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Re-examining Late Chalcolithic Cultural Collapse in South-East Europe

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RE-EXAMINING LATE CHALCOLITHIC CULTURAL COLLAPSE
IN SOUTH-EAST EUROPE

RE-EXAMINING LATE CHALCOLITHIC CULTURAL
COLLAPSE IN SOUTHEAST EUROPE

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts in Anthropology

By

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ABSTRACT

Research into the Balkan Chalcolithic often overlooks the dramatic changes in society that occurred beginning in the late Fifth Millennium BCE. Most settlements were abandoned along with changes in mortuary customs, ceramic and decorative traditions, domestic rituals, crafts, housing styles, mining, and metallurgy. These changes happened at a time when these Chalcolithic societies seemed to be at their peak. Theories as to what caused these changes include migrations/invasions, anthropogenic environmental degradation, gradual internal changes through innovation and outside contacts, and climate change. This thesis attempts to synthesize, and critique material relating to this topic, and ultimately provide my own opinions and suggestions for further research.

This thesis is approved for recommendation to the Graduate Council.

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INTRODUCTION

The Chalcolithic period in Southeast Europe was a remarkable and dynamic time in prehistory. It was an autonomous cultural-complex that was on the verge of what we would call civilized life with its achievements in the metallurgical industry, architecture, trade, art, ideology and the rise of craft productions and divisions of labor. It was among the most sophisticated and technologically advanced regions in the world. The Copper Age was a crucial period for the development of both technology and social complexity. There is no evidence of social hierarchy prior to this period. The centuries between 5000 and 3500 B.C. can now be seen as a crucial transition period during which early Europeans began to use metal tools, develop more complex social structures, and established far reaching cultural and trading networks.

Yet perhaps even more remarkable and deserving of research is how these societies ended. One of the most dramatic and overlooked changes to occur in the Old World prehistory was that which took place in the fourth millennium BC in Southeast Europe during what is called the Chalcolithic-Early Bronze Age transition. It was more than just a change in metallurgical technology. There is uncontestable evidence of an entire restructuring of society throughout the whole region. There were ubiquitous transformations in settlement and land use, technology, material culture, and even perhaps ideology and language. Much like the Late Bronze Age Collapse that is marked by the collapse of many of the great Bronze Age civilizations in the Eastern Mediterranean, the Late Chalcolithic collapse in the Balkans remains mysterious with a number of different hypothetical causes. In this thesis I will

provide a synthesis of some of the major works done on this topic, the different hypothesis and ideas up to this point. The main focus of this paper will be on the collapse on the Gumelnita culture, but I will look at other areas as well to look for possible connections.

First it is necessary to go over the cultural patterns and chronology of the Southeast European Chalcolithic and what made it unique in order to understand the changes that occurred at the end of this period. I will also provide a brief background of the history of archaeology in Southeast Europe in which we stand on now. How did we get to know the Chalcolithic Balkans as a unique cultural entity?

The Chalcolithic, or Copper Age, is commonly used as a transitional period between the Neolithic and Bronze Age because it does not fit into the classic three Three-Age System. It is also commonly referred to as the Eneolithic in Bulgaria. In the Balkans, the Copper Age deserves its own proper distinction because it lasted for so long there (as long or longer than the bronze age) and produced such a unique society. Colin Renfrew lent credit to this idea with his book that he expressively titled *The Autonomy of the Southeast European Copper Age* (1969). It was perhaps one of the most densely populated regions on Earth at its climax in the mid-fifth millennium. It is in Serbia that we actually find evidence of some of the oldest copper smelting at 7000 years old (Chapman 1981, Bower 2010). If not the oldest, then certainly independent from Southwest Asian or Caucasian sources at least. We also find the first gold ornaments and possible evidence of social elites at the necropolis at Varna in the mid-fifth millennium (Ivanov 1978, Renfrew 1986). But why was there so much settlement abandonment and cultural change on a regional scale in the 4th millennium in a different trajectory.

As I examine the different literature pertaining to this matter, I will provide some critiques and provide a summary analysis tying it all together, a history of theory. My goal is to synthesize and reexamine old ideas. I will reevaluate them as all logical in their own right. Where are we today as far as understanding this problem and how has it changed? I will give a brief historiography of the most important developments in our understanding of the Chalcolithic and then give a lengthier review of the literature pertaining to its collapse. The choice of those who are to be analyzed will be weighted toward those who have had the most theoretical stance and influence in academic and professional circles. Whereas local Balkan countries are taking the initiative to do new fieldwork often in cooperation with the Germans, new research seems to be lacking from English speaking institutions (Currently the German Archaeological Institute is conducting fieldwork with the research goals of this essay in mind). I will also give my suggestions on what is needed to take Balkans Chalcolithic archaeology to the next level in an area that is perhaps lacking in new data.

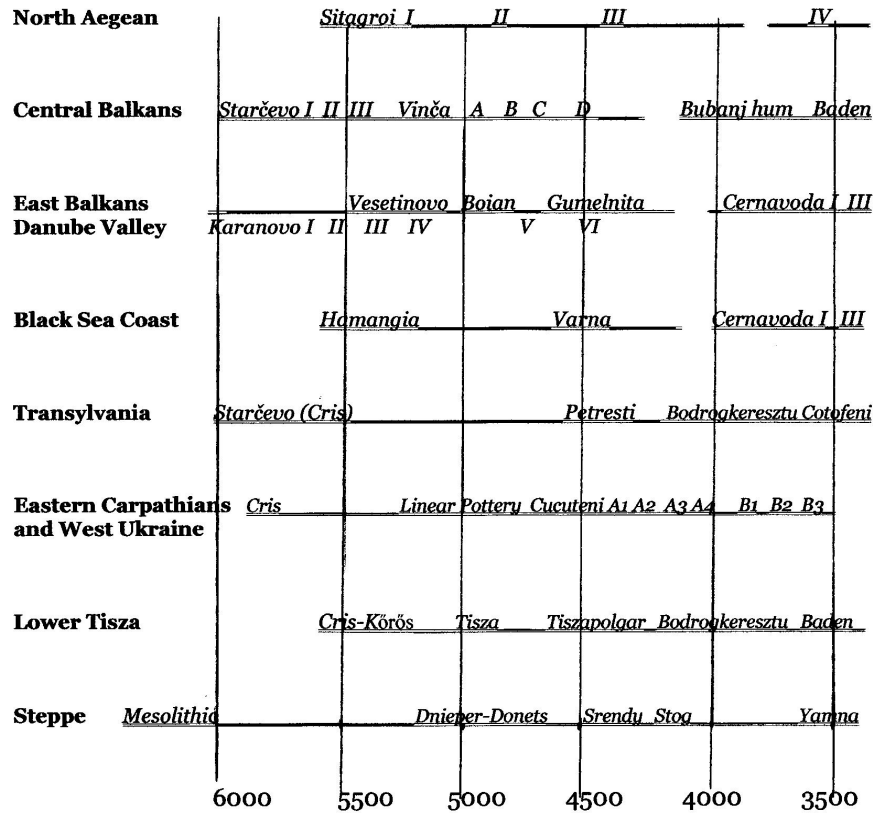


Figure 1: Cultural chronology of the Neolithic and Chalcolithic Southeast Europe.

