

# The Chronology of the Bronze Age Tell and Tell-like Settlements in the Carpathian Basin. Revisited after 15 Years

Florin Gogâltan

In memory of Professor Bernhard Hänsel (1937–2017)

## ABSTRACT

Fifteen years ago, during an Alexander von Humboldt fellowship at the Institut für Prähistorische Archäologie, Freie Universität Berlin I have put together a catalogue of Early Bronze Age (EBA) and Middle Bronze Age (MBA) multi-stratified settlements in the Carpathian Basin (ca. 2500–1600/1500 BC). A total of 188 multi-stratified sites ascribed to five horizons were placed in chronological order. The new AMS data have substantially modified the absolute chronology of this period. The present paper focuses only on recent information regarding the chronology of the tell and tell-like settlements in the Carpathian Basin.

## KEYWORDS

Bronze Age; tell and tell-like settlements; Carpathian Basin; Chronology.

During the summer of 1999, Professor Bernhard Hänsel and my mentor Dr. Tudor Soroceanu were visiting Cluj together, planning to process the hoard from Uioara, the largest Bronze Age find of this type discovered in the Carpathian Basin. Unfortunately, this project failed. Nevertheless, as a result of three hours long discussion, Professor Hänsel advised me to apply for an Alexander von Humboldt scholarship. With regard to the research project, he inquired about my thoughts on the Bronze Age tells from the Carpathian Basin. I answered sincerely that apart from a few small-scale investigations that I have carried out in the tells at Foeni-Cimitirul Ortodox (GOGÂLTAN 2014b), Foeni-Gomila Lupului (GOGÂLTAN 2014c), and Semlac-Livada lui Onea (GOGÂLTAN 2014d), I am not particularly familiar with the subject. To my surprise, he also admitted his failure to grasp the formation process of the Bronze Age multi-layered settlements of the Carpathian Basin, even though he achieved significant results with his research of the tell at Moșorin-Feudvar and its surroundings. As faith would have it, my project entitled *Der Beginn der bronzezeitlichen Tellsiedlungen im Karpatenbecken. Studien zu Siedlungswesen und Chronologie der Zeit um 2000 v.Chr.* was accepted, and I became an Alexander von Humboldt fellow at the Institut für Prähistorische Archäologie, Freie Universität Berlin for a period of nearly two years (between March 2001 and December 2002). The acquaintance of Professor Hänsel and the period spent in Berlin have fundamentally changed not only my life, but also the lives of other family members. He will forever remain in my thoughts.

## WHAT MAKES A SITE A TELL?

The first and most difficult task was to establish the characteristics of the Bronze Age tells in the Carpathian Basin. According to the literature on the subject, the most important stratigraphic accumulations occur when the same community repeatedly constructs and reconstructs surface houses made of clay and having a wooden structures on an area confined by

defensive works. There are situations when the stratigraphic accumulations exceeded one meter and comprised three levels of habitation belonging to the same ‘archaeological culture’. Such sites were designated as tells. In cases when only two archaeological levels could be identified within a 1 m thick stratigraphy, the respective site was included in the category of so-called tell-like settlements. When no archaeological excavations have been carried out, but there was still information in the secondary literature concerning the existence of a tell, these were included in the category of mound or hill-shaped settlements (*Siedlungshügel, settlement mound*) indicating the continuation of habitation on the same spot (GOGÂLTAN 2002, 23–24). Based on information found in the literature published prior to 2002, a number of 188 Bronze Age sites meeting the above-mentioned criteria were recorded (GOGÂLTAN 2005, 161, Abb. 1; GOGÂLTAN 2006, 61, Abb. 1; GOGÂLTAN 2008, 40, fig. 1; GOGÂLTAN 2017, map 1, annexe 1) (**Fig. 1**).<sup>1</sup>

Right from the start, I was aware that such a definition of the multi-stratified settlements is debatable. I was encouraged however to continue this path given that from a methodological point of view, the coherence of the research can only be assured by respecting a principle assumed from the beginning. The catalogue could only be viable if based on stratigraphic criteria. These opinions concerning the terminology of the Bronze Age tells in the Carpathian Basin drew the attention of the specialists on this topic.<sup>2</sup> Some rejected my proposal,<sup>3</sup> other ignored it (UHNÉR 2010; DUFFY 2014; NICODEMUS 2014) or even misinterpreted my aforementioned assertions.<sup>4</sup> For the majority of specialists who subsequently dealt with the question of Bronze Age tells in the Carpathian Basin, with some exceptions,<sup>5</sup> the aspects of terminology were not included among their scientific priorities (ROSENSTOCK 2009; DAVID 2009; FISCHL – KIENLIN 2013; KIENLIN 2015; DANI *et al.* 2016; *etc.*).

- 
- 1 The list of these settlements – not included here for the sake of saving printing space – can be found in GOGÂLTAN 2017, annexe 1.
  - 2 Some of my first articles concerning the problems of the tells in the Carpathian Basin appear mentioned in: LINK 2006, 7–10, *etc.*; MOLNÁR 2006, 76; DANI – FISCHL 2010, 105; HANSEN 2010, VII; HANSEN – TODERAŞ 2010, 138; DRAŞOVEAN – SCHIER 2010, 165; MARTA *et al.* 2010, 128; EARLE – KRISTIANSEN 2010b, 24; EARLE – KRISTIANSEN 2010c, 254; RACZKY – ANDERS – BARTOSZIEWITZ 2011, 57; ROSENSTOCK 2012, 42; KIENLIN 2012; METZNER-NEBELSICK 2013, 332, 340; KIENLIN 2015; FISCHL – KRAUSS 2016, 328–329; *etc.* Some have even forgotten to cite my opinions: ‘Unserer Meinung nach waren diese spezifischen befestigten Siedlungen (aus mindestens drei Siedlungsschichten bestehende und mit einer unteren Grenze der Schichtgröße von einem Meter) ein Wirtschafts- und Handelszentrum oder Sitz der Macht für jede Mikroregion’ (NÉMETI – MOLNÁR 2012, 15).
  - 3 T. Link’s opinions as well as mine were criticised by F. Horváth, one of the specialists with extensive experience in the study of the Carpathian Basin tell-settlements (HORVÁTH 2009, 159–160). This is not the place to reply to his observations, but I hope to be able to do so at another occasion on the grounds of the information acquired during new research project on the tells in Western Romania. Reactions to my stratigraphic criteria can be found at R. Ganslmeier in his analysis of the ‘tellartigen Siedlung’ at Niederröblingen in Central Germany (GANSLMEIER 2011, 37–42). See also T. Kienlin (2012, 257–258; KIENLIN 2015) and his reserves concerning the economic and social function of the Bronze Age tells in the Carpathian Basin (GOGÂLTAN 2010). A response to some of his critical observations can be found in GOGÂLTAN 2016.
  - 4 See for example opinions that were not put forward by me: ‘Some have suggested that the term “tell” be abandoned altogether. Gogáltan (2001, 23), for example, has argued that the word is an Arabic and archaeological neologism that causes more confusion than it helps’ (PARKINSON – GYUCHA 2012, 112).
  - 5 FISCHL *et al.* 2015, 120: ‘Due to the relatively limited thickness of their layers (sometimes less than one meter in the preserved state) most of them can only be classified into the category of tell-like settlements.’

