and different burial rites' absolute dates will be comparable with each other.

Site name (type)	*Number of samples*	*Type of samples*	*Cost*
Maklár–Nagyrét II. (cemetery)	20	cremated bone/tooth, animal bone	5 694 €
Maklár–Nagyrét II. (settlement)	3	animal bone	854.1 €
Maklár–Koszpérium (cemetery)	7	cremated bone/tooth, animal bone	1 992.9 €
Maklár–Nagyrét (settlement)	5	animal bone	1 423.5 €
Total:	**35**	**–**	**9 964.5 €**

Table 1. Radiocarbon sample number and type by sites in the project

Schedule

The duration of the project is one year (Fig. 4). In the case of a successful application, the project would begin immediately, with the detailed typology of the Maklár-Koszpérium cemetery. In this part, a possible typo-chronological system would be made, based on the ceramic assemblage, the bronze grave goods and the different burial rites and superpositions in the cemetery structure. In the second part, the typo-chronological analysis of the Maklár-Nagyrét II. cemetery would take place, concerning the same aspects than in the Koszpérium

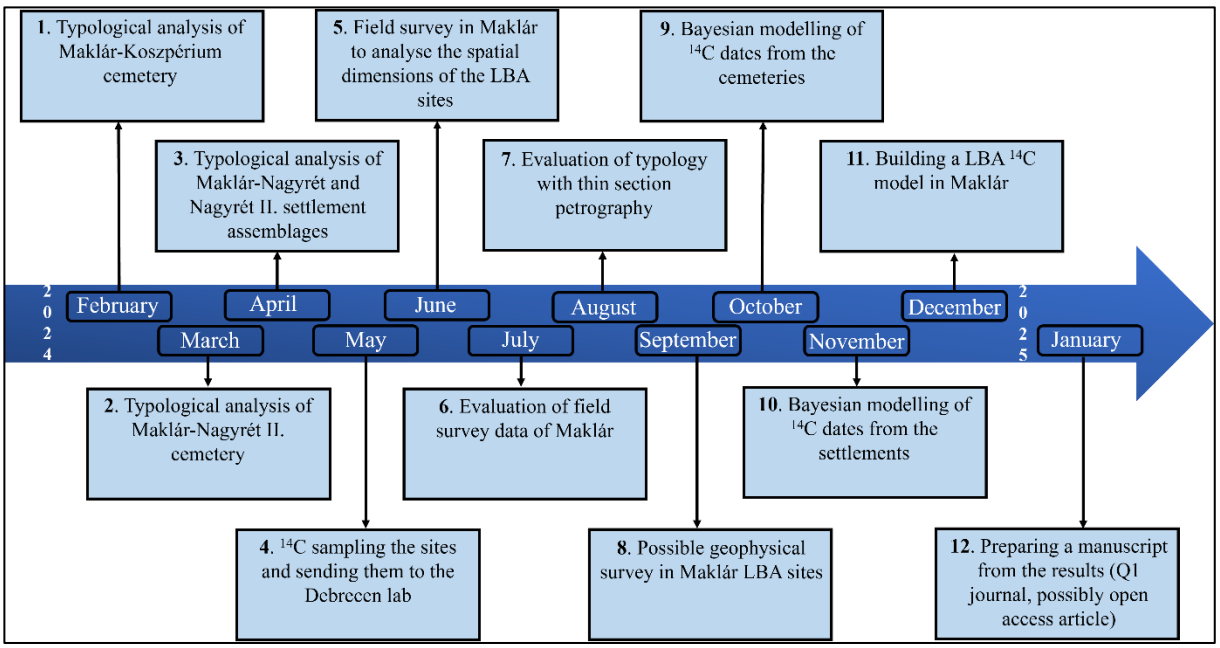

Figure 4. Project timeline, Life after the tells: Radiocarbon dating Late Bronze Age sites in the Maklár region (NE Hungary)

and comparing the two cemeteries' material. Thirdly, the settlement materials would be analysed and compared from Maklár-Nagyrét, excavated in 1983 and Maklár-Nagyrét II., excavated in 2022. In the fourth step, the AMS radiocarbon sampling will be taken with the help of an anthropologist, in order to choose the best possible samples, and the samples would be sent to Debrecen, to the Hungarian Research Network's Institute for Nuclear Research (ATOMKI) laboratory for the measurements. The basis of the sampling strategy will be the first three step, namely the typo-chronological analysis. While the radiocarbon measurement will be in progress, systematic field survey and metal detector analysis would be taken on the Maklár Late Bronze Age sites, to analyse its spatial dimensions and to discriminate different habitation zones between the Tumulus and the Piliny periods in this area, based on the ceramic finds. Later, the evaluation of thin sections would be the next step, to analyse the ceramic raw material choice of the Tumulus and Piliny potters. Depending on the vegetation, a geophysical survey with the Hungarian National Museum will also be taken, regarding the results of the field survey. Thereafter, the evaluation of the radiocarbon dates will be taken, firstly from the two analysed cemetery and the Bayesian modelling to understand the temporal depth and position of the two burial grounds. As the next step, the Bayesian modelling of the settlement radiocarbon dates would be taken, to understand its absolute chronology. Both models will be compared to the typological analysis, in order to build a typology with absolute dates. Moreover, a radiocarbon model would be taken that take every new AMS radiocarbon date from the Maklár microregion, to make a Late Bronze Age absolute chronology and to date the Tumulus and Piliny pottery styles. Finally, the preparing of a manuscript will be taken from the

results, possibly to a Q1 ranking journal as an open access article, and of course, the results would be presented in international conferences.

Summary and discussion

This one-year research would cost **9 964.5 €** and could reveal crucial information about the abandonment of tell sites in North-Eastern Hungary and more specifically the Füzesabony tell sites at its southwestern territory, in the Maklár microregion. The aim of this research is twofold: firstly, this could shed light on the temporal depth of the analysed Late Bronze Age sites in the project and it would be also possible to better understand the chronological position between sites and dating the Tumulus and Piliny style pottery. Secondly, the absolute dates could help interpret the abandonment of the tell site, Maklár–Baglyashalom and the following Late Bronze Age cultures.

My PhD project will cover the archaeological aspects of the Maklár materials, i.e. burial rites, grave goods and ceramic technological analysis, and it will be the base for following scientific research, such as radiocarbon dating and isotope analysis. Furthermore, I am investigating the settlement materials of Maklár–Nagyrét and Nagyrét II. and non-destructive site analysis, such as geophysical survey, surface survey and metal detector analysis will be taken with the Hungarian National Museum, to examine the spatial distribution of these Late Bronze Age sites. The support of the FSPT grant could help to understand the temporal dimensions of the excavated Late Bronze Age sites in the Maklár region. This microregional project can provide crucial complementary data to the BORBAS about the chronological depth of Late Bronze Age sites, and could absolute date the Tumulus and Piliny pottery style in the Maklár region, to reveal continuity or discontinuity of habitation after the Füzesabony culture.

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Appendices

Curriculum vitae

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Studies

2022– University of Miskolc (Miskolc, Hungary) - Faculty of Earth Science and Engineering, Mikoviny Sámuel Doctoral School of Earth Sciences - PhD

- Thesis: Archaeological and Ceramic technological analyses of Tumulus Culture cemeteries: Case studies of Maklár-Koszpérium, Maklár-Nagyrét II. and Tiszagyenda-Hármas halom
- Supervisors: Dr. Klára P. Fischl, Dr. Ferenc Kristály 2018.09.–2019.02. Jagiellonian University (Kraków, Poland) - *Erasmus*+scholarship

2016–2019 Eötvös Loránd University (Budapest, Hungary) – Archaeology, M.A.

- Major: Prehistory, *Minor*: Archaeometry
- Supervisor: Dr. Gábor V. Szabó

2013–2016 University of Miskolc (Miskolc, Hungary) - Archaeology, B.A.

- Major: Prehistory
- Supervisor: Dr. Klára P. Fischl

Professional Experience

2022.01– Hungarian National Museum, National Institute of Archaeology, Archaemetry Laboratory – Budapest, Hungary (part-time job)

- Status: Ceramic analysis (thin section petrography)

2019.03–2021.12. Castle Headquarters Nonprofit Ltd., Archaeological directorate – Budapest, Hungary

- Status: Archaeologist

2018.08–09. Salisbury Ltd. – Hungary

- Status: Archaeologist on the Encs-Mérnöki teleptől délre Bronze Age cemetery

2017–2018 Eötvös Loránd University – Budapest, Hungary

- Status: Field technician during preventive excavations on M44 motorway sites

Scientific Experience

2018. 06–07. Bronze Age Körös Off-Tell Archaeology (*BAKOTA*) project

- Status: excavation, project member with scholarship
- Institutions: University of Toronto, Quinnipiac University, University of Michigan, University of Szeged

2017. 07. and 2023– Százhalombatta Archaeological Expedition (*SAX*) project

- Status: excavation
- Institutions: Hungarian National Museum, Matrica Museum (Százhalombatta), University of Cambridge, University of Southampton

2015–2016 Borsod Region Bronze Age Settlements (*BORBAS*) project

- Status: excavation and non-destructive site analysis
- Institutions: University of Miskolc, University of Cologne

2014. 07. Kakucs Archaeological Expedition (*KEX*) project

- Status: excavation
- Institutions: Hungarian Academy of Sciences, Uniwersytet im Adama Mickiewicza (Poznań), Christian-Albrechts-Universität (Kiel)

Scholarships

- 2023. 09. 01. – 2024. 08. 31. ÚNKP-23-3-1 new national excellence program of the ministry for culture and innovation from the source of the national research, development and innovation fund. Investigation of Late Bronze Age sites and ceramic technology at Maklár
- 2018.09.–2019.02. *Erasmus+* scholarship to study on the Jagiellonian University (Kraków, Poland)
- 2018. 06–07. Bronze Age Körös Off-Tell Archaeology (*BAKOTA*) project

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Mengyán, Á. (2018): Problems of the Late Hatvan Period at the Southern Foothills of the Bükk Mountains.: A case Study of Bogács-Pazsagpuszta and Novaj-Földvár. *GESTA: Fiatal Miskolci Történészek Folyóirata* 17. Miskolc, 2018, 104–126.

International conference presentation

2024 Lecture on the World Archaeology Seminars at the Austrian Academy of Sciences, Vienna. 17. January 2024. The Tumulus culture on the Northern Great Hungarian Plain: Current Rresearch at the Maklár microregion (NE Hungary) – Mengyán, Á.

2023 Ceramic Petrology Group 2023 Annual Meeting. 11–12. November 2023. London. Title: Ceramic technological analysis of two Bronze Age cemeteries: First results from the Maklár microregion (NE Hungary) – Mengyán, Á.

Workshop for Young Researchers in Archaeometry 2023: 4–6. October 2023, University of Tübingen, Germany. Title: Ceramic Analysis of a Bronze Age Burial Ground at Maklár-Koszpérium (NE Hungary): Raw Material and Firing Technique. – Mengyán, Á.

29th EAA Annual Meeting. Belfast, Northern Ireland, 2023. 08. 30–09. 02. Title: Rest in clay: Ceramic technological analysis of a Bronze Age cremation cemetery at Maklár-Koszpérium (NE Hungary) – Mengyán, Á.

Kiel Conference: Scales of Social, Environmental and Cultural Change in Past Societies. Kiel, Germany. 2023. March 13–18:: New evidence of Bronze Age glass trade: Blue glass beads from the Tumulus culture cemetery of Maklár (NE Hungary) – Mengyán, Á.; Hrabák, Z.; Sz. Osváth, Zs.; Bajnóczi, B.; Braun, M.; Paja, L.

2022 28th European Association of Archaeologists meeting. Budapest, 2022. 08. 31–09. 03. Title: Evidence for Long-distance Trade on the Great Hungarian Plain: Blue Glass Beads from the Tumulus Culture Cemetery of Maklár. – Mengyán, Ákos; Sz. Osváth, Zsófia; Hrabák, Zita; Bajnóczi, Bernadett;2020 26th European Association of Archaeologists meeting. (Online) 2020. August 24-30. Title: *As slow as cold molasses: Culture change from the Middle to Late Bronze Age in the lower Körös Basin. – Parditka, Györgyi; Duffy, Paul; Mengyán, Ákos; Tynan, Justine; Godinez, Teresa;*

2019 84th Society for American Archaeology meeting. Albuquerque, New Mexico, 2019. April 10-14. Title: *Styles for Miles: A Regional Analysis of Ceramic Design Elements – Mengyán, Ákos; Zachary, Bible; Parditka, Györgyi; Duffy, Paul;* (Poster)

2018 Settlement Layouts, Systems and Structure of the Otomani-Füzesabony Cultural Complex konferencia. Miskolc, 2018. June 7-9. Title: *Problems of the Late Hatvan Period at the Southern foothills of the Bükk mountains* – Mengyán, Á.

Language

English	B2 complex
German	A1

Skill

QGIS software, RTK GPS, Adobe Photoshop, Microsoft Office, Driving license (B), Thin section petrography

Teaching appointments at University of Miskolc

- Instructor for *Introduction to Archaeology (seminar)*

Beneficiary:
Miskolci Egyetem
3518 Miskolc, Erenyő u. 33.

Contact person: Ákos Mengyán
Phone number: +3630 5004 577
e-mail: mengyanakos@gmail.com

Nr. of quotation: 2023/1108/2

Object: Quotation for AMS C-14 analyses of bone samples

Here we send quotation for AMS C-14 analyses of bone samples in the Hertelendi Laboratory of Environmental Studies (Atomki-Isotoptech Zrt, Debrecen, Hungary).

Description	Quantity	Unit price (EUR/sample)	Total net price (EUR)
AMS ^{14}C analyses of bone, tooth, cremated bone samples	35	284.7	9 964.5
		Total payable:	**9 964.5 EUR**

In case of unsuccessful analyses (when sample has not enough C content), we do not charge the full price, but we apply +50 EUR/sample preparation fee.

Normal turnover time: *10-12 weeks* after the sample arrived to the Hertelendi Lab.

Minimum sample amount: 500 mg of bone samples
We recommend that you send only as much sample as needed for the analysis. If you require the return of any unused original excess sample materials, your request must be made in writing at the time of sample submission which postage is paid by the Customer. Excess samples are archived for 3 months following the time of release of results and we can store and return only in justified cases.

Shipping and packing conditions: Use plastic bag and seal the bag with a zip-tie or duct tape.
In case of order, please complete, print, and enclose a copy of our Fny08.2-3 Analyses Ordering Form with your samples.

Payment conditions: via bank transfer within 30 days, according to the invoice. In case of EU members registered EU VAT Nr. is necessary, otherwise you must pay Hungarian VAT (recently 27%) over the analyses net fee. Claims about results can be accepted in 5 working days.
The electronic invoice is sent via e-mail. Please, write the e-mail address to receive the invoice in the appropriate field on the order form.

Contact mail: labservice@isotoptech.hu

For more information about the general conditions of the services, please visit our website:
https://www.isotoptech.eu/en/general-terms-and-conditions/

Mailing and delivery address (also for sample submission):
Isotoptech Zrt.
Bem tér 18/C
H-4026 Debrecen
Hungary

The quotation is valid for 3 Months.

Date: Debrecen, 08-11-2023

Tóth-Hubay Katalin

Katalin Tóth-Hubay
Isotoptech Zrt.

Recent publications in the research topic:

Articles:

- Mengyán, Á., Hrabák, Z. (2023): MAKLÁR–NAGYRÉT II. Bronze Age cemetery and settlement (preliminary report). Hungarian Archaeology 12/2 8–16. https://doi.org/10.36338/ha.2023.2.1

- Mengyán, Á., Hrabák, Z. (2023): Maklár–Nagyrét II. Bronzkori temető és telep (előzetes jelentés). Magyar Régészet Online 12/2 8–16. https://doi.org/10.36245/mr.2023.2.1

Conference presentations:

- Lecture on the World Archaeology Seminars at the Austrian Academy of Sciences, Vienna. 17. January 2024. The Tumulus culture on the Northern Great Hungarian Plain: Current Rresearch at the Maklár microregion (NE Hungary) – Mengyán, Á.

- Ceramic Petrology Group 2023 Annual Meeting. 11–12. November 2023. London. Title: Ceramic technological analysis of two Bronze Age cemeteries: First results from the Maklár microregion (NE Hungary) – Mengyán, Á.

- Workshop for Young Researchers in Archaeometry 2023: 4–6. October 2023, University of Tübingen, Germany. Title: Ceramic Analysis of a Bronze Age Burial Ground at Maklár-Koszpérium (NE Hungary): Raw Material and Firing Technique. – Mengyán, Á.

- 29th EAA Annual Meeting. Belfast, Northern Ireland, 2023. 08. 30–09. 02. Title: Rest in clay: Ceramic technological analysis of a Bronze Age cremation cemetery at Maklár-Koszpérium (NE Hungary) – Mengyán, Á.

