A brief history of tell settlements and archaeological research in the Mostiștea Valley, Romania

In memory of Professor Silvia Marinescu-Bîlcu (1935-2023), whose dedication to knowledge continues to inspire our quest for understanding the past.

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Abstract: *The archaeological research conducted in the Mostiștea Valley (Romania) has been a significant focus of Romanian archaeology, starting in the early 20th century under the supervision of Vasile Pârvan. This study documents over a century of investigations, mapping numerous prehistoric sites, primarily tell settlements dating from the Neolithic to the Eneolithic period. The research covers the geomorphological and hydrological context of the region and highlights the evolution of human habitation, with attention to settlement patterns, environmental changes, and archaeological excavation techniques. The interdisciplinary research collaborations have provided deeper insights into the cultural and chronological development of the region, including data from radiocarbon analysis and faunal and floral remains.*

Rezumat: *Cercetările arheologice desfășurate în Valea Mostiștei (România) au reprezentat un punct de interes major pentru arheologia românească, începând cu secolul al XX-lea, sub supravegherea lui Vasile Pârvan. Acest studiu documentează peste un secol de investigații arheologice privind cartografierea numeroaselor situri preistorice, în special așezările de tip tell, datând din perioada neolitică până în perioada eneolitică. Studiul cuprinde contextul geomorfologic și hidrologic al regiunii și evidențiază evoluția locuirii umane, acordând atenție modelului de utilizare a terenurilor, schimbărilor de mediu și tehnicilor de săpătură arheologică. Colaborările de cercetare interdisciplinare au oferit o înțelegere mai profundă a dezvoltării culturale și cronologice a regiunii, incluzând date provenite din analize radiocarbon și resturi faunistice și floristice.*

Keywords: *Balkans, Mostiștea Valley, Neolithic, Eneolithic, archaeological research*

Cuvinte-cheie: *Balcani, Valea Mostiștea, Neolitic, Eneolitic, cerectări archaeologice*

◈ Introduction

First archaeological surveys had been carried out on the lower basin of the Mostiștea River during the early 20th century. It was a particular case in the context of archaeology development as a distinct discipline in Romania, being the subject of highly intensive research over time. The documentation of this micro-region's history is organically linked to the beginning of the Romanian Archaeological School, under the supervision of Vasile Pârvan (1882-1927), Director of the National Museum of Antiquities, Bucharest, and Professor at the University of Bucharest (Romania), who sent his students and collaborators to excavate several archaeological sites in the Romanian Plain (*e.g.*, Piscu Crăsani, Zimnicea, Boian, Chiselet, Gumelnița, etc.). Since then, this hydrographic basin has remained one of the most attractive archaeologically researched areas in Romania, although, with few exceptions, most of the

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results have remained unpublished (Vlădescu-Vulpe 1924; Andreescu, Lazăr 2008; Ignat 2018; Covătaru *et alii* 2022).

The current study provides an overview of more than a century of investigations into prehistoric sites. It covers the geomorphological and hydrological context of the region, highlighting the evolution of human habitation. The focus is on the tell settlements dating from the Neolithic to the Eneolithic period, examining settlement patterns, environmental changes, and archaeological excavation techniques. The aim is to establish a general understanding of human behavior and dynamics in the Mostiștea Valley between 5300 and 3900 cal BC.

◈ Geographical and geomorphological framework

The Mostiștea Valley microregion is part of the Romanian Plain and it is situated between 26°22' and 27°20' eastern longitude and 44°03' and 44°10' northern latitude. This Valley in southeastern Romania and the Mostiștea River, is the most crucial water course between Argeș and Ialomița Rivers (fig. 1). The boundaries of Mostiștea catchment area covered several Counties (Ilfov, Călărași and Ialomița) (Ghiță 2008a; Șerbănescu, Șandric 2012; Covătaru *et alii* 2022).

Throughout time, Mostiștea Valley looks like a succession of lakes that have formed along the valley either by natural processes or as a result of anthropogenic interventions (Gâşteanu 1963; Ghiță 2008a). On the right side of the valley lies the high plain of the Bărăgan, Cornulesei, and Mostiștea that ends to the south, at the Danube, with large terraces fragmented by valleys formed by the northern tributaries of the Mostiștea River. The right side of the valley makes the transition to the Bărăgan itself through a fragmented valley plain (Mihăilescu 1925; Coteț 1976; Ghiță 2008a).

The hydrographic basin consists of the Mostiștea river and its tributaries, one on the left side (Corâta) and five on the right side (Argova, Cioran, Colceag, Ghiula and Milotina), some of them with their tributaries (Cucuveanu, Suliman, Church Valley and Vânăta) (Ghiță 2008a; Șerbănescu, Șandric 2012; Ignat 2018). It covers large portions of the Vlăsiei Plain in the northern extremity and some areas of the Lower Danube Plain in the southern extremity. The Mostiștea River originates from the area of the village of Dimieni (Ilfov County), northwest of Bucharest. It flows into the Danube through two branches: the Dorobanțu branch (10 km long, oriented north-south) and the Scoiceni branch (14 km long, northeast oriented) flowing in the south-west part of the catchment area, between the localities of Mânăstirea and Chiselet (Călărași County). In the southern area before the river Mostiștea flows into the Danube through two branches, it forms a fluvial estuary type lake (Iezerul Mostiștea). That situation ensured optimal conditions for human habitation over time (Caraiani 1971; Șerbănescu, Șandric 2012; Covătaru *et alii* 2022).

The total length of Mostiștea River is 92 km, and it covers (with all tributaries) a 1734 km^2 area (Ignat 2018; Covătaru *et alii* 2022; Ghiţă 2008b). The width of the valley is between 300 m and 1400 m, with maximum depths of 30 m (Caraiani 1971). Mostiștea River was a tributary of the Danube. In the 1970s-1980s, a new extensive irrigation system in the southeastern part of Romania was implemented, which led to major hydrological changes of the landscape. A series of dams and four large artificial lakes (water storage reservoirs) were created. Moreover, those works caused the flooding of the lower terrace of the Mostiștea River and some small islands, leading to the abandonment of numerous contemporary villages, but also the damage to several archaeological sites that were on the route of the former river

(Caraiani 1971; Șerbănescu, Trohani 1978; Ignat 2018; Covătaru *et alii* 2022). Alongside hydrological works, under the Communist regime, the intensive process of deforestation and agricultural land use led to a dramatic change in the landscape and ecosystem, consequently affecting numerous archaeological sites in the area (Crăciunescu 2017).

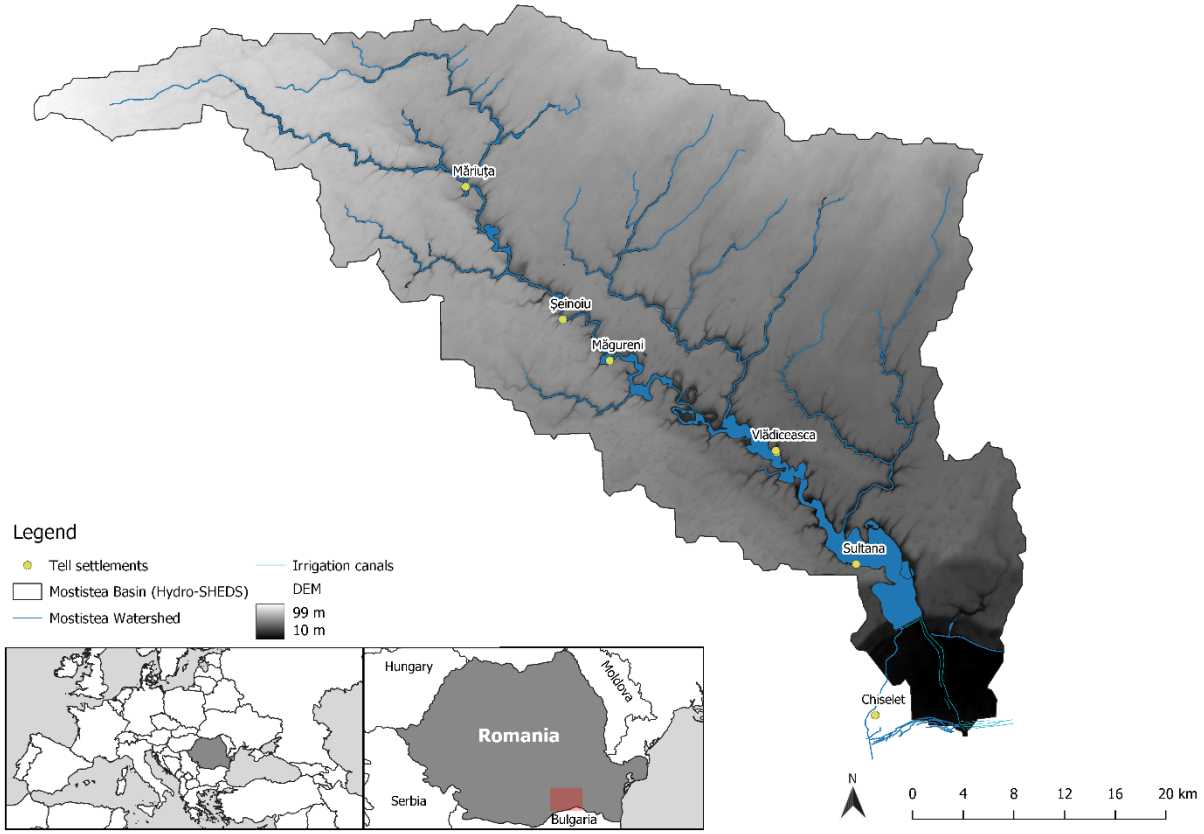

Fig. 1. Distribution map of the tell sites in the Mostiștea Basin.
Hartă de distribuție a siturilor de tip tell din bazinul Mostiștea.