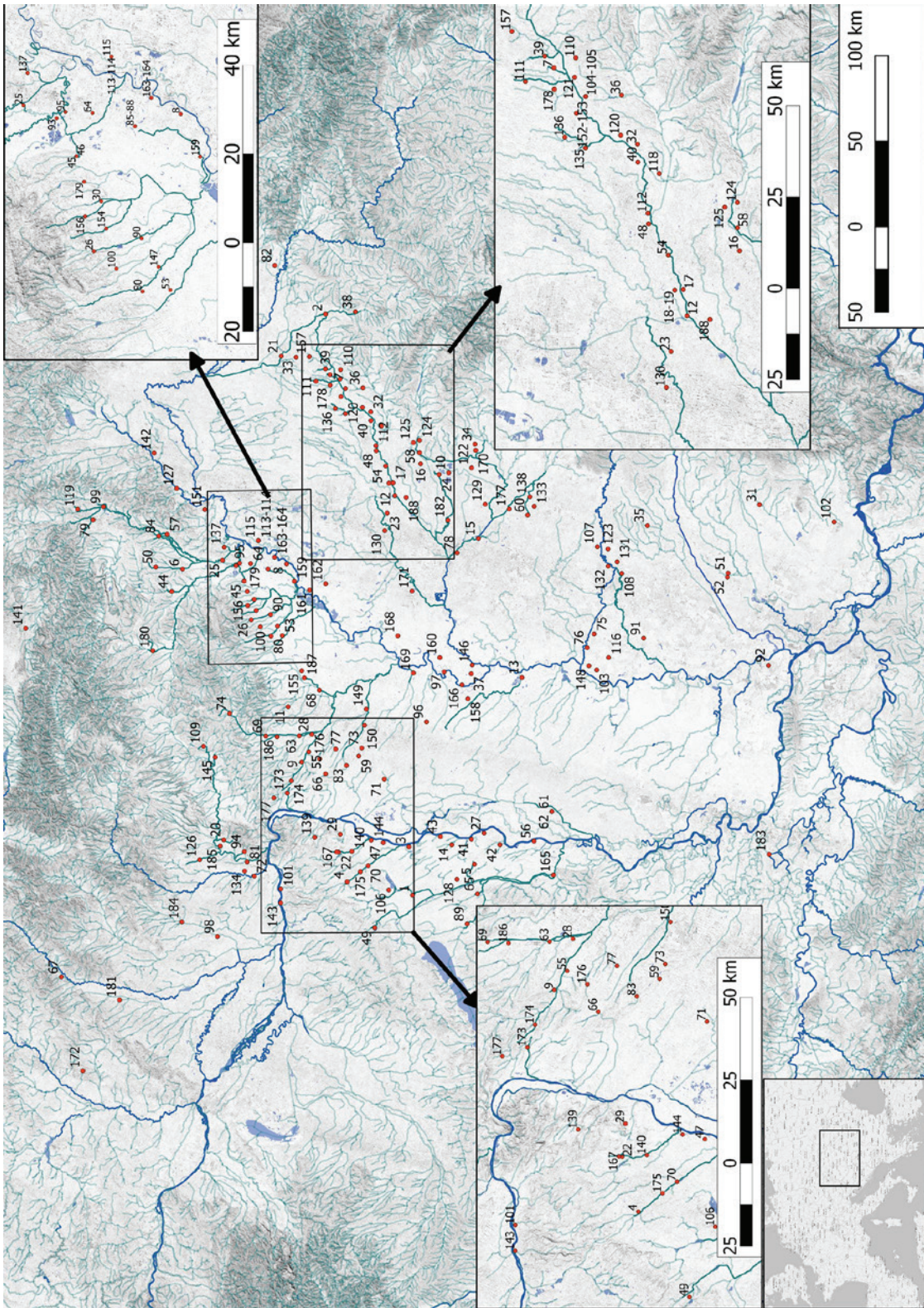


Fig. 1: The Bronze Age multi-layered settlements in the Carpathian Basin (ca. 2500-1600/1500 BC).

### DATING THE TELL SETTLEMENTS IN CARPATHIAN BASIN

A subsequent phase of this research was centred on the question regarding the chronology of these sites (GOGÂLTAN 2005). The limited number of pages allocated in the *Festschrift* dedicated to Bernhard Hänsel hindered the possibility of discussing the chronology of each site published in the catalogue. Even though some of the information put forward in the above-mentioned study have since become outdated, I believe that the publication of the list containing the multi-stratified EBA and MBA settlements in the Carpathian Basin together with their chronology as it was conceived 15 years ago (GOGÂLTAN 2017) offers the only possibility of revising this stage of research, thus allowing us to step forward.

BC	South Germany and Austria	Carpathian Basin (Hänsel)	Hungarian-Transylvanian chronology	Continental Greece	Chronological Horizons of the Bronze Age tells	Bronze Age cultures
1500	B2	MD III früh	LB I	SH IIB	Horizont 5	Vatya III, Gerjan, Late Mad'arovec
1600	B1	MD II	MB III	SH IIA		
1700	A3	MD I		MB II	SH I	Horizont 4
1800			MH III			
1900	A2	FD III	MB I	MH II	Horizont 3	Nagyrev, Mures I, Hatvan, Gornea-Orlești, Otomani I, Vatya I, Vatina I (Pančevo-Omoljca, Cornești-Crvenka), Wietenberg, Tokod
2000				MH I		
2100				FH III		
2200			EB III		Horizont 2	Nyirseg, Nagyrev, Sanislău
2300	A1	FD II				
2400	A0		EB II		Horizont 1	Somogyvár-Vinkovci
2500		FD I				

**Fig. 2: The Early and Middle Bronze Age chronology in the Carpathian Basin (GOGÂLTAN 2008).**

The relative and absolute chronology of these sites are based on the radiocarbon dates available in 2002 for both tells and other site types belonging to communities which developed multi-stratified settlements in the Carpathian Basin. Everything was grounded in what I have defined some years ago as the Hungarian-Transylvanian EBA and MBA chronology of the eastern Carpathian Basin (GOGÂLTAN 1999). Naturally, references were made to the relative chronological system of Central Europe (southern Germany and Austria), the Hänsel system and the chronology of the Helladic period (Fig. 2). At that time, I have structured the chronological evolution of tell and tell-like settlements into five distinct horizons, covering the period between ca. 2500 BC and 1600/1500 BC (GOGÂLTAN 2005, 161–172; GOGÂLTAN 2008, 40–41; GOGÂLTAN 2017). From a chronological point of view, the earliest tell, namely the one at Vinkovci-Tržnica, belonging to the Somogyvár-Vinkovci Culture, was founded around 2500 BC and represented the first horizon in my scheme (GOGÂLTAN 2017, map 2). The next chronological horizon, dated approximately between 2400 and 2300 BC was characterized by the first tells of the Nagyrev culture, such as the ones located along the right bank of the Danube: Bölcske-Vörösgyűrű = Vörösgyír,

Dunaföldvár-Kálvária = Öreghegy, Sióagárd-Gencs puszta = Várdomb and Gerjen-Váradpuszta = Várad, in addition to the ones from the middle course of the Tisza River: Tószeg-Laposhalom and Nagyrév-Zsidóhalom = Áldozóhalom (GOGÂLTAN 2017, map 3-4). The third chronological horizon, dated approximately between 2300 and 1950 BC is marked by the emergence of the majority of Bronze Age tell settlements (GOGÂLTAN 2017, map 5-6). As mentioned earlier, the lack of sufficient data in many cases did hinder the accurate determination for the date of emergence of the tells. This is also reflected in my chronological table, where no less than 96 settlements, which represent more than half of the 188 cases included in the catalogue presented uncertain dating during the EBA III and MBA I (GOGÂLTAN 2017, annexe 2). It is for this reason that I was forced to employ a wider chronological sequence for the third horizon. The fourth horizon (MBA II/Reinecke A2), dated approximately to 1950 – after 1700 BC, represents the emergence of the majority of Bronze Age multi-layered settlements in the Carpathian Basin, even in the area of the Madarovce Culture (GOGÂLTAN 2017, map 7). The last horizon, the fifth one, was dated around 1650 and before 1500 BC, and is characterized by the foundation of only a few new tell settlements (GOGÂLTAN 2017, map 8). Like in the Late Neolithic, 3000 years before, towards the end of the MBA this type of habitat suddenly ceased to exist.

Subsequently, some of the specialists dealing with the issue of Bronze Age tell settlements in the Carpathian Basin adopted and used the chronological framework proposed in the abovementioned article (KIENLIN 2015, 36; JAEGER 2016, 92; etc.).

