Yamnaya Interactions

Proceedings of the International Workshop held in Helsinki, 25–26 April 2019

Edited by

Volker Heyd, Gabriella Kulcsár and Bianca Preda-Bălănică

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The Yamnaya Impact on Prehistoric Europe

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VOLKER HEYD

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Mogila-'Golemiyat Kayryak' 2021, graves 14 and 16;
Photo by Alexander Suvorov
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Workshop participants before dinners on April 25 and April 26, 2019;
Photo: Bianca Preda-Bălănică

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Contents

VOLKER HEYD – GABRIELLA KULCSÁR – BIANCA PREDA-BĂLĂNICĂ
Interactions introduction 7

PART #1 Transformative dynamics of the fourth/third millennium BC

DAVID W. ANTHONY
Early Yamnaya chronology and origins from an archaeological perspective 15

JOHANNES MÜLLER
Integration, mobility, migration 47

MARTIN FURHOLT
Resisting the 'violence-inequality complex' –
A new model for third millennium BC mobility in Europe 57

ELKE KAISER
Population dynamics in the third millennium BC –
The interpretation of archaeological and palaeogenetic information 83

MARTIN TRAUTMANN
Deadly invaders – the possible role of contagious diseases
in the European Copper Age / Bronze Age transition 101

MAXIME BRAMI
The mythology of Marija Gimbutas 125

BIANCA PREDA-BĂLĂNICĂ
Still making waves. Marija Gimbutas in current archaeological debates 137

PART #2 Interactions south of the Carpathians and along the Danube river

ALIN FRÎNCULEASA
Burial mounds in the Lower Danube region –
From the international to the local and the other way round 173

SORIN-CRISTIAN AILINCĂI – MIHAI CONSTANTINESCU – ANDREEA DIMA –
GABRIELA SAVA – FLORIAN MIHAIL – CRISTIAN MICU – MARIAN MOCANU –
AUREL-DANIEL STĂNICĂ
Bronze Age graves at Jijila (Southeastern Romania) 207

FLORIN GOGÂLTAN
Transylvania. Within or outside of the Yamnaya world? 243

STEFAN ALEXANDROV
Fourth/third millennium BC barrow graves in North-East Bulgaria
(120 years of investigations) 271

LORENC BEJKO
Interactions in the Albanian Early Bronze Age –
Evidence for Yamnaya connections? 315

JÁNOS DANI – GABRIELLA KULCSÁR
Yamnaya interactions in the Carpathian Basin 329

JOZEF BÁTORA
Infiltration of Yamnaya culture into the north-Carpathian region –
Assessing our preliminary knowledge 361

PART #3 Interactions north of the Carpathians and into the Corded Ware

VOLKER HEYD
Yamnaya, Corded Wares, and Bell Beakers on the move 383

MARZENA SZMYT
Yamnaya and Globular Amphora culture relationships – facts and gaps 415

PIOTR WŁODARCZAK
Eastern impulses in cultural and demographic change during
the end of the south-eastern Polish Eneolithic 435

AIVAR KRIISKA – KERKKO NORDQVIST
Estonian Corded Ware culture (2800–2000 cal BC) –
Defining a regional group in the eastern Baltic 463

MIROSLAV DOBEŠ – MONIKA PECINOVSKÁ – MICHAL ERNÉE
On the earliest Corded Ware in Bohemia 487

JAROSLAV PEŠKA
The early Corded Ware horizon in the Czech Republic – part Moravia 513

KRISTIAN KRISTIANSEN – VOLKER HEYD
Interactions epilogue 543

List of contributors 549

PART #1

Transformative dynamics of the fourth/third millennium BC

Still making waves.
Marija Gimbutas in current archaeological debates

BIANCA PREDA-BĂLĂNICĂ

Abstract

This paper aims to take a look at the migration waves theory of Marija Gimbutas from the perspective of latest research in archaeology, but also including insights offered by aDNA studies. In her famous model, Maria Gimbutas stated that three waves of migration from the steppes into Southeastern Europe took place in three different periods: the second half of the 5th millennium BC, the last centuries of the 4th millennium BC and the first centuries of the 3rd millennium BC. In order to asses if her model finds support in the archaeological record I will provide an overview of the discoveries in the steppe-like regions of Southeastern Europe during the time corresponding to the supposed waves of migration. For each phase I will also advance other possible interpretations that could account for this archaeological record, involving different types of mobility/migration or cultural transmission processes.

Key words: *Marija Gimbutas, migration theory, kurgans, burials, steppe*

Introduction

The year 2021 marks 100 years since the birth of one of the most intriguing and polarising archaeologists of the last century: Marija Gimbutas. She left a huge legacy behind, comprised of several monumental books and hundreds of articles, and many aspects of her research sparked lively discussions in the academia: from her views of the Goddess-centered Neolithic societies of *Old Europe*, fueling a controversial feminist movement, to her methodology of archaeomithology, to her steppe hypothesis of the Indo-European homeland and the Indo-Europeanization process.[1] She considered the latter as the result of three waves of migration that could be identified archaeologically, coming out of the steppes and into Southeastern Europe between the 5th and 3rd millennia BC, and completely restructuring the cultural foundations of Europe.

The saga of her kurgan hypothesis was and still is deeply influenced by more than a century long history in which archaeology fell in and out with migration periodically. During the 19th and more than half of the 20th century, migration was one of the most commonly used tools to explain changes in material culture in the culture-historical paradigm (Trigger 2006, 217–223), only to be completely abandoned starting with the 60'ies, with the emergence of a New Archaeology that was criticising culture-history and rejecting migrationism (Hakenbeck 2008; Burmeister 2017a). It was exactly in this untimely context that Marija Gimbutas formulated her theory of the Kurgan peoples migrating and destroying the cultures of *Old Europe*. Unsurprisingly, her ideas were not well received by western archaeologists (Renfrew 1987; Häusler 1996). However, they did find support among eastern European scholars (Dergachev 2000). The matter remained unsettled for decades.

[1] For reactions and controversies surrounding her work see for example Anthony 1996; Keller 1997; Hayden 1998; Marler 1999.

Recently, advances in stable isotope analyses and especially in aDNA brought about the return of migration as one of the main research interests in archaeology. In 2015, two articles based on aDNA analyses stated that a massive migration from the steppe into Southeastern Europe took place at the beginning of the 3rd millennium BC (Haak *et al.* 2015; Allentoft *et al.* 2015). Other papers followed the topic in the next years (Olalde *et al.* 2018; Mathieson *et al.* 2018). The new interpretations brought back migration with a familiar cultural-historical accent, perceived as an "event taking place over a relatively short time, involving large-scale population displacement, long-distance journeys and a profound cultural impact on the receiving areas" (Hakenbeck 2008, 13). Furthermore, images of invasions led by violent men riding their way into the hearth of Europe, killing and replacing local populations were revived.[2]

The lifetime work of Marija Gimbutas is once again under the spotlight and, given that publications authored by prestigious teams of geneticists and archaeologists seem to confirm parts of her theory, it is only fair to wonder, as David Anthony recently did: was she right in the end (Anthony 2021)?[3] Examining the results of latest research in Southeastern Europe in the light of her model is a timely endeavour. Archaeological excavations of burial mounds, carried out in Romania, Bulgaria, Serbia, and Hungary in the past ten years have significantly changed our understading of the steppe impact to the region, while aDNA analyses started to shed light on the biological ancestry of individuals. Therefore, in this paper, I will analyse the waves of migration theory of Marija Gimbutas focusing on its archaeological implications, and without touching upon the Indo-European problem, which I consider beyond the scope of this study (see Brami 2021, this volume). Firstly, I will present the model and how it crystallised in publications that spanned several decades. Following, I will provide an overview of the steppe related discoveries in Southeastern Europe during the time of the supposed waves of migration and asses if the archaeological and available genetic evidence supports the model. For each phase I will also explore alternative interpretations that could account for the presented archaeological record, having in mind more theoretical approches to migration as a social process (Anthony 1990; 1997; Burmeister 2000).

I. The three waves of migration theory

Marija Gimbutas developed and crystallised her ideas in several publications (Gimbutas 1977; 1979; 1991; 1993)[4] in which she presented extensively the invasions of "patriarchal, ranked and warlike" (1979, 114) horse riders[5] from the Eurasian steppe bringing the dissolution of the "matrilinear, egalitarian, peaceful" Old European civilisation (1979, 114). She put them under the umbrella of the "Kurgan tradition", which she considered as a blanket term for the culture of the seminomadic patriarchal pastoralists who built round funeral mounds between the 5th and 3rd millennia BC (Gimbutas 1979, 113; 1993, 206).[6] She

[2] See Barras 2019 including interpretations of aDNA research by renowned scholars.

[3] In 2017 Colin Renfrew, the main opponent of her theories, gave a lecture called *Marija Rediviva: DNA and Indo-European Origins*, at The Oriental Institute Lecture Series: Marija Gimbutas Memorial Lecture. November 8, 2017. https://www.youtube.com/watch?v=pmv3J55bdZc accessed at 15.06.2020.

[4] The elaboration of the three waves of migration theory in the work of Marija Gimbutas, and the manner in which she adjusted the absolute and relative chronology of her model according to the development of ^{14}C dating and discovery of new sites is a research topic in itself, but it exceeds the aims of this paper. Therefore, here I present the latest version published in the '90s in order to compare it with the current archaeological record.

[5] Although the theory of horseback riding starting with the 4th millennium BC has its supporters (Anthony 2007, 221), the origins of horse domestication and the moment when they started being used for riding are still under debate (Gaunitz *et al.* 2018; Fages *et al.* 2019; Taylor *et al.* 2020; Guimaraes *et al.* 2020; Taylor – Barrón-Ortiz 2021).

[6] For a critique of the term "Kurgan tradition" see Anthony 1986.

postulated that there were three chronologically distinct waves of migration of these "Kurgan people" into Southeastern Europe.

The first wave (*Fig. 1.1*) was connected with the spread of populations from the steppe region of the Lower Volga and Lower Urals to the west, around the middle of the 5th millennium BC, mostly evidenced in burials. In the Lower Dnieper basin this new type of burials were labelled as Srednij Stog II[7]. They were characterised by the supine position of the deceased with flexed or extended legs, ochre straying, the presence of flint daggers or spears and beakers with pointed bases, pots were tempered with crushed shell, stylised horse heads carved in stone were placed as grave goods. From there they infiltrated the territory west of the Black Sea around 4400–4300 BC. The supposed impact differred from one region to another, as the Cucuteni civilisation survived the "First Wave", whereas the event proved catastrophic for the Varna, Karanovo (Gumelnița), Vinča, and Lengyel communities, which were dislocated as a chain reaction. The appearance of the Cernavoda I culture, dated to the first half of the 4th millennium BC and considered a "Kurganish complex", is seen as a consequence of this first wave.