CHRONOLOGY

The chronology constructed on the basis of the radiocarbon dates now available for southeast Europe shows the length of the Chalcolithic and the earlier inception of the Early Bronze Age. It expands the duration of the earlier Chalcolithic chronological phases that were once thought to coincide with the Early Aegean Bronze Age. In general, the southeast European Chalcolithic/Eneolithic begins around 5300 BC and ends around 3500 BC. Slag from a Baden context from Novačka Čuprija in Serbia suggests that the use of arsenical bronze began by the late fourth millennium B.C. (Bankof and Winter, 1990). The earliest evidence of worked raw copper without melting goes back to the early Neolithic in the Near East. A copper pendant was found in northern Iraq that dates to 8700 BC (Hesse, 2007). However, the true “Copper Age“ did not begin until the advent of copper smelting at the end of the 6th millennium.

The Baden, Ezero, Usatovo, and Cernavoda represent a cultural complex in what is now Hungary, Serbia, Bulgaria, Moldavia, and Romania that marks the transition from the Chalcolithic to the Early Bronze Age in the second half of the fourth millennium. Bronze use as a diagnostic does not truly kick off until the 3rd millennium but the cultural transitions that were the origins of Bronze Age societies that will be discussed here are believed to have begun in the mid 4th millennium. In other parts of Europe the Early Bronze Age would arrive considerably later. But what we shall see is that this restructuring of settled society would occur roughly around the same time in both Southeast, Eastern, and Central Europe.

The origins of the Chalcolithic cultures go back to the beginning of the Neolithic. Here we find evidence for the beginnings of domesticated plants and animals from Southwest Asia, the first permanent settlements, and the first pottery around 6200 BC. Nearly everyone agrees with the model first put forward by Childe (1927) that has waves of migrants first entering

Europe via the Aegean from Anatolia. Over the next 2500 years, these small farming communities grew into vibrant and dynamic cultures with proto-urban societies. Settlements grew in size and number. Some of the largest Vinca sites in the 5th millennium were larger than most Minoan and Mycenaean sites! (Chapman 1981) New settlements were founded on secondary areas around the periphery of the older settled regions. Many of these settlements became tells, man made hills from the accumulated remains of centuries of nucleated occupations being built on top of the remains of older ones. One of the most massive of these tells is at Karanovo in Bulgaria. Here we find an excellent stratigraphic sequence going back to the beginning of the sixth millennium and continuing until the Early Bronze Age (Georgiev, 1967). These tells started to appear after 5500 BC but were limited to Thrace and Macedonia and then spread to the rest of the Balkans in the 5th millennium (Bailey 2000). The Cucuteni-Trypillian culture in modern Ukraine, Moldova, and northeast Romania, at its peak, built the largest settlements in Neolithic Europe and with very high density but they would burn their entire village every 60-80 years for reasons that are not yet clear. (Mantu, 2000; Diachenko & Menotti 2012). An intriguing dilemma arises, why were so many of these tells throughout the region abandoned and replaced by a more dispersed settlement pattern at the end of this period ca. 4000 B.C.?

To get us on the same page, I will use the region of Southeast Europe/ the Balkans, to include the modern nations of Greece, Macedonia, Serbia, Bulgaria, Bosnia, Albania, Romania, Moldova, Hungary, and even parts of the Ukraine. In spite of the increasing diversity of cultures, there was considerable homogeneity throughout the region (Sarasauskas 2011). “As a result of the development of metal mining, metallurgy and the intensification of cultural contacts, the mid-fifth millennium B.C. in southeast Europe witnessed deep integration among

neighboring cultures, resulting in the formation of large cultural complexes” (Todorova 1995: 87). The different kinds of pottery overlap considerably and are found scattered throughout the region, suggesting extensive trading and interacting (Barker, 1985, Renfrew 1969, Bailey 2002, Chapman 1981). “It is important that we treat the whole of south east Europe as part of the same system” (Sheratt 1983: 191). This setting has been named “Old Europe” by some scholars (Gimbutas 1974, Anthony 2009) to distinguish it from the Indo-European cultures that moved in and replaced it, according to theory.



Figure 2: Major Southeast European Chalcolithic cultures c. 4500 BC

HISTORY OF RESEARCH

It is necessary to briefly explain the historical process in archaeology that has brought us to our knowledge of the Chalcolithic in the Balkans. How did we come to understand the Balkan Chalcolithic as an autonomous entity and its chronology? There are various historical trends worth identifying.

The first important discovery that brought attention to what would be known as the Chalcolithic was Miloje Vasić's uncovering the remains of the central site of the Vinča culture, Vinca, in 1908 (so-naming the culture after the site). Vasić, a Serbian educated archaeologist, knew that the site was very ancient from the deep stratigraphy. The site is situated on the east bank of the Danube, 14km downstream from Belgrade, on a high loess terrace. Vinča Belo Brdo is one of the largest tell sites in the Balkans, covering 10 hectares with 9 meters of cultural deposits (Chapman 1981). Vasić began finding figurines, exquisite pottery, and what appeared to be writing on the pottery. Vasić asserted typological links between Vinca and Troy (Vasić 1906, 116). This assertion invoked the possibility of 'impulses' from the Aegean to explain the similarities and to the origins of the Vinca. This may actually be a correct assertion but Vasić chronology was skewed. These excavations were interrupted by the outbreak of World War I and besides a brief season in 1924, Vasić was unable to get enough funding until his initial reports caught the attention of British businessman and archaeologist Sir Charles Hyde and backed him financially. Vasić was able to resume excavations, on a much larger scale, between 1929 and 1931. Interest in the pre-history of the Balkans was underway. The excavation was visited by numerous prominent scholars of the time: Veselin Čajkanović, K.O. Myres, W.A. Hurlley, Bogdon Popović and Gordon Childe. Other countries in Western Europe and the Balkans began conducting their own excavations.