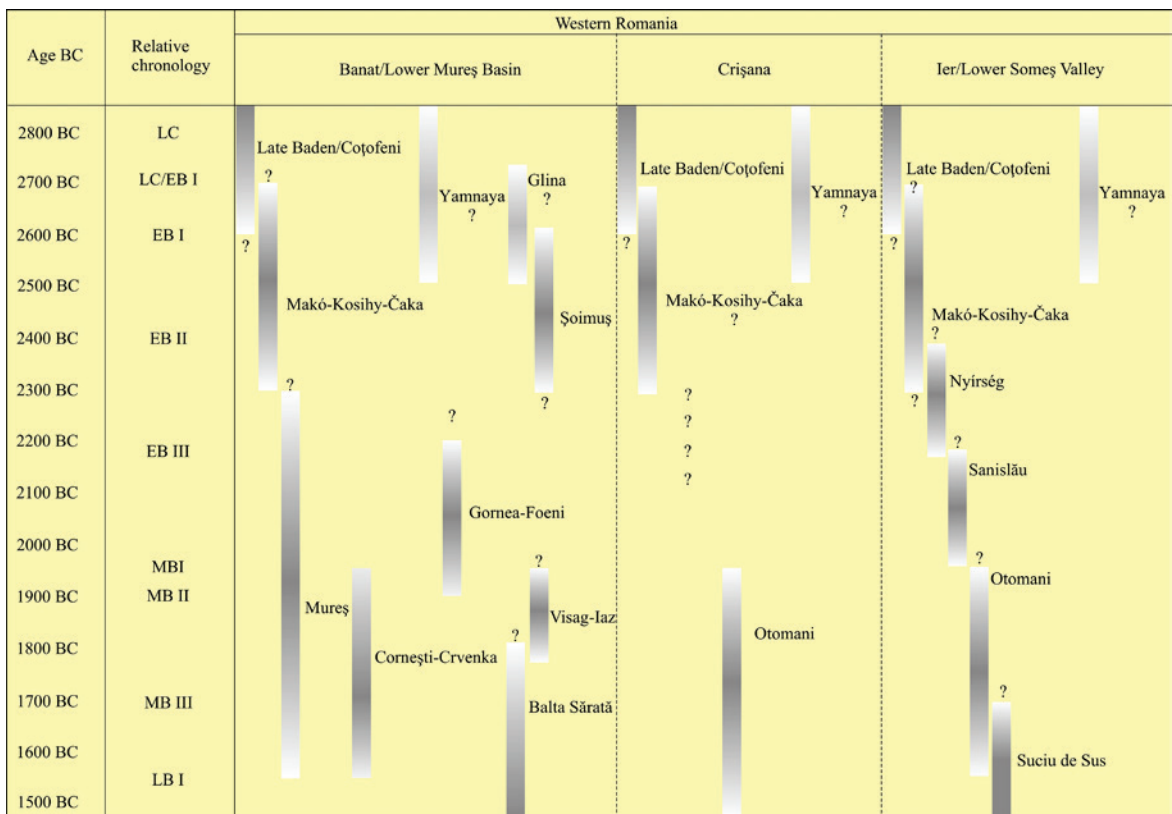
## RECENT ARCHAEOLOGICAL RESEARCH AND ITS IMPLICATIONS

The last 15 years of archaeological research in Hungary, Slovakia, Romania, and Serbia were marked by a high number of excavations on sites attributed to the EBA and MBA. Very important are the systematic research projects in the Bronze Age tell settlements from Vráble-Fidvár (BÁTORA *et al.* 2012), Santovka-Nad Búrom (BÁTORA – TÓTH 2014, 327–328), Veselé-Hradisko-Podzámске (MARKOVÁ – STAŠŠÍKOVÁ-ŠTUKOVSKÁ 2015) in Slovakia, Százhalombatta-Földvár (POROSZLAI – VICZE 2005; STIG SØRENSEN – VICZE 2013), Túrkeve-Terehalom (CSÁNYI – TÁRNOKI 2013), Kakucs-Bala-domb (JAEGER – KULCSÁR 2013), Polgár-Kenderföld (DANI – MÁTHÉ – SZÁBÓ 2003), Ároktő-Dongóhalom (FISCHL 2006) in Hungary, Carei-Bobald (NÉMETI – MOLNÁR 2012), Pecica-Şanţul Mare (NICODEMUS – O'SHEA 2015), Toboliu-Dâmbul Zănăcanului (GOGÂLTAN 2017), Sântion-Dealul Mănăstirii=Klastrom domb (GOGÂLTAN 2017) in Romania, Moşorin-Feudvar (FALKENSTEIN – HÄNSEL – MEDOVIĆ 2016), and Orešac-Židovar in Serbia (LJUŠTINA 2013).

The archaeological investigation of the tells was completed by a series of projects dedicated to the study of certain micro-regions for which this particular type of settlement was characteristic. In Hungary this is the case of the Benta Valley (EARLE – KRISTIANSEN 2010a; EARLE *et al.* 2014), the Bronze Age Körös Off-Tell Archaeology (DUFFY 2014) or the Borsod Plain and the Bükk mountains foothills (FISCHL – KIENLIN – TUGYA 2015). In Romania, we have to mention the non-invasive research carried out on the Carei Plain and the valley of the Ier River (MARTA *et al.* 2010; KIENLIN – FISCHL – MARTA 2017, 107–117) or the project entitled 'Living in the Bronze Age Tell Settlements. A Study of Settlement Archaeology at the Eastern Frontier of the Carpathian Basin', hosted by the Institute of Archaeology and Art History, Romanian Academy of Sciences in Cluj-Napoca (GOGÂLTAN – CORDOŞ – IGNAT 2014; GOGÂLTAN 2016).<sup>6</sup>

6 This work was funded by a grant of the Ministry of National Education, CNCS – UEFISCDI, project number PN-II-ID-PCE-2012-4-0020. See [www.bronzeagetells.ro](http://www.bronzeagetells.ro).

Rather recently I had the opportunity to discuss the chronology of EBA and MBA on the eastern frontier of the Carpathian Basin (**Fig. 3**), whereby references were made to the new contributions with regard to the chronology of this period in Hungary and Slovakia (GOGÂLTAN 2015). Compared to what I have proposed in 2005/2008 (GOGÂLTAN 2005, Abb. 2; GOGÂLTAN 2008, fig. 2) and reiterated in 2014 (GOGÂLTAN 2014a, fig. 6), a series of modifications have emerged. The Bronze Age tells and tell-like settlements are only characteristic of Western Romania, while their presence could not be documented in Transylvania (GOGÂLTAN 2014a, pl. I). Consequently, references will be limited to the chronological system and cultural and historical evolution of the respective region. Thus, EBA I was dated between 2700/2600 BC and ca. 2400 BC. On the territory of present-day Western Romania, the Makó-Kosihy-Čaka and Şoimuş communities continue their evolution during EBA II (ca. 2400–2200/2100 BC). Their habitat, just as that of the so-called Nyírség group, is characterized by flat settlements. EBA III (2200/2100–2000/1900 BC) is marked by the emergence of the first multi-stratified settlements belonging to the Mureş, Gornea-Foeni and Sanislău ceramic styles (GOGÂLTAN 2014a, fig. 6). The evolution of the Gornea-Foeni group, marked by pottery decorated with ‘textile impressions’, and Mureş type communities is continued throughout the beginning of the Middle Bronze Age (2000/1900 BC). The tells and tell-like settlements belonging to the Corneşti-Crvenka, Otomani, and Wietenberg ceramic styles evolve up to the end of the Middle Bronze Age (1600/1500 BC) (GOGÂLTAN 2014a, fig. 6).



**Fig. 3: The chronology of the EBA and MBA in Western Romania.**

In the meantime, new points of view regarding the chronology of EBA and MBA in the Carpathian Basin were put forward. In her PhD. thesis Amy Nicodemus, without giving any explanations, employs a relative chronological system according to which both EBA and MBA are divided into two phases (A and B). According to the author, EBA A (ca. 2800/2700–2500/2400 BC) comprises the early phases of the Mureş and Nagyrév Cultures, furthermore the Makó, Coţofeni, and Vučedol Cultures, as well as the Csepel Group. EBA B (ca. 2500/2400–2200/2000 BC) on the other hand is marked by the emergence in the Great Hungarian Plain of the tells belonging to the early phases of the Mureş, Nagyrév, and Hatvan Cultures, as well as by the Nyírség Culture in the north-eastern part of the Carpathian Basin. In Transdanubia we find the Somogyvár-Vinkovci Culture and somewhat later the Kisapostag Culture, while in Transylvania this period is represented by the Glina III-Schneckenberg Culture. Anyone wishing to understand the reasoning behind this configuration will be left wondering, since there are no arguments brought forward in this regard by the book. The discussion is similar in the case of MBA, which according to the author ‘continues many organizational aspects from the EBA, but in some areas more centralized polities emerge’ (NICODEMUS 2014, 111). The early stages of MBA (2200/2000–1800/1700 BC) are marked by the classic phase of the Mureş Culture, the late phase of the Hatvan Culture, the ‘Ottomány’ and Vatyá Cultures, and in addition ‘Wietenberg groups are found throughout Transylvania’ (NICODEMUS 2014, 111). In a similar fashion to the previous period ‘the latter Middle Bronze Age (MBA B, ca. 1800/1700–1500/1400 BC) shows a mix of regional continuity and organizational change’ (NICODEMUS 2014, 112). Even though the chronological assertions are somewhat questionable, the study contains a number of chapters which makes it an essential reference with regard to the Bronze Age of the Carpathian Basin.

The fact that the realities regarding EBA and MBA are quite different from the picture offered in the aforementioned book is demonstrated by two new studies which I have not discussed in my abovementioned paper. The paper by Viktória Kiss and her collaborators published in the volume edited by Rita E. Németh and Botond Rezi, offers an important contribution for the understanding of the transition period between EBA and MBA in western Hungary. The new AMS radiocarbon data from the Kisapostag necropolis in Bonyhád places the EBA III stage in an interval dated to 2100–1900 BC, which makes it contemporaneous with the earlier part of the A1b sequence of the Central European chronology (cf. STOCKHAMMER *et al.* 2015). Compared to the previously held views, both the beginning and the end-point of this stage is raised by ca. 50 years (KISS *et al.* 2015). If indeed this is the case MBA I – which as it will be shown incorporates the early stages of certain tells such as Pecica, Százhalombata, Kakucs, etc. – would have to be ruled out.

Klára P. Fischl, Viktória Kiss, Gabriella Kulcsár, and Vajk Szeverényi, who are among the best known specialists of the Early and Middle Bronze Age in Hungary, have put forward a new synthesis concerning the cultural and historical realities from around 2200 BC on the territory of modern-day Hungary based on ca. 30 new AMS data available for the interval between 2500/2400 and 2200/2100 BC. There are no significant differences between the cultural and chronological outline proposed by the aforementioned authors and my own assertions regarding Western Romania (FISCHL *et al.* 2015). However, I do wish to underline that we cannot account for an Ottomány/Otomani I cultural reality placed in EBA III. The earliest phase of Otomani-Ceţăuie/Várhegy is represented by the Sanislău ceramic style (for the most recent study see ORDENTLICH – LIE – GHEMIS 2014), already noted by Petre Roman and János Némethi many years ago (ROMAN – NÉMETI 1986, 212; see also MOLNÁR 2014, 17, n. 92, 29, n. 227, 119–120), but adopted as such only by certain colleagues from Hungary (DANI 2001, 136).