- Kiel Conference: Scales of Social, Environmental and Cultural Change in Past Societies. Kiel, Germany. 2023. March 13–18:: New evidence of Bronze Age glass trade: Blue glass beads from the Tumulus culture cemetery of Maklár (NE Hungary) – Mengyán, Á.; Hrabák, Z.; Sz. Osváth, Zs.; Bajnóczi, B.; Braun, M.; Paja, L.

- 28th European Association of Archaeologists meeting. Budapest, 2022. 08. 31– 09. 03. Title: Evidence for Long-distance Trade on the Great Hungarian Plain: Blue Glass Beads from the Tumulus Culture Cemetery of Maklár. – Mengyán, Ákos; Sz. Osváth, Zsófia; Hrabák, Zita; Bajnóczi, Bernadett

Ákos Mengyán
Budapest, 2023. November 15.

FOUNDATION FOR
THE STUDY AND PRESERVATION OF TELLS
IN THE PREHISTORIC OLD WORLD

Neuffenstraße 57 · D-73734 Esslingen am Neckar

Ákos Mengyán M.A.
Magyar Nemzeti Múzeum
Múzeum krt. 14-16
H-1088 Budapest

25.01.2024

Subject: Life after the tells: Radiocarbon dating Late Bronze Age sites in the Maklár region

Dear Mr. Mengyán,

following the recent meeting of our boards, I would like to let you know that your proposal 'Life after the tells: Radiocarbon dating Late Bronze Age sites in the Maklár region (NE Hungary)' has found approval regarding the aims and the quality of your work proposed and your project's match with the purpose of the foundation's statutes.

We are pleased, therefore, to inform you that the foundation is ready to support your work in 2024 with funds amounting to **10.000** Euro for expenses as stated in your application and budget calculation.

However, our advisory board wants me to draw your attention to a couple of methodological issues of your project that they deem potentially problematic: In working with radiocarbon dates from cremated bones and comparing them to unburnt ones please make sure you are using adequate calibration methods. We are aware that direct dating the often badly eroded or destroyed final layers of tells sites and hence their end is problematic; hence our acceptance of your proposal. However, in your discussion please make adequate reference to the problematic of correlating tell stratigraphies with the data that you will have from LBA cemeteries and open sites.

Funding is subject to your written acceptance of our funding guidelines and general information for applicants attached to this letter. Please note, in particular, our invoicing regulations, and that we require receipts for all travel and material expenses *etc*. granted.

A final report and settlement on your work is to be submitted at the latest six weeks after expiry of the funding period, *i.e*. by February 2025.

We would also kindly ask you to let us have a short text (*c*. 1–2 pages) and a couple of images for the presentation of your project in the 'funded projects' section of our homepage.

Should you have any questions please do not hesitate to get in touch.

We wish you every success in your work on this project and remain with best regards,
yours sincerely,

Prof. Dr. Tobias L. Kienlin
(Chairman)

Attachment: Funding Guidelines and General Information for Applicants (2024_25 version)

e-Invoice / e-Számla

Issuer / Kiállító

ISOTOPTECH Zrt.

Hungary, 4025 Debrecen,
Piac u. 53. 2/9.
www.isotoptech.eu
VAT registration No. / Group identification No. / Adószám / Csoportazonosító: 17781138-5-15
Group member tax No. / Csoporttag adószám: 11804262-4-09
EU VAT number / Közösségi adószám: HU17781138

Payment Information / Fizetési információk
ÁTUTALÁS - ERSTE BANK HUNGARY Zrt.
11600006-00000000-34350063
HU48 1160 0006 0000 0000 3435 0063
GIBAHUHB

Customer / Vevő

Foundation for the Study and Preservation

Germany,
D-73734, Esslingen am Necka
Neuffenstraße 57.
of Tells in the Prehistoric Old World

Invoice No. / Számlaszám	**EITECH0581**
Invoice date / Számla kelte	**2024. Oct 30.**
Delivery date / Teljesítés időpontja	**2024. Sep 14.**
Payment due / Fizetési határidő	**2024. Nov 29.**

Description Megnevezés	Quantity Mennyiség	UOM Menny. egység	Unit price Nettó egységár (EUR)	Amount Nettó érték (EUR)	VAT ÁFA	VAT amount ÁFA érték (EUR)	Gross amount Bruttó érték (EUR)
AMS C-14 ANALYSES	31	PCS	284.70	8,825.70	27% (S)	2,382.94	11,208.64
Special discount	1	PC	-1,232.86	-1,232.86	27% (S)	-332.87	-1,565.73

LIFE AFTER THE TELLS: Radiocarbon dating Late Bronze Age sites in the Maklár region (NE Hungary)

based on project code/analysis report: I/3703; I/3747
Nr. of quotation: 2023/1108/2
responsible: Ákos Mengyán

BANK DETAILS (EUR):
SWIFT Code: GIBAHUHB
IBAN: HU48 1160 0006 0000 0000 3435 0063
ERSTE Bank Hungary Zrt.
H-4024 Debrecen, Vár utca 4., HUNGARY

VAT rate ÁFA kulcs	VAT basis Adóalap (HUF)	VAT amount ÁFA érték (HUF)	Gross amount Számla érték (HUF)
27% (S)	3,086,034	833,230	3,919,264
Sum / Összesen	3,086,034	833,230	3,919,264

Exchange rate / Árfolyam **1 EUR = 406.44 HUF**

VAT rate ÁFA kulcs	VAT basis Adóalap (EUR)	VAT amount ÁFA érték (EUR)	Gross amount Számla érték (EUR)
27% (S)	7,592.84	2,050.07	9,642.91
Sum / Összesen	7,592.84	2,050.07	9,642.91

Invoice total / Fizetendő végösszeg **9,642.91 EUR**

FOUNDATION FOR THE STUDY AND PRESERVATION OF TELLS IN THE PREHISTORIC OLD WORLD (FSPT)

LIFE AFTER THE TELLS:

Radiocarbon dating Late Bronze Age sites in the Maklár region (NE Hungary)

Project Report

2024–2025

ÁKOS MENGYÁN

UNIVERSITY OF MISKOLC, HUNGARIAN NATIONAL MUSEUM

INTRODUCTION

Based on the Hungarian Bronze Age chronological system, the Middle Bronze Age can be characterized by the flourishing tell cultures primarily on the Great Hungarian Plain (Mozsolics 1957; Kalicz 1968; Bóna 1992) and can be dated between 2000/1900–1600/1450 BC. The beginning of the Late Bronze Age (1600/1450–900/750 BC) can be dated approximately around 1600/1500 BC in this area, when significant changes occurred not only in the Carpathian Basin, but also in Central Europe (Makarowicz 2017; Müller and Lohrke 2009; Kristiansen and Larsson 2005; Kristiansen and Suchowska-Ducke 2015; Vandkilde 2007). This change occurred during the last phase of the Middle Bronze Age, in the so-called Koszider period (1600–1500/1450 BC) that resulted in the abandonment of the long-lived tell settlements and the appearance of the Tumulus culture (Bóna 1992). However, some tells were already abandoned before 1600 BC and new settlements were established in the Koszider period too, while the large Middle Bronze Age cemeteries were also abandoned, but some were continuously used (Vicze 2011). In the last decades, this period has been interpreted as a longer process and not a quick change (Bóna 1992; P. Fischl et al. 2013; Vicze 2013). The transformation between the Middle and Late Bronze Age was interpreted as a short event and have been explained by several reasons since the 1950s, including migration, depopulation, climate change or even "military conquer" of the Tumulus culture warriors form Central Europe (Mozsolics 1957; Bóna 1958; Mozsolics 1967; Kovács 1996; 2000). Nevertheless, the exact reason behind this transformation is still unknown, but more reasons could have played an important role in it. Namely small-scale migration from the direction of Central Europe, the increased intensity of contacts between MBA communities that changed the exchange networks and identities (Bóna 1992; Fischl et al. 2013; Kristiansen and Suchowska-Ducke 2015), and climatic changes (Sümegi and Bodor 2005; Demény et al. 2019; Rémenyi 2005). Furthermore, the evolution of the local population could also have had an important role in the developing of the Tumulus culture (Hajdu 2012).

During the Hungarian Middle Bronze Age, on the Northern Great Hungarian Plain, specifically on the Borsod plain region, the border of the Füzesabony and Hatvan cultures can be found, and beside the Füzesabony, the elements of the late Hatvan pottery style can be also observed in the pottery style (Bóna 1992; Mengyán 2019; Fischl et al. 2019). In the Carpathian Basin, the first appearance of the Tumulus culture can be dated to the end of the Middle Bronze Age, to the Koszider period (Fischl et al. 2013). The earliest radiocarbon dates from Transdanubia suggest the beginning of the Tumulus period between around 1650–1600 BC (Ilon 2019), which

date fits well with radiocarbon dates from Southern Germany (Müller and Lohrke 2009). However, the absolute chronology of the Tumulus culture is an uncertain part of research, specifically in the Eastern Carpathian Basin (Fischl et al. 2013). On the Southeastern Great Hungarian Plain, recent studies questioned the depopulation and the Tumulus migration narrative at the Middle to Late Bronze transition (Duffy et al. 2019; O'Shea et al. 2019). Nevertheless, in the Northeastern part of the present-day Hungary, only a few sites are known with radiocarbon dates regarding this period (Csányi 2019; Dani et al. 2024; Uhnér 2010). In addition, beside the Tumulus, the Piliny culture also appeared, since its southernmost border can be found on the Northern Great Hungarian Plain, during the younger phase of the Piliny culture (Kemenczei 1963; 1964; 1965; P. Fischl and Rebenda 2023). And, after this period, the Piliny pottery style transformed into the Kyjatice style in Northeastern Hungary (Kemenczei 1970). On the Great Hungarian Plain, partly concurrently, between the Reinecke BzD–HaA1 periods, the ceramic material became homogeneous that process ended in the development of the Gáva culture in the Reinecke HaA2 period (V. Szabó 2004; V. Szabó and Váczi 2023; P. Fischl and Rebenda 2023). For these reasons, the absolute chronological dating of sites in this area are particularly important and can be a crucial point in order to understand the social transformations of the Late Bronze Age Carpathian Basin.

The aim of this project is to build a chronological system of the Late Bronze Age sites at the Northern Great Hungarian Plain, at Maklár, where several sites are relatively well-known (Fig. 1). The analysed sites in this project are two Tumulus culture cremation cemeteries, Maklár-Koszpérium (Szabó 1963) and Maklár-Nagyrét II. (Mengyán and Hrabák 2023), a Piliny culture settlement at Maklár-Nagyrét (Sz. Kállay 1984), and a settlement with pre-Gáva style pottery at Maklár-Nagyrét II. (Mengyán and Hrabák 2023). In order to date the sites, this research applied both absolute chronology by AMS radiocarbon dating and Bayesian modelling, and relative chronology through a few well-datable finds. An important question of this project is the absolute dates of the Late Bronze Age sites in the Maklár region, specifically in the case of the two cremation burial grounds, and the absolute chronological position of the Tumulus and the Piliny style pottery. Another question was to compare the radiocarbon dates of this project with others especially from the Northern Great Hungarian Plain, including both the Middle and Late Bronze Age, in order to investigate continuity or depopulation in this microregion.

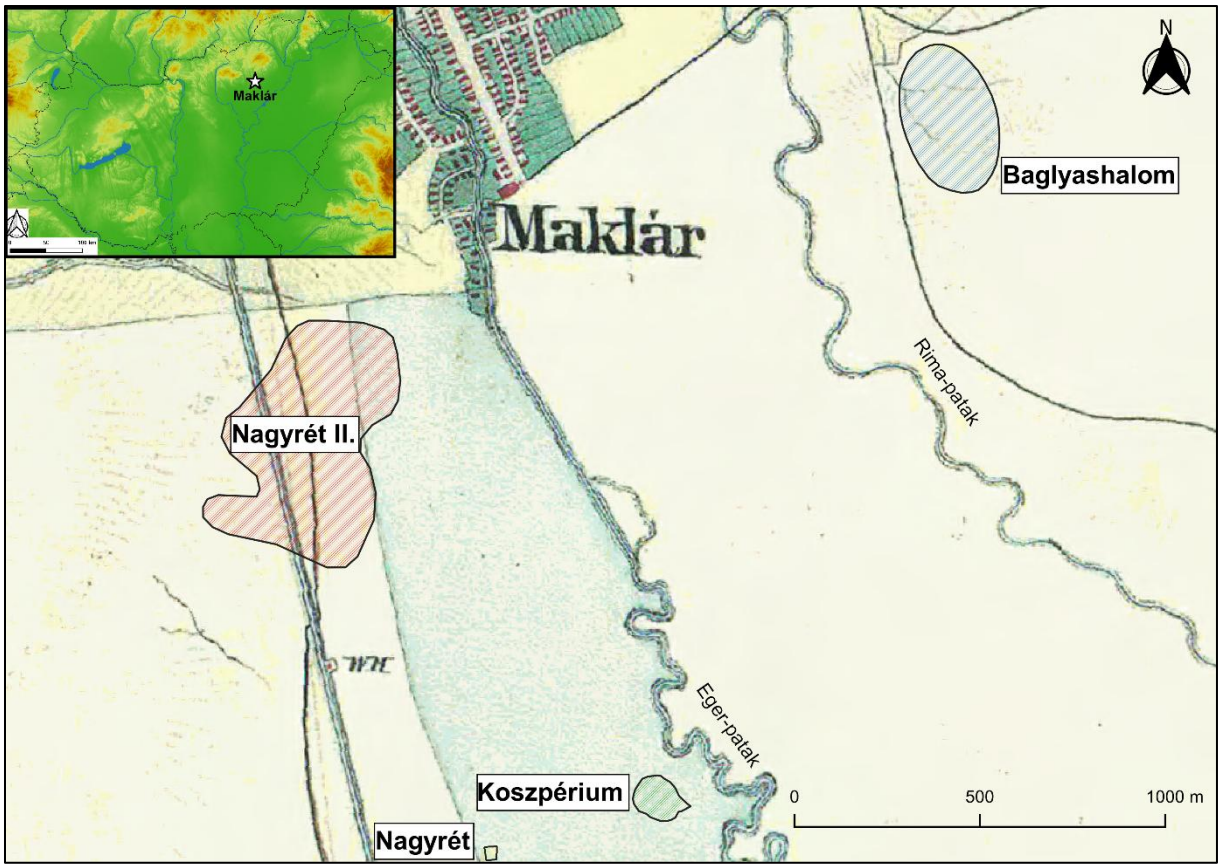

Figure 1. Bronze Age sites at the southern area of Maklár (after Mengyán and Hrabák 2023)

THE BRONZE AGE SITES AT MAKLÁR

The subject of this research is the three Late Bronze Age sites at Maklár. The first site is Maklár-Nagyrét II., where 210 cremation Bronze Age burials and a part of a Bronze Age settlement with 63 archaeological features were found (Fig. 2). From the burials, 112 were urns, 95 scattered cremation and three were found without human remains (Mengyán and Hrabák 2023). The northern, western, and southwestern boundaries of the cemetery could be identified, but the eastern, southeastern boundary was outside the excavated area and has remained unknown (Mengyán and Hrabák 2023). Furthermore, a dense part of it probably lay between the two main excavation areas that was unaffected by the construction works (Mengyán and Hrabák 2023). Most of the graves were found in the humus layer, at a depth of cca. 30–50 cm. Therefore, gravepits could be not detected, and most burials had been damaged by agricultural activity (Mengyán and Hrabák 2023). Five graves were surrounded by circular ditches (3–3.5 m in diameter and 30–40 cm wide), four in the western excavation zone and one in the eastern (ring-ditch burials) (Mengyán and Hrabák 2023). Moreover, 34 blue glass beads were found in 11 graves (Mengyán and Hrabák 2023). The typological analysis of pottery and bronze finds in this cemetery suggest that it could have been used between the Reinecke BzB2–C periods, cca.

1550/1500–1300 BC. On the settlement area, 63 features were found altogether, two ditches and 61 pits. The pottery material suggest that the excavated settlement features might be a little younger than the cemetery and can be dated by relative chronology around the Reinecke BzC/D–HaA1 periods.