In terms of the geomorphological setting, the site of Sultana *Malu Roşu* is positioned at the crossing area of the Vlăsia, Mostiştea and Bărăgan-Lehliu Plains (Coteț 1976; Ghiță 2008a). The soil is formed on top of loess deposits, and some areas have small sandy hills. The sheer thickness of the loess deposits (>20 m), the depth of the water table and the extraordinary density of saucer-shaped sills and suffusion gullies had favored the repartition of specific soil classes (Mihăilescu 1925; Ghiță 2008a; 2008b; Andreescu *et alii* 2011). The underground water table may be found at a low depth.

The relief of the Mostiștea Valley is takes the form of a stepped plain, with altitudes increasing from the Danube's Meadow (in the south) to the Ialomița River (in the north), with smooth, slightly wavy and inclined shapes. As secondary landforms in the target area, there are documented crovs with diameters of 50-150 m, several small terraces (with a maximum height of 8 m), and consolidated sand dunes in the northeastern part of the valley. The Mostiștei Valley slopes from the northeast to the southwest and extends along an old course of the Ialomița River and its tributaries, with heights between 15-80 m (Caraiani 1971; Coteț 1973; Ghiță 2008a; Șerbănescu, Șandric 2012; Ignat 2018).

The soils in the Mostiștea Valley are mostly chernozems in various stages of degradation, while the reddish-brown forest soils cover narrower areas. Between the valleys, fine alluvial soils appear, with reduced permeability and with intercalations of fine dusty or clayey sands (Caraiani 1971; Șerbănescu, Șandric 2012).

Unfortunately, in present days, the old Mostiștea River no longer exist because, as already shown, it represents a succession of lakes that have formed along the valley either by natural processes or mainly because of the unbalanced anthropogenic interventions (Covătaru *et alii* 2022).

◈ Archaeological background

Until now, 333 sites have been identified on the Mostiștea catchment area, showing intense human activities, spanning from the Neolithic to the present days. These sites vary in size and include flat and tell settlements, necropolises, tumuli, constructions of different categories, churches, etc. (Șerbănescu, Șandric 2012; Ignat 2018; Covătaru *et alii* 2022).

The distribution area of archaeological sites inherently reflects a model of land use by different human communities, documented from the second half of the 6th millennium BC to the modern era, with some visible variations in density and intensity over time concerning the documented archaeological signals (Crăciunescu 2017).

Generally, on the Mostiștea catchment area, it was observed that the land use strategies were closely related to the course of the river that crosses this region. In prehistory (mainly in Neolithic and Eneolithic), humans concentrated their activities on the slopes near the main course of the river. In the Bronze Age, a gradual increase in the intensity of habitation can be observed, but the inconsistency of the archaeological deposits indicates, rather, short-term or seasonal settlements. The transition to the Iron Age is marked by a new decrease in human activities in the Mostiștei Valley, followed by an even more drastic decline in Early Antiquity, and a minor increase in the Roman era. In the Migrations period, human occupation highly intensified, being followed by the medieval period when habitation in the target area reached its maximum peak (Crăciunescu 2017; Covătaru *et alii* 2022).

With respect to the time spans covered by the project 'The Dynamics of the Prehistoric Communities Located in the Mostiștea Valley and Danube Plain (between Oltenița and Călărași)' (2021-2025), the targeted area includes seven tells (in some cases paired with cemeteries) and several flat settlements. The current study will focus solely on the tell-type settlements. All chrono-cultural variations regarding the tell site on the target area are presented in tab. 1.

Despite this exceeding archaeological density of tell sites, which lead to intermittent systematic and rescue archaeological excavations in the Mostiștea Basin, with a few exceptions (*e.g.*, Sultana *Malu Roșu* and Măriuța), the results of these researches have either remained unpublished or incompletely published (Ignat 2018).

◈ Research history

The first research in the Mostiștea Valley took place towards the end of the First World War, by German archaeologists in some tell settlements of the Danube Valley (fig. 2). Thus, in the summer of 1917, the famous ethnographer Leo Frobenius (1873-1938) will lead excavations at Cunești and Chiselet (fig. 2) mounds (Dumitrescu 1933; Popescu 1938; Mândescu 2017; Kuba 2020). Only two test-pits carried out by the German team at Chiselet were published at

that time (Dumitrescu 1933), but other data are missing. The materials from Chiselet were later identified, in 1928, by Ion Nestor (1905-1974), in Berlin. Although Leo Frobenius offered to Ion Nestor the right to publish those materials excavated in 1917, he did not achieved this effort (Măndescu 2017).

At the beginning of the 1920s, influenced by the activity of German archaeologists in Romania, Vasile Pârvan organized a systematic field research program and archaeological excavations along the Danube Valley and its tributaries (including the Mostiștea Valley). The strategy involved mapping of the sites as well as archaeological excavations, which is why students and collaborators from the National Museum of Antiquities and University of Bucharest have started archaeological research in a series of tell mounds in the Mostiștea Valley and the Danube's Meadow (Oltenița-Călărași sector). Thus, in 1923, Radu Vulpe (1899-1982) and Vladimir Dumitrescu (1902-1991) carried out an archaeological survey of the lower basin of Mostiștea River, and Danube Valley (up to Călărași city) mapping several sites belonging to different periods (Vlădescu-Vulpe 1924).

Fig. 2. Chiselet tell settlement in 1917. Image from excavation led by German archaeologists (after Măndescu 2017).
Așezarea de tip tell de la Chiselet în 1917. Imagine de la săpăturile conduse de arheologii germani (după Măndescu 2017).

In the same year (1923), the first archaeological research was carried out at Sultana (fig. 3-4), led by professor Ioan Andrieșescu (1888-1944), assisted by Vladimir Dumitrescu, then a student, who was to become one of the best-known Romanian prehistorians (Dumitrescu 1993; Lazăr, Andreescu 2015). The results will be published in the first issue of *Dacia. Revue d'archéologie et d'histoire ancienne* journal in 1924 (Andrieșescu 1924). In the same

issue of the journal, Vladimir Dumitrescu published the results of research from Gumelnița (Dumitrescu 1924). Both studies emphasized the common characteristics of the ceramics from the two settlements, so that Vladimir Dumitrescu and Radu Vulpe characterized the ceramic material discovered at Gumelnița or in other contemporary sites as 'Sultana-type pottery' (Vlădescu-Vulpe 1924). Contrary to common practices in Romanian archaeology, the archaeological culture that would later be defined based on these discoveries will bear the name of Gumelnița and not Sultana, as would have been natural.

Despite that, in 1924, another survey in the area of Argeș River, Danube and Mostiștea Valley led to re-discovery of Gumelnița and Chiselet tell settlements by Pârvan's collaborators. One year later, with his student, Hortensia Dumitrescu (1901-1983) starts the excavation at Chiselet mound site (Dumitrescu 1933; Șerbănescu, Șandric 2012), and the results will be published eight years later in *Dacia* journal (Dumitrescu 1993). From the available data, we know that she made six small trench type sections, oriented northeast-southwest, which were dug to depths between 1.00 and 3.50 m. Based on this research, the stratigraphy of the tell was defined, with 2 main horizons being identified. The upper level, with a thickness of 0.80 m, was attributed to the Bronze Age (without indicating the culture sequence), and the lower horizon, between -0.80 m and -3.00 m depth, was attributed to the Gumelnița culture, phase A2 (Dumitrescu 1933; Șerbănescu, Șandric 2012).

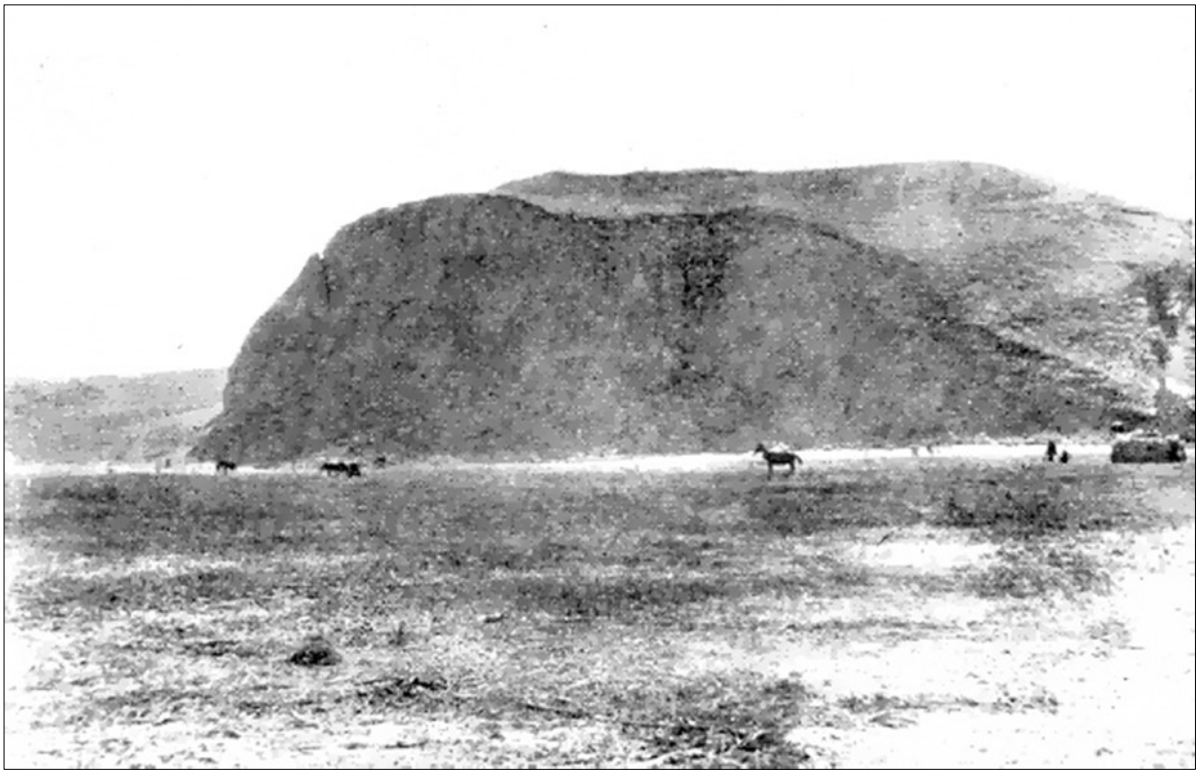

Fig. 3. Sultana *Malu Roșu* tell settlement in 1923 (after Andrieșescu 1924).
Așezarea de tip tell de la Sultana *Malu Roșu* în 1923 (după Andrieșescu 1924).