Recently, an interesting contribution concerning the chronology of EBA in the Carpathian Basin was put forward by Géza Szabó. The author’s assertion is that the Early Bronze Age period

should only be divided into two phases, without further subdivisions. Thus EBA I (2600/2500–~2150 BC) covers the lifetimes of the Makó-Kosihy-Čaka, Somogyvár-Vinkovci, proto-Nagyrev Cultures as well as the Bell Beaker Csepel Group. EBA II (~2150–~1900 BC) comprises the early period of expansion of the Nagyrev, early Maros, Nyírség, Hatvan Cultures, as well as the Encrusted Pottery Culture in Transdanubia (SZABÓ 2017). It is my conviction that this new chronology of the Early Bronze Age in the Carpathian Basin should be taken into account as it simplifies the relative chronology and is corroborated by the new AMS data.

Based on the <sup>14</sup>C data published for a series of sites, such as Wietenberg sites in Central Transylvania, Otomani-Gyulavarsánd sites in North-Western Transylvania and North-Eastern Transylvania, and the Füzesabony-Otomani Culture sites in Slovakia, Zsolt Molnár asserted that ‘the MB I period can be placed in the 2070–1890 BC interval, the MB II phase in the 1910–1730 BC interval, while the MB III phase can be dated to the 1760–1530 BC chronological segment’ (MOLNÁR – CIUTĂ 2017). In general, this corresponds to the abovementioned chronological scheme.

## WHERE ARE WE TODAY?

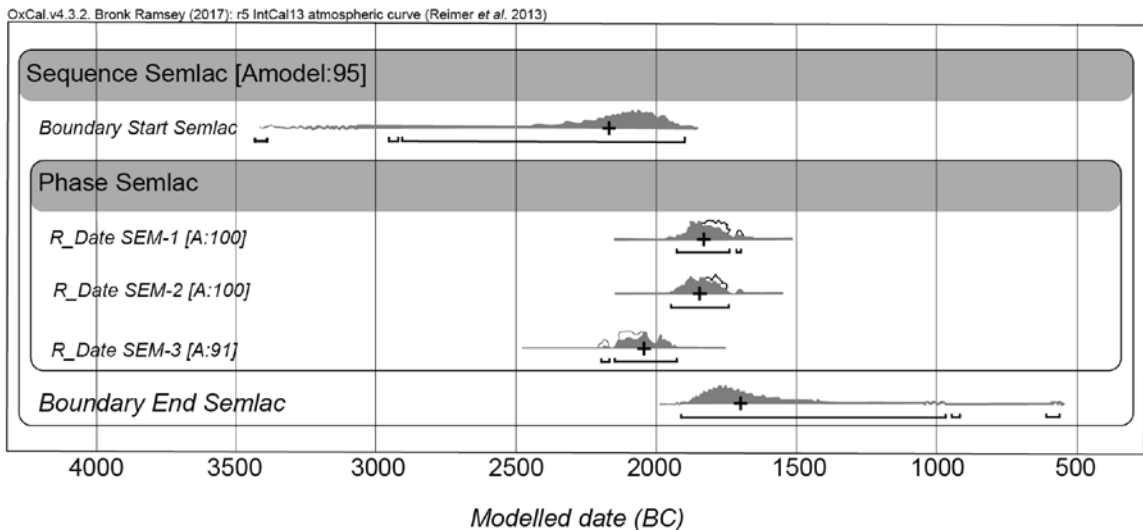
Due to the limited space available for this paper, the discussion will be narrowed down to the investigations which have determined today the course of the debate concerning the chronology of the Bronze Age tell and tell-like settlements in the Carpathian Basin. The oldest habitation sequence of the Vráble tell (Early Makó-Kosihy-Čaka phase) is datable around 2700 BC (NOWACZINSKI *et al.* 2012, 293). In this context the Vinkovci tell settlement may have begun before 2500 BC, but this is merely a supposition. Furthermore, we do not know of any other multi-stratified settlements attributable with certainty to the EBA I stage i.e. to the first horizon of Bronze Age tells in the Carpathian Basin (2700/2600–ca. 2400 BC). Concerning the first tells of the Nagyrev Culture, and implicitly the second horizon in the tell evolution (EBA II - ca. 2400–2200/2100 BC), we have no new information (FISCHL *et al.* 2015, 506, 513). The only certain data come from the cemeteries of this period (GOGÂLTAN 2015, 62; DANİ *et al.* 2016, 222–224). In terms of the relative chronology it is necessary to reconsider the chronological position of the beginnings of the Sanislău settlements of the North-Eastern Carpathian Basin (in addition to the tell from Săcuieni-Cetatea Boului) which can be ascribed to EBA III and not EBA IIb (GOGÂLTAN 2017, 31–32, annexe 2).

The chronology of the third horizon that I have previously set between 2300 and 1950 BC, requires some corrections. Based on information from tell-settlements in Semlac which belongs to the Mureş I ceramic style (**Fig. 4**)<sup>7</sup> and Foeni-Cimitirul Ortodox (pottery decorated with textile impressions, shallow incisions made with broom strokes, or deeper ones resembling tree bark), the beginning of EBA III in absolute chronology should be placed after 2200 BC. This

7 The new AMS data published by Amy Nicodemus (2014, fig. 6.12), modifies the earlier picture regarding the dating of this tell (GOGÂLTAN 2015, 61, n. 18). I do not wish to comment the issue of this analysis here (a detailed review will be provided in the publication concerning my own survey in the respective site), however, it has to be underlined that the Semlac 2 sample obtained from the base of the sediment is almost contemporary with the Semlac 1 sample which was taken from the upper part of the stratigraphic sequence pertaining to the Bronze Age at the respective site. Furthermore, samples Semlac 3 and 4 cover a period of ca. 300 years, the latter being contemporary with the final stage of the Makó-Kosihy-Čaka horizon (**Fig. 4**). I wish to convey my gratitude to my colleague Florin Draşovean for his assistance in devising the Bayesian model as well as for the helpful discussions regarding the errors in collecting these samples.



is corroborated by an older sample belonging to the Hatvan habitation at Tószeg (GOGÂLTAN 1999, 220, Nr. 102), as well as by certain newer data from the tell at Včelince-Lászlófala (GÖRS-DORF – MARKOVÁ – FURMÁNEK 2004, tab. 1-2, fig. 8) and Százhalombata (UHNÉR 2010, 347). Bronze artefacts suggest that EBA III was mainly contemporary with the Central-European Br A1 (GOGÂLTAN 2015, 62; FISCHL *et al.* 2015, 515).

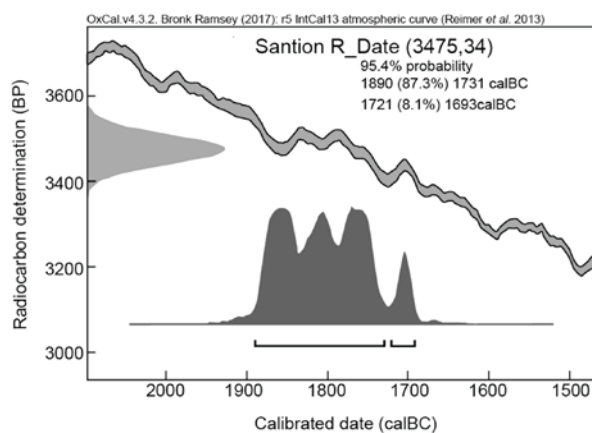


**Fig. 4: Bayesian modelling of <sup>14</sup>C dates from Semlac.**

As mentioned above (GOGÂLTAN 2015, 70), during the last 15 years, only a limited number of AMS data were published with regard to the MBA tell and tell-like settlements (2000/1900–1600/1500 BC) in the Carpathian Basin. For Hungary, the information was brought together by Claes Uhnér, Mateusz Jaeger, Gabriella Kulcsár, and Paul Duffy (UHNÉR 2010, 347–352; JAEGER 2010, 315, ryc. 1; JAEGER – KULCSÁR 2013, fig. 20–22; DUFFY 2014, 291–296; JAEGER 2016, fig. 30–33).

The recent absolute data available for the Vatyá tells at Százhalombatta (UHNÉR 2010, 347) and Kakucs (JAEGER – KULCSÁR 2013, fig. 19), in addition to an older sample from Bölske (GOGÂLTAN 1999, 223, nr. 148), allows us to pinpoint the beginning of these settlements to what was hitherto considered to be MBA I (2000/1900–ca. 1900 BC). The same can be said concerning the tell ascribed to the Mureş community at Pecica, which was dated to 2000–1900 BC (NICODEMUS – O'SHEA 2015, fig. 17). The older data coming from the Otomani-Füzesabony tell at Gáborján-Csapszekpart are also to be placed in the aforementioned chronological sequence (GOGÂLTAN 1999, 222, nr. 124–126). An AMS sample retrieved from the upper levels of the Otomani tell at Sântion indicated the interval of 1800/1700 BC (Fig. 5). We hitherto do not possess any information concerning the date of the ca. 1.5 m thick deposits at the respective site, but still it is very likely that the beginnings of this settlement are also to be placed in the so-called MBA I period. Based on these new data, it is possible to divide the old 3<sup>rd</sup> horizon of Bronze Age multi-stratified settlements of the Carpathian Basin in two parts comprising a horizon characteristic to the EBA III period and one ascribed to the MBA I period.