Vasić went on to publish a four-part volume, *Prehistoric Vinca*, from 1932 to 1936. At the time, it was believed by Vasić and other Serbian archaeologists that the Vinca culture began around 2700 B.C., based on typological similarities with Troy I. It was believed to be Europe's first civilization. But it wouldn't be until 1978 when the Serbian Academy of Sciences and Arts established a Committee on the Vinca Archaeological Excavations did excavations into the site resume. Vasić was influential on the views of later diffusionists such as Schachermeyr, Garasanin and Milošević. Milošević, a fellow Serb, outlined the theoretical scheme known as the 'Comparative-Typological' approach (Milošević 1949), in support of a diffusion from Greece and Anatolia into the Balkans.

Around this same time, V. Gordon Childe attempted to tie in the Vinča with the rest of prehistoric Europe chronologically. Childe was part of and epitomized the Normative-Diffusionist school of archaeological thought in the first half of the 20th century. Childe also relied on the chronological equation between Troy I and Vinca (Childe 1929; 27; 1939). Childe also noticed the relatedness early on between the Baden and Ezero-Cernavoda cultures of what would come to be known as the Balkan-Danubian complex of the Early Bronze Age. These cultures, in fact, were synchronous and possibly even related to the Troy I culture but Vinca was too early. Childe also saw the metallurgical technology of the Vinca and southeast Europe as being the result of diffusion from the Near East. Nevertheless, Childe was very important in synthesizing the whole known prehistory in Europe at a time when European archaeologists were preoccupied with regional sites and sequences. He also came up with the concept of the archaeological "culture" in *The Danube in Prehistory* (1929). However, the autonomy and actual age and length of the Chalcolithic Balkans was not yet realized.

This 'short' chronology assumption would have meant that the Late Neolithic of southeast Europe was contemporary with the Bronze Age of the Aegean and thus, the succeeding Copper Age of Southeast Europe must be later than these. This chronology was set until decades later when the radiocarbon revolution was fully underway. Meanwhile, Balkan, Western, and Soviet archaeologists were busy digging at tell sites, uncovering, classifying, and sequencing new ceramic types belonging to unknown cultures of the Chalcolithic (Christescu 1925, 1933; Dumitrescu 1925; Fewkes et.al 1933; Banner 1937, 1942; Kutzian 1944; Gaul 1948; Grbić 1957). They did not have a way to absolutely or even relatively date them with certainty. It was the period of describing, comparing, and explaining those comparisons by way of cultural diffusion and migrations. In summing this up, Renfrew (1979: 140) correctly observed: "European prehistory has long had a preoccupation with origins and with the way in which ideas and cultural traits were transmitted. Today it seems more fruitful to consider process and the way in which such features were invented."

It was not until the 1960's that the true chronology and cultural sequence was realized and a new phase in research began. James Mellaart (1960) first showed how the new radiocarbon evidence appeared at odds with the old chronological structure. Mellaart showed that C-14 dates put Early Vinča well before the beginnings of Troy I. He estimated that Troy I should have begun around 3500 BC, when Vinca was ending. He advanced the view that the Balkan cultures such as the Gumelnitsa and Salcutsa must have had a west Anatolian influence.

In Todorova's three-stage model (1978) for Bulgarian archaeology, at least, 1960 marks the beginning of the third stage. The first stage extends from 1898 to 1944 and culminates with the posthumous publication of Gaul's (1948) study, *The Neolithic in Bulgaria*. The second period is from 1944 to 1959. This period was characterized by further data gathering devoted

largely to relative dating (Sterund et. al, 1984). The third stage is marked by more comprehensive and focused research, the application of radiocarbon dating, and the use of the exact sciences. During this period more Western archaeologists became interested in the Neolithic and Chalcolithic of Southeast Europe.

The 1950's excavations at the mound of Karanovo in central Bulgaria and the following publications (Mikov 1959; Georgiev 1961) that documented the important stratified sequence there illustrated the utility of the new long chronology. A whole nearly unbroken sequence from the Early Neolithic to the Bronze Age (6000 to 2000 BC) is shown. In addition, the discussions of this information between prehistorians at the 1959 International Conference in Prague (where Georgiev presented the data) were important.

The radiocarbon chronology only validated what prehistorians in Southeast Europe had suspected. The stratigraphic evidence from numerous mounds of the area clearly demonstrated that the early assumption made about Vinca and Troy was an error. The materials that had been equated with Troy I-II were clearly from the Middle Neolithic age rather than of the Early Bronze Age. The material from the Balkan EBA lined up much better with Troy I-II both typologically and stratigraphically (Sterund 1984: 717).

In addition to the publication of the Karanovo sequence, the excavation and publication of many other tell sites added to the evidence of the long chronology. These sites include – in Bulgaria, Azmak (Georgiev 1963), Ezero (Georgiev and Merpert 1966), Gradechnitza (Nikolov 1974), Ruse (Georgiev and Angelov 1952, 1957); in Romania, Căscioarele (V. Dumitrescu 1965), Gumelnita (V. Dumitrescu 1966), Hirsova (Galbenu 1962). In Yugoslavia, the reassessment of the Vinča material (M. Garašanin 1958) and excavations at Gornja Tuzla (Čović 1961), Obre I [Raskršće] (Benac 1973) and Obre II [Gornja Polje] (Gimbutas 1970) were

published. In Hungary, the excavation of Herpaly (Kalicz 1969), Aszód (Kalicz 1967) and Dévaványa (Ecsedy 1972) added more evidence connecting the Hungarian Plain with the Balkans in the Chalcolithic (Kalicz 1970). Excavations in Greece at this time were also important in establishing the stratigraphy of Southeast Europe: at Lerna (Caskey 1957, 1958, 1959), Sesklo (Milojčić 1971), and Sitagroi (C. Renfrew 1971, 1973; Renfrew, Gimbutas and Elster, eds. 1984).