In the interwar period, another tell site was investigated at Măgureni by Dinu V. Rosetti (1899-1974), the director of the Bucharest Municipal Museum. The results of these investigations were never published, but the intervention was mentioned much later, in

a study dedicated to some post-Neolithic graves investigated in another nearby site – Gurbăneşti (Rosetti 1959).

Other archaeological investigations were carried out after World War II, in the mid-20th century, in different sites from Mostiștea Valley by the Călărași Museum, Oltenița Museum, and the Institute of Archaeology from Bucharest (Șerbănescu, Șandric 2012). Unfortunately, these interventions have consisted in small excavations whose results have remained largely unpublished. It is necessary to understand the general context of these campaigns carried out by the museums in Călărași and Oltenița, which was inspired by the process of enriching the archaeological heritage of the small local museums created by the communists following their rise to power in Romania. The existence of archaeological evidence as old as possible and as many as possible in the sites assigned to local museums represented a proof of national continuity which was used in the nationalist propaganda promoted by the Romanian Communist Party. During these campaigns, done mostly incognito, without any official authorization, even spectacular discoveries were made, such as the 'Goddess of Sultana' (Opriș *et alii* 2017, 2022), accidentally discovered by Barbu Ionescu (1904-1980), the director of the museum in Oltenița.

At the end of 1960s, the communist engineers from CAP Chiselet (Agricultural Production Cooperative) had the unfortunate idea of levelling the tell mound here, in order to obtain new agricultural terrains. This action triggered a mechanized intervention in the southern part of the tell, which resulted in the excavation of a considerable portion in the centre of the mound (Șerbănescu, Șandric 2012).

Fig. 4. Sultana *Malu Roșu* tell settlement in 1958 (after https://comsa.cimec.ro).
Așezarea de tip tell de la Sultana *Malu Roșu* în 1958 (după https://comsa.cimec.ro).

In the early 1970's, there was another systematic survey to aimed at mapping the archaeological sites, due to hydrological and land improvement works that would affect the basin of the Mostiștea River (Șerbănescu, Trohani 1978). In the same period, but also in the

next decade, most of the Mostiștea tells along with some flat settlements or cemeteries have been systematically or partially excavated. During these decades several rescue excavations have been carried out (*e.g.*, Lunca, Sultana *Malu Roșu*, Șeinoiu, Măriuța, Vlădiceasca I and II, Sultana *Valea Orbului*, etc.), along with additional surveys of the valley for site mapping (Trohani 1975; 1976; 1986; 1987; Șimon 1983; 1995; 2014; Isăcescu 1984a; 1984b; Neagu 1987; Șerbănescu 1987; 2013; Șimon, Șerbănescu 1987; Șimon, Parnic 2001). After 1984, when the Mostiștea river course systematization operations and the construction of artificial lakes along the river course had been completed and additional water from the Danube had been introduced into the new lakes, the archaeological research in the area were stopped.

After that, between 1999-2001 the Mostiștea Valley was once again researched by archaeologists from the Lower Danube Museum Călărași (Parnic *et alii* 2001), and the Oltenița Museum (Șerbănescu, Șandric 2012). Moreover, between 2006 and 2008 a European joint project between the Institute for Cultural Memory (cIMeC) from Bucharest and AARG (Aerial Archaeology Research Group) turned its attention to the Mostiștea Valley. The project's idea was to identify new areas of archaeological interest and to determine the exact coordinates of the sites that where mapped since the 1923 field prospection by combining old maps, historical photographs and CORONA images, doubled by several flights over the targeted area (Palmer *et alii* 2009; Oberländer-Târnoveanu 2010).

From archaeological excavations perspective, in 2000 investigations at Măriuța tell settlement were resumed by archaeologists from the Lower Danube Museum in Călărași. From then on, the research was focused on the tell settlement, but also on its paired cemetery identified in 2008 (Parnic, Chiriac 2001; Lazăr, Parnic 2007; Lazăr *et alii* 2011; Ignat 2018).

One year later, in 2001, the excavations from the Sultana *Malu Roșu* tell site were resumed by the National History Museum of Bucharest and the Lower Danube Museum in Călărași, initiated by the regretted Silvia Marinescu-Bîlcu (1935-2023), Marian Neagu (1951-2020) and Radian Romus Andreescu (1958-2022). Initially, the main goal was the Gumelnița tell settlement, but after 2003 the research was extended to the Mostiștea high terrace where in 2006 the paired cemetery was discovered (Trohani *et alii* 2007) followed by off-tell settlement in the same area (Andreescu *et alii* 2016). The research from this site was integrated into the framework of some research projects (*e.g.*, ICE or 'Dynamics of prehistoric habitation in the southern Mostiștea basin') and continues to this day without any interruptions (Andreescu, Lazăr 2008; Lazăr 2015; Ignat 2018; Covătaru *et alii* 2022).

In 2021 had started the Romanian-German collaboration integrated into '*The dynamics of the prehistoric communities located in the Mostiștea Valley and Danube Plain (between Oltenița and Călărași)*', a project that aims to a multi-disciplinary diachronic approach of the targeted area during the Eneolithic chronological sequence.

◈ Tell monuments and research concepts

The seven tell-type settlements in the Mostiștea Valley (Măriuța, Șeinoiu, Măgureni, Vlădiceasca I, Vlădiceasca II, Sultana *Malu Roșu* and Chiselet) are grouped on the main course of the former river (fig. 1). Similar sites along the tributary valleys were excluded (Șerbănescu, Șandric 2012). Their position is intuned with the configuration of the Mostiștea Valley, being located mainly on the left bank of the river (Măriuța, Șeinoiu, Vlădiceasca, etc.) and less often on the right (Sultana *Malu Roșu*). All the analyzed tells have a circular or oval shape, with variable sizes (tab. 1).

Tell settlement	Shape	Size (m)		Elevation (MASL)		References
		Length	Width	Max.	Min.	
Măriuța	Oval	103.71	45.20	53.30	44.80	Parnic, Chiriac 2001; Șimon 2014
Distance: 11-12 km						Ignat 2018
Șeinoiu	Circular	38.85	21.60	36.00	30.05	Șimon, Parnic 2001; Șimon 2014
Distance: 6-7 km						Ignat 2018
Măgureni	Oval	80.00	40.00	32.00	20.00	Șerbănescu, Șandric 2012
Distance: 12-13 km						Ignat 2018
Vlădiceasca II	Circular	50.00	45.00	?	18.00	Șerbănescu, Șandric 2012
Distance: 0.07 km						
Vlădiceasca I	Oval	100.00	40.00	23.80	18.00	Trohani 1975; 1987; Șerbănescu, Șandric 2012
Distance: 12-13 km						Ignat 2018
Sultana *Malu Roșu*	Oval	140.50	85.50	46.42	13.60	Andriețescu 1924; Andreescu, Lazăr 2008
Distance: 11-12 km						Ignat 2018
Chiselet	Oval	70.00	40.00	22.00	14.50	Dumitrescu 1933; Șerbănescu, Șandric 2012

Tab. 1. The main features of the tell settlements from Mostiștea Valley.
Principalele caracteristici ale așezărilor de tip tell din Valea Mostiștei.

In terms of positioning, most of the tells from the targeted area are located on the high or medium terrace of the Mostiștea River (Măriuța, Șeinoiu, and Sultana *Malu Roșu*), some on islands (Măgureni, Vlădiceasca I and Vlădiceasca II), or in the Danube floodplain (Chiselet). Unfortunately, the hydrological changes of the Mostiștea course during the communist period, led to numerous artificial lakes, with increased water levels, so that the tell settlements from Măgureni, Vlădiceasca I and II were (totally or partially) below the water level, and their remeasurement or excavation is almost impossible.

Moreover, the distance between tell settlements is almost similar (tab. 1), meaning that the distance between any two settlements could have been covered in less than a day (Ignat 2018).

From a chrono-cultural perspective, the tell settlements in Mostiștea Valley begun their existence at the end of the 6th millennium BC, some continuing to exist until the beginning of the 4th millennium BC. The radiocarbon data available for four tells (Măriuța, Șeinoiu, Sultana *Malu Roșu* and Vlădiceasca I) indicate that they cover a chronological interval between 4941-3804 cal BC (2σ calibrated age) (tab. 2). This chronological sequence corresponds from a cultural-historical perspective with the Boian (Vidra and Boian phases) and Gumelnița (phases A1, A2 and B1) cultures. However, the only tell containing the entire Boian-Gumelnița chrono-cultural sequence is the one from Vlădiceasca I (tab. 3 and fig. 5). In contrast, the other tell-type settlements contain only certain phases of the cultures mentioned above.

It should also be mentioned that the tell from Sultana *Malu Roșu* contains the entire Gumelnița chronological sequence (Isăcescu 1984b). Furthermore, sporadic occupations corresponding to the final Eneolithic (Cernavoda I and II cultures), the Bronze Age

(Tei culture), the Iron Age (La Tène) and even the medieval periods have been discovered on top of these tells (Șerbănescu, Șandric 2012).

From the point of view of contemporaneity, the tells from the Mostiștea Valley for which there are radiocarbon data (tab. 2), were contemporary for an interval of approximately 100 years, on the sequence 4440-4360 cal BC. Obviously, this fact only reflects the state of current research, and future dates may change this interval of contemporaneity.

The research concepts applied over time for the tell mounds in the studied area reflects the development stages of the European archaeological school in general and the one in Romania in particular.