Regarding the MBA II period (ca. 1900–ca. 1700 BC), there are a number of new data that prove the continuity of habitation in the tells at Százhalombata (UHNÉR 2010, 347), Kakucs (JAEGER – KULCSÁR 2013, fig. 19), and Pecica (NICODEMUS – O'SHEA 2015, fig. 17). While for the



**Fig. 5: Sântion Dealul Mănăstirii = Klastrom domb.**

Vatya<sup>8</sup> and Mureş ceramic styles we have a satisfactory number of samples, the Otomani-Füzesabony communities from eastern Hungary, south-eastern Slovakia, and western Romania were more poorly documented.<sup>9</sup> The Hatvan-Otomani horizon at the tell from Včelince (GÖRSDORF – MARKOVÁ – FURMÁNEK 2004, tab. 1–2, fig. 8) can be placed in the same sequence. The beginning and the peak of development of the Otomani tell from Toboliu also covers the MBA II period (**Fig. 6**). Unfortunately, there are no available absolute data with regard to the multi-stratified settlements of the various ceramic styles ascribed to the Vatina (GOGÂLTAN 2015, 72)<sup>10</sup> and Maďarovce communities (BARTA *et al.* 2014).

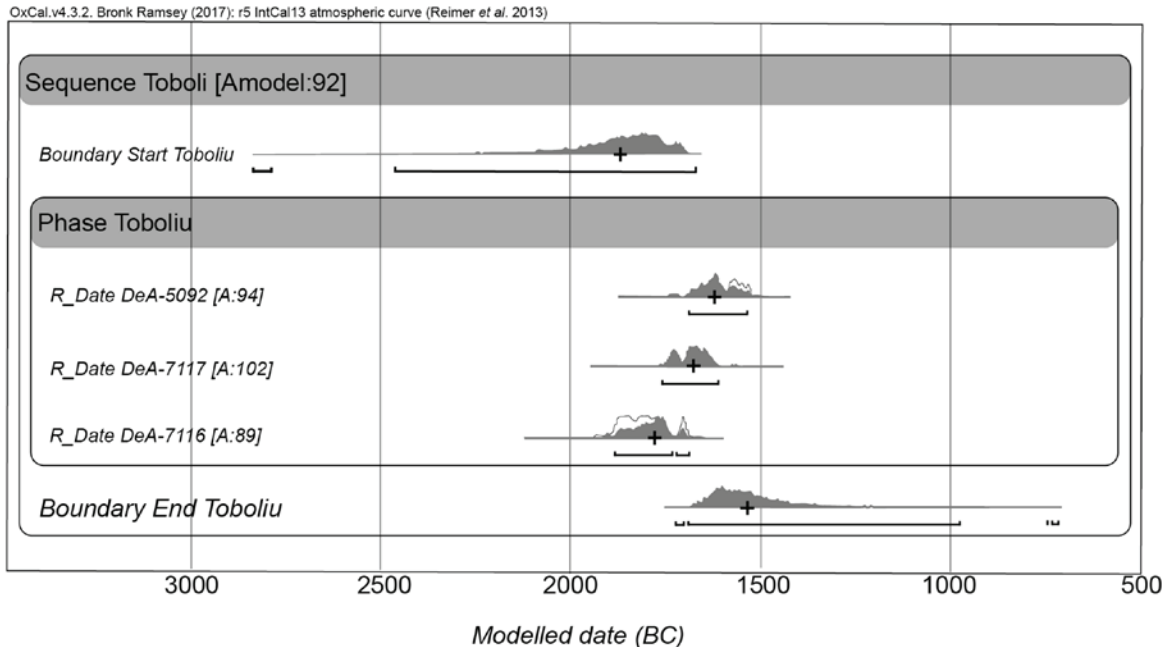
MBA III (ca. 1700 BC–1600/1500 BC) and its final Koszider horizon (VICZE – POROSZLAI – SÜMEGI 2013; DANI *et al.* 2016, 229, 235) covers the last phase in the evolution of certain tells in Slovakia, Hungary, and Western Romania. New absolute data are available for the tells at Včelince (GÖRSDORF – MARKOVÁ – FURMÁNEK 2004, tab. 1–2, fig. 8), Százhalombata (UHNÉR 2010, 347; JAEGER – KULCSÁR 2013, fig. 20), Kakucs (JAEGER – KULCSÁR 2013, fig. 19), Pecica (NICODEMUS – O’SHEA 2015, fig. 17), and Toboliu (GOGÂLTAN 2015, 72–73, fig. 22). In the case of the tell at Carei, up till now 17 unpublished samples are mentioned. Even so, one can learn that: ‘According to the Bayes statistical model ( $2\sigma$ ), the MB IIIa phase is dated to 1760–1690 BC, while the MB IIIb phase dates to the 1690–1530 BC interval’ (MOLNÁR – CIUTĂ 2017). To this one can add further older <sup>14</sup>C samples collected from various multi-stratified or other types of Bronze Age sites in the Carpathian Basin (GOGÂLTAN 1999, pl. 18; JAEGER – KULCSÁR 2013, fig. 21). The old horizon 5, marked by the emergence of new tells in the Carpathian Basin cannot be substantiated through absolute data, but only based on the evolution of typological evolution of the Vatya pottery.

The last MBA level in Pecica was placed between 1600 and 1500 BC (NICODEMUS – O’SHEA 2015, fig. 17) and was also confirmed by three new AMS samples from the cemetery in Pecica-

8 To this one can add the absolute dating to the 1880–1560 BC period of a Vatya single-layer settlement from Sósút (EARLE *et al.* 2014, 2).

9 In addition to the multi-stratified settlements there are three samples from the Füzesabony settlement at Nagyrozvágyon (KOSS 2010, 41: 3400±40 BP, 3360±40 BP, 3215±40 BP. See the calibrated date at JAEGER – KULCSÁR 2013, fig. 21). Further three new dates from Tarhos 26 are mentioned, assigned to an ‘Ottomány’ habitation between 2035–1438 BC (DUFFY 2014, 296). Two other samples from the well-known necropolis in Nižná Myšľa were taken from two metallurgists’ graves: ‘Their age falls within the time span 1965–1754 BC (95.4 %)’ (JAEGER – OLEXA 2014, 170).

10 Only earlier <sup>14</sup>C data from Mošorin are available (GOGÂLTAN 1999, Pl. 16–17).



**Fig. 6: Bayesian modelling of  $^{14}\text{C}$  dates from Toboliu.**

-Site 14 (GOGÂLTAN 2015, 72, fig. 18–20). There, out of 38 identified graves, 23 inhumation- and 15 cremation burials belonging to the early stages of the Late Bronze Age were identified (LBA I) (SAVA – IGNAT 2016). This result is close to the values obtained from a Vatya–Koszider or Tumulus Grave context in the tell settlement from Kakucs (JAEGER – KULCSÁR 2013, fig. 19). The emergence of the Cruceni-Belegiš I ceramic style in the Banat Plain could be assigned to the same temporal frame (LBA I). There are five samples from the sites at Giroc and Foeni. The absolute dates for the first phase of the Cruceni-Belegiš ceramic style range from 1600 to 1400 BC, while those dated to the second phase are generally later than 1400 BC (GOGÂLTAN 2015, 72). One AMS date from the last habitation level in the Otomani tell from Toboliu suggests that the end of the Bronze Age habitation occurred sometimes around 1600/1500 BC (**Fig. 6**). It seems that the end of the tell at Carei can also be placed in this period (MOLNÁR – CIUȚĂ 2017). The ceramic style typical for the early LBA in the area previously dominated by the Otomani Culture was recently called ‘Hajdúbagos/Pișcolt-Cehăluț group’ or ‘Cehăluț-Hajdúbagos group’ (BEJINARIU – BĂCUEȚ CRIȘAN – CULIC 2014).

## CONCLUSIONS AND PERSPECTIVES

No more than 15 years ago, there were only a handful of investigations concerning the multi-stratified settlements of the EBA and MBA in the Carpathian Basin. The recent projects based in Slovakia, Hungary, and Western Romania have significantly changed our conception of the respective sites. As it was shown above, the relative chronological system of this period 2600/2500–1600/1500 BC) was synchronised with the new AMS data (**Fig. 3**). It is possible that in a relatively short time our assessments will be based exclusively on absolute data, and in similar fashion to the system devised by G. Szabó we will eventually abandon the various subdivisions of the relative chronology. Just as in the case of the two stages of EBA (EBA 1: 2600/2500– ~2150 BC

and EBA 2: ~2150–~1900 BC), two sequences could also be devised for MBA: MBA 1 (2000/1900–ca. 1700 BC) and MBA 2 (ca. 1700–1600/1500 BC). As was shown above, the period previously defined as MBA I is now redefined from a chronological point of view as EBA III.

With regard to the Central European chronology, the following synchronisations are currently accepted for the Carpathian Basin: the final stage of EBA II(2)-Reinecke A0 (2300/2200 BC), EBA III(3)-Reinecke A1 (2200/2100–2000/1900 BC) MBA I(1)-MBA II(2)-Reinecke A2 (2000/1900–ca. 1700 BC) MBA III(3)-Reinecke B1 (ca. 1700–1600/1500 BC) (FISCHL *et al.* 2015; GOGÂLTAN 2015).

The research projects concerning the multi-stratified settlements of the Bronze Age in the Carpathian Basin have highlighted the existence of local trajectories in the evolution of these settlements (FISCHL – KIENLIN 2013; GOGÂLTAN 2016; KIENLIN – FISCHL – MARTA 2017). The challenge at hand is to establish the chronological relations between some of the neighbouring tells. For this, however, the existence of a large body of data coming from stratigraphic trenches and absolute dating samples is necessary.