In 1971, Colin Renfrew published three articles favoring the chronology debate in favor of the long chronology (1971a, 1971b, 1971c). He also calibrated the C-14 dates to dendrochronology, pushing dates back even farther and introduced the concept of the “chronological fault line”. This graphically defined the differences of the long versus the short chronology and convinced many scholars, such as Gimbutas, of the validity of the long chronology. Still, a minority stood with the short or traditional chronology (e.g. Hood 1973; Milojcic 1973, Leben 1979; Makkay 1976). Renfrew (1973, 1979) was also a seminal figure for the argument that the Chalcolithic in the Balkans was autonomous, that is, metallurgy was independently developed there as opposed to spreading from the Near East, which was the view held for decades.

A discovery in Transylvania spurred much interest in the Balkan Eneolithic. The Tartaria tablets are three unbaked clay tablets, discovered in 1961 by archaeologist Nicolae Vlassa at a Neolithic site in the village of Tărtăria. Similar clay tablets had been found as early as 1876 at Tordos. It was Vlassa that obtained the stratigraphic key to the mass of material collected from Tordos. They were found together with 26 clay and stone figurines and a shell bracelet, accompanied by the burnt, broken, and disarticulated bones of an adult male. They were identified as belonging to the Vinca-Tordas culture, which was still believed by Serbian and

Romanian archaeologists to have originated around 2700 B.C. Vlassa interpreted the Tărtăria tablets as a hunting scene on one with a kind of primitive writing similar to the early pictograms of the Sumerians on the other two. This claim immediately attracted a great deal of attention. The comparison was confirmed by Falkenstein, who was responsible for the publication of the tablets of Uruk, from Uruk III and Jemdet Nasr periods. This striking comparison however was unfounded as radiocarbon dating of associated bone material in the deposits that they were significantly older, to as long ago as 5300 B.C. (Haarman, 1990). The nature of the symbols has been the subject of much debate. Some are of the opinion that it is some form of archaic writing, most notably, Marija Gimbutas (1974). Others, such as Colin Renfrew (1973), only see them as perhaps marks of ownership or as the focus of religious ritual. The fact is that the symbols do share close similarities with other signs found on artifacts in the region, suggesting standardization. They are also sequenced in rows and in rectilinear shapes and are very comparable to other archaic writing systems (Haarman, 1990).

The rise of the “New Archaeology” first in the United States and then by British and Western European archaeologists brought new methods and theory to archaeology, including Southeast Europe. Methods became more scientific with specific research questions and goals. Invention and innovation with a society became more accepted as theories of social change as alternatives to the traditional theories of diffusion and migration to explain social change. Because of the materials collected from the mounds of the Balkans were shown to be older than Troy’s, the traditional model of diffusion from Asia Minor and the Near East of peoples and their innovations such as metallurgy, had to be rethought. It began to become apparent that copper metallurgy was likely of independent origin in the Balkans.

Nevertheless, population change, especially ethnogenesis, and the origins of historically known groups continued to be of interest to scholars in Southeast Europe. Nationalism and national identity continue to be strong in Europe, especially the Balkans. Marija Gimbutas, as we shall see, was one archaeologist who put forward a comprehensive theory for the origins of most of today's European languages and ethnicities from a population change that began nearly 6000 years ago.

Gimbutas, born in Lithuania and getting a PhD from the University of Tübingen, was a giant of the second half of the 20th century in European prehistory. She believed that the "Old Europe" before the arrival of nomadic hordes from the Russian steppe, was peaceful, egalitarian, and matriarchal (Gimbutas 1956, 1963, 1973, 1980). This 'Old Europe', before the invasions of the Indo-European speaking nomads was the societies of the Neolithic and Eneolithic (1973). Gimbutas (1974) made in depth analysis of figurines in her attempts to reconstruct the religion of the "Old Europeans", which she believed worshipped the "Mother Goddess". Some scholars such as Bernard Wailes (1990) have criticized her critical analysis that "she amasses all the data and then leaps from it to conclusions without any intervening argument." Some accused her of practicing biased 'feminist archaeology', New Age archaeology, or even anti-Soviet archaeology. This stems from the fact that she placed the origins of these destructive nomadic Indo-Europeans in the Soviet Union and was a refugee of the Iron Curtain herself. Nevertheless, her model for Indo-European origins is still the leading theory in the field and laid the groundwork for integrating archaeological data with linguistic studies of Indo-Europeans and looking at population changes through migration. Much of what Gimbutas interpreted as evidence of Indo-Europeans arriving were historical analogues of known Indo-European cultures.

A potentially very useful test looking at ethnogenesis and population shift was done by Sterud (1976). He did statistical test on material from the lower levels of Obre II (the Kakanj-Butmir cultural transition). He attempted to define the continuity or lack of continuity through time within artifact categories. The majority of his statistical tests, particularly on manufactured items such as ceramics, showed a break between the earlier and later periods. The question seems obvious: Are these discontinuities representative of a change in population from a new group, or the simple adoption of cultural innovations by the native group? Sterud says that the test results in this case lend credence to the replacement theory, indicating that migration indeed took place. Others, like Benac (1973), however, see incremental change in material form from the same site and argue for autochthonous development of the Burmir culture. (Sterud et. al, 1984). This whole issue raises the age-old question of whether pots equal people. I believe that in many cases they do, and that in cases like the one Sterud looks at and that will be discussed in this essay, dramatic breaks in the seriation sequence can almost certainly mean some kind of significant outside influence, if not replacement.

Traditionally, scholars from Southeast Europe have focused on the site as the unit of analysis rather than the region (Georgiev 1967; Todorovo et. al 1983). They were interested in the details of social life that can be determined from complex sites like mounds. This was very useful for the Cultural-Historical approach. But there was a dearth of regional and off-site studies to assess what the whole Neolithic/Chalcolithic/Early Bronze Age cultural landscape was like. There were actually a variety of site types that varied a great deal with the time period and from one region to another. Not that such types of sites had not been looked at or considered, by native archaeologists and foreign scholars, but the 1970's saw a great increase in the diversity of

research questions on new types of sites and environmental studies. It was also a decade of astounding discoveries.

In the 1970's and 1980's, archaeologists began to examine broad settlement patterns and factors affecting those patterns. One such example is site catchment analysis looking at the geographic context and landforms. Survey projects of settlement patterns were, among others, the Minnesota Messinia Project (McDonald and Rapp 1972); the Melos Project (Renfrew and Wagstaff 1982); see also Sherratt (1982, 1983). Davidson (1971) looked at geomorphology and settlement on the Plain of Drama. The economy and subsistence also became important areas of focus (Glisić 1968; Dennell 1972, 1974, 1978; Sherratt 1981; Kaiser & Voytek 1983; Dolukhanov 1978; Bökönzi 1971). The ancient climate and environment also began to be intensively studied (Greig & Turner, 1974; Grüger 1976; Clason 1980; Rasson 1983a, 1983b). Chapman (1981) studied the Vinca from every angle. Others took a purely ecological approach (Rasson 1983, Sterud 1978).