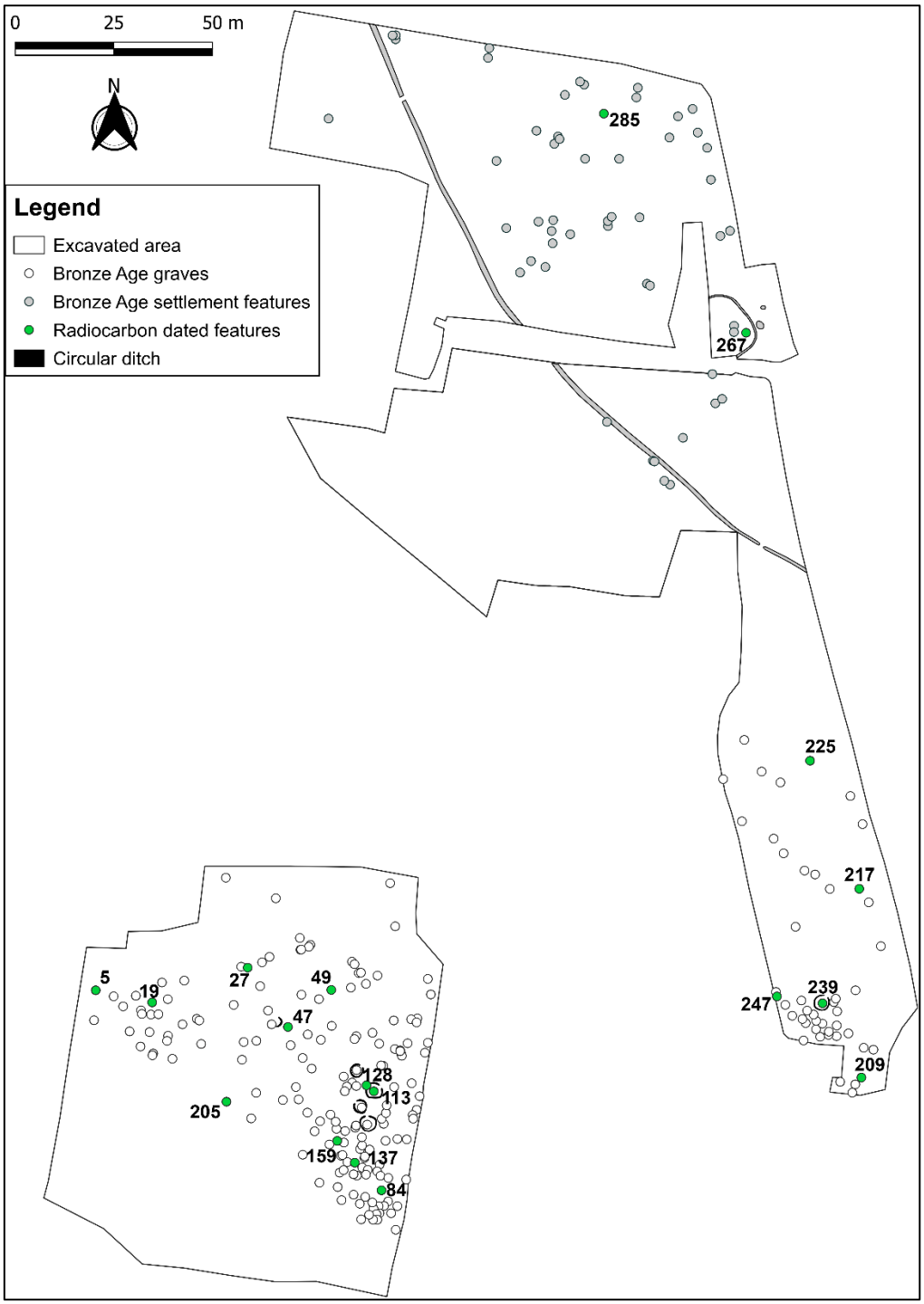

Figure 2. The site map of the Maklár-Nagyrét II. settlement and cemetery, and the radiocarbon dated features and graves marked by green

The second site is Maklár-Koszpérium (Szabó 1963; Kovács 2000), where 121 Bronze Age cremation burials were found in 1960 and 1962 (Fig. 3). Out of the 121 burials, 80 were urns, 28 were scattered cremations and 13 were found without any human remains. On this site, 13 scattered cremation burials were surrounded by circular ditches (ring-ditch burials). The burial rites are very similar to the Maklár-Nagyrét II. cemetery, although the rate of the scattered cremations is much lower, while burials without human remains and the number of graves with circular ditches are larger. In the two cemeteries, the types of grave goods, namely the pottery and bronze finds are similar, but minor differences can be recognized, principally within the bronze artefacts and blue glass beads, which were not found on the Koszpérium.

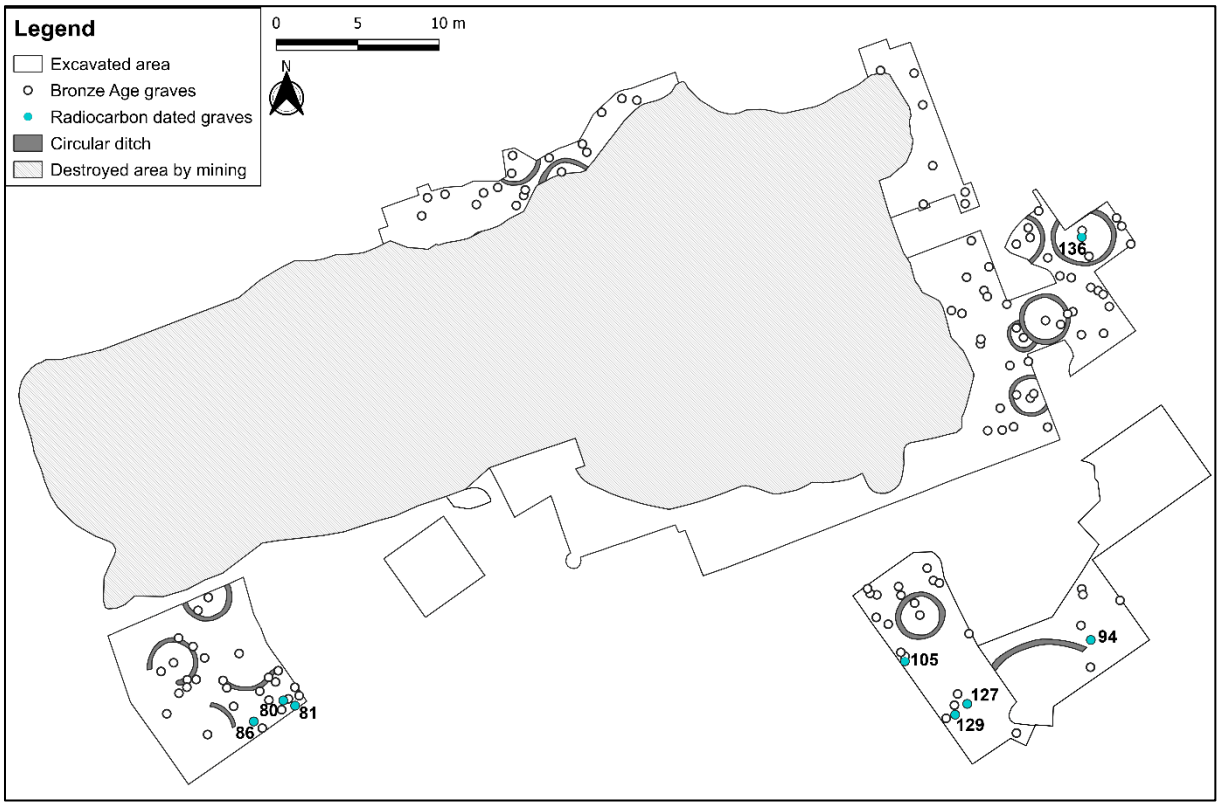

Figure 3. Site map and the location of the radiocarbon dated burials (marked by blue) in the Maklár-Koszpérium cemetery

The third site is Maklár-Nagyrét, where a few Bronze Age settlement features were unearthed by Ágota Sz. Kállay in 1983 (Sz. Kállay 1984). In particular, two pits and two possible house floors were found along with relatively rich ceramic material. Within this ceramic assemblage, the types and forms can be characterized by the Piliny pottery style and a few specimens with Kyjatice style. Moreover, fine wares with graphite coatings and another with a plastic decoration imitating a bronze pendant were also found.

MATERIAL AND METHODS

During this research, 31 radiocarbon samples were analysed from the Maklár Bronze Age sites. The samples were prepared and analysed by the Isotoptech Zrt. in Debrecen, Hungary (Major et al. 2019; Molnár et al. 2013a; 2013b). The radiocarbon dates were calibrated in OxCal v. 4.4.4 software, based on the IntCal20 atmospheric curve (Reimer et al. 2020). The results are 68.3% probability and rounded up to 5.

In the selection process for radiocarbon dating the goal was to include samples belonging to different burial rites, pottery style and bronze finds in the cemeteries. Furthermore, another goal was to date more areas within the Maklár-Nagyrét II. cemetery, since different parts of large cemeteries might have distinct usage. In this manner, 18 burials were analysed by radiocarbon dating, including 11 urns and 7 scattered cremations in the Nagyrét II. cemetery (Table 1). From these, grave 225 is a scattered cremation burial, and it is one of the nearest burial to the settlement (Fig. 2). Furthermore, it had an unusual burial rite, since the pit of this grave was circular with a diameter of cca. 1.5 metres and a depth of cca. 60 cm. At the southern part of its gravepit, an oval extension was observed, with cca. 80 cm width and 30 cm depth. The cremated human remains were scattered on the bottom of the pit, including also a few pottery sherds. Two burials, graves 113 and 239 were also scattered cremations, but these were surrounded by ring-ditches. Furthermore, four graves (5, 49, 137 and 205) analysed by AMS radiocarbon dating contained blue glass beads.

Grave number	*Lab ID*	*Burial rite*	*Age of death*	*Sex*	*^{14}C age (years BP)*	*Calibrated date (68.3%)*	*Calibrated date (95.4%)*	Sample
5	DeA-47032	urn	Adultus	female	3139 ± 26	1445–1325	1500–1305	cremated bone
19	DeA-47033	urn	Adultus	–	3143 ± 26	1450–1395	1500–1310	cremated bone
27	DeA-47034	scattered cremation	Adultus–Maturus	–	3197 ± 25	1500–1440	1510–1420	cremated bone
47	DeA-47035	urn	Infans II–Iuvenis	–	3046 ± 26	1385–1260	1400–1220	cremated bone
49	DeA-47036	urn	Adultus	female	3171 ± 26	1495–1415	1505–1405	cremated bone
81	DeA-47037	scattered cremation	Adultus – Maturus (35–50)	male	3178 ± 26	1500–1420	1505–1410	cremated bone
84	DeA-47038	urn	Adultus	male	3036 ± 26	1380–1230	1400–1210	cremated bone
113	DeA-47039	scattered cremation	Adultus	male	3208 ± 26	1505–1445	1515–1420	cremated bone
128	DeA-47040	urn	Adultus	–	3168 ± 29	1495–1415	1505–1395	cremated bone

137	DeA-47041	urn	Adultus	female	3102 ± 26	1420–1305	1435–1285	cremated bone
159	DeA-47042	urn	1. Iuvenis (15–23), 2. Infans I.	–	3182 ± 27	1500–1425	1505–1415	cremated bone
195	DeA-47049	urn	1. Iuvenis-Adultus, 2. Newborn	–	3128 ± 26	1440–1320	1495–1300	cremated bone
205	DeA-47043	urn	Iuvenis–Adultus	–	3185 ± 30	1500–1425	1510–1410	cremated bone
209	DeA-47044	scattered cremation	–	–	3220 ± 29	1510–1445	1535–1425	cremated bone
217	DeA-47045	urn	Adultus	–	3173 ± 28	1495–1420	1505–1405	cremated bone
225	DeA-47046	scattered cremation	Infans I–II.	–	3369 ± 38	1740–1610	1745–1535	cremated bone
239	DeA-47047	scattered cremation	Adultus	female	3212 ± 37	1510–1440	1540–1410	cremated bone
247	DeA-47048	scattered cremation	Adultus	female	3256 ± 27	1540–1455	1615–1445	cremated bone

Table 1. Radiocarbon dates from the Maklár-Nagyrét II. cemetery

In the Maklár-Koszpérium cemetery, the human remains were possible to analyse only in the case of 24 graves, therefore solely these burials were available for radiocarbon dating and anthropological analysis. Unfortunately, the rest of the human remains are missing recently, although a few well-datable grave goods will also be discussed. From the radiocarbon dated burials (Table 2), 8 graves were selected from which 6 were urns, two were scattered cremations, and one, the grave 136 was a scattered cremation, surrounded by a circular ditch.

Grave number	*Lab ID*	*Burial rite*	*Age of death*	*Sex*	*^{14}C age (years BP)*	*Calibrated date (68.3%)*	*Calibrated date (95.4%)*	Sample
80	LeA-2062	urn	Infans I.	–	3044 ± 23	1385–1260	1400–1220	cremated bone
81	LeA-2065	urn	Infans I.	–	2987 ± 27	1265–1130	1375–1120	cremated bone
86	LeA-2061	urn	Infans I.	–	2987 ± 27	1265–1130	1375–1120	cremated bone
94	LeA-2067	scattered cremation	Adultus	–	3164 ± 37	1500–1410	1510–1315	cremated bone
105	LeA-2066	urn	Infans I.	–	3092 ± 30	1415–1300	1430–1270	cremated bone
127	LeA-2063	urn	Infans I.	–	3199 ± 24	1500–1440	1510–1420	cremated bone
129	LeA-2064	urn	–	–	3025 ± 23	1375–1225	1390–1200	cremated bone
136	LeA-2021	scattered cremation	–	–	3246 ± 21	1535–1460	1545–1440	charcoal

Table 2. List of radiocarbon dates from the Maklár-Koszpérium cemetery

From the Maklár-Nagyrét II. settlement, two pits were radiocarbon dated from unburnt animal bone samples, namely the 267 and 285 features (Fig. 2; Table 3). The pit 267 contained relatively rich ceramic material, while in the pit 285 beside pottery, the stone casting mould of a disc-headed pin was also found.

Feature no.	*Lab ID*	*Feature type*	*^{14}C age (years BP)*	*Calibrated date (68.3%)*	*Calibrated date (95.4%)*	*Sample*
267	DeA-47297	pit	2972 ± 19	1260–1125	1265–1120	animal bone
285	LeA-2281	pit	2888 ± 17	1115–1015	1190–1005	animal bone

Table 3. Radiocarbon dates from the Maklár-Nagyrét II. settlement

And finally, in the Maklár-Nagyrét settlement three unburnt animal bone samples were analysed, including two pits and a possible house floor (Table 4). One of the pit (feature no. 83/3) contained several Piliny style pottery, including graphite coated fine wares.

Feature no.	*Lab ID*	*Feature type*	*^{14}C age (years BP)*	*Calibrated date (68.3%)*	*Calibrated date (95.4%)*	Sample
83/3	LeA-2283	pit	2919 ± 17	1375–1230	1385–1220	animal bone
83/4	LeA-2282	floor(?)	3033 ± 17	1190–1050	1210–1015	animal bone
83/5	LeA-2284	pit	2993 ± 17	1265–1200	1370–1125	animal bone

Table 4. Radiocarbon dates from the Maklár-Nagyrét settlement

Most of the dated samples specifically from the cemeteries were calcined during the cremation process of the deceased, therefore, their interpretation requires caution, owing to the calcification and other environmental carbon, occurring concurrently with the burning. Cremated bones were preferred to date the burials, because they are certainly linked to the context and if fully calcinated, they are highly resistant to post-depositional contamination. Nevertheless, the dating of calcined bone samples has changed, recently due to the development techniques, using accelerator mass spectrometry (AMS) (Major et al. 2019). Accordingly, several studies confirmed that dating cremated and calcined bones propose reliable ages (Major et al. 2019; Olsen et al. 2008; Starkovich et al. 2013; Duffy et al. 2019). On the other hand,

charcoal carries a risk of being intrusive or residual, specifically shallow or disturbed graves (just as many burials in the Maklár-Nagyrét II. cemetery).