Tell settlement	**Culture/ Phase**	**Lab code**	**^{14}C year (BP)**	**2 σ calibrated age (cal. BC)**	**References**
Măriuța	Gumelnița A2	RoAMS:386.4	5598 ± 36	4495-4355	Popescu *et alii* 2023
Măriuța	Gumelnița A2	RoAMS:387.4	5589 ± 35	4488-4353	Popescu *et alii* 2023
Măriuța	Gumelnița B1	UB-7790	5385 ± 42	4337-4062	Popescu *et alii* 2023
Șeinoiu	Gumelnița A2	Poz-52579	5470 ± 40	4442-4240	Popescu *et alii* 2023
Sultana *Malu Roșu*	Gumelnița A2	Poz-52445	5640 ± 40	4546-4366	Golea *et alii* 2014
Sultana *Malu Roșu*	Gumelnița A2	Poz-52547	5630 ± 40	4538-4365	Lazăr *et alii* 2016
Sultana *Malu Roșu*	Gumelnița A2	Poz-52983	5570 ± 40	4486-4342	Lazăr *et alii* 2016
Sultana *Malu Roșu*	Gumelnița B1	Poz-52542	5230 ± 50	4230-3961	Lazăr *et alii* 2016
Sultana *Malu Roșu*	Gumelnița B1	Poz-52550	5250 ± 40	4230-3973	Lazăr *et alii* 2016
Sultana *Malu Roșu*	Gumelnița B1	Poz-52551	5140 ± 35	4039-3804	Golea *et alii* 2014
Vlădicească I	Boian Vidra	Poz-52595	5960 ± 40	4941-4729	Popescu *et alii* 2023
Vlădicească I	Boian Spanțov	Poz-52593	5920 ± 40	4904-4709	Popescu *et alii* 2023
Vlădicească I	Gumelnița A1	Poz-52596	5700 ± 40	4679-4456	Popescu *et alii* 2023
Vlădicească I	Gumelnița A2	Poz-5259	5625 ± 30	4522-4367	Popescu *et alii* 2023
Vlădicească I	Gumelnița B1	Poz-52594	5610 ± 30	4498-4361	Popescu *et alii* 2023

Tab. 2. The radiocarbon data available for the tell settlements from Mostiștea Valley.
Datele radiocarbon disponibile pentru așezările de tip tell din Valea Mostiștea.

Thus, the investigated tells in the first half of the last century (Chiselet, Măgureni and Sultana) were dug with the 1920s methodology, through small trenches (Chiselet, Măgureni) or large surfaces combined with trenches (Sultana). As the excavation was altimetric and not stratigraphic, the recorded data are more eloquent for the discovered artefacts than for archaeological features, stratigraphy, etc. Sporadic research after the Second World War is part of the post-war archaeological research in Eastern Europe, perpetuating the excavation title and the previous record in an improved form, dominated by the cultural-historical approach specific to the area.

The 1970s marked the beginning of rescue archaeology that would continue until the mid-1980s when the utility improvement program of the Mostiștea River Basin was completed. Unfortunately, despite considerable financial and logistical resources, the intensive archaeological excavations in almost all of the tell settlements on Mostiștea (except the one in Chiselet) did not lead to a proper publication. As a result, although many of the prehistoric settlements have been excavated in considerable proportions, the published data (unfortunately very few) are inconsistent, often containing only general information.

Nevertheless, we note sporadic concerns for studying faunal (tab. 4) or vegetal background from some settlements on Mostiștea (*e.g.*, Vlădiceasca, Măriuța, Sultana) even if sometimes the data are published long after the end of field research (Cârciumaru 1996; Bălășescu, Udrescu 2005; Bălăşescu *et alii* 2005; Golea *et alii* 2014; Bălăşescu 2015; Radu 2015; Ignat 2018).

The beginning of the 21st century is marked by the resuming of the archaeological excavations from Sultana *Malu Roșu* and Măriuța. Even though the organization of the research falls within the trend of Romanian archaeology from that moment (each archaeologist with his own archaeological site), the research concepts are changing, thanks to some new archaeologists who had already worked in international teams in some projects in Romania (*e.g.*, Romania-French collaboration from Hârșova tell, Southern Romania Archaeological Project - SRAP).

Fig. 5. Vlădiceasca I tell settlement in 1970s (after Șerbănescu, Șandric 2012).
Așezarea de tip tell Vlădiceasca I în anii 1970 (după Șerbănescu, Șandric 2012).

Moreover, after Romania's accession to the European Union (2007), research in the Mostiștea Basin begins to be organized under the umbrella of national or international multi-institutional projects among which we mention '*The beginnings of European civilization on the territory of Romania (ICE)*' or '*Dynamics of prehistoric habitation in the southern Mostiștea basin, involving excavations in the archaeological sites Sultana-Malu Roșu*'.

Now, new interdisciplinary research directions are imposed on the studied Mostiștea sites, aiming at the reconstruction of the prehistoric fauna (zooarchaeology), vegetation (archaeobotany), environment and landscape (geoarchaeology) (Golea *et alii* 2014; Bălăşescu 2015; Golea, Stavrescu-Bedivan 2015; Radu 2015; Lazăr *et alii* 2016; 2018; Ignat 2018). Also, alongside these multidisciplinary approaches various molecular analysises (*e.g.*, radiocarbon stable isotopes, aDNA) or archaeometric investigations (*e.g.*, XRF, XRD, FTIR, SEM-EDX, CT-Scan, etc.) have been performed on the artefacts and ecofacts from Mostiștea Valley sites (Lazăr *et alii* 2016; 2018; 2019; Ignat *et alii* 2018; 2019; Ignat 2018; Manea *et alii* 2019; Opriș *et alii* 2017; 2022). In addition, various geo-electric investigations were performed at Măriuța, Șeinoiu, and Sultana *Malu Roșu* tell settlements (Lazăr *et alii* 2011; 2019; Ignat 2018).

Tell settlements*	Deposits**	Cultures***	Phases	References
Măgureni	2.00 m	Gumelnița	A2	Rosetti 1959; Șerbănescu, Trohani 1978; Șerbănescu, Șandric 2012
			B1	
Măriuța	> 4.20 m	Gumelnița	A2	Șerbănescu, Trohani 1978; Șimon 1995; 2014; Șimon, Paveleț 2000; Parnic, Chiriac 2001; Parnic *et alii* 2001; Șerbănescu, Șandric 2012
			B1	
Sultana *Malu Roșu*	> 4.00 m	Gumelnița	A1	Andrieșescu 1924; Isăcescu 1984; Andreescu, Lazăr 2008; Andreescu *et alii* 2011; Ignat *et alii* 2011; 2012; Lazăr 2015; Lazăr *et alii* 2016; 2017
			A2	
			B1	
Șeinoiu	> 2.20 m	Gumelnița	A2	Șimon, Parnic 2001; Șerbănescu, Șandric 2012; Șimon 2014
			B1	
Vlădiceasca I	5.00 m	Boian	Vidra	Trohani 1975; 1976; 1987; Șerbănescu, Trohani 1978; Șerbănescu 1987; 2013; Parnic *et alii* 2001; Șerbănescu, Șandric 2012
			Spanțov	
		Gumelnița	A1	
			A2	
			B1	
Vlădiceasca II	> 2.00 m	Boian	Vidra	Șerbănescu, Trohani 1978; Șerbănescu, Șandric 2012; Șerbănescu 2013
		Gumelnița	A1	
			A2	
Chiselet	3.40 m	Gumelnița	A2, B1	Dumitrescu 1932; Dumitrescu 1993
	7-8 m		Cernavoda I	Zolchow *et alii* 2023; Lazăr *et alii* 2023

** Presented in alphabetic order. ** It reflects the maximum thickness of anthropic deposits identified on the tell settlements. *** Here are presented only the Eneolithic features, because some post-Eneolithic sequences (*e.g., *Bronze Age, Iron Age, etc.) are presented in most settlements.*

Tab. 3. The thickness of anthropic deposits identified on the tell settlements and their anthropic deposits.
Grosimea depunerilor antropice identificate pe așezările de tip tell și depunerile lor antropice.

Tell	Vlădiceasca I								Șeinoiu		Sultana		Măriuța		TOTAL	
Culture	Boian		Gumelnița		Gumelnița		Gumelnița		Gumelnița		Gumelnița		Gumelnița			
Phase	Vidra		A1		A2		B1		A2		A2		B1			
Classes	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Gastropoda			1	0.21	84	2.31	2	0.20			10	0.41	13	0.70	**110**	**0.86**
Bivalvia	5	0.15	2	0.42	31	0.85	2	0.20			1065	43.20			**1105**	**8.63**
Pisces	1	0.03			1	0.03					58	2.35	24	1.29	**84**	**0.66**
Reptilia											7	0.28	8	0.43	**15**	**0.12**
Aves	30	0.93	5	1.05	4	0.11					5	0.20	1	0.05	**45**	**0.35**
Mammalia	3200	98.89	475	98.34	3518	96.70	1013	99.61	97	100	1320	53.55	1816	97.53	**11439**	**89.38**
TOTAL	**3236**	**100**	**483**	**100**	**3638**	**100.00**	**1017**	**100.00**	**97**	**100**	**2465**	**100**	**1862**	**100**	**12798**	**100.00**

Tab. 4. Distribution of faunal remains by class of animals found in the Mostiștei Valley tell settlements (after Ignat 2018, modified).
Distribuția pe clase a resturilor faunistice găsite în așezările de tip tell din Valea Mostiștei (după Ignat 2018, modificat).

Additionally, a series of UAV flights, and surveys were carried out for collecting geospatial and environmental data about landscape modification of Mostiștea River Basin in the last 6000 years coupled with cores made in proximity of prehistoric sites (Andreescu *et alii* 2013; Ignat 2018; Covătaru *et alii* 2022; Stal *et alii* 2022) along with GIS and micromorphological fine-tuning of archaeological data from ongoing excavations from Sultana *Malu Roșu* and Măriuța (Haită 2015; Lazăr *et alii* 2017; Crăciunescu, Lazăr 2018; Ignat 2018).