The second wave (*Fig. 4.1*) was dated in the second half of the 4th millennium BC and the invaders originated from the north-Pontic/north-Caucasus region. It supposedly had a deep impact on the Cucuteni culture that had survived the first wave, but succumbed and was transformed by the second. The occurrence of kurgans in the plains of Romania and Bulgaria is considered a consequence of this wave. At the same time the re-occupation of tell settlements such as Ezero, Nova Zagora or Sitgaroi is seen as a proof of the Kurgan domination of Old Europe, culturally unifiying East-Central Europe, Macedonia and even western Anatolia. Gimbutas found resemblances between the settlements and burial practices of the Baden culture and this Kurgan horizon and saw a *Kurganization process* at work. On the contrary, she considered the Coțofeni culture as a vestige of the Old European tradition, as sedentary agriculturalists living in solidly built houses, using copper tools and still producing burnished red and white painted ceramics.

The third wave (*Fig. 6.1*) was dated between 3000–2800 BC and the populations came from the Volga steppes. The Yamnaya wave is described as a "massive infiltration which caused drastic changes" (Gimbutas 1991, 384; 1993, 213) in the wider Balkan region. In Gimbutas' view, Yamnaya populations, whose presence in the region is evidenced by hundreds of burials, reached east-central Europe as far as eastern Hungary and northern Yugoslavia causing Baden-Vučedol communities to shift to north-west and south, to Bohemia and central Germany, the Adriatic coast, northern Italy. She stated that the Kurgans arriving in Greece at the beginning of the 3rd millennium BC were descendants of these Baden-Vucedol populations, which were a product of the Indo-Europeanization process of the second wave (Gimbutas 1993, 215). She saw the Bell Beaker cultural elements as deriving from Vučedol and Yamnaya traditions. On the contrary, she did not consider the emergence of the Corded Ware as a consequence of steppe intrusions, but she was rather inclined to see it as a later phase of the Globular Amphora complex pushed to the north and northeast by the influx of the Yamnaya, and the bulk of population to be indigenous remnants of the Old Europeans, with a few exceptions of individuals of steppe origins[8] (Gimbutas 1991, 393). However, in a later publication she left the problem of the formation of the Corded Ware complex as an open question that has "not yet been resolved with any clarity" (Gimbutas 1993, 218).

Almost four decades had passed between the first time Marija Gimbutas described the so-called "Kurgan culture" in 1956 and her last publication of 1993. During the first two decades she already formulated several ideas about migrations of steppe groups (Gimbutas 1956; 1963), but only in the 1970s she fully articulated the three waves of migration theory (Gimbutas 1970; 1977; 1979), which she later updated according to new research and finds (Gimbutas 1991; 1993). Although her ideas have not

[7] For a detailed discussion regarding the cultures to which the finds were assigned see Rassamakin 1999.

[8] She supported this statement by means of bio-anthropological analyses of the physical type of individuals.

changed that much over time, Marija Gimbutas not only adjusted the relative and absolute chronology of cultures and finds, but also introduced more subtle and nuanced changes in the terminology she used. *Table 1* contains the words chosen to describe the migrations from the steppe into Southeastern Europe as well as the "Kurgan people" responsible for them.

Table 1. Words used to describe mobility and the steppe people in the work of Marija Gimbutas

Publication	Words used to describe human mobility	Description of "Kurgan people"
Gimbutas 1963	*invasion* *intrusion* *conquering* *waves of expansion* *waves of invasions*	*intruders* *invaders* *patriarchal*
Gimbutas 1970	*invasion of hordes* *infiltration* *expansions and conquests*	*pastoralists* *vagabonds* *live by war and plunder* *(similar to Thracians)*
Gimbutas 1977	*migratory waves* *repeated incursions* *three phases of Kurgan intrusion* *kurgan thrust into Old Europe* *kurgan penetrations* *massive invasion*	*warlike horse people* *glorified the lethal power of the sharp blade* *horse-riding warriors*
Gimbutas 1979	*three waves of kurgan infiltration* *invasion* *kurgan intrusions*	*semi-nomadic horse riding Kurgan people* *patriarchal, ranked and warlike horse riders* *horse-riding warriors* *invaders*
Gimbutas 1991	*continuous flow of influences* *three waves of infiltration* *people streamed* *the third Kurgan thrust*	*warlike Kurgan horsemen* *invaders* *warlike, patriarchal and hierarchical*
Gimbutas 1993	*intrusion* *continuous flow of influences* *three waves of infiltration* *incursions*	*steppe pastoralists - warlike, patriarchal and hierarchical*

One can notice how in earlier publications Marija Gimbutas used words that conveyed stronger and more violent meanings, while in later articles her speech toned down. Thus, the "Kurgan people" went from "vagabonds", "invaders", "horse-riding warriors who glorified the lethal power of the sharp blade" to "steppe pastoralists – warlike, patriarchal and hierarchical", while the "waves of invasion" of "hordes" slowly turned into "waves of infiltration" or even a "continuous flow of influences". Nonetheless, the overall topic of the three waves of migration was preserved.

II. Archaeological record in Southeastern Europe

Following this brief presentation, several questions arise. Can we identify archaeologically three waves of migrations from the steppes into Southeastern Europe, as Marija Gimbutas stated, by analysing burials (Anthony 1990; Burmeister 2000)? How does the archaeological record of these supposed

waves look like? Is the word "waves" appropriate to describe the processes taking place? In the lines below I will provide an overview of the archaeological record in Southeastern Europe during the second half of the 5th millennium BC, last centuries of the 4th millennium BC, and the beginning of the 3rd millennium BC, the times of the supposed waves of migration. It includes those finds and features that were interpreted as evidence for movements of steppe-originated groups or individuals into this region, displaying distinctive steppe characteristics of the burial ritual and grave goods. When available, aDNA analyses informing about the biological ancestry of the individuals will also be discussed.

II. 1. The first wave

During the second half of the 5th millennium BC thriving societies were populating Southeastern Europe, for which Gimbutas coined the term *"Old Europe"*. Impressive settlements in the eastern Balkans and the Lower Danube area formed as a result of building homes on top of previous dwellings (tells), while flat settlements used for shorter periods are attested in other areas; houses had detailed painted decorations and comprised in some cases two stores, craftmen created exquisite painted pottery, anthropomorphic and zoomorphic figurines as well as refined flint tools (Bailey 2000; Anthony 2010). Copper and gold items were displayed in rich cemeteries, such as Varna I, in the coast region close to the Black Sea (Leusch *et al.* 2015).

At the same time in the Northwestern-Pontic steppe, apparently suddenly, emerged a new kind of individual burials, sometimes outstandingly equipped, that also reached the Lower Danube and the Balkans. This would account for Gimbutas' first wave (*Fig. 1.1*). The origin of the individuals in these burials was debated, some scholars stating they originated and moved westwards from the Volga-Don region (Gimbutas 1991, 352; Anthony 2019a, 46), or the Lower Dnieper region (Anthony 2007, 249), even the hypothesis that they represent a local steppe elite emerging in the Northwestern-Pontic region was advanced (Govedarica 2016, 84). Consequently, their cultural assignment was also different, being either considered an elite group within the Sredni Stog culture, called Suvorovo-Novodanilovka complex (Anthony 2007, 251) or part of the steppe Skelya culture (Rassamakin 1999, 77; Manzura 2005, 318). The graves show a burial custom focused on the individual, the most frequent body position was supine with flexed legs, but the extended position is also attested, ochre was intensively used, sometimes they were covered with small mounds; in some cases the graves contained impressive inventories consisting of jewellery, such as shell chains, copper artefacts, more rarely gold, exquisite tools made of copper and flint, as well as weaponry, and only very rarely pottery (see for example the Giurgiulești cemetery) (Govedarica 2004, 85; Anthony 2007, 251–252; Govedarica 2016, 86; Heyd 2016, 56; Govedarica – Manzura 2016). Based on the grave of Suvorovo, zoomorphic stone sceptres considered as the representation of horse heads are also included in this burial horizon (Govedarica 2004, 103).

In Southeastern Europe several graves were interpreted as a result of migration as they do not find precedent in the local archaeological record, but have the characteristics of the above-mentioned steppe burials. Let us now briefly examine these graves. The flat grave in Csongrád-Kettőshalom, in Hungary (*Fig. 2.2*) contained an adult individual lying supine with the legs bent at the knees, and a considerable amount of ochre was found on the skeleton and inside the grave pit (Ecsedy 1971, 9). Grave goods comprised a 13.2 cm long obsidian blade, limestone and *Spondylus* shell beads, beads made of curved copper plate, and an ochre lump (Ecsedy 1971, 9). Similar characteristics can be seen in the cemetery from Decea Mureșului, in Transylvania. Here, the individuals were also laid supine with raised knees, ochre was abundantly used; grave goods consisted of pots, long flint blades, strings of beads made of bent copper sheet, *Unio* shell beads, and a four-knobs stone macehead was attested in grave 12 (*Fig. 2.4*) (Govedarica 2004, 62 ff.; Gogâltan – Ignat 2011, 13ff.; Fig. 3, 7). Two graves were found in Kiulevcha, Bulgaria,