Interest and excitement in the societies of the Chalcolithic Balkans really took off with the discovery of the Varna necropolis in 1972 and subsequent publication of the initial excavation (Ivanov, 1978). Up until this point it was largely believed that Neolithic and Chalcolithic societies were egalitarian. Discoveries of fantastic necropolises began to raise new questions about social inequality, trade, and craft specialization. It also had the important effect of further solidifying the uniqueness of the Chalcolithic not just technologically, from the preceding Neolithic, but also socially. This was the first time that separate cemeteries were located outside of settlements in Europe. The spectacular gold and copper adornments on just a small fraction of the total burials at Varna led to the obvious conclusion that they must have been social elites, perhaps the earliest evidence of such class differentiation. Grave 43 contained more

gold than has been found in the entire rest of the world for that epoch (Ivanov 1978). Some graves were empty, cenotaphs, but loaded with grave goods. The findings also showed that the Varna culture had distant trade relations (possibly from the lower Volga and the Cyclades), perhaps exporting copper and salt. As one can imagine, this finding was of great interest to more anthropologically inclined archaeologists wanting to look at social processes such as social differentiation, stratification, exchange of prestige goods with other regions (Renfrew 1978, 1986; Marazov 1997; Ivanov 2000; Chapman 1990, 1991; Chapman et. al 2006) and even more post-processual archaeologists looking at the symbolic aspects and belief systems of the culture (Nikolov, 1994, Smolenov et. al 2009).

The excavations of the Varna cemetery continued into the 1990's by the Bulgarian's but a full publication of the site and it's archaeological finds has not yet been published (Higham et. al 2007) It was not until the late 2000's that accelerated mass spectrometry dating gave us reliable accurate dates for this site. (Chapman et. al 2006; Higham et. al 2007; Reingruber and Thissen 2009). The dates showed it was in use earlier than thought previously, many of them fitting into the 46th century BC. The results suggest it was used relatively briefly, perhaps 50 years. The Chalcolithic was now seen as a crucial stage in the cultural evolution towards civilization.

With the collapse of the Soviet Union and the Iron Curtain in 1989, archaeology in the Balkans and the rest of Eastern Europe entered a new phase. Previously, these countries mostly were closed to Western archaeologists. Only Yugoslavia, communist but independent of the Soviet Bloc, was open to the West. Western scholars had to rely on reports from local archaeologists. While the Balkans and Soviet Union produced excellent archaeologists, the West brought new methods, theories, and often more advanced equipment into the field. The 1990's

saw the emergence of new technologies such as Geographic Information Systems and geophysical remote sensing equipment. Ironically, with the new political and visa freedoms, archaeology of the Chalcolithic Balkans has not accelerated much at all, to the best of my knowledge. Some would say that, if anything, archaeology and archaeologists in most Balkan countries are worse off than before (Bailey 2000). During the decades of Marxist socialism there was ideological primacy and assured financial support for projects. But in recent years, budgets have been thin.

Nevertheless, there have been a number of recent projects that are usually co-operations between native and Western archaeologists. The Southern Romania Archaeological Project (SRAP, 1998 to present) is a Romanian-British collaboration between Cardiff University, School of History, Archaeology & Religion (Professor D. Bailey and Dr S. Mills), the Teleorman County Museum, Alexandria, (Mr P. Mirea) and the Romanian National Historical Museum, Bucuresti (Dr. R. Andreescu). SRAP focuses its attention on the Neolithic and Eneolithic (6000-3600 BC) around the village of Măgura in the Teleorman River Valley, 85 km southwest of Bucuresti. It's objectives are to understand both the middle-late Neolithic shift to permanent tell villages at the beginning of the 5th millennium and also to understand why those tells were abandoned at the end of the late Neolithic (from 4000 BC). SRAP research focuses on fluvial geomorphology in the valley.

One of the most important figures in the history of archaeology in the prehistoric Balkans is Henrieta Todorova. Her 40 years of research and the many extensive excavations she has led has significantly widened our knowledge of the Neolithic, Eneolithic, the Proto-Bronze Age, and paleo-climate in this part of the world. She defended her doctorate thesis on the "Eneolithic Ceramic From Thrace and North-Eastern Bulgaria" in 1964 at the Archaeological Institute of the

Slovakian Academy of Sciences under Anton Totchik. Her book, *The Eneolithic Period in Bulgaria in the Fifth Millennium B.C.*, has become one of the most widely cited publications on the Chalcolithic Balkans to date. From 1967 to 2003 she worked at the Archaeological Institute of the Bulgarian Academy of Science in Sofia. Her research has concentrated mainly on the Neolithic and Eneolithic periods in North-Eastern Bulgaria and on the western Black Sea coast, about which we had virtually no information prior to the 1960's (Stefanovich, Angelova 2007). She was the first to note the particular significance of the area around the Varna Lake in 1967, later to be confirmed by Ivanov.

Todorova excavated at the necropolis of Durankulak and shed light on the origin of the Neolithic Hamangia culture, which she identified as the most eastern group of the lower Danubian Vinca Cultural Complex in the 6th millennium and not as originating from Anatolia as was previously thought. She also excavated at other tell sites and her excavations at Durankulak continued for over 30 years. She has made this a key area of research for European prehistory. The data gathered there has greatly enhanced our knowledge of the social and demographic structure of the Eneolithic society in the 5th mil B.C., and also on a number of cultural aspects and burial customs. She was the first to link cognate cultures in Bulgaria into large cultural blocs, such as the Kodjadermen-Gumelnita-Karanovo VI Complex (KGK VI). This allowed the complicated character of the prehistoric development on the Balkan Peninsula to be defined in terms of pan-regional processes. "Thus, Balkan prehistory was freed from the cul-de-sac of limited local research." (Stefanovich, Angelova 2007: 17). She also discovered a number of new archaeological cultures, phases and periods. At Ochorovo, she contributed to questions of Eneolithic cult and beliefs by illustrating a pantheon of gods of the sun, moon, and natural elements and contributed to our understanding of the role of idol figures of this age. She is

currently a member of the German Archaeological Institute in Berlin and a member of the permanent council of the Union Internationale des Sciences Pré- et Protohistoriques.