◈ A (p-)review of Mostiștea Valleys tells

Most of the tells in the Mostiștea Valley were researched over 100 years, mainly after 1950, the exception being the tell from Sultana *Malu Roșu*, which benefited from an archaeological campaign in 1923, but also the contemporary settlements from Chiselet (1925), from Măgureni, surveyed in the interwar period by Dinu V. Rosetti (Andrieșescu 1924; Șerbănescu, Șandric 2012; Covătaru *et alii* 2022).

The following text provides a differentiated way of presenting archaeological data, which reflects the research methodology applied in each situation. Also, none of this research has been fully published in monographic form, which is why the available data are incomplete. Most of the tells on Mostiștea (Măgureni, Măriuța, Șeinoiu, Sultana *Malu Roșu*, Vlădiceasca I and Vlădiceasca II) were intensively excavated in the second half of the 20th century, mainly in the 1970s and 1980s, when the land improvement project of the Mostiștea course determined numerous rescue archaeological excavations. Only in the case of the Măriuța and Sultana *Malu Roșu* sites the research was resumed after the year 2000, which led to the application of interdisciplinary archaeological research techniques. The presentation of the tells will be done from north to south.

Măriuța. Located on the left bank of the river Mostiștea, with an oval shape (103.71 x 45.20 m), is located on the terrace promontory (fig. 6). The tell is surrounded on three sides by the waters of the river and rises 12 meters above the level of the meadow or a maximum of 53,30 m MASL (tab. 1). Mihai Șimon did not exclude the possibility that the tell also had a defensive system composed of two trenches on the south and northeast sides (Șimon, Paveleț 1999; Șimon 2014), but, until know, its not were stratigraphically confirmed up to this point or by other non-invasive investigation methods.

From the point of view of stratigraphy and relative chronology, two phases of the Gumelnița culture, A2 and B1, were identified in the Măriuța tell, a fact confirmed by the available ^{14}C data (tab. 2), which fixed the tell human habitation between 4495-4062 cal BC (Popescu *et alii* 2023). A series of Boian Vidra ceramic fragments led Mihai Șimon also to assume the existence of such a stratigraphic horizon, which he considered having been removed at the initial moment of establishment of the settlement by the Gumelnița communities (Șimon 1995, p. 30). Also, rare ceramic fragments from the 16th-17th centuries were discovered in the upper level (Șimon, Paveleț 1999, p. 182). The maximum thickness of anthropogenic deposits is 4.20 m, this being unevenly distributed on the surface of the tell (tab. 3).

Fig. 6. Măriuța tell settlement in 2019.
Așezarea de tip tell de la Măriuța în 2019.

The research conducted by Mihai Șimon led to the discovery of six unburnt dwellings without clear boundaries for any of them. For those attributed to the first stage of habitation, it is considered that they were organized on an NW-SE axis and had almost equal dimensions (Șimon, Paveleț 1999, p. 183). The settlement's small dimensions suggest the house arrangement in one, maximum of two rows (Șimon 2014, p. 19). Two other unburned dwellings investigated after the 2000s (L1 and L2) complete the spectrum of information. With dimensions between 36-40 m^2, both have an NW-SE orientation and rectangular shapes. The construction method is specific to Gumelnița communities, namely the wall system without foundation trenches, two of them being two-chambered. Hearths with dimensions between 0.5 m^2 and 1.2 m^2 were discovered in all of the houses. In some cases, they were raised from the level of the floors by about 20 cm (Parnic, Chiriac 2001).

About 200 m ENE of the tell, on the neighboring terrace, in 2004, the necropolis was identified, from which, until now, 23 individual burials tombs have been investigated, 9 of them being attributed to the Gumelnița culture (Lazăr, Parnic 2007; Lazăr *et alii* 2011), based on specific inventory items and radiocarbon data. The graves from Măriuța fall within the general rules of the Gumelnița funeral practice. Irregular oval pits, squat position, generally on the left side, orientation in near-east directions. The burial inventory is specific and characteristic.

Șeinoiu. The tell here is located on a terrace, in a 90-degree bend, on the left bank of Mostiștea Lake, having an approximately circular shape and dimensions of 40-60 m according to the excavation authors (Șimon, Paveleț 1999; Șimon, Parnic 2001; Șimon 2014). Based on our calculations on cartographic sources from the 19th century, correlated with topographic measurements in the field (tab. 1), the tell was 38.85 m long and 21.60 m wide, with a maximum altitude of 36 m MASL.

The defensive system composed of a ditch was captured in the settlement's second level (from bottom to top), on the north and east sides, and apparently connected with the lake during its prehistoric use (Șimon 2014, p. 52).

The anthropic stratigraphy of the tell measures just over 2.20 m (tab. 3) and includes five archaeological levels, attributed to phases A2 (starting with -1.70 m) and B1 (-0.40 m / -1.30 m), a situation also proven by radiocarbon data (tab. 2). On top of them, archaeological materials were identified that could be attributed to the Cernavoda I, Glina III and Dacian Period cultures without constituting an independent archaeological level (Șimon, Parnic 2001; Șimon 2014). The occupational sequence of the Gumelnița tell at Șeinoiu is dated, according to radiocarbon data, to the period between 4442-4240 cal BC (Popescu *et alii* 2023).

In the first occupational level, two dwellings (L3 and L4) were identified, both built on a 40-60 cm thick construction bed, which belong to the A2 phase of the Gumelnița culture. One of the houses belonging to this 80 cm thick level has a rectangular plan (21.30 m^2). Built in the typical system, the house had foundation trenches in which the traces of pole pits were preserved. The other house was set on fire and had a long side of 15.70 m. The houses on this level were oriented in the E-W direction. Also, another burnt house (L5) was investigated in the first level (Șimon 2014, p. 60). In the second level, house no. 6 overlaps the remains of dwelling 5, and dwellings 8 and 9 are also attributed to it, all of which were not burned. Only unburnt dwellings were discovered on levels three and four (L3, L10, L11 and L12). One of them (L3) is assumed to have had walls built of horizontally arranged wooden beams, probably covered with a clay layer (Șimon 2014, p. 54). Also, in the fourth level (from bottom to top), 1.30-1.40 m thick, another burnt house (L1) of 12 m^2 was investigated, with a rectangular hearth, built in a brick system, attributed to phase B1 (Șerbănescu, Șandric 2012, p. 111).

Fig. 7. Măgureni tell settlement in 2023.
Așezarea de tip tell de la Măgureni în 2023.

Măgureni. This tell is located on an erosion promontory of old Mostiștea river (fig. 7), with an oval shape, oriented east-west and dimensions of 60 x 40 m according to some authors (Șerbănescu, Șandric 2012, p. 112) or 80 x 40 m based on our calculations from cartographic sources of the 19th century (tab. 1). The anthropic stratigraphy measures between 1.8 m and 2.0 m, with two stratigraphic layers, the first being attributed to phase B1 of the Gumelnița culture and the second uncertain but supposed to belong to the same phase or A2 (tab. 3). Following the raising of the water level of Mostiștea, the Măgureni tell was almost entirely covered (Șerbănescu, Șandric 2012, p. 113).

Vlădiceasca I (Ghergălăul Mare). The tell-type settlement is located on an island on Mostiștea Lake (fig. 5), and it has an oval shape with dimensions of 100 x 40 m and a height of 5.80 m above the old water level surface (Trohani 1975; 1987; Șerbănescu, Șandric 2012; Șerbănescu 2013), the maximum altitude being of 40 m MASL (tab. 1).

The anthropic stratigraphy measures between 3.75 and 5.00 m (tab. 3), comprising all three phases of the Gumelnița culture, and four Boian levels identified at the base, belonging to the Vidra phase, a fact also confirmed by radiocarbon dating (tab. 2). Phases A1 and A2 of the Gumelnița culture are each represented by one level of dwellings superimposed by a thick layer of about 0.70 m of sediment with sporadic traces of habitation. The latter would have been formed by the destruction and levelling of unburnt houses. Finally, the last level of Eneolithic dwellings belongs to phase B1 and is overlayed by a deposit of about 0.50 m that contains traces of Getic dwellings (Șimon, Șerbănescu 1987; Șerbănescu, Șandric 2012; Șerbănescu 2013, p. 114-115).

The first three Boian levels led to the discovery of several oval-shaped hearths without any dwelling being identified (Șerbănescu, Șandric 2012; Șerbănescu 2013). Therefore, it is possible that those hearths belong to unburnt dwellings. In the last Boian level, eight north-south oriented rectangular dwellings were investigated, with lengths between 11.00 m and 12.40 m, and a width of 6.50 m (determined for one of the dwellings). The distances between the dwellings vary between 3.50 m and 11.00 m, these being arranged in two rows, one with four, another with five houses, and the third row is only assumed in the 12 unsurveyed meters between the sections. For two of the dwellings (L4 and L5), it was possible to determine the existence of two rooms. The houses were built in the plaster system, with floors on a wooden beam structure, later soldered (Șerbănescu, Șandric 2012; Șerbănescu 2013).

In the first level of Gumelnița community (A1), only two houses were investigated, built in the paving system, north-south oriented and with lengths of the long axis of 9.00 m. In level A2, the houses were organized in a single row in the southwest area of the tell, having individual orientations both in the north-south direction and east-west direction. The 12 dwellings in the B1 level almost entirely of 52-55 m^2 in size have been organized in three rows of four dwellings each. Most of them have the long axis oriented in the north-south direction, only one being oriented east-west. For all the stages of the tell's evolution, the preservation of north-south direction of the houses and the use of a typical Gumelnița construction system (‘paiantă’) can be observed.

The habitation was intermittent and only sometimes occupied the entire surface of the tell. In the last Boian level an increased density of occupational structures is recorded, while in A1 and A2 Gumelnița phases, housing is concentrated in the southern area of the tell, and in phase B1 an increased density is once again recorded (Șimon, Șerbănescu 1987; Șerbănescu, Șandric 2012, p. 124; Șerbănescu 2013).