## ACKNOWLEDGEMENTS

I would like to thank Cristina Cordoş for proof-reading the manuscript and Alexandra Găvan for the comments made on a previous version of this paper.

## BIBLIOGRAPHY

- BARTA *et al.* 2014 = Barta, P. – Demján, P. – Hladíková, K. – Kmet'ová, P. – Piatničková, K. 2014: *Database of radiocarbon dates measured on archaeological samples from Slovakia, Czechia, and adjacent regions. Archaeological Chronometry in Slovakia*. Available online: <http://www.c14.sk> (visited August 2018).
- BÁTORA, J. – TÓTH, P. 2014: Settlement Strategies in the Early Bronze Age in South-Western Slovakia. In: T.L. Kienlin – P. Valde-Nowak – M. Korczyńska – K. Cappenberg – J. Ociepka (eds.): *Settlement, Communication and Exchange around the Western Carpathians*. International Workshop held at the Institute of Archaeology, Jagiellonian University, Kraków, October 27–28, 2012. Oxford, 325–340.
- BÁTORA *et al.* 2012 = Bátora, J. – Behrens, A. – Gresky, J. – Ivanova, M. – Rassmann, K. – Tóth, P. – Winkelmann, K.: The Rise and Decline of the Early Bronze Age Settlement, Fidvár near Vráble, Slovakia. In: J. Kneisel – W. Kirleis – M. Dal Corso – N. Tayler – V. Tiedtke (eds.): *Collapse or Continuity? Environment and Development of Bronze Age Human Landscapes I*. Proceedings of the International Workshop 'Socio-Environmental Dynamics over the Last 12,000 Years: The Creation of Landscapes II'. Kiel, 14<sup>th</sup>–18<sup>th</sup> March 2011. Universitätsforschungen zur prähistorischen Archäologie 205. Bonn, 111–130.
- BEJINARIU, I. – BĂCUEȚ CRIȘAN, D. – CULIC, D. 2014: *Cercetări arheologice preventive pe traseul Autostrăzii Transilvania. Descoperirile Bronzului Târziu din zona comunei Marca, județul Sălaj*. Biblioteca Musei Porolissensis XVII. Cluj Napoca – Zalău.
- CSÁNYI, M. – TÁRONKI, J. 2014: A Dinner Set from a Bronze Age House in Level 2 of the Túrkeve-Terehalom Settlement. In: Al. Anders – G. Kulcsár – G. Kalla – V. Kiss – G.V. Szabó (eds.): *Moments in Time. Papers Presented to Pál Raczky on his 60<sup>th</sup> Birthday*. Ősrégészeti Tanulmányok 1. Budapest, 707–724.
- DAVID, W. 2009: Nascita e crollo della civiltà dei tell dell'antica età del bronzo nel Bacino carpatico ed indizi di possibili analoghi fenomeni culturali coevi nella Regione dell'alto e medio Danubio nella prima metà del II millennio a.C. *Scienze dell'Antichità. Storia, Archeologia, Antropologia* 15, 563–594.

- DANI, J. 2001: A Kárpát-medence ÉK-i részének kulturális és kronológiai kérdései a kora bronzkor időszakában [Cultural and chronological questions concerning the N-E part of the Carpathian basin in the Early Bronze Age]. In: J. Dani – Z. Hajdú – E.G. Nagy – L. Selmeczi: ΜΩΜΟΣ I. „*Fiatal őskoros Kutatók*” I. Összejövetelének konferenciakötete Debrecen, 1997. November 10.–13. Debrecen, 129–161.
- DANI, J. – MÉTHÉ, M.Sz. – SZÁBÓ, G.V. 2003: Ausgrabungen in der bronzezeitlichen Tell-Siedlung und im Gräberfeld von Polgár-Kenderföld [Vorbericht über die Freilegung des mittelbronzezeitlichen Gräberfeldes von Polgár-Kenderföld, Majoros-Tanya]. In: C. Kacsó (ed.): *Bronzezeitliche Kulturerscheinungen im karpatischen Raum. Die Beziehungen zu den benachbarten Gebieten*. Ehrensymposium für Alexandru Vulpe zum 70. Geburtstag, Baia Mare 10.–13. Oktober 2001. Bibliotheca Marmatia 2. Baia Mare, 93–118.
- DANI, J. – FISCHL, K.P. 2010: A Berettyó-vidék középső bronzkori telljei. (Topográfiai megközelítés) [Die mittelbronzezeitlichen Tellsiedlungen des Berettyó-Gebiets. Eine topographische Übersicht]. *Tisicum* 19, 103–118.
- DANI *et al.* 2016: Dani, J. – Fischl, K.P. – Kulcsár, G. – Szeverényi, V. – Kiss, V.: Visible and invisible inequality: changing patterns of wealth consumption in Early and Middle Bronze Age Hungary. In: H. Meller – H.P. Hahn – R. Jung – R. Risch (eds.): *Arm und Reich – Zur Ressourcenverteilung in prähistorischen Gesellschaften / Rich and Poor – Competing for resources in prehistoric societies*. 8. Mitteldeutscher Archäologentag vom 22. bis 24. Oktober 2015 in Halle (Saale). Tagungen des Landesmuseums für Vorgeschichte Halle 14. Halle (Saale), 219–241.
- DRAȘOVEAN, Fl. – SCHIER, W. 2010: The Neolithic tell sites of Parța and Uivar (Romanian Banat). A comparison of their architectural sequence and organization of social space. In: HANSEN 2010a, 165–187.
- DUFFY, P. R. 2014: *Complexity and Autonomy in Bronze Age Europe. Assessing Cultural Developments in Eastern Hungary*. Prehistoric research in the Körös Region 1; *Archaeolingua* 31. Budapest.
- EARLE, T. – KRISTIENSEN, K. eds. 2010a: *Organizing Bronze Age Societies. The Mediterranean, Central Europe and Scandinavia Compared*. Cambridge.
- EARLE, T. – KRISTIENSEN, K. 2010b: Introduction: Theory and Practice in the late Prehistory of Europe. In: EARLE – KRISTIENSEN eds. 2010a, 1–33.
- EARLE, T. – KRISTIENSEN, K. 2010c: Organizing Bronze Age Societies: Concluding Thoughts. In: EARLE – KRISTIENSEN 2010a, 218–256.
- EARLE *et al.* 2014 = Earle, T. – Kulcsár, G. – Kiss, V. – Serlegi, G. – Szeverényi V.: Recent results from the Bronze Age research into Benta Valley. *Hungarian Archaeology*. E-Journal, Summer 2014, 1–5.
- FALKENSTEIN, F. – HÄNSEL, B. – MEDOVIĆ, P. 2016: Feudvar near Mošorin (Serbia) – Excavations and Research in a Micro-region at the Confluence of the Danube and Tisza. A recapitulation after thirty years. In: H. Kroll – K. Reed: *Die Archäobotanik. Feudvar III*. Würzburg, 5–35.
- FISCHL, K.P. 2006: Ároktő-Dongóhalom bronzkori tell telep [Bronzezeitliche Tell-Siedlung in Ároktő-Dongóhalom]. Miskolc.
- FISCHL, K.P. – KIENLIN, T. 2013: Results of a systematic survey programme on the Hatvan sites of Emőd-Nagyhalom and Tard-Tatárdomb in northern Hungary. *Acta Archaeologica Academiae Scientiarum Hungaricae* 64, 5–32.
- FISCHL, K.P. – KIENLIN, T. – TUGYA, L. 2015: Bronze Age Settlement Research in North-Eastern Hungary. *Archeometriai Műhely* XII/2, 117–134.
- FISCHL *et al.* 2015 = Fischl, K.P. – Kiss, V. – Kulcsár, G. – Szeverényi, V.: Old and new narratives for the Carpathian Basin around 2200 BC. In: H. Meller – W.H. Arz – R. Jung – R. Risch (eds.): *2200 BC – A climatic breakdown as a cause for the collapse of the old world?* 7<sup>th</sup> Archaeological Conference of Central Germany. October 23–26, 2014 in Halle (Saale). Tagungen des Landesmuseums für Vorgeschichte Halle 12. Halle (Saale), 503–523.
- FISCHL, K.P. – KRAUSS, R. 2016: Entstehung und Ende der Tellsiedlungen im Karpatenbecken und im Ostbalkanraum – ökologische und gesellschaftliche Dynamiken im Vergleich. In: V. Nikolov – W. Schier (eds.): *Der Schwarzmeerraum vom Neolithikum bis in die Früheisenzeit (6000–600 v. Chr.)*. *Kulturelle Interferenzen*