In the interpretation the absolute dates from the Maklár cemeteries, the ^{14}C results were analysed using Bayesian modelling and were compared to nearby cemeteries with available radiocarbon dates, such as Jánoshida-Berek (Csányi 2019) and Tiszafüred-Majoroshalom (Dani et al. 2024; Kovács 1975). Besides the Bayesian modelling, KDE Plot function was also used to analyse the data. This is used to summarize large datasets of radiocarbon dates and analyse the density of probability distribution, while removing the noise from the calibration curve (Bronk Ramsey 2017). Furthermore, this allow investigating the probability distribution of the activities. KDE Plot was used to highlight the utilization of the two Maklár cemeteries and to compare them with two contemporaneous burial grounds from the Northern Great Hungarian Plain, at Jánoshida-Berek (Csányi 2019) and at Tiszafüred-Majoroshalom (Dani et al. 2024). Moreover, a selected dataset from Middle and Late Bronze Age sites from the Northern Great Hungarian Plain were modelled by KDE Plot in Oxcal 4.4.4 software using the IntCal20 calibration curve (Bronk Ramsey 2017; Bronk Ramsey 2009; Reimer et al. 2020). In this KDE Plot, the following sites were chosen for the Northern Great Hungarian Plain Füzesabony dataset (altogether 75 samples): Emőd-Nagyhalom (Kienlin et al. 2019), Füzesabony-Öregdomb (Raczky et al. 1992), Füzesabony-Pusztaszikszó (Kiss et al. 2019), Gelej-Beltelek-dűlő (Kiss et al. 2023), Gelej-Kanális-dűlő (Kiss et al. 2023), Mezőcsát-Laposhalom (Kienlin 2018), Polgár-Homokdűlő (Raczky et al. 1992), Polgár-Kenderföld (Raczky et al. 1992) and Tiszafüred-Majoroshalom (Dani et al. 2024). For the Northern Great Hungarian Plain Tumulus dataset Jánoshida-Berek (Csányi 2019), Maklár-Koszpérium, Maklár-Nagyrét II. and Tiszafüred-Majoroshalom (Dani et al. 2024) were used (altogether 47 samples). And finally, for the Northern Great Hungarian Plain Piliny, Maklár-Nagyrét and Maklár-Nagyrét II. were chosen (altogether 5 samples), since only a few Piliny culture absolute dates are known, specifically in Northeastern Hungary.

RESULTS

In the analysed Maklár-Nagyrét II. cemetery, the oldest radiocarbon data is the grave 225, dated between 1740–1610 cal BC with 68.3% probability, while the youngest ones are the grave 47, dated between 1400–1220 cal BC (68.3% probability) and the grave 84 between 1400–1210 cal BC (68.3% probability). Nonetheless, the majority of the absolute dates falls between 1550–1350 cal BC.

In the Maklár-Koszpérium cemetery, the oldest radiocarbon date came from grave 136, dated between 1535–1460 cal BC, while the youngest absolute dates can be dated between 1265–1130 cal BC from graves 81 and 86 (each with 68.3% probability).

In order to emphasize the chronological position of the cemeteries, their radiocarbon dates had been modelled in the same model (Fig. 4). It must be noted that the radiocarbon date of grave 225 from the Nagyrét II. cemetery was excluded from this model, since it is an outlier and the model did not have any difference with or without it, only the level of agreement was lower. This model from the two cemeteries sequences presents a high level of agreement (A_{model} = 89.9%).

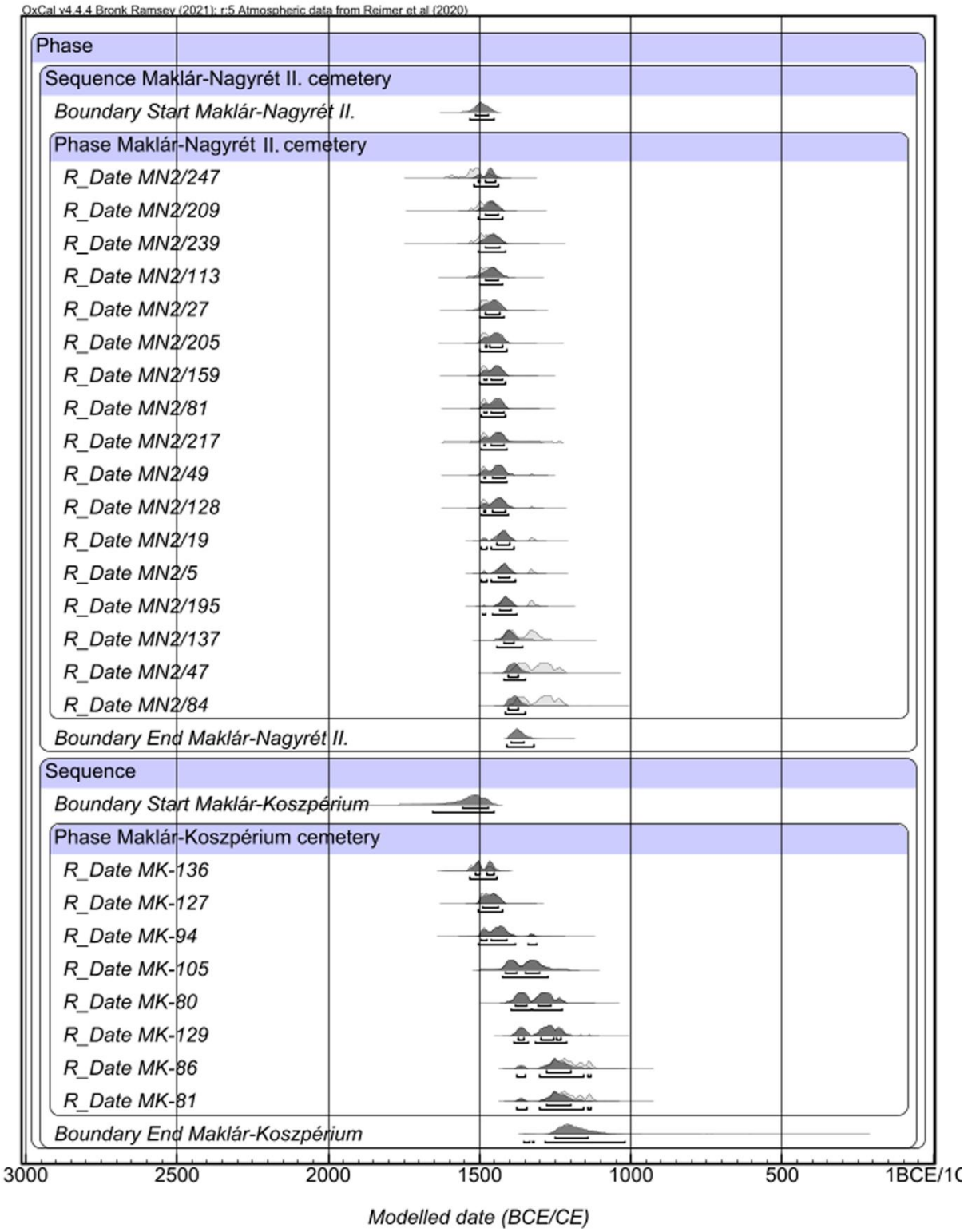

Figure 4. Radiocarbon model of the Maklár-Nagyrét II. and Maklár-Koszpérium cemeteries

The start of the Koszpérium cemetery can be dated between 1560–1470 cal BC, the end of the cemetery between 1250–1140 cal BC, so the timespan of this cemetery between 220–310 years, each with 68.3% probability (Fig. 5). The start of the Nagyrét II. cemetery can be dated between

1515–1470 cal BC, the end of this cemetery between 1400–1355 cal BC, therefore, the timespan can be placed between 75–140 years, each with 68.3% probability (Fig. 6).

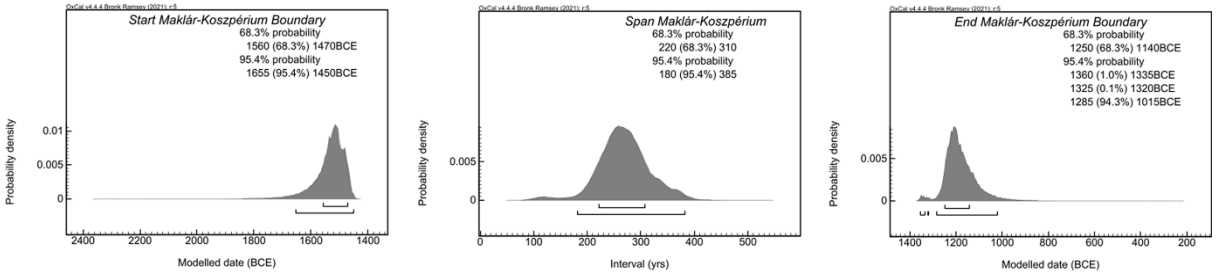

Figure 5. The start, the span and the end of the Maklár-Koszpérium cemetery

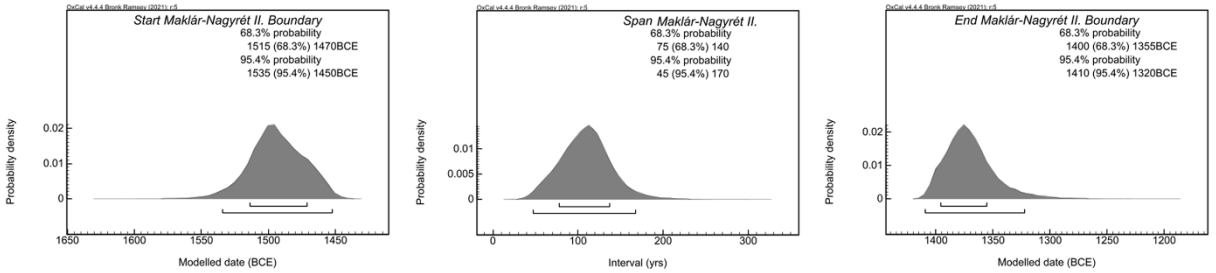

Figure 6. The start, the span and the end of the Maklár-Nagyrét II. cemetery

On the Maklár-Nagyrét settlement, the earliest absolute date can be placed between 1375–1230 cal BC, the second one between 1265–1200 cal BC and the youngest between 1190–1050 cal BC, each date with 68.3% probability (Fig. 7). The radiocarbon dates from the Maklár-Nagyrét II. settlement can be dated between 1260–1125 cal BC and 1115–1005 cal BC, both with 68.3% probability (Fig. 7).

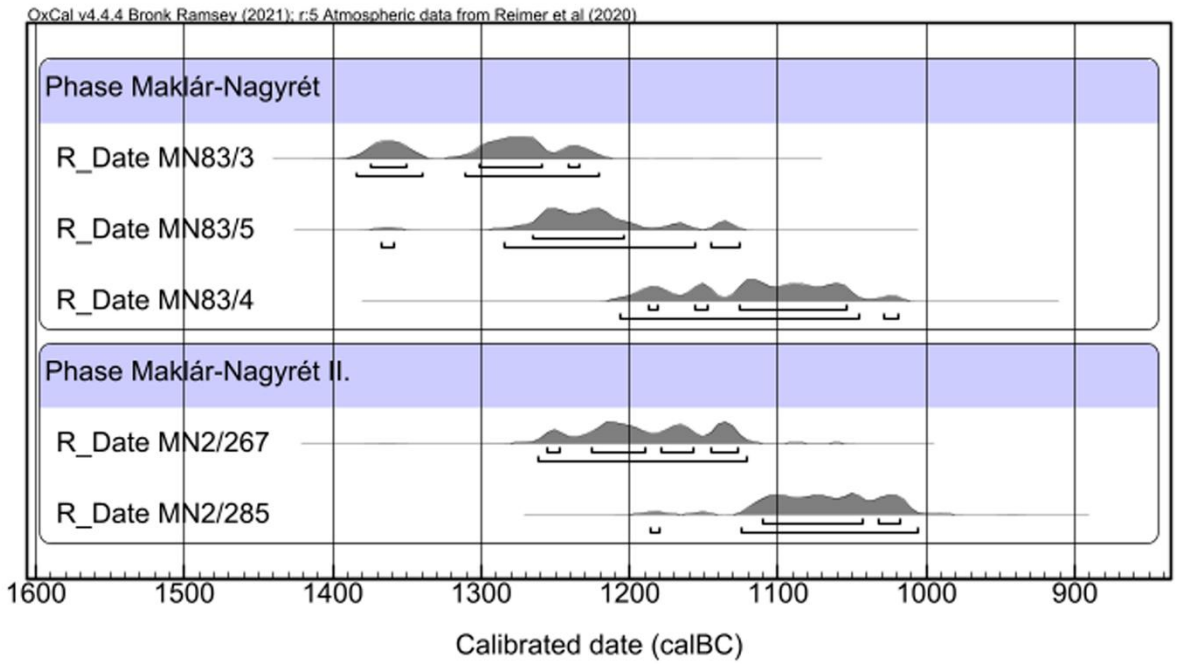

Figure 7. Radiocarbon dates from the Maklár-Nagyrét and the Maklár-Nagyrét II. settlementts

The KDE Plot of the Tumulus culture cemeteries of Jánoshida, Tiszafüred and the two Maklár cemeteries shows similarities and differences (Fig. 8). After the increase around 1550 BC, the Jánoshida sequence reaches its peak at around 1450 BC and a decline at cca. 1350 BC. The Tiszafüred-Majoroshalom sequence increases also from 1550 BC until its peak around 1420 BC and a slow decline at cca. 1200 BC. The Maklár-Nagyrét II. plot is very similar to Tiszafüred, with an increase around 1550 BC, a peak at 1450 BC and a decline around 1250 BC. The Maklár-Koszpérium sequence began to increase around 1600 BC, reaches its peak around 1450 BC, then a plateau between 1450 and 1250 BC and a decline at 1150 BC.

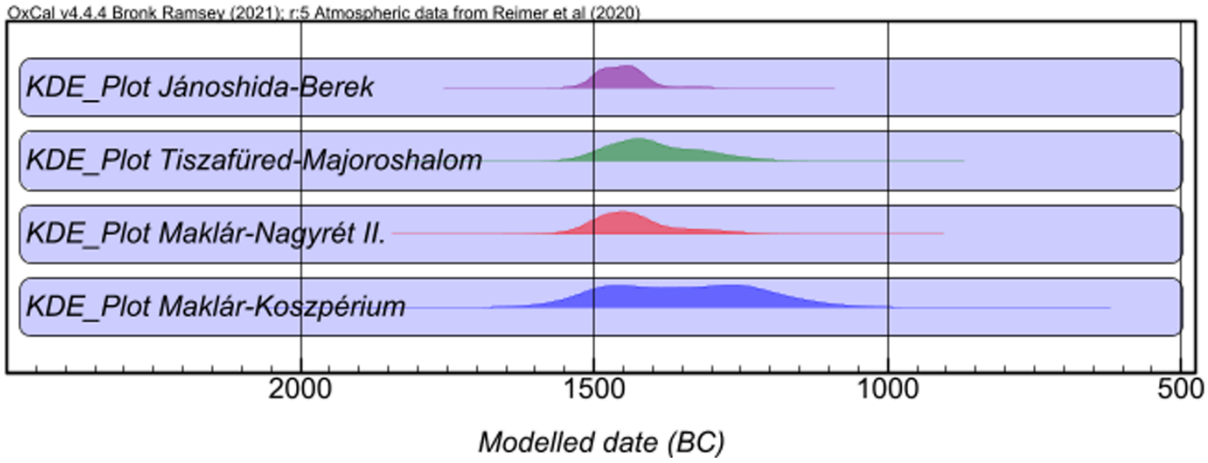

Figure 8. KDE Plot from Tumulus culture cemeteries at Jánoshida-Berek (Csányi 2019), Tiszafüred-Majoroshalom (Dani et al. 2024), Maklár-Nagyrét II. and Maklár-Koszpérium

The KDE Plot of the Middle Bronze Age Füzesabony at the Northern Great Hungarian Plain sequence begin to increase around 2100 BC, and slowly growing until around 1750 BC, then a decline began, and the sequence ends around 1450 BC. The Tumulus culture sequence began to increase around 1575 BC, reaches its peak around 1430 BC, and after a slow decline this ends around 1200 BC. The Piliny sequence began to increase around 1450 BC, reaches its peak cca. 1300 BC, then a plateau follows between 1300 and 1100 BC, and it ends around 950 BC.