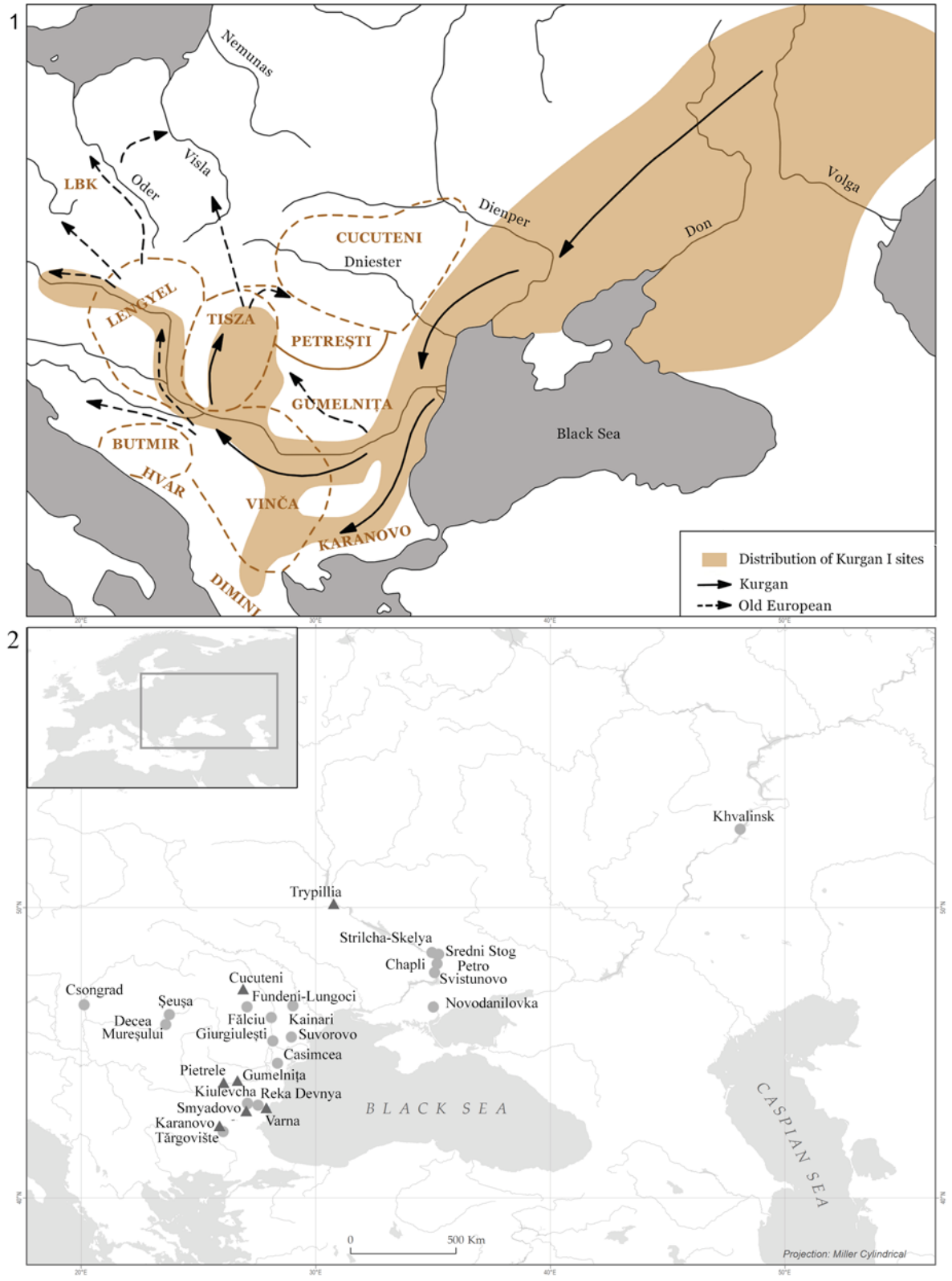

Fig. 1. 1. Distribution of the first Kurgan wave according to M. Gimbutas (after Gimbutas *1991, fig. 10. 6B redrawn); 2. distribution of the 5th millennium BC finds in Southeastern Europe (map by Bogdan Olariu; sites of Old Europe are marked with triangles and sites with steppe characteristics are marked with circles)*

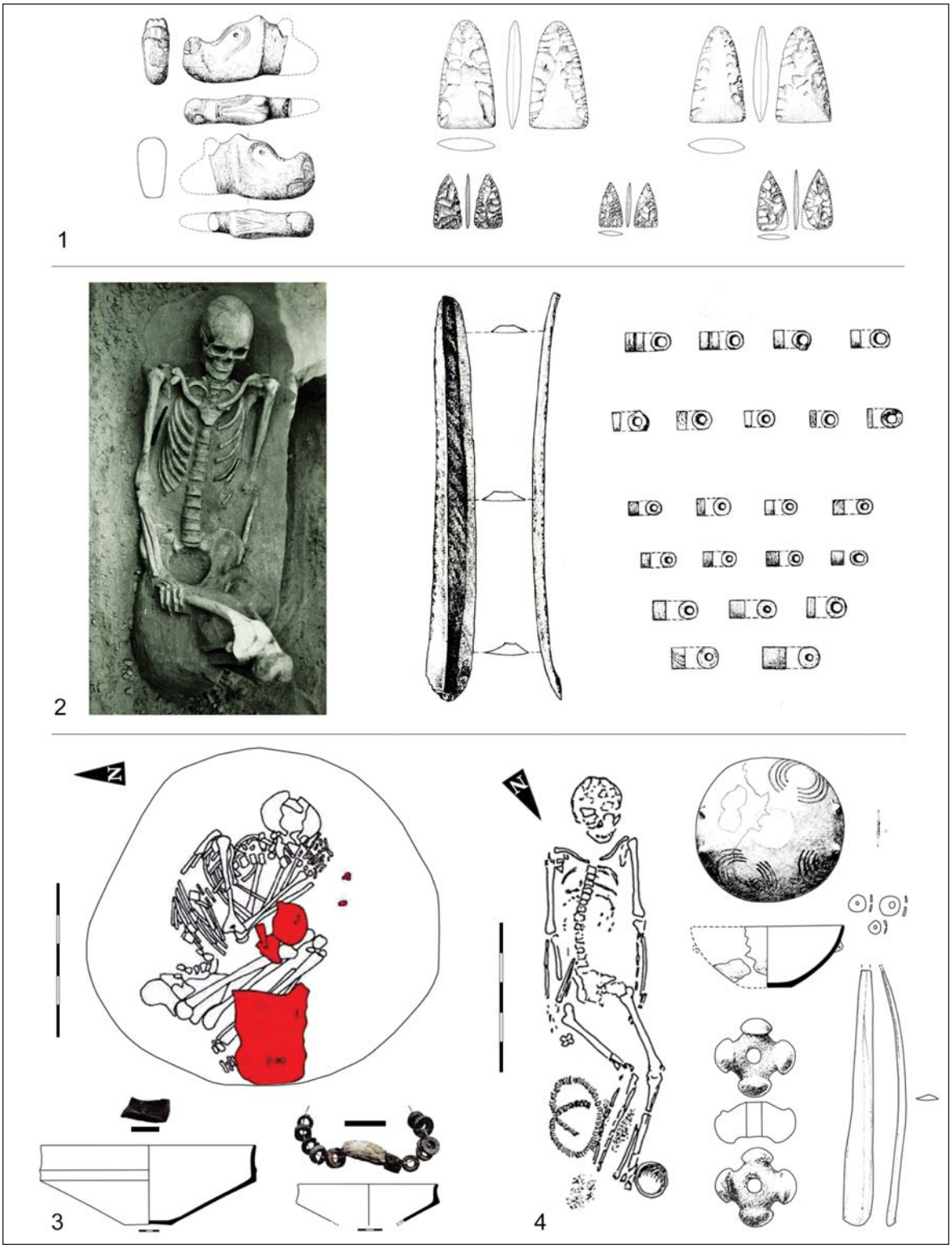

Fig. 2. 1. Casimcea: grave goods recovered from the burial (after Govedarica 2004, Taf. 19-20); 2. Csongrád – Kettőshalom: picture of the burial and drawings of the grave goods (after Ecsedy 1971, Fig. 3/1–4; Dani – Preda-Bălănică – Angi 2021); 3. Grave 29 from Smyadovo (after Chohadzhiev – Mihaylova 2014, Fig. 35/2–6); 4. Grave 12 from Decea Mureşului and grave goods (after Govedarica 2004, Abb. 8/2, Taf. 3/1–5)

numbers 27 and 33, and in both individuals were lying supine with raised knees and were covered with ochre; grave goods were found only in grave 33, consisting of a flint blade and a sceptre made of an axe with zoomorphic appearance attached to a long bone handle (Govedarica 2004, 106). The grave from Reka Devnya, not far from Varna, was particularly rich in grave goods, consisting of 27 flint objects such as lance tips, blades, blade tips, four copper items, 31 pearls made of *Spondylus*, *Dentalium*, and copper, 34 gold rings, and a copper ingot (Govedarica 2004, 106–109). The exact position of the individual is unknown, however, ochre was found on the bones and grave goods (Govedarica 2004, 106). In several cases, kurgans were raised over the graves and these are the earliest attested in the whole of Southeastern Europe (Heyd 2016). In a destroyed mound from Casimcea, in Romanian Dobrudja (*Fig. 2.1*), along with bones coloured with red ochre the archaeologists recovered an impressive inventory comprised of a zoomorphic stone sceptre, three lance tips, two whole knife blades and another fragmentary one, a *grattoir* and two flint axes (Popescu 1941). In Târgovište-*Gonova Mogila*, Bulgaria, the main grave contained an individual covered by ochre and most likely accompanied by a long obsidian blade and strings comprised of copper and shell beads (Govedarica 2004, 109). The graves from Fălciu and Fundeni-Lungoci in Romanian Moldavia could be added, although they were destroyed and only bones covered with red ochre and grave goods were recovered (Govedarica 2004, 83–84).

Alongside graves, further steppe impact can be seen in the spread of horse head sceptres or their local imitations found in the Balkans, Lower Danube and the eastern Carpathian Basin in settlements or isolated (Frînculeasa – Mirea 2007; Gogâltan – Ignat 2011, Fig. 2; Govedarica 2016, Fig. 5), the presence of four-knobs stone maceheads (Gogâltan – Ignat 2011, Fig. 3, 7), along with possible evidence of places of living and ritual activities in the site of Șeușa-*Gorgan* in Transylvania (Ciută – Marc 2012), a Skelya tradition pot found in Pietrele (Reingruber – Rassamakin 2016, Abb. 16, 297), and the shell-tempered Cucuteni C-type ware resembling Skelya culture pottery, found in Cucuteni settlements and spreading subsequently to the south up to Bulgarian Thrace (Rassamakin 1999, 102; Georgieva 2018, 99). The C-type ware was interpreted as a sign of contacts with the steppe, or even as a sign of the actual presence of steppe populations or persons within the Cucuteni-Tripolie and KGK VI worlds (Munteanu – Garvăn 2011; Georgieva 2018).