The Deutsches Archäologisches Institut (German Archaeological Institute) has been very important for research into the Chalcolithic in cooperation with local archaeologists in recent years. One project is focused on the late Chalcolithic cultures (Cernavoda I and Usatovo) on the steppe margins in modern day Moldavia and far western Ukraine. This project began in 2007 and has used remote sensing at selected sites in order to determine their structure. Furthermore, the excavation at the settlement site of Orklovka near Reni (Ukraine) will look at the stratigraphic succession of the Gumelnita, Cernavoda I and Usatovo cultures for the first time. Samples will be taken for archaeobotanical and archaeozoological examination and for radiocarbon dating. Above all, the research project concentrates on geophysical prospecting. Another ongoing project of the DAI is at the site of Pietrele in the Wallachian Plain (Hansen et al; 2003, 2004, 2005, 2006, 2007). This project aims at learning more about cultural relationships on the Lower Danube during the fifth millennium BC. It also looks at the use of space in the site and makes good use of geophysics. Criticism of some of this German research has come from Dragoman and Marghita (2007) as being overly functionalist, positivist in their interpretation and paradigm. "A great importance is paid to the differences between the functional areas within the settlement, established by plotting the archaeological material on the plan of the settlement," and "the villages are conceived as a sum of houses defined as 'economic units'." Indeed, it does appear that functionalism and a settlement archaeological approach based on quantitative methods and backed by the 'hard' sciences seems to be the paradigm for the project but this is not a bad thing. This criticism seems to come from a want of more post-processual theory and phenomenology. They also say that although the aim is to understand the

evolution towards social inequality, what it is meant by this change is not discussed. The concept of social structure is not theorized at all. (2007; 106) People do not act in ways that seem rational as to fit a functionalist model.

Nevertheless, the Germans' work at Pietrele appears to be the most sophisticated going on at the moment. The scale of the operation is unlike any other excavation into the Chalcolithic Balkans. Its block excavation is similar to those at Vinca and Karanovo and is aimed at understanding the architecture of the structures and overall layout of the site. It looks at the use of space within the houses. It is a multiple disciplinary work receiving a generous amount of funding from the German government. It is done at the appropriate scale with the appropriate personnel. Pietrele should be a model for other excavations.

The Neolithic and Eneolithic in Hungary seems to have been getting a fair amount of attention in recent years (Giblin 2009; Giblin et. al 2013; Gulyás & Sümegi 2011; Parsons 2012). The Körös Regional Archaeological Project from 2000-2006 at Early Copper Age Tiszapolgar Culture sites on the Hungarian Plain was a multi-discipline study aimed at building a model of social organization from the period (Parkinson et. al 2010). Archaeology of the Neolithic and Chalcolithic in Hungary appears to be on the rise with specific research questions looking at aspects of demography and cultural change.

Research has also been going on the other margin of the Southeast European Chalcolithic steppe margin. One Tripolye town, Tal'yanki with an estimated area of 450 hectares, would have been the largest of its time 3500 BC, even larger than Uruk (Anthony 2007, 278-281). Interest has risen sharply in recent years on these enormous Late Chalcolithic Cucuteni-Tripolye sites largely because of the geophysical prospecting that has shown the full sizes of these sites that was not known before.

	UKRAINE	ROMANIA	BULGARIA	SERBIA	GREECE	HUNGARY
	Diachenko	Balasescu				Parsons
	Chapman	Reingruber			Parkinson	
2000's		Dragoman	Bailey			Yerkes
	Anthony	Ursulescu	Todorova		Bailey	
			Bailey			
1990's				Tringham		Sheratt
			Nikolov		Gimbutas	
	Anthony	Angelova	Todorova			
				Bankoff	Tringham	Halstead
1980's				Winter	Bailey	
					Gimbutas	Sheratt
				Chapman		
	Telegin		Todorova		Gimbutas	Ecsedy
1970's		Dumitrescu	Ivanov	Srejović		
			Dennell	McPherron	Renfrew	
				Garasanin		
1960's		Dumistescu	Georgiev		Milojčić	
				Garasanin		
1950's			Georgiev			
1940's						
		Mikov				
1930's						
		Nestor		Vlasic		
1920's		V. Dumitrescu				
1910's		Popov		Vlasic		

Figure 3: Chart showing space and time dimension of major excavators and where and roughly when they worked. Childe is not included because he never excavated in Southeast Europe.

CHALCOLITHIC CULTURE

POTTERY:

There were very distinct regional styles of fine pottery with varied shape and decoration: “dark burnished vessels painted with graphite in Bulgaria (Gumelnitsa, Salcutsa); dark burnished vessels decorated with fluting and pattern burnish in Yugoslavia (Vinča); dark pottery encrusted with red, yellow and white paint after firing in western Hungary (Lengyel); plain dark pottery with warts and knobs in eastern Hungary (Tiszapolgar); and polychrome vessels painted before firing in Romania (Petresti) and the Ukraine (Tripolye)” (Barker, 1985). Nonetheless, there is a general similarity in ceramics among the cultures of this period; pottery was elaborately decorated with painted and incised designs. Bowls with thick rolled ring-edges are common for the Eneolithic of the entire Balkan Peninsula and northwest Anatolia (Todorova 1995). We see patterns of cultural continuity from Neolithic pottery forms into the Chalcolithic (Renfrew 1979: 148). A pattern of increasing complexity and diversity in painted pottery over time beginning in the Neolithic suggests increasing social diversification and craft specialization within these growing communities. It may have been that individual potters attempted to stamp their own identity onto their work to distinguish them from the other village potters or from the neighboring village. However, in the Late Eneolithic KGk-VI cultural complex in the northeast Balkan Peninsula we see pottery which is typologically uniform: grey-black and black pottery known as Gumelnita ware, decorated chiefly with negative graphite ornament or barbotine on the coarse ware. There was an emphasis on dark metallic finishes decorated with incised and encrusted designs after firing (Barker 1985). Bailey said (2000: 227) that the common ceramic link for all of these regions was the presence of graphite-decorated pottery, although there are other similarities such as excised decoration. The appearance of graphite-decorated pottery

coincides with a wider trend of increase in the frequency of elaborate surface decorations and metallic decorative objects. Renfrew (1979) was one of the first to suggest a technological link between the temperature required for copper metallurgy (over 1000°C) and that required to produce graphite-decorated pottery. Overall, there is ceramic continuity from the Neolithic to the Chalcolithic. Stone and bone technologies were much as before in the earlier Neolithic, with the addition of heavy perforated stone axes and pressure flaked arrowheads.