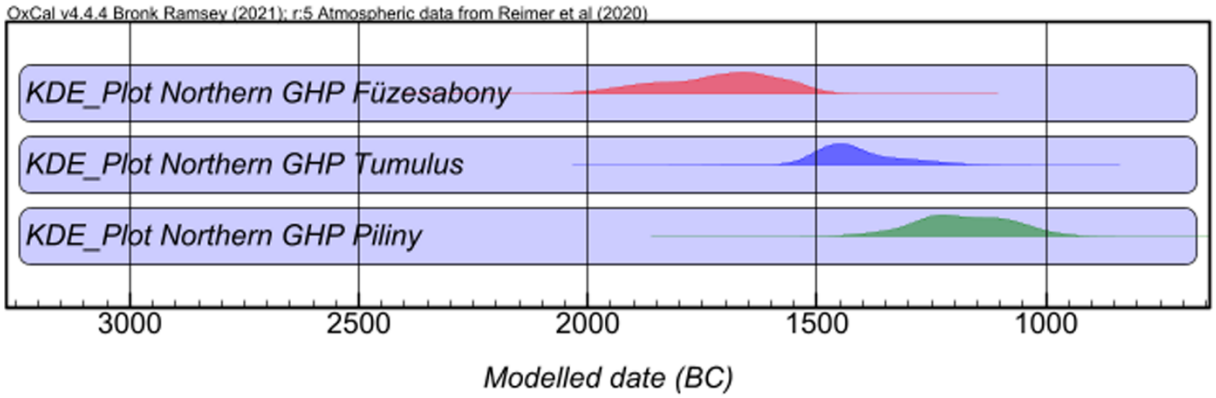

Figure 9. KDE Plots from the Northern Great Hungarian Plain from Füzesabony, Tumulus and Piliny culture sites

DISCUSSION

Regarding the absolute and relative chronology of the Maklár cemeteries, the majority of the radiocarbon dates fits well with the relative chronology, dating the graves between 1550–1300 cal BC, to the Reinecke BzB2–C periods. However, there outliers within the absolute dates, such as the grave 225 at Maklár-Nagyrét II. and the Maklár-Koszpérium cemetery that is lasted based on the ^{14}C dates. The oldest radiocarbon date from the analysed Maklár sites is the scattered cremation grave 225 from the Maklár-Nagyrét II. cemetery. It can be dated between 1740–1610 cal BC with 68.3% probability. This data is the oldest, although the pottery, found within the human remains are very similar to the scattered cremation burials of no. 75 and 101 at the Middle Bronze Age, cemetery of Vatta-Telek-oldal-dűlő. These burials are classified as scattered cremations of the Late Hatvan culture (Fischl et al. 2019). The raw materials of these vessels containing bigger sized rock fragments in higher quantity that providing a very similar look to them macroscopically (Fig. 10). Both the Maklár and Vatta vessels are under

petrographic investigation recently that might provide further important data about their raw materials and dating.

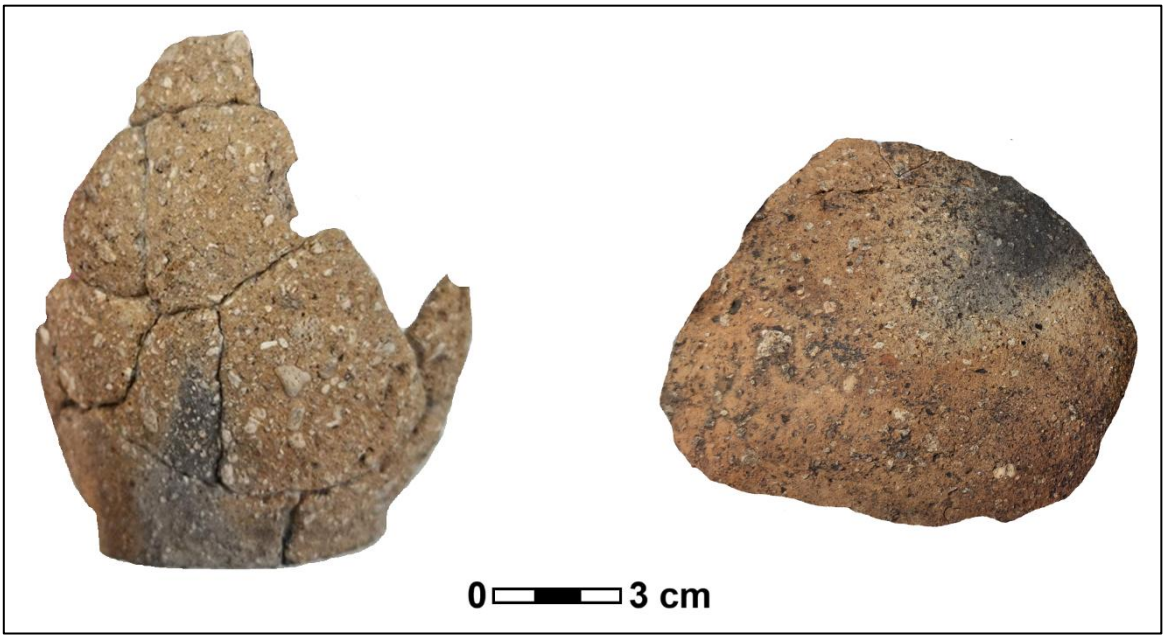

Figure 10. On the left: vessel from grave 75 of Vatta-Telek-oldal-dűlő; On the right: vessel from the grave 225 of Maklár-Nagyrét II.

According to the absolute dates, there are no chronological difference between the different parts of the Maklár-Nagyrét II. cemetery. Two ring-ditch burials, graves 113 and 239 from cremated bones, from Maklár-Nagyrét II., can be dated to 1505–1445 cal BC and 1540–1455 cal BC. From the Maklár-Koszpérium cemetery, one ring-ditch burial was analysed from charcoal sample, dated between 1535–1460 cal BC. These dates suggest that ring-ditch burials can be the oldest Tumulus culture graves, dated around or slightly before 1500 BC. This observation fits well with other absolute dates from Central Europe (Bátora 2012; Csányi 2019; Szilas 2017). Based on the radiocarbon models, the beginning of the cemeteries can be placed between 1560–1470 cal BC in both cases. However, the end can be dated between 1400–1355 cal BC at the Nagyrét II. and 1250–1140 cal BC at the Koszpérium cemetery.

According to the KDE Plot analysis, the Tumulus culture cemeteries in the Northern Great Hungarian Plain started around 1550 BC, but their end in some cases can be placed probably before 1300 BC or around 1250/1200 cal BC.

The habitation of tell settlements in the Carpathian Basin can vary, since there are tells that have been abandoned before 1600 BC and there are tells with longer habitation, some until the end of the Koszider period (P. Fischl et al. 2013; Staniuk 2021; Gogâltan 2017). This fact can

be true in the case of the tell settlements at the Borsod plain region (Kienlin et al. 2018). Therefore, the ideal would be the comparison of the Maklár Late Bronze Age absolute dates with the Maklár-Baglyashalom tell settlements, which is located cca. 2 km away from the Late Bronze Age sites (Fig. 1). However, there is another factor that must be consider during the absolute dating of tell settlements, namely that the upper layers of these settlements can be disturbed or destroyed owing to the erosion and/or the modern agricultural activities. Recently, the closest tell settlements to Maklár with absolute dates are Füzesabony-Öregdomb (Raczky et al. 1992) and Emőd-Nagyhalom (Kienlin et al. 2019). On Füzesabony-Öregdomb, the youngest radiocarbon date can be placed between 1736–1622 cal BC (68.3% probability) (Raczky et al. 1992). On the tell settlement of Emőd-Nagyhalom, a systematic core drilling programme was carried out by the BORBAS project, in order to investigate the stratigraphic sequence of the ditch and to provide radiocarbon dates from the cores (Kienlin et al. 2019). These data must be considered with special caution, since they were obtained from the fillings of the tell settlement's circular ditch and not from exact archaeological features. The youngest radiocarbon date from this site can be dated between 1746–1665 cal BC (68.3% probability) (Kienlin et al. 2019). Based on the core drilling data, this settlement could have been abandoned during the 17th century BC or somewhat later (Kienlin et al. 2019). Based on these data, the continuity between the Füzesabony and Tumulus cultures is not obvious. According to the regional KDE plot however, that included not just the absolute dates of tell settlements, but also the cemeteries, such as Tiszafüred or Gelej. In this KDE plot, comparing the Füzesabony, Tumulus and Piliny cultures, there could be continuity between the Füzesabony and the Tumulus culture periods and also between the Tumulus and Piliny culture, indicating continuity of habitation in this region.

It is important to discuss some of the well-datable finds, namely bronze grave goods from the cemeteries. One of the most remarkable ones is the bronze buttons/tutuli in grave 51 from the Maklár-Koszpérium cemetery (Fig. 11). Almost 80 pieces were found in the urn, within the cremated human remains. Their diameter varying between 0.4 and 0.7 cm, and their heights between 0.5 and 0.9 cm, but lots of them are broken or melted, owing to the cremation probably. These buttons/tutuli could have been weaved into clothes, such as a skirt or maybe into a headdress. The shape and the size of these artefacts are unique, and only one analogy was found, namely 511 similar bronze buttons/tutuli were found in the second hoard of Včelince, dated to the Koszider period (Furmánek and Marková 1996; Gavan 2015; Görsdorf et al. 2004). Včelince is located at the Northern side of the Bükk mountains, in beeline cca. 65 km away to

the North from Maklár. These are the only known analogy to the Maklár-Koszpérium finds, not just in the Carpathian Basin, but in Central Europe (Gavan 2015), indicating regional contacts.

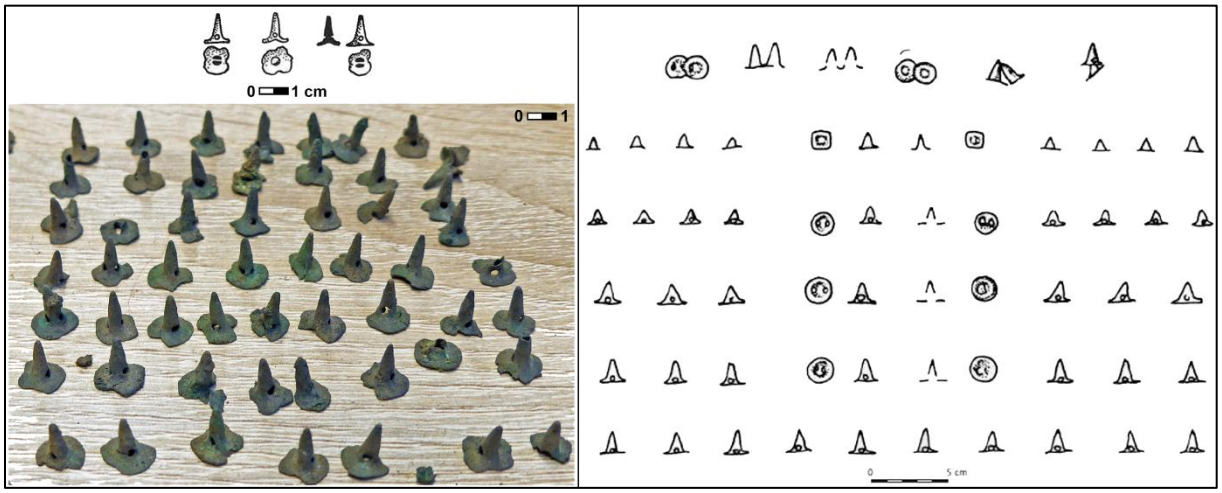

Figure 11. On the left: drawings and photos of bronze buttons/tutuli from grave 51 at Maklár-Koszpérium; On the right: drawings of bronze buttons/tutuli from the second hoard of Včelince (after Furmánek and Marková 1996)

Arm-guard spirals that were found in the Koszpérium cemetery (Mengyán et al. 2024), which firstly appeared in the second half of the Middle Bronze Age and analogies are known from Dunaújváros, Spišský Štrvtok, Včelince and Vărşand (Gavan 2015). These artefacts remained in use during the Late Bronze Age and can be found mostly in hoards (Gavan 2015). The disc-headed pins from the Maklár cemeteries and the stone mould of a disc-headed pin from the feature 285, dated between 1115–1005 cal BC, from the Maklár-Nagyrét II. settlement indicating that this type of pin was used continuously for more hundred years. The possible fragment of a sickle-shaped pin in grave 136 in the Maklár-Koszpérium cemetery, fits well with the absolute date of 1535–1460 cal BC.

Other metal artefacts from the cemeteries, such as horseshoe and simple crescent shaped pendants, disc-shaped pendants with concentric ribs, roll-headed pins, spiral-ended finger-rings, armrings with “V” shaped or round cross section, three or five ribbed armrings, short-sword and buttons are not chronologically well-datable, since the majority of them appeared in the Reinecke BzB period and were used until the Reinecke BzC/D periods or beyond (Gavan 2015; Pásztor et al. 2023; Točík 1964). And finally, the graves with blue glass beads are neither chronologically specific in the Maklár-Nagyrét II. cemetery.

The oldest absolute date from settlement context at Maklár suggest that Piliny style pottery appeared around 1375 cal BC, including graphite coated fine wares. This date is slightly earlier than the general appearance of graphite coated pottery at the Great Hungarian Plain, which is usually dated at the second half of the 13th BC (Kreiter et al. 2014). Based on the radiocarbon dates at Maklár, the Tumulus style pottery remained in use simultaneously with the Piliny style pottery. Particularly, since the pre-Gáva period begin around 1300/1200 BC and the two major components of the pre-Gáva pottery style are the Piliny style fine wares and vessels that are originating from the Tumulus pottery style (V. Szabó and Váczi 2023). The pre-Gáva period at Maklár last until cca. 1000 cal BC. Based on pottery style, the excavated settlement part at Maklár-Nagyrét II. belonging to the pre-Gáva period. However, this is possible that the life of this settlement might begin earlier, probably during the Tumulus period. Only the southwestern area of the settlement was excavated, approximately the quarter of the settlement could have been excavated, and the cemetery and the settlement are spatially separated and not overlapping. Thus, it is possible that there could be Tumulus culture features of the settlement. That is also possible that there are younger graves in the cemetery that were not found on the excavation areas. There could be also a recently unknown Piliny-influenced cemetery at Maklár. However, only a few cemeteries are known on the Great Hungarian Plain during the pre-Gáva period, after 1300 BC, such as Gelej-Kanális-dűlő (P. Fischl and Gucsi 2023) and Jászberény-Cserőhalom (Kemenczei 1966).

CONCLUSION

Based on the absolute dates and the relative chronology, the Tumulus culture appeared at Maklár around 1550 cal BC, just as on other sites at the Northern Great Hungarian Plain. The two cremation cemeteries, Maklár-Nagyrét II. and Maklár-Koszpérium were used simultaneously, although according to the radiocarbon modelling, the Nagyrét II. were in use until cca. 1400–1355 cal BC, while the Koszpérium were longer used, until cca. 1250–1140 cal BC. This difference, however, cannot be observed in the pottery or bronze finds.

At Maklár, Piliny style pottery, including graphite coated fine wares appeared around 1375 cal BC. This suggest that the Tumulus and Piliny style pottery were used at least partly at the same time. The Maklár-Nagyrét II. settlement material can be characterized by primarily the Piliny and secondly the Tumulus pottery style and also by pre-Gáva characteristics.

After around 1300 cal BC, the pre-Gáva period begun, and based on these absolute dates, this period lasted around 1050/1000 cal BC at Maklár. On the Maklár-Nagyrét II. settlement, most of the ceramic assemblage can be dated to this period. Nevertheless, it is possible that the

settlement started earlier, during the Tumulus culture period, but on the excavated area (at southwestern edge of the settlement) features from this period was not found.

Finally, it is probable that there could be a continuity on the Northern Great Hungarian Plain between the Middle and Late Bronze Age. However, for the most precise analysis of this question, absolute dates are needed from the tell settlement of Maklár-Baglyashalom too, since this is the closest known Middle Bronze Age tell settlement to the Late Bronze Age sites. Moreover, it can be certainly said that the area of Maklár was occupied continuously during most of the Late Bronze Age, between 1550–1000 cal BC.

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Private or public? A micro-archaeological study of the large-scale storage facilities at Tel Tsaf, Jordan Valley, Israel

Abstract

The aggregation of surpluses and wealth and the transition to complex societies in the Near East have long been at the centre of scholarly discourse. However, in most cases, discussions were mainly centred around the Bronze Age and later periods. Tel Tsaf (Jordan Valley, ca. 5,200-4,700 cal BC), with its superb preservation of organic materials and storage facilities, offers ideal conditions to study micro- and macro processes pertaining to the accumulation of agricultural yields and their organisation by the community. The current research focuses on these storage facilities and attempts to provide preliminary data on whether these were controlled by nuclear or extended families or by the community as a whole, using micro-archaeological tools and archaeobotanical analyses. The requested funds will be directed toward retrieving new, contextual field data regarding the establishment, context and use of the Tel Tsaf silos, which are still preserved at the site and attempting to obtain comprehensive datasets pertaining to the floral resources that were stored in them.

Project Need

Silos for grain storage have been an essential aspect of all agricultural communities throughout the ages, and these facilities have long been claimed to have a key role in the transition to social complexity and the transition to urbanism (*e.g.,* Childe 1950). Generally, when the amount of stored grain is larger than that necessary for the consumption of the people harvesting it (harvested crops must be kept for at least a year until the next harvest), a surplus is created. Agriculture surplus can become a commodity (which can be exchanged for other products) and is one of the major components that allow for wealth accumulation, the development of full-time craft specialisation and socially stratified societies (*e.g.,* Beedle 2001; Pfälzner 2002).

Historically, the first stage in the accumulation of wealth in human history, was the production of agricultural surpluses, in the form of grains and livestock. Tel Tsaf in the Jordan Valley, Israel (Fig. 1), provide ample evidence for large-scale storage and suggested feasting (Ben-Shlomo *et al*.