Returning to the graves described above, we do not know if the individuals buried in them were actual migrants from the steppes or not. Perhaps in the future aDNA and isotope analyses will provide further clues regarding their ancestry and mobility during their lifetime. For instance, the mtDNA of two of the burials from Decea Mureșului (graves 10 and 12) does not seem to confirm a migration from the steppe of these individuals, as it belongs to the K haplogroup, a mtDNA haplogroup associated with Anatolian Neolithic farmers (Rotea *et al.* 2014, 27; Hervella *et al.* 2015, 6; Isern – Fort – De Rioja 2017). However, this is particularly interesting because even if they were not direct migrants, during their funeral they were ascribed an identity different of the one usually encountered in local cemeteries. The mourners were familiar with the burial practices from the steppes, the rules were strictly followed: ochre was procured and sprinkled in large quantities over the pit bottom and deceased, the individuals were laid on their backs, the knees were raised, and typical grave goods were put next to them. If funeral rituals are a means not only to reflect or demonstrate identities the deceased had during their lives, but also to actively manipulate or construct them, then a steppe identity was symbolised for the buried individuals (Reimers 1999, 148; Parker Pearson 2010, 32–33). Information about their paternal ancestry would help clarify further if a steppe connection indeed existed, however such analyses are missing for the moment.

Nonetheless, even if the rest of the mentioned individuals were migrants with steppe origins, the rather isolated and small number of graves hardly justifies the word “wave” to describe their migration. Taking a look at the map (*Fig. 1.2*) one can notice that particular regions were of interest. This image

looks like the result of a leapfrogging migration of individuals or small groups to targeted areas, most likely connected to natural resources such as obsidian[9], copper or gold (Anthony 1990, 903; 2007). Across the steppe region as far as Volga and North Caucasus, the presence of Balkan raw materials and objects is visible in rich burials furnished with metal goods, especially made of copper but also of gold, high quality flint as well as ornamental shells (Rassamakin 1999, 100; Heyd 2016, 59). We mention here sites such as Novodanilovka, Chapli, Petro-Svistunovo and Khvalinsk, indicating a return migration (Anthony 1990, 903; 2019a, 45; Rassamakin 1999, fig. 3.15, 3.16; Govedarica 2004). As Y. Rassamakin already pointed out, the burials might account for the mobility of a special category of high-status individuals, controlling an exchange network of prestige and luxury objects between the Balkans and the steppe (Rassamakin 1999, 102).

No other individuals with supposed steppe origins have been tested for aDNA so far, but the situation is likely to change in the near future. Nonetheless, the hypothesis finds indirect support in recent results showing that three individuals from the Varna region in Bulgaria had steppe ancestry. One of them is the richest grave in Varna, grave 43, although in his case the steppe ancestry was quite distant (Mathieson *et al.* 2018, 200; Anthony 2019a, 41–42). The other two, grave 158 in Varna and grave 29 in Smyadovo (*Fig. 2.3*) had recent steppe ancestry, similar to the one found in individuals from the Volga region, and the ancestors with steppe origins were most likely men (Mathieson *et al.* 2018, 200; Anthony 2019a, 41). However, in these cases the biological ancestry of the individuals was not acknowledged in any way in the burial ritual and they were buried according to local customs. We do not know if the steppe origin was remembered or part of the identity of the deceased in any way (Frieman – Hofmann 2019, 537). Given the richness of their burial equipment, the ancestry of these individuals was interpreted as a sign of occasional marriage between the ruling elites of Southeastern European agricultural societies and steppe people from the Volga region (Anthony 2019a, 42). So far, the results do not confirm the hypothesis of a major role played by people from the Dnieper Rapids, the area of the Skelya culture, in this process (Rassamakin 1999, 104; Anthony 2019a, 42). These alliances would have secured the existence of the exchange networks that, in turn, also transformed the steppe. Indeed, scholars parallel the cemeteries from Varna and Giurgiulești not only chronologically, but also in terms of structure, suggesting that access to new raw materials, technologies and knowledge coming from the Danube and the Balkans stimulated a similar reaction in steppe societies (Rassamakin 1999, 102; Govedarica – Manzura 2016, 23, 29).

Table 2. ^{14}C dates for graves of individuals with steppe ancestry

Lab ID	Site name/Grave	BP	Date cal BC 2 sigma (95.4%)	References
OxA-13688	Varna, Grave 158	5787±30 BP	4713–4549	Krauss *et al.* 2017, Tab. 2
MAMS-30944	Varna, Grave 158	5755±24 BP	4692–4509	Krauss *et al.* 2017, Tab. 2
MAMS 15095	Varna, Grave 43	5662±27 BP	4580–4371	Krauss *et al.* 2017, Tab. 2
OxA-13685	Varna, Grave 43	5720±29 BP	4678–4458	Krauss *et al.* 2017, Tab. 2
Beta-432803	Smyadovo, Grave 29	5680±30 BP	4606–4447	Mathieson *et al.* 2018, 200; Anthony 2019a, 41–42

[9] For instance, the individual from Csongrád-Kettőshalom had as inventory a blade made from local obsidian (Biró – Markó – Kasztovszky 2005, 91).

Table 3. ^{14}C dates for graves of individuals with steppe burial ritual

Lab ID	Site name/Grave	BP	Date cal BC 2 sigma (95.4%)	References
KIA 369	Căinari	5580±50	4532–4340	Govedarica 2004, 82, Abb. 13
Poz-41865	Csongrád-Kettőshalom	5470±40	4442–4243	Horváth *et al.* 2013, tab. 3
Beta–317252	Decea Mureșului/ DM 4 (Grave 10)	5280±30	4236–3991	Rotea *et al.* 2014, Pl. XIX
KIA 368	Decea Mureșului, Grave 12	5380±40	4336–4056	Govedarica 2004, 73, Abb. 9
MAMS 23175	Giurgiulești, Grave 3	5370±26	4330–4058	Govedarica – Manzura 2016, tab. 1
MAMS 28087	Giurgiulești, Grave 3	5504±31	4445–4265	Govedarica – Manzura 2016, tab. 1
MAMS 28088	Giurgiulești, Grave 4	5571±32	4484–4346	Govedarica – Manzura 2016, tab. 1

According to the available ^{14}C dates this interaction lasted several centuries, covering most of the second half of the 5th millennium BC (*Fig. 3.a–b*; *Tables 2–3*) (Horváth *et al.* 2013; Rotea *et al.* 2014, 27; Govedarica – Manzura 2016, 17ff.). Therefore, one cannot talk about a wave of migration as a single, unidirectional and catastrophic event, but rather, in David Anthony's words, about a complex, multi-generational human process that created social dynamics both at home and in the destination, including new kinds of socio-political hierarchy (Anthony 2021, 2). It was a period of exchanges and

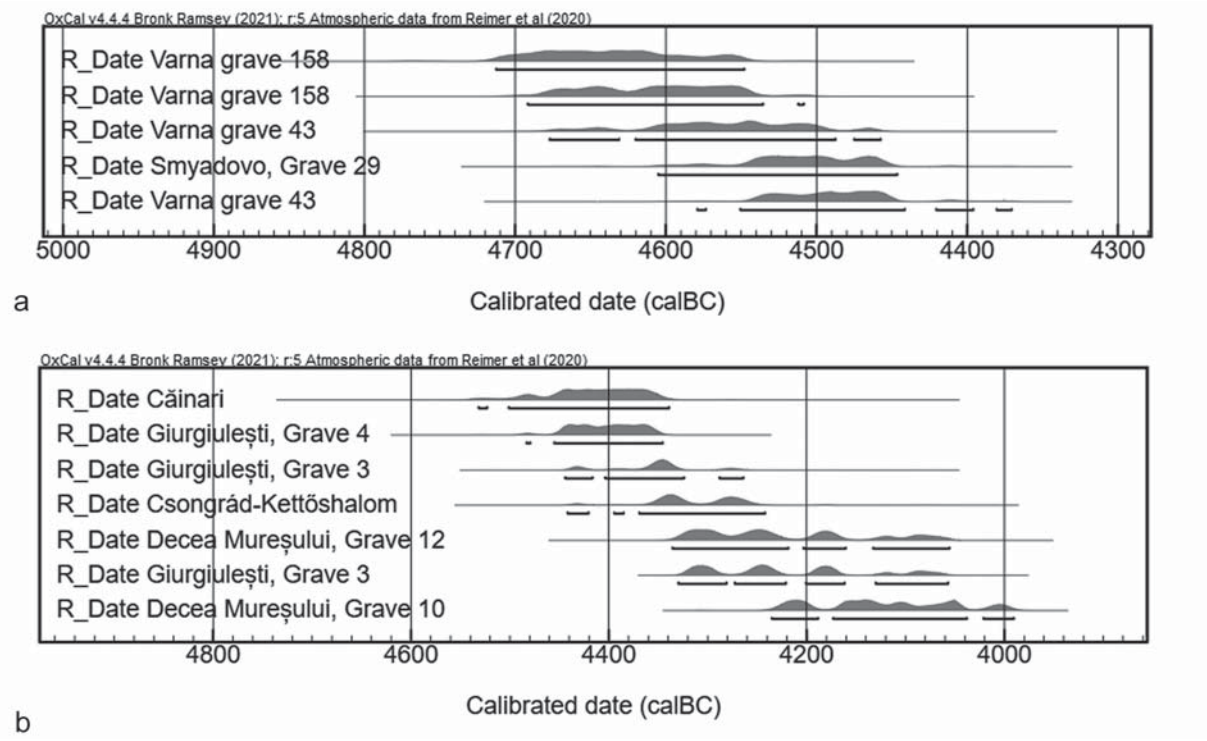

Fig. 3. a. Calibration of ^{14}C dates for graves of individuals with steppe ancestry; b. calibration of ^{14}C dates for graves of individuals with steppe burial ritual. All datings are calibrated with the OxCal v4.4.4 using the IntCal20 atmospheric curve (Bronk Ramsey 2009; Reimer et al. 2020), and given in 95.4% probability

enrichments during which steppe populations explored *Old Europe*, adopted luxury goods, absorbed and adapted ideas. It is not clear if in the end they brought about the collapse of the Eneolithic societies around 4250 BC, when settlements were burned and abandoned north and south of the Lower Danube, in the Balkans, on the Aegean coast and even in Greece (Anthony 2007, 227; Reingruber 2015), as Marija Gimbutas envisioned. Other explanations focused on environmental factors such as the downfall of agriculture, maybe triggered by significant climate change, with cold years, or the degradation of the environment caused by human exploitation, on internal societal factors such as the increase of social inequality or low economic growth (Bailey 2000, 260; Todorova 2003, 290; Anthony 2007, 227–228; Windler 2017). However, one has to note that at the same time rich assemblages also disappeared from the steppe region (Rassamakin 1999, 112).