- in der Zirkumpontischen Zone und Kontakte mit ihren Nachbargebieten. *Prähistorische Archäologie in Südosteuropa* 30. Rahden/Westf., 321–338.
- GAIU, C. – GĂZDAC, C. eds. 2006: *Fontes Historiae. Studia in honorem Demetrii Protase*. Bibliotheca Muzeului Bistrița. Historica 12. Bistrița-Cluj Napoca.
- GANSLMEIER, R. 2011: Was ist ein »echter« Tell? In: S. Friederich – H.-R. Bork – S. Clasen – S. Dreibrodt – V. Dresely – R. Ganslmeier – T. Heinkele – H. Helbig – M. Hellmund – V. Hubensack – M. Klamm – C. Lubos – C. Meyer – U. Müller – A. Nebe – O. Nelle – A. Nicolay – U. Petersen – U. Petzschmann – V. Robin – H. Szédéli – C.-H. Wunderlich: *Kultur in Schichten. Ausgrabungen am Autobahndreieck Südhaz (A71)*. Halle (Saale), 37–42.
- GOGÂLTAN, Fl. 1999: *Bronzul timpuriu și mijlociu în Banatul românesc și pe cursul inferior al Mureșului I. Cronologia și descoperirile de metal [Die Frühe und Mittlere Bronzezeit im rumänischen Banat und am Unterlauf der Marosch I. Die Chronologie und die Metallfunde]*. Bibliotheca historica et archaeologica Banatica 23. Timișoara.
- GOGÂLTAN, Fl. 2002: Zur Terminologie der bronzezeitliche Tellsiedlungen im Karpatenbecken. In: A. Rus-toiu – A. Ursuțiu (eds.): *Interregionale und Kulturelle Beziehungen im Karpatenraum (2. Jht. v.Chr. – 1. Jht. n.Chr.)*. Cluj-Napoca, 11–45.
- GOGÂLTAN, Fl. 2005: Der Beginn der bronzezeitlichen Tellsiedlungen im Karpatenbecken: Chronologische Probleme. In: B. Horejs – R. Jung – E. Kaiser – B. Teržan (eds.): *Interpretationsraum Bronzezeit. Bernhard Hänsel von seinen Schülern gewidmet*. Universitätsforschungen zur prähistorischen Archäologie 121. Bonn, 161–179.
- GOGÂLTAN, Fl. 2006: Zur Entstehung der bronzezeitlichen Tellkulturen im Karpatenbecken. Ein allgemeiner Überblick. In: GAIU – GĂZDAC (eds.) 2006, 61–74.
- GOGÂLTAN, Fl. 2008: Fortified Bronze Age Tell Settlements in the Carpathian Basin. A General Overview. In: J. Czebreszuk – S. Kadrow – J. Müller (eds.): *Defensive Structures from Central Europe to the Aegean in the 3<sup>rd</sup> and 2<sup>nd</sup> millennia BC*. Studien zur Archäologie in Ostmitteleuropa 5. Poznań – Bonn, 39–56.
- GOGÂLTAN, Fl. 2010: Die Tells und der Urbanisierungsprozess. In: HOREJS – KIENLEIN 2010, 13–46.
- GOGÂLTAN, Fl. 2014a: Bronze Age tell, tell-like and mound-like settlements on the eastern frontier of the Carpathian Basin. History of research. In: GOGÂLTAN – CORDOȘ – IGNAT (eds.) 2014, 13–24.
- GOGÂLTAN, Fl. 2014b: Foeni “Cimitirul Ortodox”, Timiș County. In: GOGÂLTAN – CORDOȘ – IGNAT (eds.) 2014, 98–103.
- GOGÂLTAN, Fl. 2014c: Foeni “Gomila Lupului I”, Timiș County. In: GOGÂLTAN – CORDOȘ – IGNAT (eds.) 2014, 104–110.
- GOGÂLTAN, Fl. 2014d: Semiclac “Livada lui Onea”, Arad County. In: GOGÂLTAN – CORDOȘ – IGNAT (eds.) 2014, 242–246.
- GOGÂLTAN, Fl. 2015: The Early and Middle Bronze Age Chronology on the Eastern Frontier of the Carpathian Basin: Revisited after 15 Years. In: NÉMETH – REZI 2015, 53–95.
- GOGÂLTAN, Fl. 2016: Building power without power? Bronze Age fortified settlements on the Lower Mureș Basin. In: GOGÂLTAN – CORDOȘ 2016, 87–113.
- GOGÂLTAN, Fl. 2017: The Bronze Age Multilayered Settlements in the Carpathian Basin (cca 2500–1600/1500 BC). An old catalogue and some chronological problems. *Journal of Ancient History and Archaeology* 4/4, 28–55.
- GOGÂLTAN, Fl. – CORDOȘ, C. – IGNAT, L. eds. 2014: *Bronze Age tell, tell-like and mound-like settlements at the eastern frontier of the Carpathian Basin. History of research*. Cluj-Napoca.
- GOGÂLTAN, Fl. – CORDOȘ, C. eds. 2016: *Prehistoric settlements: social, economic and cultural aspects. Seven studies in the Carpathian area*. Cluj-Napoca.
- GÖRSDORF, J. – MARKOVÁ, K. – FURMÁNEK, V. 2004: Some new 14C data to the Bronze Age in the Slovakia. *Geochronometria* 23, 79–91.
- HAJDU et al. 2016 = Hajdu, T. – Gyorgy Toronyi, Al. – Pap, I. – Rosedhal, W. – Szábo, G.: The chronology and meaning of the Transdanubian encrusted pottery decoration. *Prähistorische Zeitschrift* 91/2, 353–368.

- HANSEN, S. ed. 2010a: *Leben auf dem Tell als soziale Praxis*. Beiträge des Internationalen Symposiums in Berlin vom 26.–27. Februar 2007. Kolloquien zur Vor- und Frühgeschichte 14. Bonn.
- HANSEN, S. 2010b: Vorwort des Herausgebers. In: HANSEN (ed.) 2010a, VII–IX.
- HANSEN, S. – TODERAŞ, M. 2010: Pietrele und die neuen Dimensionen kupferzeitlicher Siedlungen an der Unteren Donau. In: HANSEN (ed.) 2010a, 135–155.
- HOREJS, B. – KIENLIN, T.L. eds. 2010: *Siedlung und Handwerk. Studien zu sozialen Kontexten in der Bronzezeit*. Beiträge zu den Sitzungen der Arbeitsgemeinschaft Bronzezeit auf der Jahrestagung des Nordwestdeutschen Verbandes für Altertumsforschung in Schleswig 2007 und auf dem Deutschen Archäologenkongress in Mannheim 2008. Universitätsforschungen zur prähistorischen Archäologie 194. Bonn.
- HORVÁTH, F. 2009: Comments on the Tells in the Carpathian Basin: Terminology, Classification and Formation. In: Fl. Draşovean – D.L. Ciobotaru – M. Maddison (eds.): *Ten years after. The Neolithic of the Balkans, as uncovered by the last decade of research*. Proceedings of the Conference held at the Museum of Banat on November 9<sup>th</sup>–10<sup>th</sup> 2007. Bibliotheca historica et archaeologica Banatica 49. Timişoara, 159–165.
- JAEGER, M. 2010: Transkarpackie kontakty kultury Otomani-Füzesabony [Transcarpathian contacts of Otomani-Füzesabony culture]. In: J. Gancarski (ed.): *Transkarpackie kontakty kulturowe w epoce kamienia, brązu i wczesnej epoce żelaza*. Krosno, 313–329.
- JAEGER, M. 2016: *Bronze Age Fortified Settlements in Central Europe*. Studien zur Archäologie in Ostmitteleuropa 17. Poznań.
- JAEGER, M. 2017: Bronze Age Defensive Settlement in the Context of Long-Range Relationships. How Far is it from Fortified Villages to Citadels? In: S. Hansen – J. Müller (eds.): *Rebellion and Inequality in Archaeology*. Proceedings of the Kiel Workshops ‘Archaeology of Rebellion’ (2014) and ‘Social Inequality as a Topic in Archaeology’ (2015). Universitätsforschungen zur prähistorischen Archäologie 308. Human development in landscapes 11. Bonn, 185–205.
- JAEGER, M. – KULCSÁR, G. 2013: Kakucs-Balla-domb a case study in the absolute and relative chronology of the Vátya culture. *Acta Archaeologica Academiae Scientiarum Hungaricae* 64, 289–320.
- JAEGER, M. – OLEXA, L. 2014: The metallurgists from Nižná Myšľa (okr. Košice okolie/SK). A contribution to the discussion on the metallurgy in defensive settlements of the Otomani-Füzesabony culture. *Archäologisches Korrespondenzblatt* 44/2, 163–176.
- KIENLIN, T.L. 2012: Patterns of Change, or Perceptions Deceived? Comments on the Interpretation of Late Neolithic and Bronze Age Tell Settlement in the Carpathian Basin. In: T.L. Kienlin – A. Zimmerman (eds.): *Beyond Elites. Alternatives to Hierarchical Systems in Modelling Social Formations*. International Conference at the Ruhr-Universität Bochum, October 22–24, 2009. Universitätsforschungen zur prähistorischen Archäologie 215. Bonn, 251–310.
- KIENLIN, T.L. 2015: *Bronze Age Tell Communities in Context. An Exploration Into Culture, Society and the Study of European Prehistory* 1. Critique. Europe and the Mediterranean. Oxford.
- KIENLIN, T.L. – FISCHL, K.P. – MARTA, L. 2017: Exploring Divergent Trajectories in Bronze Age Landscapes. Tell Settlement in the Hungarian Borsod Plain and the Romanian Ier Valley. *Ziridava Studia Archaeologica* 31, 93–128.
- KISS, V. 2015: Recent data on chronology, distribution, and connections of Kisapostag, Transdanubian Encrusted Pottery and Litzenkeramik. In: J. Bátorá – P. Tóth (eds.): *Keď bronz vystriedal meď*. Zborník príspevkov z XXIII. medzinárodného symposia ‘Staršia doba bronzová v Čechách, na Morave a na Slovensku’, Levice 8.–11. októbra 2013. *Archaeologica Slovaca Monographiae, Communicationes* 18. Bratislava – Nitra, 27–37.
- KISS *et al.* 2015 = Kiss, V. – Fabián, S. – Hajdu, T. – Köhler, K. – Kulcsár, G. – Major, I.: Contributions to the Relative and Absolute Chronology of the Early and Middle Bronze Age in Western Hungary Based on Radiocarbon Dating of Human Bones. In: NÉMETH – REZI eds. 2015, 23–36.
- KOÓS, J. 2010: A füzesabonyi kultúra települése Nagyrozvágyon [Settlement of the Füzesabony culture at Nagyrozvágy]. *Hermann Ottó Múzeum Évkönyve* 49, 35–44.