2012; Garfinkel *et al*. 2009). Large-scale excavations exposed 19 rounded silos, most of which were found in a single courtyard building (courtyard building CI, see below). The silos, which vary in number and size, are located within large open courtyards. They are well-built mud-brick installations, 1-4 meters in diameter, with thick paved floors and rounded plastered walls.

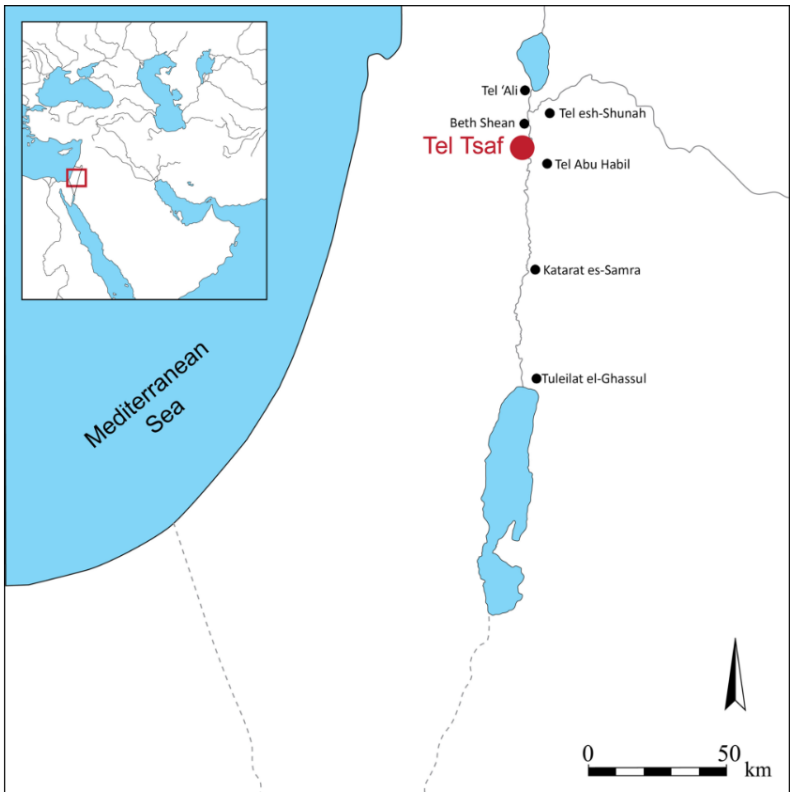

Figure 1. The location of Tel Tsaf.

While in the past specific interpretative directions were suggested to explain this large-scale storage within a single building, suggesting the accumulation of wealth by an elite family (Garfinkel *et al*. 2009), the missing contextual data prevents a coherent evaluation of these suggestions. Moreover, the lack of solid stratigraphic relations between the silos and other buildings and features also prevents alternative explanations. It cannot be determined whether the storage was organised by the community (public) rather than "private" agents. Furthermore, we lack a clear understanding of what was stored as only limited samples from these features were collected during the 2004–2007 excavations and no samples from their immediate surroundings (Garfinkel *et al*. 2020).

Project History

Tel Tsaf, a ca. five hectares (Garfinkel *et al.* 2020; Horn *et al.* 2019), is located near the city of Beit Shean (Israel new grid map reference 252360.701506) and is dated to ca. 5,300/5,200–4,700

cal BC (Garfinkel *et al.* 2009, 2020; Klimscha and Rosenberg 2019; Rosenberg and Klimscha 2018; Rosenberg *et al.* 2014, 2020; Streit and Garfinkel 2015). It was first identified in the 1950s (Tzori 1958) with small-scale excavations (ca. 100 m^2) conducted from 1978–1980 (Gophna and Sadeh 1988–1989), and from 2004 to 2007 when approximately 800 m^2 of archaeological remains were exposed (Garfinkel *et al.* 2009, 2020). The current project, initiated in 2013, aimed to explore human-environmental interaction and its social, economic, and culinary attributes, more specifically, the establishment of the Mediterranean diet in the region and its contextual, social, and ecological settings (Rosenberg and Klimscha 2018; Rosenberg *et al.* 2014, 2017, 2020).

The remains of four large courtyard buildings were found in the main excavation area (Area C, Buildings I–IV), as well as many other wall segments and various installations. Most of the latter are silos (Fig. 2) and cooking facilities. Several occupation layers were noted, with no clear architectural features in Area E (Rosenberg *et al.* 2014; Rosenberg *et al.* 2021).

Figure 2. Tel Tsaf Area C, Building CI, with some of the silos surrounding Room C70.

Five burials have been discovered so far in Area C, four of which located in and around the silos (Garfinkel *et al.* 2009). One burial, in Building CI, contained a female skeleton with hundreds of ostrich eggshell beads arranged in a chain around her waist and a small copper awl, which was later identified as the earliest evidence for metallurgy in the southern Levant (Garfinkel *et al.* 2014). Other finds include objects indicative of long-distance trade, such as obsidian, Ubaid pottery, olivine and obsidian and other beads of various minerals, shells from the Nile River and the Mediterranean Sea, and non-local figurines (see also Garfinkel *et al.* 2009; Rosenberg and Klimscha 2021; Rosenberg *et al.* 2017, 2020). Of the most spectacular finds revealed at the site, are cotton fibres, probably originated from Pakistan.

With its superb preservation of mudbricks silos (Garfinkel *et al*. 2009, 2020; Rosenberg *et al.* 2020) and organic materials (*e.g.,* Chasan *et al.* 2021; Graham 2014; Rosenberg *et al.* 2021), Tel Tsaf is currently the best site in the southern Levant for testing the links between large-scale storage and the possible control of elite or other social groups over surplus production at the onset of social complexity in the region.

Project Goals

The main aim of the suggested research is to provide high-quality, contextual and biological datasets that will provide stable grounds for analysing the link between large-scale storage and the control of resources during the early phases of social complexity in the southern Levant. To that end, we aim to conduct focused research on the context and use of the Tel Tsaf silos. By exploring these features (formation, building technology, taphonomic aspects), use (botanic remains), and their yet unexplored immediate vicinity (stratigraphy, context), we will be able to drew a more coherent and accurate picture of the link between these and other contexts at the site.

In turn, and through a multidisciplinary, high-resolution examination of these features, the results of our study will enable a better understanding of the shifting control over food resources and the accumulation of wealth in the southern Levant. The proposed research is designed to achieve the following objectives within the time frame of the project: **1**) Provide high-resolution contextual and biological evidence for the formation, use and context of the Tel Tsaf silos; **2**) Analyse the link between these storage installations and other defined features at the site; **3**) Compare our results with related sites in the Near East and re-think the role of storage in early agrarian societies.

Our working hypothesis is that the suggested interpretation for the reason behind the aggregation of storage facilities in Building CI and other buildings at Tel Tsaf, which was suggested in the past (Garfinkel *et al*. 2009), is only one of the possible scenarios that we need to consider. Using high-resolution, state-of-the-art excavation methodologies, we will be able to paint their significance for the Tel Tsaf communities with a fine brush stroke.

Project Methodology

To be able to extract the datasets required for the role and significance of the Tel Tsaf silos and their link to specific strata and features, we intend to sample eight silos in Area C that are still visible today (preserved on various levels) using high-resolution excavation methodologies that will enable spatial and stratigraphic controls, and maximal retrieval of seeds and starch remains from the silos and their vicinity.

We will excavate (Fig. 3) around the silos to establish their context and relation with other features, and within the silos, focusing on the mudbricks floors, plaster linings and foundations in order to provide a better understanding of building techniques (and if different techniques were used to build different silos). We will also target the retrieval of botanical remains, both seeds and starches, from the silos (i.e., from sediment pockets between or under the bricks) and round them in order to assist in creating the link between the silos and their surroundings (similar results will be used to strengthen the spatial and stratigraphic link between the silo and its vicinity).

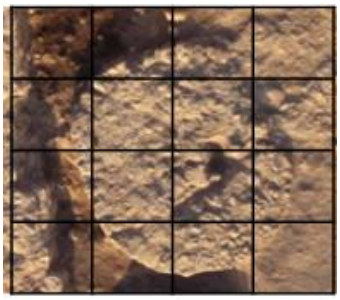

Figure 3. Tel Tsaf, Building CI: A sample silo and the divisions of the planned excavation units (each 0.5×0.5 m).

Our field methodology for the current study will include small, 0.5×0.5 m excavation units, sifting in 2.0 mm sieves, total station-based recording, and the use of GIS software (ArcGIS) and drone-based photogrammetry. Sediment analysis with the aid of microscopy, FTIR, and portable XRF will be conducted to help distinguish and define features. Intensive C_{14} sampling will be performed during this stage, and the procedure will include sample pre-screening and context characterisation in the field. Intensive soil sampling and rigorous flotation protocols will ensure the retrieval of botanic remains and starches. An excavation permit from the Israel Antiquities Authority is already issued for 2023, and the 2024 license will be issued in December 2023.

Project Timetable

The 2024 Tel Tsaf fieldwork is planned for ten field days (April 2024). The following lab work will commence in May 2024. The aim is to draft the final report in November 2024 and submit the results for publication in 2025.

Budget

The total request from the *Foundation for the Study and Preservation of Tells in the Prehistoric Old World (FSPT)*: €20,000. The funds will be directed toward the 2024 fieldwork and the following botanical analyses (starch and seeds). Excavations will focus on the actual silos and their immediate surroundings in order to place these in the wider context and establish their content. We will look at these facilities' history and will seek to find botanical evidence from their bases

and immediate vicinity alike. The duration of the 2024 excavation season is set for ten focused workdays. The crew comprises ten students and staff members (international and Israelis). The PI will be responsible for carrying out the various steps in both fieldwork and the proceeding laboratory research. The PI will dedicate an adequate amount of time to ensure the efficient execution and accomplishment of this multidisciplinary research. None of the sums requested were covered by previous funding granted to the Tel Tsaf project.

Item Description	**Total**
Excavations	
Accommodation and board for a crew of 10 during the field days (10 days, €450 /night in multiple bedrooms at Kibbutz Kfar Rupin), including working facilities, field lab and storage rooms.	**4,500**
Rental car x 2, 10 days, €100 a day (including gasoline, oil, and related unexpected maintenance costs)	**2,000**
Chemical toilet	**500**
Laboratory	
Starch analysis (including materials and consumables)	**7,000**
Botanical analyses (seeds)	**6,000**
Total (€)	**20,000**

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Details of the professional experience and qualifications of staff and specialists.

Prof. Rosenberg was until recently the head of the Department of Archaeology at the University of Haifa, co-editor of the Journal of the Israel Prehistoric Society (JIPS), and he is the head of the Laboratory for Ancient Food Processing Technologies (LAFPT) at the Zinman Institute of Archaeology. He is an experienced archaeologist specializing in the prehistory of the southern Levant and is training and supervising research students and post-doctoral Researchers. Prof. Rosenberg has intensive archaeological experience, and has led many projects in the field and his archaeological laboratory, including provenance and use-wear studies. Prof. Rosenberg is also the chair of the Association for Ground Stone Tools Research (AGSTR) and has collaborated with many researchers over the years.

A partial CURRICULUM VITAE – Prof. Danny Rosenberg

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FOUNDATION FOR
THE STUDY AND PRESERVATION OF TELLS
IN THE PREHISTORIC OLD WORLD

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199 Abba Khousy Ave. Mount Carmel
Haifa, 3498838
Israel

25.01.2024

Subject: Private or public? A micro-archaeological study of the large-scale storage facilities at Tel Tsaf

Dear Prof. Rosenberg,

following the recent meeting of our boards, I would like to let you know that your proposal 'Private or public? A micro-archaeological study of the large-scale storage facilities at Tel Tsaf, Jordan Valley, Israel' has found unanimous approval regarding the aims and the quality of your work proposed and your project's match with the purpose of the foundation's statutes.

We are pleased, therefore, to inform you that the foundation is ready to support your work in 2024 with funds amounting to **5.500** Euro for expenses as stated in your application and budget calculation.

Funding is subject to your written acceptance of our funding guidelines and general information for applicants attached to this letter. Please note, in particular, our invoicing regulations, and that we require receipts for all travel and material expenses *etc*. granted.

A final report and settlement on your work is to be submitted at the latest six weeks after expiry of the funding period, *i.e*. by February 2025.

We would also kindly ask you to let us have a short text (*c*. 1–2 pages) and a couple of images for the presentation of your new project part in the ‘funded projects’ section of our homepage.

Should you have any questions please do not hesitate to get in touch.

We wish you every success in your work on this project and remain with best regards,
yours sincerely,

Prof. Dr. Tobias L. Kienlin
(Chairman)

Attachment: Funding Guidelines and General Information for Applicants (2024_25 version)

UNIVERSITY OF HAIFA
ACCOUNTANT UNIT

אוניברסיטת חיפה
יחידת החשבות

Debit - invoice 1600001515

Copy of the original

Dear,
FSPT
Neuffenstraße 57
Esslingen am Neckar 73734
Germany

Date: 25/02/2024
Account No.: 1068220212

funds call 1.2.2024-31.1

Description	Baseline Date	Calc.Date	Quantity	Unit Price	Currency	Amount
funds call for the entire period			0.000		Euro	5,500.00
					Total	5,500.00
					Vat	0.00
					Total payment	5500.00

Due Date	Sum
10/04/2024	5500

For further inquiries: POLLY TOURK Phone: 04-8240549

The university is exempt from withholding tax

Please send checks to the treasurers of the University of Haifa

Bank transfer Please transfer to Bank Hapoalim (12) Branch 562 Account 97171

According to the approval of the Ministry of Finance 500701628

Deductions file: 907534952

Sincerely,

Haifa University

Financial Report

For: The Foundation for the Study and Preservation of Tells in the Prehistoric Old World **(FSPT)**

Research Grant: Private or public? A micro-archaeological study of the large-scale storage facilities at Tel Tsaf

PI: Prof. Danny Rosenberg, PhD

Expenses for the Period: Feb. 01, 2024 – Jan.31, 2025

Amount - EURO

No.	**Item**	**Expenses (€)**
1	Personnel – Hadar Ahituv	6,547
2		
3		
	Total	**€6,547**

I hereby confirm that to the best of my knowledge, all the information in the invoice, which is based on this financial report, is adequate and relevant to the research.

P.I. Signature: Danny Finance Officer: _____

Date: June 12, 2025

Antrag für eine finanzielle Unterstützung der archäobotanischen Untersuchungen in Borsodivánka (Ungarn) – Proben aus den Kampagne 2023 sowie zusammenfassende Auswertung der Kampagnen 2015-2023

Tanja Zerl
Labor für Archäobotanik
Institut für Ur- und Frühgeschichte
Universität zu Köln
0221-470-5851
tzerl@uni-koeln.de

1. Einleitung

Seit 2012 werden von den Universitäten Miskolc und Köln, dem Herman-Otto-Museum Miskolc und dem Ungarischen Nationalmuseum Budapest im Rahmen des BORBAS-Projektes (Borsod Region Bronze Age Settlements) intensive siedlungs- und landschaftsarchäologische Untersuchungen auf Hatvan- und Füzesabony-zeitlichen Fundplätzen in der Borsod-Ebene sowie entlang der Ausläufer des Bükk-Gebirges im Nordosten Ungarns durchgeführt (u. a. Fischl et al. 2012; Fischl et al. 2015; Kienlin et al. 2018). Hierbei stehen gleichermaßen Fragen der inneren Struktur dieser früh- und mittelbronzezeitlichen Tellsiedlungen als auch der Gliederung der untersuchten Mikroregion im Mittelpunkt des Interesses. Zu diesem Zweck finden neben systematischen Surveys und geomagnetischer Prospektion Ausgrabungen an ausgesuchten Fundstellen statt; ebenso sind archäozoologische, geoarchäologische und archäobotanische Analysen in die Untersuchungen eingebunden.

2. Untersuchungen in Borosdivánka-Nagyhalom

Die Ausgrabungen im Rahmen dieses Projektes konzentrieren sich auf den Fundplatz von Borosdivánka-Nagyhalom (Abb. 1). Es handelt sich um eine bronzezeitliche Siedlung, die aus einem zentralen, mehrschichtigen Tell besteht, der von einem Graben umschlossenen ist; außerhalb des Grabens liegt ein äußerer Siedlungsbereich. Ihr gegenüber wurden während der Bronzezeit zudem weitere Standorte genutzt, so dass eine clusterartige Siedlungsform entstand.