II. 2. The second wave

Following the collapse of the Eneolithic societies at the end of the 5th millennium BC the archaeological record is elusive, wide regions in the Balkans barely show any traces of human habitation (Maniatis *et al.* 2014; Georgieva 2018, 103). In the first half of the 4th millennium BC the only somehow consistent discoveries belong to Cernavoda I culture, with few settlements with thick archaeological deposits and small flat cemeteries, isolated burials, or small kurgans sometimes surrounded by stone cromlechs or even ditches (Manzura 1999, 115, 120; Anthony 2010; Frînculeasa – Mirea – Trohani 2017). Gimbutas defined it as a "Kurganish complex", while I. Manzura suggested it developed based on local traditions of the Eneolithic world, while for the moment no aDNA studies include samples from Cernavoda I contexts (Gimbutas 1993, 209; Manzura 1999, 145). The origins and nature of the following phase, of the Cernavoda III-Boleraz phenomenon (roughly between 3600 and 3300 BC) are also a matter of ongoing debate, as is the potential existence of burials under mounds in this period, which might actually be connected with the Usatovo culture (Oanţă-Marghitu 2003; Alexandrov – Kaiser 2016, 365, 368; Alexandrov 2018, 90). Habitation traces become more consistent during the last third of the 4th millennium BC, which sees the emergence of trans-regional phenomena such as Baden, Coţofeni-Kostolac in Central Europe and Central Balkans and Ezero-Karanovo VII in Bulgaria; resemblances relate mainly to pottery, while the funerary practices show variation between regions, with both cremation and inhumation being attested (Roman 1976; Sachsse 2010; Kapuran – Bulatović 2012; Demoule 2017, 57–58; Alexandrov 2018). North of the Danube, in eastern Muntenia, Dobrudja and southern Moldavia, the archaeological record consists of Cernavoda II and Folteşti sites (Florescu 1965; Berciu – Morintz – Roman 1973), and further north, in central and northern Moldavia one can find settlements and graves of Trypillia CII groups such as Horodiştea, Erbiceni and Gordineşti (Dumitroaia 2000, 28; Sîrbu – Król – Heghea 2020).

Gimbutas dated the second wave of migration from the steppes between 3400–3200 BC in her 1979 article, and after 3500 BC onwards in her 1993 article (*Fig. 4.1*). The supposed invaders originated from the North-Pontic/North-Caucasus region, a view that did not receive much support (Gimbutas 1979, 120; 1991, 401; Anthony 1986; 2021, 7). However, recent excavations have considerably enriched the available data, and a growing number of finds attests the emergence of a horizon of kurgan burials about the same time as Gimbutas' second wave (*Fig. 4.2*) (Gimbutas 1979, 120 ff.). The dating of this horizon in the last third of the 4th millennium BC and the very beginning of the 3rd millennium BC is now secured by both absolute and relative chronology. There is a significant amount of available ^{14}C dates, relevant stratigraphic positions in mounds (always primary burials or even if secondary, always earlier than Yamnaya graves), as well as grave goods with analogies in other safely dated contexts (Frînculeasa *et al.* 2014; Frînculeasa – Preda – Heyd 2015; Frînculeasa *et al.* 2019; Frînculeasa 2020, 39).

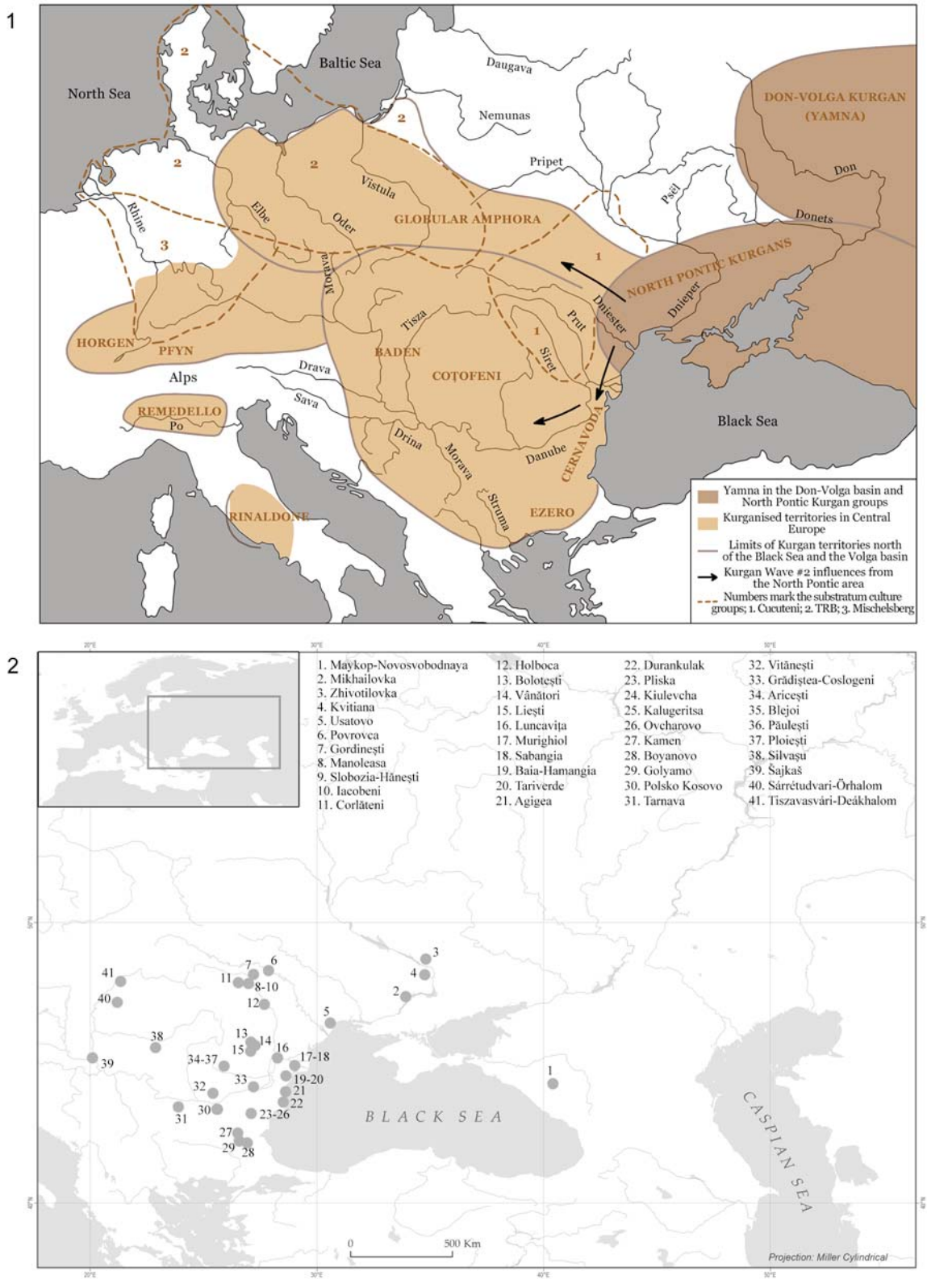

Fig. 4. 1. Distribution of the second wave according to M. Gimbutas (after Gimbutas *1991, fig. 10–13); 2. sites dated to the second half of the 4th millennium BC and the beginning of the 3rd millennium BC (map by Bogdan Olariu)*

Fig. 5. 1. Tiszavasvári-Deákhalom – extended burial (after Frînculeasa – Mirea – Trohani 2017, Pl. XVIII/2); 2. Tarnava, mound 1: reconstructed drawing of grave 1 and pot found in the burial (after Alexandrov 2019, Pl. III, Pl. VI/3; Panayotov 1989, Fig. 36); 3. Ariceștii-Rahtivani IV/grave 5: drawing of the grave and photos of grave-goods (after Frînculeasa et al. 2014, Pl. 9–10)

These graves show certain regional peculiarities, especially in terms of grave goods. Thus, in Moldavia some contain vessels typical of Tripolie CII groups (e.g. Lieşti) (Brudiu 2003, 45), or Cernavoda II/Folteşti II ceramics (e.g. Vânători, Bolotești), the latter also found south of the Danube (in Pliska) (Burtănescu 2002, 394; Alexandrov – Kaiser 2016, 361). Although not very consistent in the archaeological record, this image might just reflect the current state of research. More consistent data come from graves with vessels typical of the Coțofeni culture in the regions of Muntenia, Oltenia and south of the Danube (Alexandrov 2019; Frînculeasa 2020). Intensive research carried in the past ten years in northern Muntenia is particularly relevant.

There, the mounds revealed a set of very specific burial practices: circular gravel structures built around main burials, individuals laid mostly crouched on the side, usually with their arms flexed, oriented to various directions, ochre is sometimes found; collective burials are frequent and in many cases the post-mortem manipulation of the deceased is attested (e.g. grave 5 in Aricești IV; *Fig. 5.3*) (Frînculeasa *et al.* 2014; 2019, 69; Frînculeasa 2020, 38). Most intriguing is the diversity and richness of grave goods, comprised of several categories: pottery with good analogies in the third phase of the Coțofeni culture, found either in graves or in features in kurgans (Aricești VI) (Frînculeasa *et al.* 2014; Frînculeasa 2020; 42–44); varied ornaments such as copper torques, necklaces comprised of spectacle-shaped pendants, *Dentalium* and *Unio* pearls, copper tubular pearls; silver spiral hair rings are also common; and weapons such as copper flanged axes or stone shaft-hole axes (Frînculeasa *et al.* 2014; 2019, 69; Frînculeasa – Preda – Heyd 2015; Frînculeasa 2020, 38, 55). These burials illustrate a local aspect of a process that is encompassing a much wider geographical range, as similar features were also found south of the Danube. The *Gabrova Mound*, close to Kamen village, had two primary burials: a collective grave of seven individuals indicating the post-mortem manipulation of bodies (Grave 24), and another collective burial of four individuals laid in extended position (Grave 30) (Dimitrova 2014). The inventory of grave 30 is exquisite and comprises silver spiral hair rings, *askos* pots, two axe-chisels and two daggers made of arsenic bronze, amulets made of boar's tusks (Dimitrova 2018, 317). Another example is Mound I in Tarnava, to which M. Gimbutas also referred, containing inhumation and cremation burials with typical Coțofeni III ware (*Fig. 5.2*) (Alexandrov 2019, 84). One has to note here that the association between cremation burials with Coțofeni pottery and kurgans is also attested in other sites, such as Silvașu or Tarnava mound II (Alexandrov 2019, 79; Diaconescu 2020, 22). Furthermore, it is in this period that cord-decoration appears once again on pottery, especially on Coțofeni III ware, but also on Kostolac ceramics in the regions of Banat, Timočka, Krajina, Oltenia and western Bulgaria (Bulatović 2014, 131).