Fig. 8. Vlădiceasca I and Vlădiceasca II tell settlements in 2023.
Așezările de tip tell Vlădiceasca I și Vlădiceasca II în 2023.

However, in 2023, the lake level dropped significantly due to a dry year and a series of hydrological works along the Mostiștea River. This event led to the re-emergence of the two paired tells, *Ghergălăul Mare* and *Ghergălăul Mic*, after more than 40 years (fig. 8). The surface of both tell sites was covered with numerous archaeological materials in a secondary position. Given the logistical challenges and the water-saturated terrain, conducting a traditional archaeological investigation was impossible. Instead, we employed non-invasive and minimally invasive surveys, along with a detailed orthophotoplan from a height of 5 meters. The entire surface of the two settlements was magnetometrically scanned, and vertical core drilling was performed in the centre of the settlements to verify the stratigraphy and date the entire stratigraphic sequence (Lazăr *et alii* 2024). These investigations indicate an oval shape for this tell site, 90 x 50 m, and a height of 1.20 m AGL (*above ground level*).

Vladiceasca II (Ghergălăul Mic). The tell-type settlement is located on an island of Mostiștea Lake, approximately 20-25 m from Vlădiceasca I tell (Șerbănescu 2013). Circular in shape (fig. 8), it has a diameter of about 45-50 m according to the excavation authors (Șerbănescu, Șandric 2012; Șerbănescu 2013) or 50 x 45 m according to our calculations (tab. 1), and the anthropic stratigraphy measures more than 2.00 m in thickness (tab. 3). The stratigraphy of the tell includes a Boian (Vidra phase) superimposed by a Gumelnița A1 level, then Gumelnița A2, and in the upper level, about 0.90-1.00 m thick, Getic features were

investigated (Șerbănescu, Șandric 2012, p. 113, 124-125). The investigations from 2023 demonstrated that the dimensions of this tell are 60 x 42 m and a height of 0.70 m AGL.

Sultana (Malu Roșu). Located in the southernmost point of the Mostiștea Valley, the tell is placed on a promontory of the high terrace on the right bank of Mostiștea Lake (fig. 4). When first researched, the tell had an oval shape, oriented NE-SW and measured about 130 m on the long axis and only 25-30 meters on the short one (fig. 3). Based on our calculations, and on cartographic sources from the 19th century (tab. 1), the tell was 140.50 m long and 85.50 m wide, with a maximum altitude of 46.42 m MASL. Due to the erosion phenomena, only 35-40 m of the length of this tell-type settlement remains. Deep valleys naturally protect the settlement on two sides, the SE and the NW ones (Andreescu, Lazăr 2008; Andreescu *et alii* 2011; Lazăr 2015). Towards the SW area, the tell is separated from the rest of the terrace by an alveolar valley with a smoother slope, easily accessible. In fact, the stratigraphic surveys carried out in this area led to the identification of an enclosure system composed of a ditch, an earth mound and palisades. This system has worked since the first stage of habitation, and was remodeled two times in different forms. The dimensions of these facilities are impressive (trenches 5 meters wide with depths between 1.10 m and 2.40 m) a fact that shows the efforts made by these communities in this regard (C. Haită 2015, p. 25). Anthropogenic deposits are more than 4 m thick (tab. 3), being unevenly distributed on the investigated surfaces (Andriețescu 1924; Isăcescu 1984a; 1984b; Andreescu, Lazăr 2008; Andreescu *et alii* 2011; Lazăr 2015).

All three phases of the Gumelnița culture have been identified, the B1 level being overlapped by a sporadic Cernavoda II habitation and disturbed by a series of Pecheneg graves, but also from the Bronze Age (Tei Culture) (Andreescu *et alii* 2011). Previously, it was assumed that there would also be a Boian level (Dumitrescu 1993, p. 39) a fact not confirmed by the research carried out in the last 15 years.

The houses have a rectangular plan and are regularly grouped, with surfaces between 12 m^2 and 60 m^2, some with two-rooms, and most are oriented with the long axis in the north-south direction, having the entrance on the south side. In many cases, houses are built on the same location as previous ones. The building system respects Gumelnița's architectural canons. The houses had foundation trenches and wooden poles tied with braided sticks, glued with clay. A particularity of the two-room houses is that they have rooms differentiated by height, and another is the simultaneous use of the wall and tile system, as in the case of house no. 5 (Ignat *et alii* 2012; 2013; Lazăr 2015; Lazăr *et alii* 2016). Recent research has also led to the identification of some constructions outside the tell mound (Andreescu *et alii* 2016). Thus, since 2014, a burnt adobe construction located in the perimeter of the necropolis has been researched (Andreescu *et alii* 2016; 2017; Lazăr *et alii* 2018; 2019; 2021).

Sultana *Malu Roșu* is the second Eneolithic settlement on the Mostiștei Valley for which a necropolis has been identified. It is a particular case regarding the use of funerary space that was initially used by the Boian community, whose settlement was identified at the Ghețărie point, and later by the Gumelnița community that occupied the tell settlement. Nevertheless, this space continued to be used even after the end of Gumelnița's habitation, a fact proved by the discovery of some Cernavoda II graves. So far, 109 graves have been investigated, and with few exceptions, they are in accordance with the funeral ritual characteristic of the Boian-Gumelnița communities. The deceased were deposited in oval-shaped pits, in a crouched position, generally on the left side, with the head towards the east or close to the east direction (Lazăr *et alii* 2008; 2009; 2012a; 2012b; 2017; Lazăr 2014; 2015; Lazăr, Voicu 2015). Furthermore,

some authors also mention a second cemetery place, in the eastern vicinity of the tell settlement, supposedly used by the same community that lived on the tell (Lazăr 2010).

Chiselet. The tell, known as *Măgura Fundeanc*a, *Grădiștea Fundeanca* or *Fundu Chiselet*, is located nowadays in the floodplain of the Danube, on the left bank of the Scoiceni branch, 1.5 km southeast of Chiselet village. The mound has an oval shape (70 x 40 m) and has a 7 m heigh from the ground level (fig. 2). Previous research was made in 1925 and led by Hortensia Dumitrescu. Six small rectangular sections, oriented NW-SE, were made, which were dug up to depth of 1 and 3.5 m. Two layers attributed to phases A2 and B1 of the Gumelnița communities were defined and in the top part of Gumelnița levels, Bronze Age artefacts are mentioned (Dumitrescu 1933).

However, under the umbrella of the project 'The Dynamics of the Prehistoric Communities Located in the Mostiștea Valley and Danube Plain (between Oltenița and Călărași),' in 2021, we initiated a new investigation of this tell, which consisted of non-intrusive surveys (ERT, GPR, magnetometry, seismic) and geomorphological coring. Based on these, in 2022, it was decided to open an extensive research campaign at this site. In all three sectors investigated during the 2022 campaign, a level of settlement abandonment ('closure') was identified (fig. 9), consisting of a layer of broken pottery *in situ* associated with flint tools, grinding stones, miniature items, stones, pieces of daub, animal bones, and shells (fig. 9).

Fig. 9. Chiselet tell settlement in 2022. Image of settlement abandonment level ('closure') from T7 (right – general view, left – details).
Așezarea de tip tell de la Chiselet în 2022. Imagine a nivelului de abandonare a așezării („closure") din T7 (dreapta – vedere generală, stânga – detalii).

A significant number of ichthyological and malacological remains were noted. Based on the distribution pattern of the broken pottery in this 'closure' and the fragmentation mode, at least two moments of ceramic vessel disposal can be identified (Lazăr *et alii* 2023, p. 362-363).

The pottery belongs to the Gumelnița culture, as do the rest of the archaeological materials, but Cernavoda I ceramic fragments associated with these Gumelnița vessels were

also noted. One of the most exciting pieces of information related to this site, obtained in 2021, refers to the anthropic stratigraphy of the tell at Chiselet, which was approximately 7-8 meters thick, thus over 4.5 meters thicker than what was known from the interwar investigations of Hortensia Dumitrescu (Zolchow *et alii* 2023; Lazăr *et alii* 2023, p. 362-363).

◈ Final remarks

Therefore, 100 years of research in the Mostiștea Valley have demonstrated the archaeological potential of this micro-area. The investigations conducted here, at varying intensities, have revealed tha the archaeological evidence attributed to the Boian and Gumelnița cultures in the period 5300-3900 cal BC was closely linked to the emergence, evolution and end of the tell settlements in this valley.

Looking beyond the culturally-historical perspective that still dominates Southeastern European archaeology, the archaeological evidence we refer to as Boian or Gumelnița is attributed to a new wave of farmers arriving from Southwestern Anatolia, as recently demonstrated by aDNA studies (Hervella *et alii* 2015; Mathieson *et alii* 2018). These colonists from the Mostiștea River Basin, expanded step by step from south to north, at the beginning of the 5th millennium BC, over the course of few hundred years, an expansion that suggests a remarkable form of strategy and foresight.

The colonization of the Mostiștea Valley began no earlier than 5318-5301 cal BC, when the first Anatolian settlers arrived, according to radiocarbon dates from the necropolises at Sultana *Valea Orbului* (Graves 201 and M235)[1] and Sultana *Malu Roșu* (Graves 25 and M92)[2] (fig. 10). These individuals correspond to the Boian communities, who initially established flat settlements and founded the first cemeteries in the valley (Curătești, Sultana *Școala Veche*, Sultana *Malu Roșu*, Sultana *Valea Orbulu*i). Interestingly, the ^{14}C dates obtained for the flat settlements associated with some of these cemeteries (*e.g.*, Sultana *Ghețărie*) do not indicate an occupation horizon earlier than 4956-4839 cal BC[3] (Opriș *et alii* 2017). These dates from the flat settlement are very close to those obtained from the Sultana *Școala Veche* cemetery (4934-4887 cal BC), suggesting that this cemetery may have been contemporaneous with the Sultana *Ghețărie* settlement[4] (fig. 10), especially given the proximity of the two points (*c.* 290 m) and the similarity in material culture.