Seit 2015 finden archäologische Ausgrabungen auf dem Tell statt. In den ersten zwei Kampagnen (2015/2016) wurde zunächst mit Hilfe einer Sondage im östlichen Randbereich die Schichtenabfolge untersucht. Hierbei zeigten sich u. a. Reste eines mehrphasigen Hauses, ein drüber liegendes Schichtpaket aus – wie u. a. mikromorphologische Untersuchungen zeigen

konnten (Röpke et al. 2016; Röpke et al. 2018) – Abfall- und Phytolithschichten; und auf diesem obenauf liegend erneut Reste eines Hauses. Anhand archäologischer Funde können diese Siedlungsschichten in die späte Füzesabony-Kultur datiert werden.
Ausgehendend von den im Profil dokumentierten Befunden wurde 2017 der Grabungsschnitt auf eine Fläche von 5 x 5 m in Richtung Tellmitte erweitert.

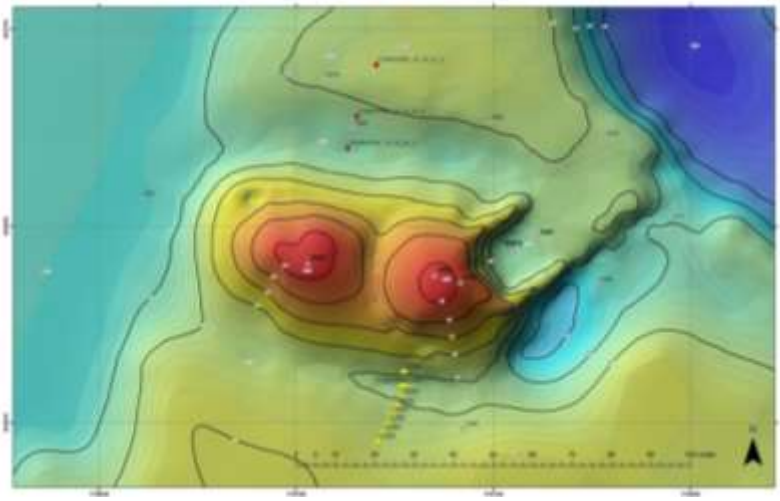

Abb. 1 Geländemodell von Borsodivánka-Nagyhalom. Die Lage des 2015/2016 untersuchten Profils liegt im östlichen Tell-Randbereich.

Abb. 2 Profil im Ostbereich des Tells von Borsodivánka.

3. Das archäobotanische Probenmaterial

Kampagnen 2015 und 2016

Während der Kampagnen in den Jahren 2015/ 2016 wurden u. a. aus der oberen Schuttschicht des älteren Hauses sowie aus den darüber liegenden Abfall- und Phytolithschichten, die als Aufträge oder eine Art Planierung gedeuteten werden können, neben kleinen Profilen für mikromorphologische Untersuchungen insgesamt 21 archäobotanische Bodenproben mit einem

Gesamtvolumen von 116 l Sediment geborgen. Die Proben wurden während der Grabungskampagnen in Ungarn bzw. in Köln mit Analysesieben der Maschenweiten 0,315 mm und 1 mm geschlämmt. Die Untersuchung und Bestimmung der separierten pflanzlichen Großreste erfolgte im Labor für Archäobotanik des Kölner Instituts für Ur- und Frühgeschichte.
In den Proben fanden sich knapp 3000 verkohlte und mineralisierte Pflanzenreste. Die Funddichten (Reste/Liter, n/l) der einzelnen Proben erweisen sich mit Werten von 0,55 n/l bis 174,29 n/l als recht unterschiedlich, der Durchschnitt liegt bei 24,8 n/l. Am fundreichsten war hierbei die Probe aus Schicht S7 mit 174,3 n/l.
Das dokumentierte Kulturpflanzenspektrum ist das für die Mittelbronzezeit regional typische (vgl. Guylai 2010; Stika/Heiss 2013; Filatova 2022): Es fanden sich Reste von mehrzeiliger Spelzgerste (*Hordeum vulgare* ssp. *vulgare*), Einkorn (*Triticum monococcum*), Emmer (*Tr. dicoccon*) und Dinkel (*Tr. spelta*) sowie Diasporen von Linse (*Lens culinaris*), Erbse (*Pisum sativum*) und Leindotter (*Camelina sativa*). Auffallend häufig waren mineralisierte Pflanzenresten, wobei sie in Schicht S7 einen Anteil von über 3 % haben. In dieser Schicht fanden sich ferner Reste der Getreideverarbeitung (Druschreste, Getreideunkräuter) und Nachweise typischer Grünlandtaxa; hinzu kommt eine sehr hohe Anzahl (> 1000) an Fischschuppen. Die Zusammensetzung von S7 zeichnet diese Schicht als Abfallschicht aus, deren hoher Phosphatgehalt (angezeigt durch mineralisierten Pflanzenreste und Apatit in den mikromophologischen Dünnschliffen) mit einem Eintrag von Dung erklärt werden kann.

Kampagnen 2017 und 2018

Ab Kampagne 2017 konnte die Grabungsfläche Richtung Tellmitte erweitert werden (s. o.). Im Zuge dessen wurde vor Ort entschieden, eine systematische Beprobung jeder Schicht (jeweils ca. einen Eimer Sediment) während des Abtrages vorzunehmen; bei flächigen Schichten (wie S7) sollte aus jedem zweiten 1 x 1 m Quadranten ebenfalls eine Bodenprobe gesichert werden.
In den Jahren 2017 und 2018 wurden insgesamt 34 Bodenproben aus den oberen Tellschichten mit einem Gesamtvolumen von über 170 l Sediment geborgen, die alle während der Grabungen in Ungarn geschlämmt wurden. Allerdings sind von diesen Kampagnen ausschließlich die Proben aus 2017 (n = 21) aussagekräftig, da jene aus 2018 leider nicht fachgemäß aufbereitet wurden. Das Spektrum der gefundenen Pflanzenreste (2017: n = 2366; 2018: n = 107) bestätigt vorerst das Bild der vorangegangenen Kampagnen; zudem konnte wohl noch Nacktweizen (*Triticum* cf. *aestivum* s.l./*durum*/*turgidum*) sowie ein mehrere Hundert Samen umfassender Leindotter-Massenfund (aus S1014) dokumentiert werden.

Kampagne 2020

Aus der Kampagne im Jahr 2020 stammten insg. 48 Bodenproben, wobei alleine 14 aus der fundreichen Abfallschicht S7 geborgen wurden. Die Proben stammen vorwiegend aus verschiedenen Schichten eines Hausgrundrisses sowie der darunter liegenden Abfall- und Phytolithschichten (Abb. 3) und hatten ein Gesamtvolumen von rund 244 l Sediment.

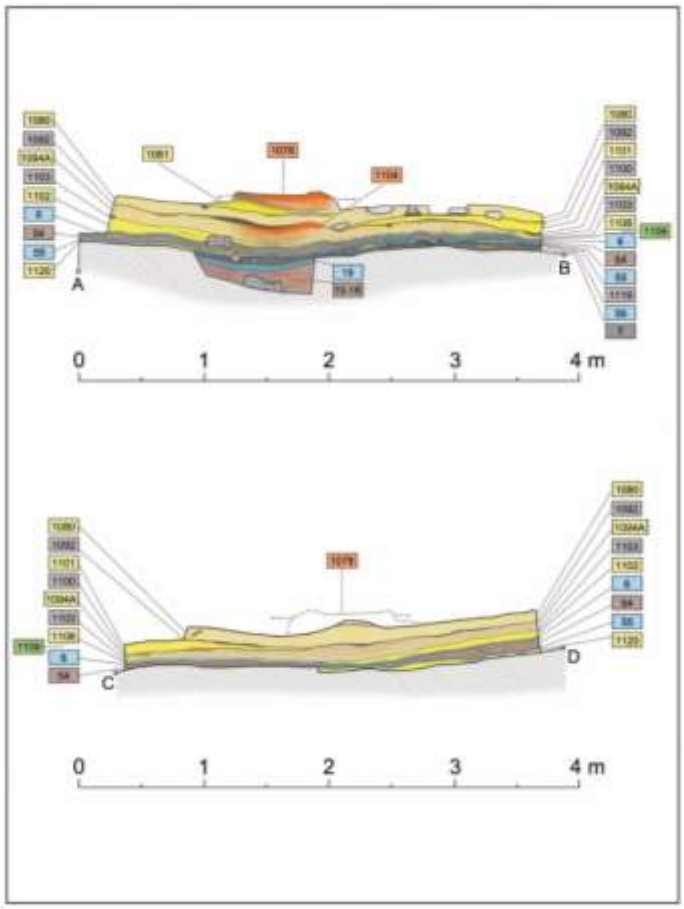

Abb. 3 Innere Stratifizierung des Hauses A (oberhalb S6) und den darunter liegenden Pytholith- und Abfallschichten (ab S6 und darunter).

Im Rahmen einer ersten Förderung durch die „Foundation for the Study and Preservation of Tells in the Prehistoric Old World“ konnte im Jahr 2022 die Bearbeitung des Probenkonvoluts der Kampagne 2020 durchgeführt werden, wobei sowohl die ausgeschlämmten organischen Fraktionen, als die mineralischen Rückstände untersucht wurden. Dabei wurden insgesamt 4776 Pflanzenreste von 86 Taxa ausgelesen und bestimmt. Aus den Abfall- und Phytolithschichten unterhalb des Hausgrundrisses (Haus A) stammen dabei 89 % aller Funde (v.a. Kulturpflanzenreste). Das meiste Fundmaterial stammt dabei – wie auch schon in den vorangegangenen Untersuchungen – aus den Proben aus Abfallschicht S7 (insg. 3708 Reste). Mit Nachweisen von Gerste, Emmer, Einkorn, Dinkel, Nacktweizen, Linse, Erbse, Linse, Erbse und Leindotter fanden sich in den Proben alle schon aus den vorherigen Untersuchungen bekannt Taxa; neu sind Reste von Ackerbohne (*Vicia faba*).

Kampagne 2021

Während der Kampagne 2021 wurden aus Schichtpaketen unterhalb der 2020 freigelegten Bereiche weitere 18 Bodenproben für eine archäobotanische Untersuchung geborgen. Auf Grund logistischer Gründe erfolgte die Aufbereitung des Probenmaterials 2021 durch die archäologischen Fachfirma ArchaeoConnect in Tübigen. Die Lieferung der geschlämmten Proben an das Kölner Labor erfolgte im Herbst 2022, weshalb mit den Auslesearbeiten erst Ende 2022 begonnen werden konnte.

Im Rahmen einer zweiten Förderung durch die „Foundation for the Study and Preservation of Tells in the Prehistoric Old World" erfolgte im Jahr 2023 die archäobotanische Bearbeitung der 2021er Proben. Diese 18 Proben – mit einem ehemaligen Gesamtvolumen von 73,11 l Sediment – enthielten insg. 3149 verkohlte Pflanzenreste von 33 Taxa. An Kulturpflanzen ist ausschließlich Getreide belegt, deren Funde einen Anteil von 16 % am Gesamtspektrum haben. Neben den schon in den vorangegangenen Probenserien nachgewiesenen Arten Gerste, Emmer, Einkorn und Dinkel ist nun wahrscheinlich auch *Triticum timopheevii* – oder New Glume Wheat – vertreten, dessen Identifizierung allerdings noch geprüft werden muss. *Triticum timopheevii* s.l. ist eine heute nicht mehr angebaute Spelzweizenart, die während des Neolithikums und der Bronzezeit (sehr selten noch in der Eisenzeit) in Europa, insbesondere in den südöstlichen Regionen, angebaut wurde. In einer neuen Studie (Filipović et al. 2023) wurde die Verbreitung dieser Weizenart auf Grundlage aktueller Daten neu untersucht. Dabei zeigt sich, dass Borsodivánka – insofern sich die Bestimmung der betreffenden Druschreste verifizieren lässt – am nördlichen Rand seiner Verbreitung in Südosteuropa liegt.

Neben den Getreideresten fanden sich vor allem Nachweise von Getreideunkräutern (80 % am Gesamtsektrum). Von diesen ist Saat-Labkraut (*Galium spurium*) massenhaft vertreten, vor allem in den getreidereicheren Proben aus S40, S53 – hier handelt es sich offensichtlich um Reste der Getreidereinigung. Ferner sind mit Kornelkirsche (*Cornus mas*) und wohl Wildem Wein (cf. *Vitis vinifera*) Sammelpflanzen belegt.

Kampagnen 2022 und 2023

Im Laufe der Ausgrabungen in 2022 und im Frühjahr 2023, bei denen die Siedlungsschichten des Tells weiter kontinuierlich untersucht und abgetragen wurden, konnten 33 Bodenproben für archäobotanische Untersuchungen geborgen werden: aus 2022 stammen 19 Proben mit einem Gesamtvolumen von 79,3 l Sediment (Aufbereitung von ArchaeoConnect in Tübigen) und aus 2023 stammen 14 Proben mit einem Gesamtvolumen von 183,85 l (Aufbereitung im Archäobotanischem Labor in Köln). Die Bearbeitung dieses Probenmaterials erfolgte eben-

falls im Jahr 2023 im Rahmen der zweiten Förderung durch die „Foundation for the Study and Preservation of Tells in the Prehistoric Old World".

Die Proben aus beiden Kampagnen enthielten insg. 1999 vorwiegend verkohlte Pflanzenreste[1] von 70 Taxa. Die Hälfte aller Funde stammen von Kulturpflanzen, die zum typischen bronzezeitliche Spektrum gehören (s.o.): so sind Gerste, Emmer, Einkorn, Dinkel, Nacktweizen, Linse, Erbse und wohl Lein nachgewiesen. Drusch von *Triticum timopheevii* fand sich nicht, allerdings könnte aus der 2023er Kampagne (S1239) eine Karyopse von Echter Hirse (*Panicum miliaceum*) stammen. Diese Bestimmung muss allerdings noch verifiziert werden. Falls sich die Determination bestätigt, würde es sich hierbei um einen sehr alten Nachweis dieser kleinfrüchtigen Getreideart handeln, da 2023 die unteren und damit älteren Tellschichten (ältere Füzesabony-Kultur?) ausgegraben wurden. Allerdings ist der Beginn der *Panicum miliaceum*-Nutzung in der Untersuchungsregion erst um die Mitte des 2. Jahrtausends BCE anzusetzen, was Direktdatierungen an Hirse (Filipović et al. 2020) sowie Analysen stabiler $\delta^{13}C$ - Isotope (als Nachweis von substantieller Hirsekonsumtion, Gamarra et al. 2018) zeigen.

Neben den Kulturpflanzen fanden sich wiederrum zahlreiche Unkräuter der Anbauflächen, die rund 28 % am Gesamtspektum ausmachen – und meist in getreidereichen Proben auftreten (=Abfall der Getreidereinigung). Hierzu zählen die typischen Getreideunkräuter Saat-Labkraut, Windenknöterich (*Polygonum convolvulus*), Wicken (*Vicia tetrasperma; V. hirsuta*) sowie Kornrade (*Agrostemma githago*). An Sammelpflanzen sind Kornelkirsche, Holunder (*Sambucus*) und Holz-Apfel (*Malus sylvestris*) nachgewiesen.

Letzte Kampagne 2023

Während einer 2. Kampagne im Jahr 2023 wurden weitere Proben aus den basalen Schichten des Tells geborgen (Anzahl unbekannt), die noch dieses Jahr an das Archäobotanische Labor in Köln geschickt werden.

4. Geplante archäobotanische Analysen und Kostenkalkulation 2024

Wie eben dargelegt, stehen für eine Bearbeitung und umfassende Auswertung des archäobotanischen Fundmaterials aus Borsodivánka-Nagyhalom ein Konvolut von 154 bearbeiteten Bodenproben zur Verfügung, die ehemals über 700 l Sediment umfassten und mehr als 15.000

[1] Acht Reste waren mineralisiert

Pflanzenreste enthielten. Zu diesen Proben kommen noch weitere aus der 2. Kampagne des Jahres 2023, deren Bearbeitung (Aufbereitung, Analyse) für Anfang 2024 vorgesehen ist.

Das Probenspektrum umfasst die gesamte stratigraphische Sequenz des Tells, wobei auch mehrphasige Hausgrundrisse sowie Abfallschichten und Phytolithlagen erfasst wurden. Somit kann die archäobotanische Auswertung detaillierte Aussagen sowohl zur Wirtschaftsweise als auch zu verschiedenen Aktivitätszonen (sowie deren Verlagerung) während der gesamten Nutzungszeit des Tells liefern. Durch die zahlreich geborgenen Profilkästen für mikromorphologische Analysen ist zudem eine enge Verzahnung zwischen den mikromorphologischen und archäobotanischen Ergebnissen gewährleistet. Beispielhaft ist dies schon mit Proben aus dem Profilschnitt durchgeführt worden (Röpke et al. 2016; Zerl et al. 2016; Röpke et al. 2018; Zerl et al. 2022).