SETTLEMENT PATTERNS

Tells were an important part of the cultural landscape in the Chalcolithic, especially in the Danube valley and Thrace, in the later part of the period. The oldest tells in Europe are known from Greece and date to around 6400 BC (Reingruber 2008). With the transition from a mobile to a sedentary way of life, tells appeared in the Eastern Balkans as well around 6000 BC (Georgiev 1967). By the Late Neolithic/Early Chalcolithic they were in the Lower Danube region; represented by the phases Karanovo V and VI, between 4800 and 4250 BC, after which they were largely abandoned (Reingruber et. al 2010). It is really in the mid-fifth millennium that we see tells become the norm and many new settlements being created. Although there has been a paucity of off-tell survey in Bulgaria, the pattern from current survey data exhibits a clear tendency for a relatively even dispersion of tells across the landscape (Chapman 1989). It seems that the flat sites have more size variability, often becoming significantly larger than tell sites (Chapman 1989: 36). However, in areas of Eastern Europe not dominated by tell settlement, small villages and hamlets continue to predominate.

Todorova has estimated that in northeastern Bulgaria alone there were over two hundred settlements in use at some time in the fifth millennium BC (Todorova 1986: 272-9). However

most of the Lower Danube tells were occupied for a relatively short amount of time but with rapid rates of accumulation (Hansen et al 2009). Gimbutas states (1976: 32) that at least five hundred tells containing Gumelnitsa material remains have been recorded in Romania, Bulgaria, and eastern Macedonia and that they were occupied for nearly a millennium.

After the middle of the sixth millennium, there were important alterations in the building organization at existing settlement tells. Changes include an increase in the size of individual buildings, an increase in the number of rooms within buildings and in the organizational complexity of the rooms and space inside these buildings and they were made of more durable materials.

Tells were usually enclosed by a ditch and palisade. They were usually organized into several standardized rectangular enclosures with alleyways and narrow streets, a design, which implies the existence of a predetermined plan (cf. Todorova 1984 for Bulgarian tells; Gheorgiu 2008). We find evidence of zoning within settlements as seen with the creation of ceramic manufacturing workshops and areas in order to create storage vessels for increasing populations and agricultural production (Ellis 1984). There were also buildings for copper and lithic production. The degree of planning of the settlement layout is less so with the flat sites, where there was more potential for accretion and cumulative change given the unenclosed space. (Chapman 1989: 40). Some settlements along the Black Sea coast, such as Ezerovo, had pile-dwellings.

At the Lower Danube site of Pietrele, geomagnetic survey shows that houses were arranged in rows running east to west, whereas the houses themselves are oriented north-south (Figure 4). Twenty-five constructions could be distinguished from the survey. "Supposing that the dwellings were in use simultaneously and calculating 8-9 inhabitants per house, then some

200-225 people might have been living on the tell.” (Reingruber et. al, 2010: 172). There were also similar remains visible to the north and west of the mound. Located at the fringes of the tell were the kilns and installations for processing copper, yet no dwelling areas. These peripheral structures were also positioned in rows running east-west. Thus according to Reingruber, Hansen, and Toderas, tells can now be seen as being only a part of a more complex settlement. Taking all the houses visible in the magnetogram, up to 1000 people could have lived on and near the tell. “A much higher population would explain far better how the numerous economical activities could have actually been mastered” (172)