- LINK, T. 2006: *Das Ende der neolithischen Tellsiedlungen. Ein kulturgeschichtliches Phänomen des 5. Jahrtausends v. Chr. im Karpatenbecken*. Universitätsforschungen zur prähistorischen Archäologie 134. Bonn.
- LJUŠTINA, M. 2013: Sudul Câmpiei Panoniceîn prima jumătate a mileniului II î.Hr. Studiu de caz. Židovar, Banatul de sud, Serbia [Southern border of the Panonian Plain in 1<sup>st</sup> half of 2<sup>nd</sup> millennium BC. Case study of Židovar, south Banat district, Serbia]. *Istros* (Brăila) 19, 79–117.
- MARKOVÁ, K. – STAŠŠÍKOVÁ-ŠTUKOVÁ, D. 2015: Nové poznatky o opevnenom sídlisku staršej doby bronzovej vo Veselom, okr. Piešťany [New Data on the Bronze Age defensive at Vesele, District of Piešťany, Slovakia]. In: J. Gancarski (ed.): *Pradziejowe osady obronne w Karpatach*. Krosno, 131–144.
- MARTA *et al.* 2010 = Marta, L. – Kienlin, T.L. – Rung, E. – Schramm, P.: Recent Archaeological Research on the Bronze Age Fortified Settlements of the Ier Valley, North-Western Romania. In: HOREJS – KIENLIN eds. 2010, 121–138.
- METZNER-NEBELSICK, C. 2013: Gedanken zur Frage des kulturellen Wandels in der Zeit um 1600 v. Chr. in Nordwest-Rumänien und Nordost-Ungarn. In: H. Meller – F. Bertemes – H.-R. Bork – R. Risch (eds.): *1600 – Kultureller Umbruch im Schatten des Thera-Ausbruchs? / 1600 – Cultural change in the shadow of the Thera-Eruption?* 4. Mitteldeutscher Archäologentag vom 14. bis 16. Oktober 2011 in Halle (Saale). Tagungen des Landesmuseums für Vorgeschichte Halle 9. Halle (Saale), 327–353.
- MOLNÁR, Zs. 2006: Daten zur Problematik der frühen Entwicklungsphase der Otomani-Kultur. In: GAIU – GĂZDAC (eds.) 2006, 75–119.
- MOLNÁR, Zs. 2014: *Contribuții la cunoașterea culturii Otomani din nord-vestul Transilvaniei. Ceramică și metal*. Cluj-Napoca.
- MOLNÁR, Zs. – CIUȚĂ, B. 2017: Aspects regarding the economy of the Otomani communities in North-Western Transylvania. Data concerning the Middle Bronze Age agriculture in light of the investigations carried out in the Carei-Bobald tell. *Analele Banatului XXV*, 57–90.
- NEMÉTH, R.E. – REZI, B. eds. 2015: *Bronze Age Chronology in the Carpathian Basin*. Proceedings of the International Colloquium from Târgu Mureș 2.–4. October 2014. Bibliotheca Musei Marisiensis, Seria archaeologica 8. Cluj Napoca.
- NÉMETHI, J. – MOLNÁR, Zs. 2012: *Bronzkori hatalmi központok északnyugat-erdélyben. A Nagykároly-Bobáld-tell [Bronzezeitliche Machtzentren in Nordwest-Siebenbürgen. Der Tell von Carei-Bobáld]*. Monográfiák a Szegei Tudományegyetem Régészeti Tanszékéről 2. Szeged.
- NICODEMUS, A.J. 2014: *Bronze Age Economies of the Carpathian Basin: Trade, Craft Production, and Agro-Pastoral Intensification*. Unpublished PhD. dissertation. University of Michigan. Available online: <http://hdl.handle.net/2027.42/107331> (accessed on 21. 6. 2020).
- NICODEMUS, A. – O'SHEA, J.M. 2015: From relative to absolute: the radiometric dating of Mureș Culture ceramics at Pecica-Șanțul Mare. In: S. Forțiu – A. Stavilă (ed.): *Interdisciplinaritate în Arheologie și Istorie în Memoriam Florin Medeleț*. Simpozion Arheo Vest, Ediția III-a. Timișoara, 28. noiembrie 2015. Arheo-vest 3. Szeged, 691–702.
- NOWACZINSKI *et al.* 2012 = Nowaczinski, E. – Schukraft, G. – Hecht, S. – Rassmann, K. – Bubenzer, O. – Eitel, B.: A Multimethodological Approach for the Investigation of Archaeological Ditches – Exemplified by the Early Bronze Age Settlement of Fidvár near Vrábce (Slovakia). *Archaeological Prospection* 19, 281–295.
- ORDENTLICH, I. – LIE, M. – GHEMIS, C. 2014: Otomani 'Cetățuie=Vârhegy', Bihor County. In: GOGĂLTAN – CORDOȘ – IGNAT eds. 2014, 139–147.
- PARKINSON, W.A. – GYUCHA, A. 2012: Tells in Perspective. Long-Term Patterns of Settlement Nucleation and Dispersal in Central and Southeast Europe. In: R. Hofmann – F.-K. Moetz – J. Müller (eds.): *Tells: Social and Environmental Space* 3. Proceedings of the International Workshop 'Socio-Environmental Dynamics over the Last 12,000 Years. The Creation of Landscapes II' (14<sup>th</sup>–18<sup>th</sup> March 2011) in Kiel. Universitätsforschungen zur prähistorischen Archäologie 207. Bonn, 105–116.
- POROSZLAI, I. – VICZE, M. eds. 2005: *Százhalombatta Archaeological Expedition. SAX. Report 2 – Field Season 2000–2003*. Százhalombatta.



- RACZKY, P. – ANDERS, A. – BARTOSZIEWITZ, L. 2011: The Enclosure System of Polgár-Csőszhalom and its Interpretation. In: S. Hansen – J. Müller (eds.): *Sozialarchäologische Perspektiven: Gesellschaftlicher Wandel 5000–1500 v. Chr. zwischen Atlantik und Kaukasus*. Internationale Tagung 15.–18. Oktober 2007 in Kiel. *Archäologie in Eurasien* 24. Berlin, 57–79.
- ROMAN, P. – NÉMETI, I. 1986: Descoperiri din perioada timpurie (pre Otomani) a epocii bronzului în nord-vestul României. *Studii și Cercetări Istorice Veche și Arheologie* 37/3, 198–232.
- ROSENSTOCK, E. 2009: *Tells in Südwestasien und Südosteuropa. Verbreitung, Entstehung und Definition eines Siedlungsphänomens*. Urgeschichtliche Studien 2. Grunbach.
- SAVA, V. – IGNAT, A. 2016: The Beginning of the Late Bronze Age in the Lower Mureș Basin. In: GOGÂLTAN – CORDOȘ (eds.) 2016, 181–199.
- STIG SØRENSEN, M.L. – VICZE, M. 2013: Locating Household Activities on a Bronze Age Tell. In: M. Madella – G. Kovacs – B. Kulcsarne-Berzsenyi – I. Brizi Godino (eds.): *The Archaeology of Household*. Oxford – Oakville, 159–178.
- STOCKHAMMER *et al.* 2015 = Stockhammer, Ph.W. – Massy, K. – Knipper, C. – Friedrich, R. – Kromer, B. – Lindauer, S. – Radosavljević, J. – Wittenborn, F. – Krause, J.: Rewriting the Central European Early Bronze Age Chronology: Evidence from Large-Scale Radiocarbon Dating. *PLoS ONE* 10/10, 1–32.
- SZÁBO, G. 2017: Problems with the periodization of the Early Bronze Age in the Carpathian Basin in light of the older and recent AMS radiocarbon data. *Archeometriai Műhely* 14/2, 99–116.
- UHNÉR, C. 2010: *Makt och samhälle Politisk ekonomi under bronsåldern i Karpaterbäckenet*. Göteborg.
- VICZE, M. – POROSZLAI, I. – SÜMEGI, P. eds. 2013: *Koszider. Hoard, Phase, Period? Round table conference on the Koszider problem*. Százhalombatta.

### **Florin Gogâltan**

Institutul de Arheologie și Istoria Artei  
 / Universitatea de Vest Timișoara  
 str. M. Kogălniceanu, nr. 12-14  
 Cluj Napoca, Romania  
 floringogaltan@gmail.com.