Die technischen Arbeiten (Aufbereiten, Auslesen und Bestimmen der Pflanzenreste) des noch zu erwartenden Probenmaterials werden vom Labor für Archäobotanik des Kölner Institutes für Ur- und Frühgeschichte übernommen.
Für die umfassende Auswertung aller archäobotanischen Fundspektren (aus den Jahren 2015–2023) sowie deren Vorlage im Rahmen einer wissenschaftlichen Publikation zusammen mit den mikromorphologischen Ergebnissen (Analysen von Dr. Astrid Röpke, Labor für Archäobotanik, Institut für Ur- und Frühgeschichte Univ. zu Köln) sind für das Jahr 2024 geplant. Für diese Arbeiten sind insgesamt 6.000 € zu kalkulieren (1,5 Monate 50 %ige E13-Stelle für die Antragstellerin).

5. Literatur

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FOUNDATION FOR
THE STUDY AND PRESERVATION OF TELLS
IN THE PREHISTORIC OLD WORLD

Neuffenstraße 57 · D-73734 Esslingen am Neckar

Dr. Tanja Zerl
Universität zu Köln
Institut für Ur- und Frühgeschichte
Labor für Archäobotanik
Weyertal 125
D-50923 Köln

25.01.2024

Subject: Archäobotanische Untersuchungen in Borosdiványka-Nagyhalom (Ungarn)

Dear Dr. Zerl,

following the recent meeting of our boards, I would like to let you know that your proposal 'Archäobotanische Untersuchungen in Borosdiványka-Nagyhalom (Ungarn)' has found unanimous approval regarding the aims and the quality of your work proposed and your project's match with the purpose of the foundation's statutes.

We are pleased, therefore, to inform you that the foundation is ready to support your work in 2024 with funds amounting to **6.000** Euro for expenses as stated in your application and budget calculation.

Funding is subject to your written acceptance of our funding guidelines and general information for applicants attached to this letter. Please note, in particular, our invoicing regulations, and that we require receipts for all travel and material expenses *etc*. granted.

A final report and settlement on your work is to be submitted at the latest six weeks after expiry of the funding period, *i.e*. by February 2025.

Although we have taken note that your project is scheduled to be multi-annual, we kindly ask you to submit a follow-up application in case you should seek our support beyond the current funding period.

In our assessment of such a re-application we will certainly take the positive evaluation of your first proposal into consideration. However, please do note that, at this point, for legal and fiscal reasons we cannot commit ourselves to funding the continuation of those projects that will be supported in 2024, since our funding activity will depend on the means available and the applications that we receive. So please make sure to also be in touch with other funding agencies and to inquire alternative options for ensuring the continuity of your work.

Should you have any questions please do not hesitate to get in touch.

We wish you every success in your work on this project and remain with best regards,
yours sincerely,

Prof. Dr. Tobias L. Kienlin
(Chairman)

Attachment: Funding Guidelines and General Information for Applicants (2024_25 version)

UNIVERSITÄT
ZU KÖLN

Universität zu Köln • Albertus-Magnus-Platz • 50923 Köln

Chairman of the
Foundation for the Study and Preservation of Tells
in the Prehistoric Old World
Neuffenstraße 57
D-73734 Esslingen am Neckar

Der Kanzler

Dezernat
Forschungsmanagment
Abteilung
Nationale Förderung

Coskun Sungur
Telefon: +49 221 470-7260
c.sungur@verw.uni-koeln.de
verwaltung.uni-koeln.de

Köln,
29.11.2024

Mittelabruf 2024
Archäobotanische Untersuchungen in Boroskivánka-Nagyhalom (Ungarn)
FSPT-Bewilligung vom 25.01.2024

Sehr geehrte Damen und Herren,

wir bitten um Überweisung der bewilligten Mittel i. H. v. 6.000,00 €.

Bitte überweisen Sie die Mittel auf das nachstehende Bankkonto:

Universität zu Köln
Sparkasse Köln/Bonn
IBAN: DE44 3705 0198 1900 6948 35
BIC: COLSDE33XXX

Hinweis auf Überweisungsträger: **D-77216-Z-679-142003394**

Vielen Dank im Voraus.

Für Rückfragen stehe ich Ihnen gerne zur Verfügung.

Mit freundlichen Grüßen
Im Auftrag

Coskun Sungur

Anschrift
Albertus-Magnus-Platz
50923 Köln

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FOUNDATION FOR
THE **STUDY** AND **PRESERVATION** OF **TELLS**
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Förderrichtlinie 2025

FOUNDATION FOR
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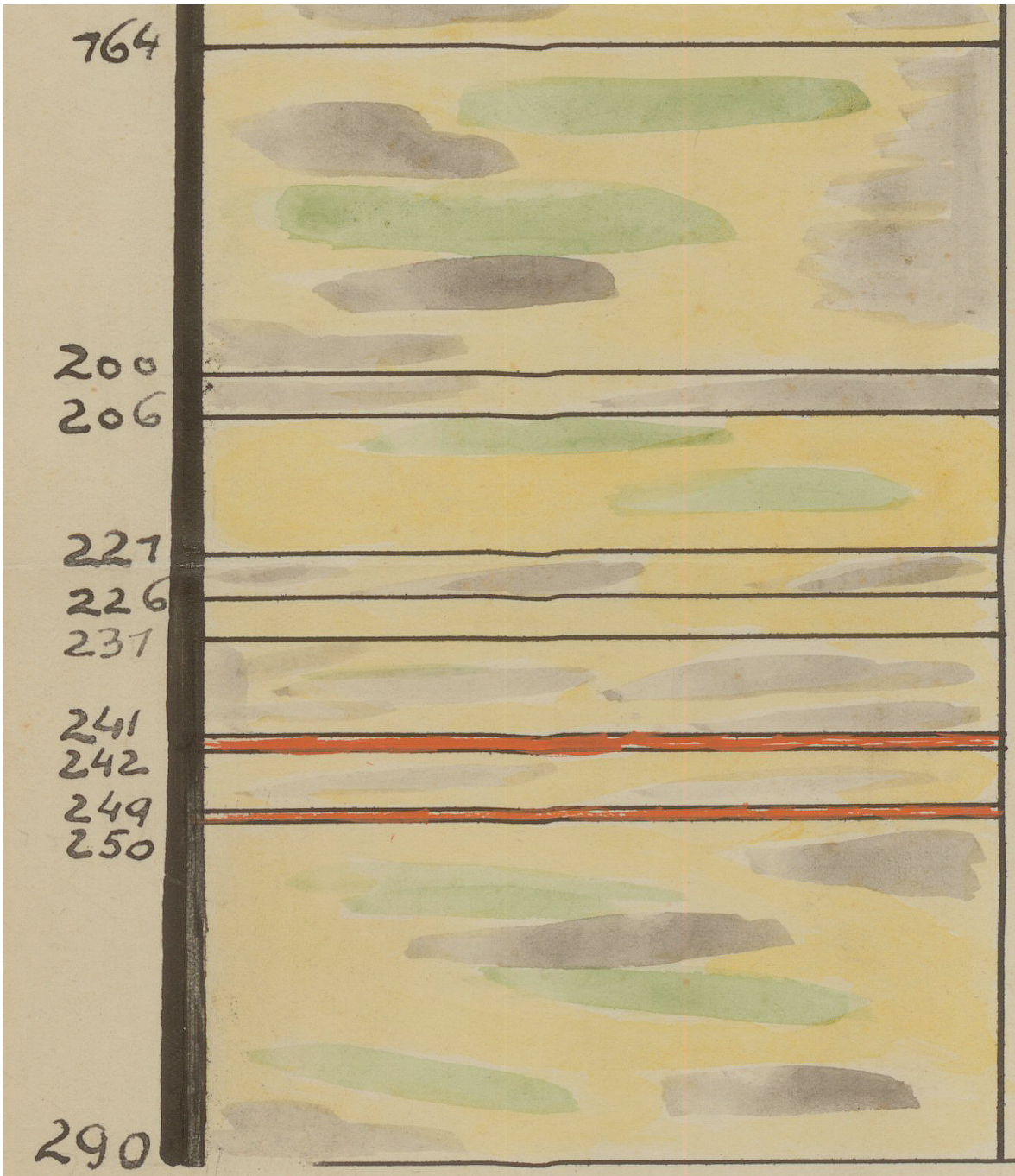
Funding Guidelines 2025



Funding Guidelines and General Information for Applicants 2025

What is the FSPT?

The Foundation for the Study and Preservation of Tells in the Prehistoric Old World (FSPT), established in 2021, is a legal foundation under civil law based in Esslingen am Neckar, Germany, that promotes archaeological research and cultural heritage, especially in the field of settlement archaeology. Specifically, the foundation's purpose is to further the preservation and archaeological research of prehistoric settlement mounds (tells) in the Old World, including their surrounding outer settlements and settlement systems as well as associated cultural phenomena such as cemeteries, *etc*. Apart from fieldwork, the processing and publication of pertinent data, theoretical work is particularly eligible for support that, from a perspective of cultural studies, deals with the understanding of the specific constancy of place and the reference to tradition, the specific materiality and the organisation of social space of prehistoric tell cultures.

What is eligible for support?

The purpose of the foundation's statutes may be achieved in particular through the following measures:

• carrying out archaeological fieldwork and its evaluation including the application of relevant scientific methods (environmental reconstruction, geophysical prospecting, C14 dating, *etc*.),

• acquisition and long-term maintenance of land and protection of prehistoric tell settlements (possibly including their outer settlement),

• implementation of protective measures for archaeological sites of settlement mounds (possibly including their outer settlement), for example long-term leasing or compensation to farmers to remove land from agricultural use,

• promotion of the application and development of non-destructive methods in tell research (geophysics, drilling, *etc*.),

• funding of research projects and work by domestic and foreign scholars who, with an explicitly theoretical orientation and the perspective of cultural studies, devote themselves to the understanding of the characteristic local constancy and reference to tradition, the specific materiality and organisation of social space of prehistoric tell cultures,

• assignment of research grants to domestic and foreign scholars to carry out corresponding work (*e.g.* final theses at master's or dissertation level, book or other publication projects),

• implementation or support of conferences or workshops including the publication of their proceedings,

• support of field projects (also in co-financing), that promise to make a significant contribution to the goals of the foundation formulated at the beginning through the acquisition of new finds and findings

• funding – in exceptional cases – archaeological work and projects of high relevance without direct reference to prehistoric tell cultures.

The above examples are not exhaustive, and the foundation can also take other measures that are suitable for promoting the foundation's purpose. The foundation does not have to pursue all measures simultaneously and to the same extent. There is no legal entitlement to benefits from the foundation. Even with the award of benefits, no actionable claim to a benefit is established. Claims to benefits also do not arise from the principle of equal treatment.

Funding available in 2025 and schedule

For the year 2025 the foundation invites applications for individual projects and other activities related to its purpose up to the amount of max. **20,000 Euro** per annum.

In view of the tense political and economic situation, the foundation's maximum funding amount is limited. Applicants cannot assume that their projects can be fully funded and may please seek funding for their projects elsewhere as well. This applies in particular to multi-year projects, whose one-off funding cannot automatically result in funding for subsequent years. For an overview of the projects supported so far, please see our homepage: https://foundationstprte.de

Should you envisage a multi-annual project and require funding in subsequent years please do state this clearly in your first application, alongside an approximation of the funding required in the future. In the event of a grant, we will kindly ask you to submit a follow-up application in case you should seek our support beyond the current funding period. In our assessment of such a re-application we will certainly take the positive evaluation of your first proposal into consideration. However, please do note that for legal and fiscal reasons we cannot commit ourselves to funding the continuation of your project, since our funding activity will depend on the means available and the applications that we receive. So please make sure to also be in touch with other funding agencies and to inquire alternative options for ensuring the continuity of your work.

The deadline for applications is **30 November 2024**.

The funding decision will be made during the annual meeting of the foundation's executive and advisory boards in **late January or early February 2025** and communicated to the applicants accordingly.

In order to save prospective applicants the time and effort involved with the preparation of a formal grant application, if you feel there is a good match between your project and our aims outlined above, we invite you to contact us with a concise letter of interest providing some basic information about your plans. If your letter of interest is of interest to us, you will be invited to submit a full proposal.

Applicants will typically be domestic and foreign scholars with a proven record of pertinent experience in tell studies, junior researchers with a strong motivation and plausible interest in the field, as well as legal persons or public bodies that pursue a project suitable for promoting the foundation's purpose, *e.g.* the implementation of protective measures for archaeological sites. The members of the foundation bodies, *i.e.* the executive board and the advisory board, are eligible to apply. A maximum of 50% of the annual funding amount may be spent on projects involving or in conjunction with members of the executive board.

Application documents

Proposals may be written in English or German.

The following documents must be included in an application for a research project:

• description of the research proposal (max. 10 pages plus bibliography as required; please use a readable font, *e.g.* Arial 11 pt. or Times New Roman 12 pt. and line spacing 1.5)

• time schedule, travel itinerary (as applicable)

• detailed cost calculation (specific funds being applied for must be precisely defined, *e.g.* travel expenses, material expenses; no college or tuition fees; no overhead costs)

• curriculum vitae and list of publications of the applicant(s)

• if needed, curriculum vitae and list of publications of the proposed cooperating partner(s) in the project

• any documents required to prove the feasibility of the proposed project (excavation permits, letters of confirmation, *etc.*)

If also a scholarship for the applicant is planned:

• at least one letter of recommendation (signed personally by the author)

• academic certificates of the applicant (Bachelor, Masters, PhD, professorship, *etc.*)

Please ensure that your application documents are complete and submit only those documents as requested.

Please submit your application electronically only in **pdf format** to foundationstprte@gmail.com.

Invoicing travel and material expenses

The foundation is employing a pre-financing and reimbursement system. Receipts shall be provided as evidence of all travel expenses and materials bought. There is no need for any such expenses to be justified in detail if receipts have been provided. Should it not be possible to provide a receipt for a particular cost incurred, the foundation expects a detailed explanation to be provided. The refunding of any such funds is then at the Foundation's discretion.

Travel expenses and hotel expenses shall be settled upon presentation of receipts.

In addition to the provision of receipts, the foundation requests that a list of all expenditures be provided, with all receipts allocated a number for the purposes of easy identification. The invoiced sum should be subdivided according to travel and material expenses.

Please convert all expenses into euros using the exchange rate of the day in question. This exchange rate should be provided in the invoice.

Scholarships

The simultaneous receipt of salary *etc.* and a scholarship is not possible. The funding period for PhD scholarships normally is up to two years. In justified cases, the scholarship period can be extended for up to 12 months if an extension application is made before the end of the second year of funding.

Monthly PhD scholarship award: 1,600 euros
Travel aid: as required
Material aid: as required

Research Scholarships for Postdocs:
Monthly scholarship award: 2,300 euros
Travel aid: as required
Material aid: as required

There shall be no employment relationship between the foundation and the grant recipient; as such, the foundation shall not be liable for social security costs. The foundation recommends that the grant recipient takes out private medical insurance. The foundation cannot make any contributions towards this.

General terms and conditions of acceptance

Scholarships and other support funding provided can in justified individual cases also be disbursed to the institutions involved in the project. The foundation will not conclude any further contracts with partners receiving support or their institutions over and above the grant approval letter itself.

On accepting the grant, the grant recipient is obliged to inform the foundation without delay of any changes which may have a bearing on the granting of the funding or the sum of the grant.

Subsequent to funding for the purposes of completing a doctorate, the foundation requests that it be informed as to whether a doctorate was conferred and with what grade, and also requests that a copy of the (provisional) PhD certificate be provided.

Reports and publications

Interim reports are to be submitted six weeks before the first full year of funding expires. The report should give details of the progress made in the first year of funding including provisional results and future project plans. The foundation shall not provide any guidelines concerning the length of the report.

Final reports are to be submitted at the latest six weeks after expiry of the funding period. The foundation shall not provide any guidelines concerning the length of the report.

The foundation requests that it please be informed in advance about any publications resulting from funding awarded. The foundation shall receive two specimen copies of each book publication (monograph / collection of essays) and possibly three further copies on request, as well as one offprint of every article that is published.

Please always seek to ensure mention of the funding received (including in any press releases published).

We request that press clippings and recordings of radio or television coverage/reports (incl. the date, source and reference number provided in each case) be sent to the foundation immediately after publication/broadcasting/posting. Should press coverage have taken place, publications have come out, or reports have been broadcast/posted during the funding period, we request that you list these in your interim and final reports.

Revocation

The foundation reserves the right to revoke a grant/the granting of project funds and to make a claim for reimbursement if

• the terms of appropriation are not adhered to or the foundation has other good reason for revoking its grant

• the grant was obtained on the basis of incorrect or incomplete details

• conditions imposed by the foundation are not met at all or are not met within the deadlines set by the foundation

• the grant has not been claimed one year after having been awarded and no reason has been given for this

• the funds have not been used for the direct purpose stated

• the funds have not been accounted for in time, as agreed or completely.