Although less visible because they lack inventories, other burials need to be mentioned as well. Examples come from all regions and their dating is supported by ^{14}C analyses and relative chronology. We mention here the ^{14}C dated grave 3 from Păulești II, in Muntenia, and grave 12 of the Sárrétudvari-Örhalom kurgan, in the Hungarian lowlands (Gerling *et al.* 2012; 1101, tab. 1; Frînculeasa – Preda – Heyd 2015, 58, tab. 2). To these are added burials that are either primary or stratigraphically earlier in mounds that are taken over by Yamnaya communities at the beginning of the 3rd millennium BC, such as the ones in Boyanovo (Iliev 2011, 384). In these graves, the deceased are usually laid in a crouched position on the side. However, to the same period also belong burials with individuals lying in supine extended position. This ritual is not so common in the region, but can be found during the late 4th millennium BC and even survives in the 3rd millennium BC, with good examples in Vitănești (Romania), Tiszavasvári-Deákhalom (Hungary) (*Fig. 5.1*), Kalugeritsa (Bulgaria), and perhaps also in Šajkaš (Serbia) (Alexandrov 2011, 311; Horváth *et al.* 2013; Frînculeasa – Mirea – Trohani 2017; Koledin *et al.* 2020).

Most of the kurgan burials presented above show a mixture of elements with seemingly different origins. As already mentioned, vessels are mainly related to the various local pottery traditions; some of the metal and shell weapons and ornaments such as spectacle-shaped pendants, flanged axes, *Dentalium* beads and the copper torque could be connected to Transylvania or Central Europe (Bondár – Raczky 2009; Frînculeasa 2020, 54). Furthermore, the similarity of some grave goods and ritual elements with Baden burials has been already highlighted (Frînculeasa 2020, 54). On the other hand, the central burial under a kurgan, maybe the presence of stone/gravel structures surrounding the main graves[10], the silver spiral hair rings, the presence of ochre, point to a steppe connection (Frînculeasa – Preda – Heyd 2015). In the second half of the 4th millennium BC the closest north-west Pontic roughly contemporary features are the Usatovo graves, dated to the third quarter of the 4th millennium BC (Manzura 2020, 76). Deeper into the steppe, one can find sites of the Lower Mikhailovka and Kvityana cultures to the east and north, Konstantinovska culture on the Lower Don and, in northern Caucasus, Maykop-Novosvobodnaya features (Rassamakin 1999, 122 ff.; Rezepkin 2000; Manzura 2016; 2020). At both ends of this territory striking similarities between Usatovo and Maykop-Novosvobodnaya graves in terms of their monumental architecture, burials rites, grave goods, and presence of arsenic bronzes have to be noted (Rezepkin 2000; Manzura 2016, 54; Hansen 2021). Slightly later, Zhivotilovka graves had a true trans-regional character, crossing the steppes from the Northern Caucasus to Eastern Carpathians, uniting previously isolated steppe areas and covering the areas of all the above-mentioned cultures by means of wheeled transportation (Rassamakin 1999, 123; Manzura 2016, 54, 64).

Both Usatovo and Zhivotilovka groups buried people under kurgans. The rich Usatovo graves had complex stone structures and contained prestigious goods such as metal weapons and various ornaments, including silver hair rings (Manzura 2020, 81, 85). Furthermore, metal objects made of arsenic bronze are a trademark of Usatovo burials, sometimes combined in "burial kits" together with pottery (Manzura 2020, 78; Hansen 2021). We mention a similar situation in the Gabrova Mound in Kamen presented above, where each individual in grave 30 had as grave goods silver spiral hair rings, daggers and axes of arsenic bronze and askos pots, in various combinations (Dimitrova 2018, 317). The deposition of bodies in crouched position is typical for Lower Mikhailovka, Usatovo and Zhivotilovka graves, and the presence of double or collective burials together with the practice of ochre straying is also documented in graves of the latter (Rassamakin 1999, 114; Manzura 2016, 59, 61). However, contemporary double and collective burials, in some cases with the post-mortem manipulation of bodies are also attested in the Baden culture (Krumpel 2012). As for the mentioned extended burials, they display burial practices typical of the Kvityana tradition in the steppe (Rassamakin 1999, 83).

The question that emerges is who are the individuals buried in kurgans across the steppe-like regions of Southeastern Europe? Are they, as Marija Gimbutas assumed, migrants from the North-Pontic/North-Caucaus region, who incorporated local pots, weapons and ornaments in their graves? Or are they local populations that adopted steppe burial practices? No aDNA analyses to inform us about the ancestry of these individuals have been published so far. To the east, three individuals from Povrovca and Gordinești, dated in the second half of the 4th millennium BC in late Cucuteni-Trypillia contexts, showed considerable amounts of steppe ancestry (Immel *et al.* 2020). The actual mobility of some individuals or small groups from and across the steppe in this period is very likely. However, the peculiarity and local aspects these graves take suggest a different interpretation. It is more likely that the presence of kurgans with local inventories in Southeastern Europe is better explained by the adoption of the habit of mound burials reflecting the desire of local individuals to display their status and wealth (Frînculeasa 2020, 55). The emergence of funerary features with steppe attributes does not need to involve a wave of migration from the North-Caucasus or Dnieper region as envisioned by M. Gimbutas,

[10] However, stone structures are also found in Baden burials (Sachsse 2010).

but can rather be the result of intensified circulation of goods, ideas and new technologies within inter-regional networks, boosted by the invention of wheeled transportation (Hansen 2010; Burmeister 2017b). For the moment, the genetic evidence also speaks against a flow of Maykop pastoralists into the steppe (Anthony 2019a, 44).

There are other points in Gimbutas' second wave of migration that do not stand against the current available data. She considered the individuals associated with Baden and Globular Amphora material culture as steppe migrants, however aDNA analyses indicate most of them were descended genetically almost entirely from local farmers (Mathieson *et al.* 2018, 200; Anthony 2021, 4). She also described Coțofeni culture as a vestige of the Old European tradition, as sedentary agriculturalists living in solidly built houses, but the rich kurgan burials with Coțofeni pottery, weapons and ornaments suggest this was a simplification blurring more complex processes.

II. 3 The third wave

Marija Gimbutas dated the third wave of migration from the steppes at the beginning of the 3rd millennium BC and connected it to the Yamnaya pastoralists (*Fig. 6.1*) (Gimbutas 1979, 127). Their graves covered a wide area of the European continent, stretching from the Ural Mountains in the east to the Hungarian Plain in the west (*Fig. 6.2*) (Merpert 1974; Heyd 2011; Frînculeasa – Preda – Heyd 2015). Based on a certain variation in burial ritual or material culture, scholars distinguished regional variants or peculiarities, such as the nine regions defined by N. Merpert, or even assigned them to separate cultures such as the Budzhak-type of graves between Prut and Dniester (Merpert 1974, 14–15, fig. 1; Ivanova 2013). For this reason, Yamnaya related references in archaeological publications often use terms such as cultural-historical region/community, horizon, or phenomenon (Anthony 2007; Rassamakin 2013). The origins, chronology, material culture and burial ritual have been studied and categorised for more than a century, raising thorough debates. Most scholars agree that the Yamnaya burial ritual originated in the steppes, although the exact region is still not clear, spreading quickly across the entire north-Pontic area (Merpert 1974; Anthony 2007, 317), although an alternative hypothesis of a system transformation of local cultures or groups to the formation of more or less unified and steady phenomenon has also been advanced (Rassamakin 2013, 115).

The burial practices included a central grave under a kurgan, the supine with raised knees posture of the deceased, ochre staining on grave floors near the feet, hips and head, north-eastern to eastern body orientation, or western in other regions, no distinction between men and women in the burial rite, and arranging the burial chamber with mats and wood (Anthony 2007, 304; Shishlina 2008; Klejn *et al.* 2018, 4). In the Volga-Don steppes, grave inventories consisted of shell-tempered, egg-shaped vessels sometimes decorated with cord impressions, tanged daggers, cast flat axes, bone pins (Anthony 2007, 304). In other regions various grave goods are included. For instance, metal objects are more common in the Volga-Ural region, which is rich in copper deposits (Chernykh 1992, 85), anthropomorphic stone stelae in the regions close to the Kemi-Oba culture, especially between the Lower Bug and Dnieper (Telegin – Mallory 1994, 30, Fig. 19), beakers and amphorae in the Dniester-Prut interfluve (Ivanova 2013, 95). The movement of people was accompanied by the dissemination of a set of burial practices, which absorbed local elements of material culture, creating thus its different aspects and local variants (Anthony 2007, 327). Differences comprise economic strategies such as predominance of cattle or sheep and the already mentioned regional variability in material culture (Shishlina 2008).