The discrepancy between the ^{14}C dates from the graves and those from the settlements may reflect a gap in archaeological research, as these individuals undoubtedly lived

[1] Sultana *Valea Orbului* cemetery: Grave 201 (human bone) - Poz-52600: 6225 ± 35 BP / 5304-5053 cal BC (2σ calibration); Grave 235 (human bone) - RoAMS-323.52: 6264 ± 37 BP / 5318-5072 cal BC (2σ calibration) (Unpublished).

[2] Sultana *Malu Roșu* cemetery: Grave 25 (human bone) - Poz-47212: 6220 ± 30 BP / 5301-5054 cal. BC (2σ calibration); Grave 92 (human bone) - Poz-80042: 6180 ± 40 BP / 5286-5003 cal BC (2σ calibration) (Unpublished); Grave 35 (human bone) - Poz-40267: 6020 ± 40 BP / 5011-4799 cal BC (2σ calibration) (Lazăr *et alii* 2012b; Opriș *et alii* 2017, tab 1); Grave 11 (human bone) - LTL8096A: 5939 ± 50 BP / 4943-4712 cal BC (2σ calibration) (Hervella *et alii* 2015; Opriș *et alii* 2017, tab. 1).

[3] Sultana *Ghețărie* flat settlement: Pit C20 (herbivore bone) - Poz-78730: 5970 ± 40 BP / 4983-4726 cal BC (2σ calibration); Pit C13 (herbivore bone) - Poz-78731: 5870 ± 40 BP / 4840-4615 cal BC (2σ calibration) (Opriș *et alii* 2017); Ditch C31 (herbivore bone) - Poz-147007: 5960 ± 40 BP / 4941- 4725 cal BC (2σ calibration) (Unpublished).

[4] Sultana *Școala Veche* cemetery: Grave 1 (human bone) - Poz-78735: 5940 ± 40 BP / 4934-4718 cal BC (2σ calibration); Grave 2 (human bone) - Poz-78726: 5870 ± 50 BP / 4887-4718 cal BC (2σ calibration) (Unpublished).

'somewhere' within these settlements. However, when comparing ^{14}C dates obtained from herbivores in flat settlements with omnivores in cemeteries, we can also consider the possibility of a Freshwater Reservoir Effect (FRE) for the radiocarbon dates obtained from humans. This issue is a work in progress, and we hope to identify soon the FRE for the human communities in the Mostiștea Valley. In contrast, recent data obtained for the tell and cemetery at Gumelnița, contemporaneous with the sites analyzed in the Mostiștea Valley, indicate an average FRE of 147 years (García-Vázquez *et alii* 2023).

Based on current data, we know that the oldest tell settlement in the Mostiștea Valley is the one from Vlădiceasca I, belonging to the Boian communities (4941-4904 cal BC – tab. 2). From here, a second tell developed in the vicinity of the first (Vlădiceasca II), though no radiocarbon dates are available for it.

Primarily, this first tell founded here is contemporary with the flat settlement at Sultana *Ghețărie* and some Boian graves in the necropolises along the Mostiștea Valley (fig. 10). In this primary core located in the middle of the Mostiștea Valley, the exploration of new territory was conducted both to the north and south of the river. This initial nucleus of Anatolian settlers, who founded tell-type sites, has also been identified in a statistical population model related to Kodjadermen-Gumelnița-Karanovo VI (KGK VI), conducted for Romania and Bulgaria (Popescu *et alii* 2023, fig. 2)

Sometime after the paired tells at Vlădiceasca, the tell at Sultana *Malu Roșu* was founded in the southern part of the Mostiștea Valley (4546-4541 cal BC – tab. 2), these two being the longest-lasting chronologically in the micro-region (fig. 10). The tells at Sultana *Malu Roșu*, along with those at Vlădiceasca, seem to 'dominate' the southern part of the Mostiștea Valley at the beginning of the 5th millennium BC (and later), with most flat settlements (Chirnogi, Făurei, Ulmu 1, and Ulmu 2) contemporaneous with the tells, as well as other sites with identified materials (*e.g.*, Boșneagu, Dorobanțu, Sultana *Ghețărie*/*Rățărie*, Lunca, Tăriceni, and Gostilele) suggesting contemporaneous short-term occupations (Ignat, 2018).

These Anatolian farming communities, which inhabited these two initial tells (Vlădiceasca I, Sultana *Malu Roșu*) and the aforementioned flat settlements in the Mostiștea Valley, later developed (after 4500 cal BC) other, smaller tell-type settlements further north in the valley (*e.g.*, Măriuța, Șeinoiu, Măgureni, etc.). We still do not know the exact position of the tell at Chiselet, which recent discoveries indicate has the largest anthropic stratigraphy among the tells in the Mostiștea Valley, indirectly suggesting a longer and more intense occupation compared to other contemporary tells. Future radiocarbon dates will clarify the position of this settlement within the network of tells in the Danube Basin and its tributaries (including Mostiștea), especially since, based on available data, we may be dealing with a leap-frog pattern[5] in the colonization of this area by Anatolian settlers, and such a model usually implies the existence of 'bridgehead' settlements. Chiselet could qualify for this role given its geographical position and the large thickness of the anthropic layers (7-8 m) recently identified (Zolchow *et alii* 2023; Lazăr *et alii* 2023).

[5] Term borrowed from ornithology. A leap-frog model for human colonization suggests an (archaeologically) instantaneous advance where people move relatively far over a short time to establish satellite settlements, leaving swaths of empty space in between (Boland 1990; Anderson, Gillam 2000).

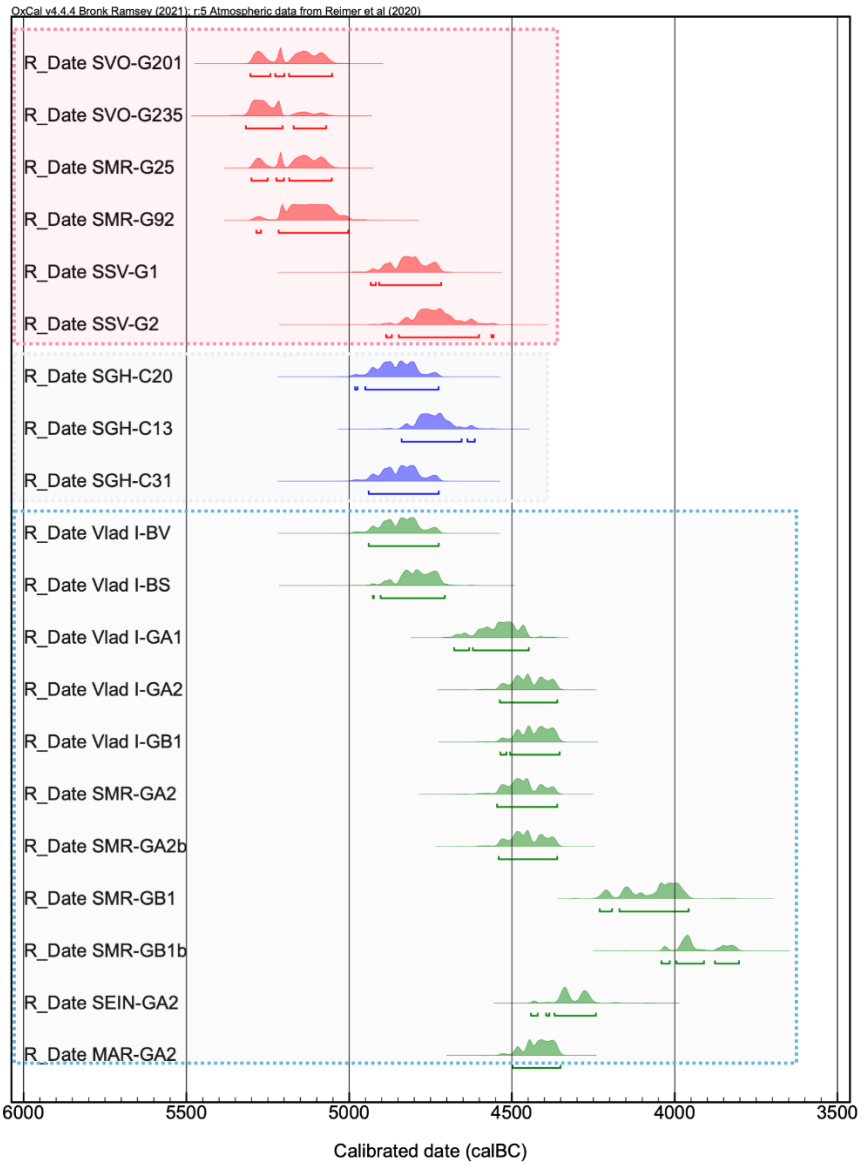

Fig. 10. The available radiocarbon data for the tells in the Mostiștea Valley, combined with the earliest radiocarbon data in the area (Boian culture) from cemeteries and flat settlements. The initial sequence of Anatolian farmers' colonisation based on early ^{14}C data from the necropolises in the Mostiștea Valley (red), the flat settlements (blue), and the sequence of appearance, development, and decline of the tells (green).
Datele radiocarbon disponibile pentru tell-urile din Valea Mostiștei, combinate cu cele mai vechi date radiocarbon din zonă (cultura Boian) provenite din cimitire și așezări plane. Secvența inițială a colonizării fermierilor anatolieni, bazată pe date de ^{14}C timpurii din necropolele din Valea Mostiștei (roșu), așezările plane (albastru), și secvența de apariție, dezvoltare și declin a tell-urilor (verde).

In general, the farming colonists in the Mostiștea Valley, who introduced tell-type settlements and the corresponding economic model, initially underwent a phase of exploration and pioneering (5318-4941 cal BC – fig. 11). This phase allowed them to become familiar with the area and identify sources of raw materials. The first flat settlements are now emerging in the area, and the earliest cemeteries are being established. After that, we witness an initial dispersion and expansion of the tell archaeological signal from the main cores (4901–4751 cal BC), as

demonstrated by the population model developed by Popescu and collaborators (2023). This was followed by about 300 years of development, reaching its peak between 4500–4400 cal BC. During this period, the colonists in the Mostiștea Valley founded new, smaller tells towards the northern part of the valley. These tells played an economic role in the network of settler farmers, leading to increased human occupation density in the landscape, the development of inter-regional trade networks, exotic items, innovations, and the adoption of new raw materials (*e.g.*, copper, gold, graphite), along with diverse pottery styles.

The development episode of the Mostiștea Valley tell settlements was followed by a rapid decline, beginning around 4350 BC, without a significant recovery, until the tells disappeared from the archaeological record toward the end of the 5th millennium BC – early 4th millennium BC (Popescu *et alii* 2023). This decline of the tells and their specific economic model is attributed to a climatic event (Bond Event 4 or the 5.9 ka BP event) and has been archaeologically noted through the near-total disappearance of tells after 4250 cal BC (Reingruber, Thissen 2009).

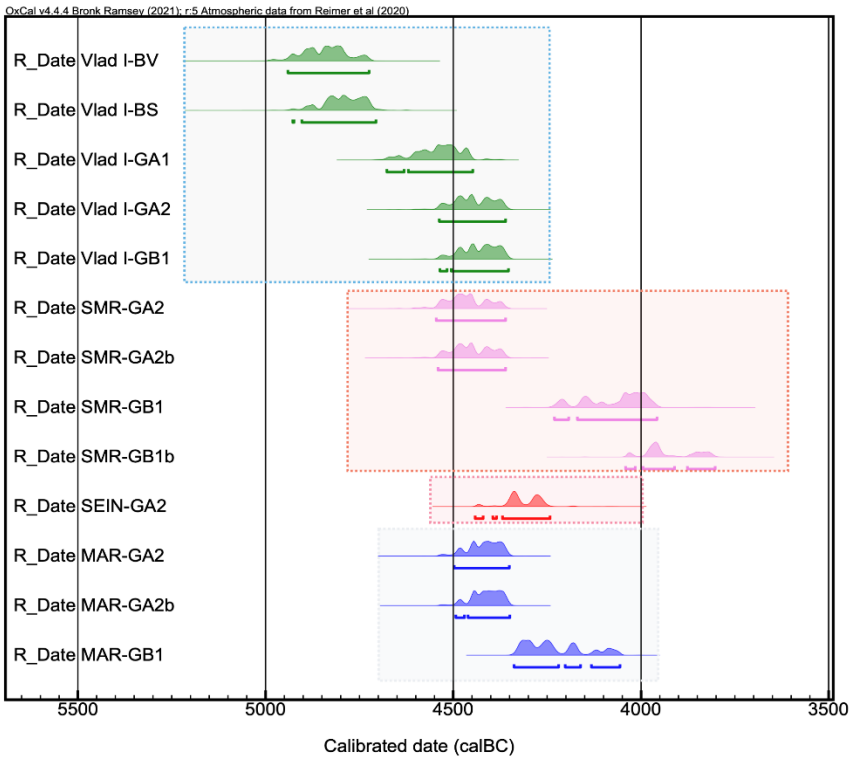

Fig. 11. The available radiocarbon data for the tells in the Mostiștea Valley, combined with the earliest radiocarbon data in the area (Boian culture) from cemeteries and flat settlements. The evolution sequence of the tell settlements in the Mostiștea Valley (green: Vlădiceasca I, violet: Sultana, red: Șeinoiu, blue: Măriuța) and their chronological precedence, contemporaneity, and posteriority.
Datele radiocarbon disponibile pentru tell-urile din Valea Mostiștei, combinate cu cele mai vechi date radiocarbon din zonă (cultura Boian) provenite din cimitire și așezări plane. Secvența evoluției așezărilor tip tell din Valea Mostiștei (verde: Vlădiceasca I, violet: Sultana, roșu: Șeinoiu, albastru: Măriuța) și anterioritatea, contemporaneitatea și posterioritatea cronologică a acestora.

In the second half of the 5th millennium BC, the Atlantic period (6900–3700 cal BC) ended, with a significant decline in temperatures observed after 4800 cal BC (in some areas

after 4300 cal BC), marking a gradual transition to the next period (Subboreal). During this transition, the climate became cooler and drier, and the event was designated as the 5.9 ka BP event or Bond Event 4 (Bond *et alii*, 1997; Harper, 2019). This phenomenon has been comprehensively documented in the Carpathian Mountains using a range of multidisciplinary approaches, including the analysis of lipid biomarkers, pollen records, and speleothem formations (Drăgușin *et alii* 2014; Ramos-Román *et alii* 2022). Moreover, a recent isotopic study performed on plants, animals, and humans at the Gumelnița tell site indicated that precipitation and temperature decreased from 4300 cal BC in the Danube Valley, along with an increase in aridity, compounded by a decline in agricultural activity (García-Vázquez *et alii* 2023). This Bond event led to the disappearance of most tells in the Mostiștea Valley (fig. 12), with the remaining signals after 4300 cal BC coming from the settlements at Șeinoiu and Măriuța. However, these settlements struggled with survival strategies and eventually collapsed. Based on current radiocarbon data, the tell at Sultana *Malu Roșu* appears to have been the most resilient in the area. The communities here found solutions to the crisis caused by cooling, reduced precipitation, and increased aridity, likely surviving until approximately 3973-3804 cal BC. The case of Sultana *Malu Roșu* parallels that of the tell at Gumelnița, where human communities also demonstrated greater resilience (García-Vázquez *et alii* 2023).

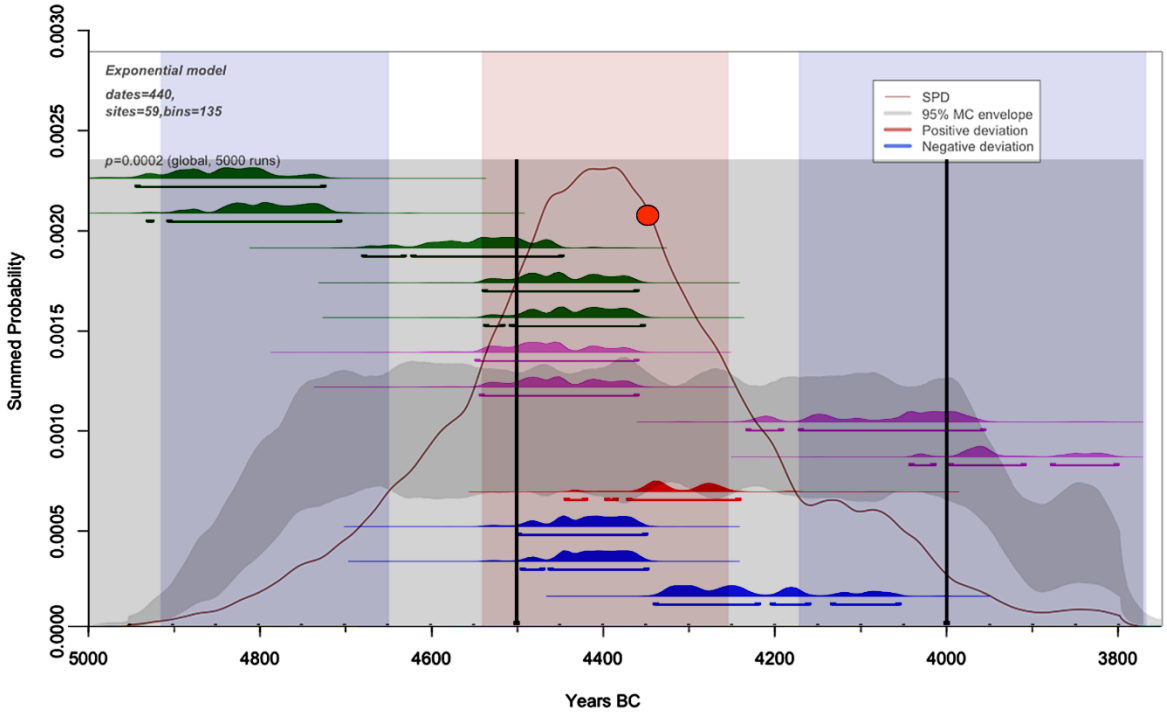

Fig. 12. The available radiocarbon data for the tells in the Mostiștea Valley, combined with the earliest radiocarbon data in the area (Boian culture) from cemeteries and flat settlements. The combination of the evolution sequence of the tell settlements in the Mostiștea Valley with the entire regional empirical SPD against the exponential model of population growth (after Popescu *et alii* 2023, modified). The orange point marks the starting decline point of the tell monuments (*c.* 4350 cal BC).
Datele radiocarbon disponibile pentru tell-urile din Valea Mostiștei, combinate cu cele mai vechi date radiocarbon din zonă (cultura Boian) provenite din cimitire și așezări plane. Combinarea secvenței evolutive a așezărilor tip tell din Valea Mostiștei cu întregul SPD empiric regional în raport cu modelul exponențial de creștere a populației (după Popescu *et alii* 2023, modificat). Punctul portocaliu marchează începutul declinului monumentelor de tip tell (cca 4350 cal BC).

Undoubtedly, our current data is limited, but future research will allow us to formulate new working hypotheses and confirm or challenge previous interpretative assertions.

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Finally, the ongoing research in the Mostiștea Valley, as part of the Romanian-German project 'The Dynamics of the Prehistoric Communities Located in the Mostiștea Valley and Danube Plain (between Oltenița and Călărași)', provides an opportunity to enhance the dataset regarding prehistoric communities that established the tell network and portrayed the realities associated with those past people.

◈ Acknowledgments

We dedicate this study to honour the late Professor Silvia Marinescu-Bîlcu (1935-2023). She was the guiding force for numerous generations of archaeologists, including our own. Her unwavering support for archaeological research in the Mostiștea Valley has left an indelible mark. Her departure feels untimely. *Sit tibi terra levis!*

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