That a migration into Southeastern Europe indeed took place is the most accepted part of Marija Gimbutas' theory, mainly due to the presence of thousands of kurgans north and south of the Lower Danube, in Thrace and the Pannonian Plain, out of which several hundreds have been excavated

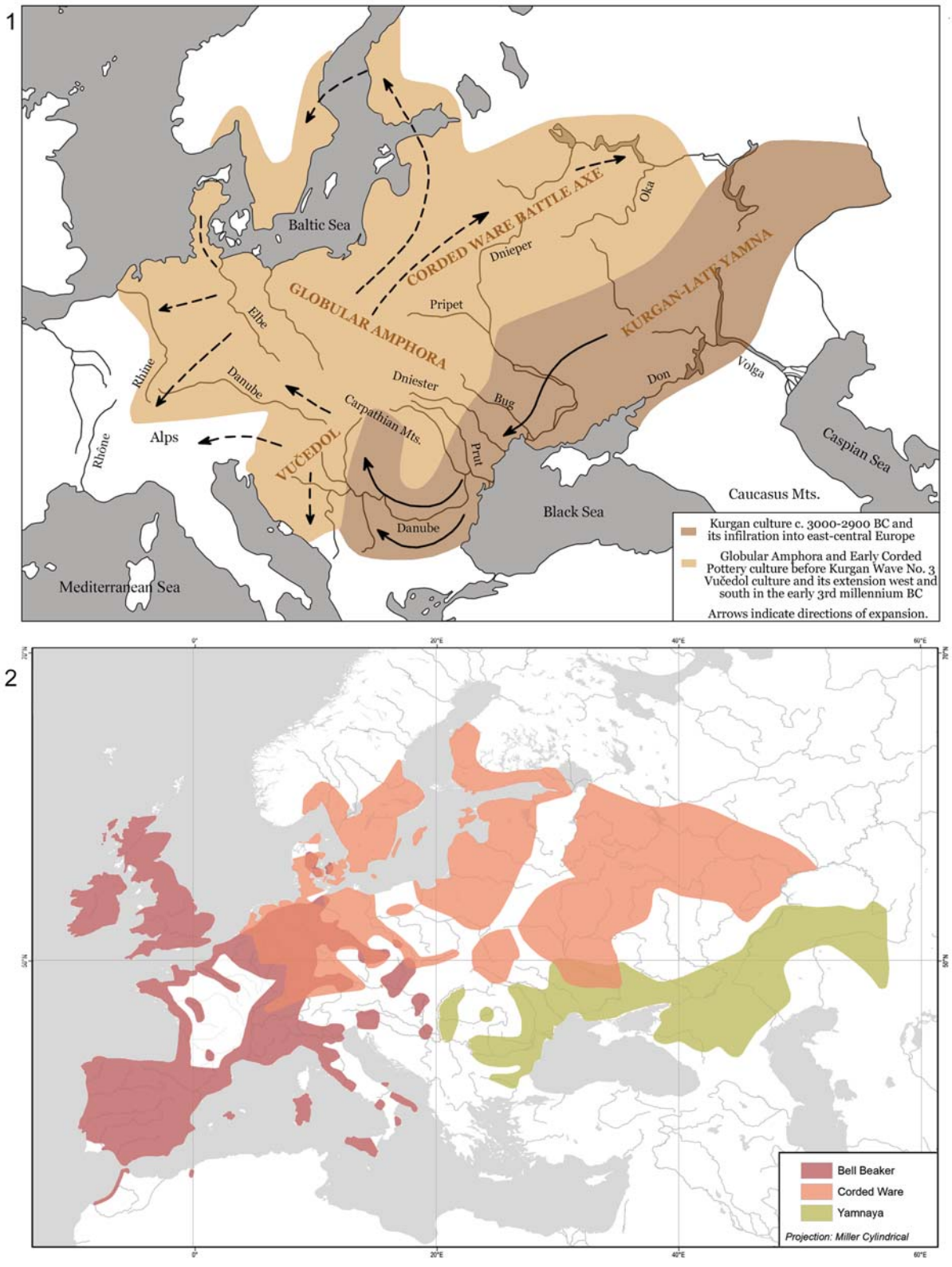

Fig. 6. 1. Distribution of the third Kurgan wave according to M. Gimbutas (after Gimbutas *1991, fig. 10-32 redrawn); 2. distribution of the Yamnaya, Corded Ware and Bell Beaker burials (after* Merpert *1974, fig. 1;* Risch *et al. 2015, Fig. 2;* Nordqvist – Heyd *2020, fig. 1)*

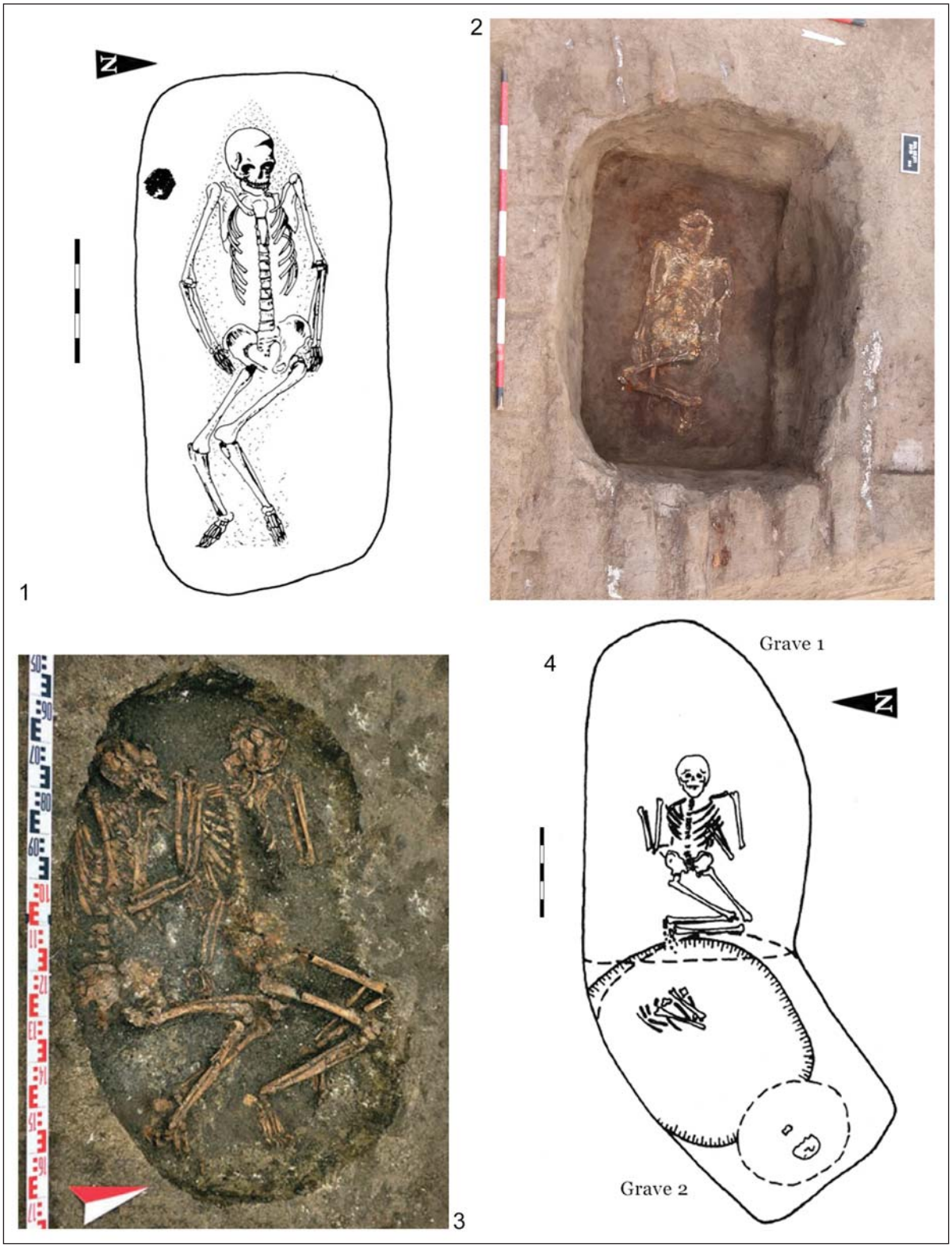

Fig. 7. 1. Kétegyháza, kurgan 6, grave 1 (after Ecsedy 1979, Fig. 10); 2. Boldești-Grădiștea, mound 1, grave 4 (after Frînculeasa et al. 2020b, Pl. 2/6); 3. Beli Breyag, mound 5, feature 3 (after Alexandrov – Galabova – Atanassova-Timeva 2016, 154, fig. 3); 4. Mednikarovo mound 2, grave 1 (after Panayotov – Alexandrov 1995, 88, fig. 6)

and revealed typical Yamnaya burials (Preda-Bălănică – Frînculeasa – Heyd 2020, 96–97). No settlements are connected to kurgans in this region, so graves remain the only source of information (Heyd 2011, 539). The Yamnaya ritual between the Prut and the Tisza Rivers consisted of central burials under kurgans, the predominance of male graves, the supine with raised knees posture, west-east orientation, no gender differentiation between male and female burial ritual, ochre staining, arranging of burial chamber with mats and wood (*Fig. 7.1–2*), grave-goods usually limited to vessels, hair rings and necklaces made of animal teeth (Heyd 2011, 539–541; Frînculeasa – Preda – Heyd, 2015; Kaiser – Winger 2015; Koledin *et al.* 2020; Preda-Bălănică – Frînculeasa – Heyd 2020). Archaeological research conducted in the past decade has considerably increased both the quantity and quality of information in terms of secure mound stratigraphy, an important amount of ^{14}C dates, bioanthropological determinations, etc. (Horváth *et al.* 2013; Frînculeasa – Preda – Heyd 2015; Kaiser – Winger 2015; Alexandrov – Kaiser 2016, Frînculeasa *et al.* 2017; Alexandrov 2020).

However, it was not archaeological research that brought Marija Gimbutas right back into the spotlight, but the development of new methods in archaeogenetics. The paper published by W. Haak and his team in Nature in 2015 seemed to confirm her theory in her own words, using the term "massive migration" in the title (Haak *et al.* 2015). A similar study by M. Allentoft and colleagues supported the results obtained by Haak's team (Allentoft *et al.* 2015). The new publications arose various reactions. Some scholars enthusiastically embraced the new method, new concepts are being introduced and a new kind of archaeological language seems to find its way to publications (Kristiansen 2014; Kristiansen *et al.* 2017; Anthony 2021). Others signalled the shortcomings of the ways in which archaeological concepts were used in the interpretation of genetic data (Vander Linden 2016; Klejn 2017; Heyd 2017; Furholt 2018; 2019). Ancient DNA studies brought migration back as a main research topic and many scholars stressed the lack of theoretical approaches in archaeology regarding migration as a process (Burmeister 2017a). The very formula of "massive migration" was once again brought into question (Furholt 2018).

In her earlier publications Gimbutas described the Yamnaya migration as a "massive invasion that wiped out the Baden culture of central Europe and led to the extermination of the Old European strongholds in the Aegean" (Gimbutas 1977, 309). Only in her later articles did she change that vision for a less violent one, talking about a "massive infiltration which caused drastic changes in the ethnic configurations of Europe" (Gimbutas 1991, 384; 1993, 213). Interestingly, immediately following the publication of the new aDNA results, the archaeological discourse returned to her original vision of Yamnaya individuals being violent murderers and causing population turnovers (Haak *et al.* 2015; Barras 2019). Kristiansen and colleagues advanced the hypothesis of an initial migration of young men forming warrior youth bands, abducting women and engaging in conflict with local men (Kristiansen *et al.* 2017).

Since 2015 aDNA studies have revealed an increasing data complexity. In the initial publication steppe ancestry (initially called Yamnaya) was modelled as a mixture of EHG (Eastern Hunther-Gatherer) and a Near Eastern-related population later defined as CHG (Caucasus Hunter-Gatherer) (Haak *et al.* 2015; Jones *et al.* 2015; Anthony 2019a, 29). A later study by Mathieson and colleagues published in 2018 found evidence for northwestern-Anatolian-Neolithic-related (also labelled AF-Anatolian Farmer) ancestry in Yamnaya-associated individuals, which was further confirmed by a study from Wang and colleagues in 2019 (Mathieson *et al.* 2018, 199; fig. 2; Wang *et al.* 2019). The authors of the latter study found that Yamnaya individuals showed 10–18% Anatolian farmer ancestry likely derived from Globular Amphorae and/or late Trypillia groups (Anthony 2019a, 32; Wang *et al.* 2019, 9). One of the samples analysed by Mathieson's team showing a significant amount of steppe ancestry came from Mednikarovo (Bulgaria), mound 2, grave 1 (Mathieson *et al.* 2018; fig. 2). The feature was the primary

grave of the mound, containing an individual lying supine with flexed legs, arms along the body and ochre over and around the skull (*Fig. 7.4*) (Panayotov – Alexandrov 1995, 88, fig. 6).

The absolute chronology of graves showing typical characteristics of the Yamnaya ritual in Southeastern Europe is now secured by a consistent number of ^{14}C dates and has been divided into several phases (Frînculeasa *et al.* 2017, 118). The oldest date from the very end of the 4th millennium BC and the first century of the 3rd millennium BC. Their presence is visible in different regions of the steppe such as Muntenia, the Hungarian Plain, and even reached south of the Balkan Mountains (Horváth *et al.* 2013; Kaiser – Winger 2015; Frînculeasa *et al.* 2017). The next phase, in which most of the ^{14}C dates fall, covered the interval roughly between 2850–2600 cal BC (Frînculeasa – Preda – Heyd 2015; Frînculeasa *et al.* 2017), while latest graves, also showing a change in burial ritual to the side-crouched position of the individuals and the predominance of secondary burials in already existing mounds, were dated to about 2650–2450 cal BC (Ailincăi *et al.* 2016; Frînculeasa *et al.* 2017, 120).

Therefore, graves with a typical Yamnaya ritual lasted for about 500 years in the region. In this interval kurgans keep on being raised or only used, however, one should not assume that all the individuals buried beneath them account for migrants coming from the steppe. Some graves might belong to locals who adopted the steppe burial ritual. A hint in this direction is given by feature 3/mound 5 of Beli Breyag, which contained two individuals oriented westwards, one lying supine with raised knees and the other slightly crouched on the left side (*Fig. 7.3*) (Alexandrov – Galabova – Atanassova-Timeva 2016, 154, fig. 3; Alexandrov 2020, 151, tab. 2). Samples analysed for these individuals (Bul 6 and Bul 8) showed the predominant northwestern-Anatolian-Neolithic-related ancestry (Mathieson *et al.* 2018; fig. 2, Supplementary material page 5). Furthermore, the study of Mathieson and colleagues stated that Bronze Age individuals in the Balkans had about 30% (confidence interval: 26–35%) steppe-related ancestry, but the Early Bronze Age individuals showed least of it and the highest proportions were actually encountered in Late Bronze Age individuals (Mathieson *et al.* 2018, 200). These results, although incipient, do not support a scenario in which the locals were "wiped out" following the Yamnaya migration. A particularly violent lifestyle would also result in violence-related injuries visible in the skeletal remains[11] (Furholt 2021). For the time being, there is no osteological study encompassing all individuals buried in kurgans in the region, however, individual site reports do not attest a remarkable presence of traumatic injuries. On the other hand, interactions are visible in the archaeological record in the form of local pots and ornaments present in kurgan burials as well as ochre and typical Yamnaya spiral hair rings documented in flat burials (Preda-Bălănică – Frînculeasa – Heyd 2020, 96; Frînculeasa *et al.* 2020a). An isotopic study of the Sárrétudvari-Őrhalom kurgan revealed a complex scenario of kurgan occupation in the second quarter of the 3rd millennium BC, by communities originating in the Apuseni Mountains that were engaged in seasonal transhumance (Gerling *et al.* 2012).

This brief presentation already speaks against a single-event "wave of migration" as envisioned by Gimbutas and in favour of a multi-phased process. ^{14}C dates suggest an initial phase of exploration (or scouting) at the end of the 4th and beginning of the 3rd millennium BC, followed by a more consistent occupation of the region in the next centuries and the dissolution towards the middle of the same millennium (Frînculeasa – Preda – Heyd 2015, 84; Anthony 2021, 13). Only a handful of samples of individuals buried in kurgans in this region have been analysed and published in genetic and isotopic studies, while several more are under study. The initial migration of the Yamnaya groups into the steppe-like areas of Southeastern Europe and its regional impact is still a largely unknown process. The wider continental impact is also going through a process of re-evaluation given that the Yamnaya might not be the single source of steppe ancestry in individuals associated with the central European Corded

[11] As an example we mention the study of skeletal remains of Pazyryk warriors of the 1st millennium BC in the Mongolian Altai (Jordana *et al.* 2009).

Ware, as had been previously suggested (Haak *et al.* 2015; Furholt 2021). In M. Gimbutas' view, the Kurgans arriving in Greece at the beginning of the 3rd millennium BC were descendants of Baden-Vucedol populations, which were a product of the Indo-Europeanization process of the second migration wave (Gimbutas 1993, 215). A recent aDNA study does not support this hypothesis for the moment, as samples from individuals dated to the beginning of the 3rd millennium BC showed they derive ancestry mainly from Neolithic farmers, and Pontic-Caspian Steppe-like gene flow reached the Aegean later, in the second half of the 3rd millennium BC (Clemente *et al.* 2021).

III. Discussion

The aim of this paper was to revisit the theory of Marija Gimbutas about the three waves of migration from the steppe from the perspective of current archaeological research. The topic is, of course, very complex and it would require a much more detailed analysis. This study can only hope to open/spark a discussion and further inquiries into the more and more complex archaeological and genetic data to which we currently have access. Given the fast publication pace of new excavations, aDNA, and isotope studies, our current knowledge will probably be significantly altered in the next years. Marija Gimbutas defined the waves of migration as single events involving the movement of large populations. In a recent article, David Anthony already noted that the use of the word wave, meaning something that "sweeps across the beach as a brief event and randomly washes over non-ocean space, invading the space of the terrestrial life but without knowldge, planning, goals, or direction – a purely mechanical motion" is instructive of the simplistic way M. Gimbutas perceived migrations (Anthony 2021, 3). It also suggests that she did not differentiate between the triggers of the three supposed migrations, but saw them as a mere repetition of the same mechanism. She did not explain why and how these migrations from the steppe happened (Anthony 2021, 4).

However, from the archaeological record very briefly presented above we can reasonably infer that, spanning two millennia from 4500 to 2500 BC, interactions between the Lower Danube and Balkan region, on the one hand, and the steppes, on the other, unfolded quite differently. The concept of waves of migrations only obscures the diversity of mobility forms taking place. Each of the three periods that indeed shows the intensification of contacts need to be evaluated in their own particular context in order to grasp the processes that produced the respective archaeological record. In the second half of the 5th millennium BC interactions most likely involved the actual mobility of special categories of people, high status individuals building exchange networks specialised in trading exotic and prestige goods between regions. During the last third of the 4th millennium BC, the occurrence of objects and burial practices of steppe origins at the Lower Danube does not seem to involve massive population movements, but cultural transmission processes. Nonetheless, the movement of groups of people did take place, as happened at the end of the 4th and beginning of the 3rd millennium BC when Yamnaya burials appear in the same region. However, even in this case migration seen as a single episode of movement of a large population needs to be nuanced in the context of the growing number of available ^{14}C dates that give a certain time depth to this proccess.

For all these periods one also needs to consider the various directions of mobility, what comes from the steppes and into Southeastern Europe and the other way round, what goes back into the steppes (Heyd 2016, 64). Studying the archaeological record can provide information about the circulation of raw materials or finished objects between regions. New aDNA studies brought another dimension, that

of gene flow[12], already evidenced starting with the 5th millennium BC. However, the relation between the biological ancestry and identity of the individuals should not be assumed, but investigated, as proven by the several examples mentioned above.

To conclude, we should try to answer the question from which the paper started in the first place: was Marija Gimbutas right? The answer requires more than just yes or no. Marija Gimbutas was quite intuitive, a quality she considered essential to any archaeologist, in recognising three periods of more intense interactions between people inhabiting the steppe and those inhabiting what she called the *Old Europe*, the second half of the 5th millennium BC, the last third of the 4th millennium BC and the first half of the 3rd millennium BC, and in this respect she was right. She also had an impressive synthesis capacity and her waves of migration scenario covered the entire European continent. However, this approach caused an oversimplification of interpretations and prevented her from recognizing the specificity of the archaeological record that she used to build each of her "waves". Therefore, in this respect she was not right, there were not three waves of migration from the steppes, but more complex processes of individual or group mobility, admixture and cultural transmission, and we have only started to unveil how they happened.

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[12] David Anthony recently introduced the concept of mating networks that he defined as "genetically linked populations that shared a distinctive group of genetic traits as determined by ancient DNA (aDNA) analyzed across whole genomes, such that individuals from that chronological period and part of the world can confidently be assigned to one mating network rather than another" (Anthony 2019b, 176).

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Yamnaya Interactions brings together 20 contributions by 32 scholars, from 12 different countries. In latest research, these proceedings of the April 2019 Helsinki workshop document the pathways of Yamnaya and Corded Ware people to the west, and their multifold contacts with local societies both north and south of the Carpathians around and after 3000 BC. The book offers the latest understanding of the geographical extent, chronology and consequences of events, while also demonstrating both international and regional perspectives on burial customs and material culture.

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