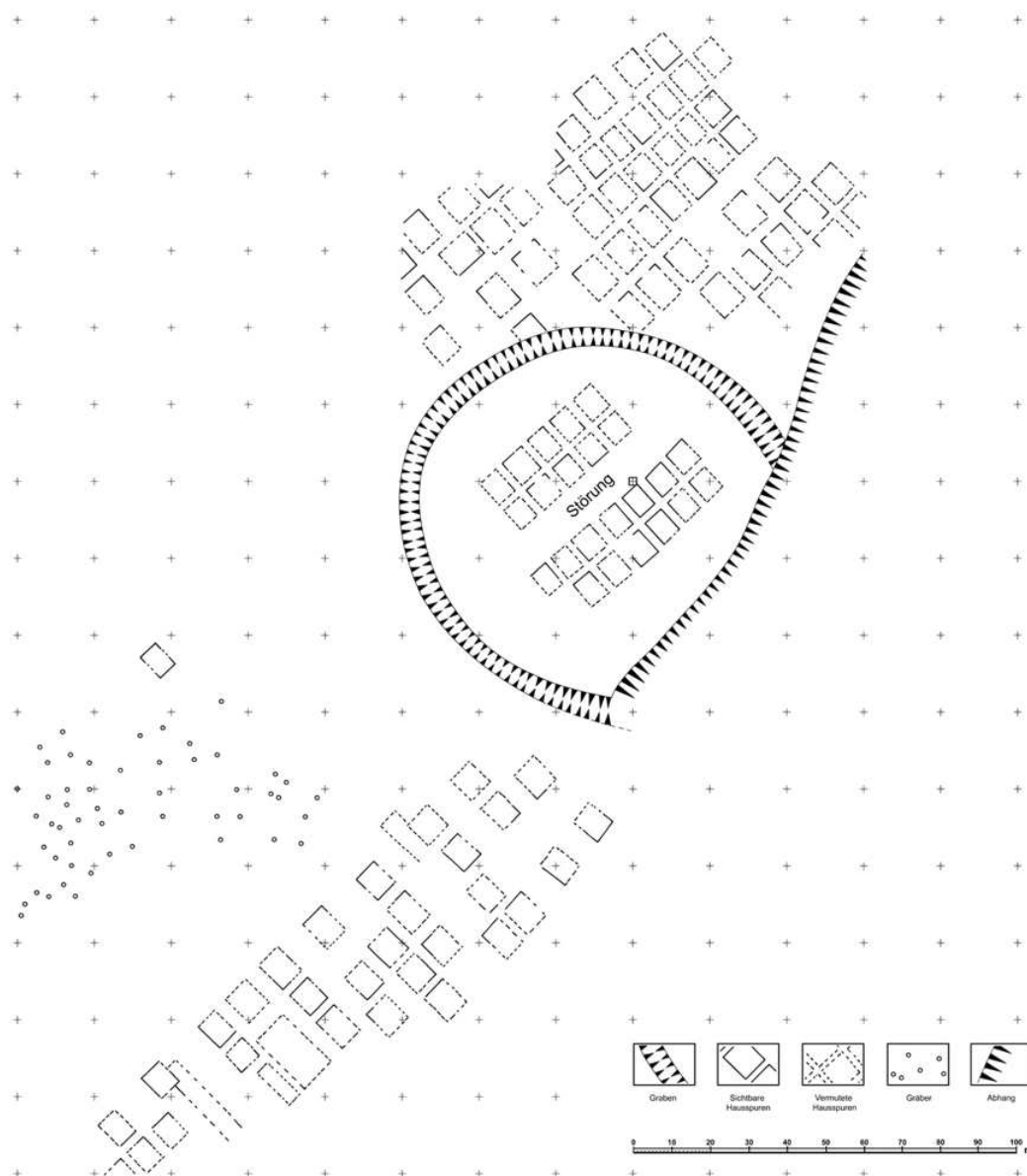


Figure 4: Plan of the Pietrele site showing the layout of structures. Dots on the left side are graves. Taken from (Reingruber et. al, 2010: 174)

Important insights into social living space within Copper Age settlements and the indication of possible social stratification are seen from the complex site of Polgár-Csőszhalom in Hungary, excavated by Pál Raczky (Raczky/Anders 2008). The 3-4 m high tell is surrounded by concentric ditches. It was significantly larger than Pietrele with an expanse of 28 hectares. But like Pietrele, the settlement was more than just the tell proper. In Polgár numerous copper

objects are known from the tell, they are absent in the flatland settlement. Especially significant are the differences in the faunal attesting to the inhabitants' diets. On the tell bones of wild animals predominate, whereas those of domesticated animals are more common in the flatland settlement (Racsy/Anders 2008, 46). This indicates that there were major differences in the 'wealth' and the diet between the tell and surrounding flat settlement.

Many settlements have one or more two-story buildings. It appears these usually were the ceramic workshops as evidenced by the kilns (Reingruber 2010). In the flat macro-settlements of the eastern Carpathian-North Pontic with the Cucuteni-Tripoyle where there are two-story as well as long houses over 20 meters length and divided into several rooms (Ellis, 1984: 177). The architectural structure was of posts and wattle and daub. In the southern part of the region in northern Greece and Macedonia we see stone foundations and mud bricks and plaster (Bailey 2002). Within Chalcolithic settlements there was an increasingly rigid demarcation of intramural building space and increasing focus on building interiors for economic and production activities. Not only were the parts of the settlements demarcated for different purposes, but also the spaces within buildings. "Both the enclosed tell and the unenclosed flat sites share similar trends in the organization of space within buildings. On both types of sites the interiors of houses were increasingly segmented by durable walls and temporary partitions or divisions of activity areas." (Bailey 2002: 174). Most buildings contained their own hearth and oven (Gheorgiu & Berry, 2002). The house in the Chalcolithic had become a very important center of family, social, and ritual life, so much so that some houses contained small clay models of houses (Anthony 2009: 30). Houses contained numerous types of pottery (bowls, jugs, pots, pot stands, vases, storage jars, ect.). Also common in households were the figurines. Houses, for the most, part were equal, even if evidence from the cemeteries suggests social elites.

A characteristic of the Southeastern Neolithic Europe dwelling is the fired levels of habitation, which are supposed to have been intentional (Chapman 1999, Gheorghiu 2008; Tringham 1991, 1994; Stevanović 1997). At certain Bulgarian tells, there is stratigraphic evidence that all the buildings in one occupation phase were knocked down or burnt down at the same time and rebuilt in one single operation (Todorova et. al, 1975). These horizons of combustion are consistent in the Lower Danube area at the majority of tell settlements. This is also true for the large Tripoyle settlements in Moldova and Ukraine. It is also likely that entire settlements were burnt accidentally due to the compact nature of the tells aiding the spread of a fire from one building to another, especially from all the workshops firing for pottery and copper. Gheorghui (2008) demonstrated through experimental archaeology that wattle and daub houses were easily combustible when filled with sufficient fuel. He takes a phenomenological approach and considers these “firescapes” as part of the landscape that was part of a cyclical view of nature. They were not only economic practices, but also commemorative and a ritual significance in constructing the social identity of the group. Stevanović (1996) also did detailed analysis of the forensics of building burning at Selevac, which underlined the difficulty of completely burning wattle if additional fuel were not added at the time of firing and if several ignition fires were not started within any single structure. She concluded that the fires, at Selevac at least, were deliberately set to destroy the buildings. Selevac is a well-studied example, and largest, of many flat unenclosed sites in Serbia. It was rebuilt through four major architectural phases and was in use for over seven hundred years from the end of the 6th millennium. Its four phases cover an important shift in the ways in which the large, flat, unenclosed settlements were organized and constructed.

This research on fired habitations is important because it focuses attention on the question of why the deliberate burnings occurred. Attention should be paid to the social dynamics of ritual house destruction and construction. Bailey (2002: 165) says that just as the breaking of figurines may have played a role in ceremonies of negating household membership, so the intentional burning of houses may have played a similar role in declaring (or precipitating) the end of household units and of the cohesion of co-resident groups. Others (Dragoman & Sorin 2007: Tilley 1999) see the destruction of the house as symbolic of the human life cycle. The houses are metaphorically identified with people, perhaps the head of the family or clan. When they die they burn the house with them. Or, when a house gets old, they let it die in order to give birth to an offspring, a new house. Tilley (1999) also says that houses evoke tombs, while villages resemble cemeteries. Perhaps there is an analogy between the cemetery and the village as well. "The tombs are located in the cemetery in a manner which, to a large extent, imitates the position of the houses in a village." (Dragoman & Sorin 2007: 116)

MORTUARY CUSTOMS

Chalcolithic cultures are known for their large necropolises situated outside of the settlements. The practice of inhumation of individuals in extramural cemeteries appears most strongly in the lower Danube and in eastern Bulgaria with special manifestations along the Black Sea coast, and, to a much more limited extent, farther to the west in Serbia and in the Hungarian Plain (Bailey 2000: 193). Tell and necropolis were usually separated by some distance or geomorphic features. For example, at the Gumelnita eponymous site (Dumitrescu, 1996) or Mariuca (Lazar and Parnic 2007), both were separated from their respective necropolis by a deep valley. In northern Greece, cremation was used in place of inhumation. Cemeteries were absent

in southern and western Bulgaria (Bailey 2000: 193). It is strange that in south-central Bulgaria, where tells dominated the landscape and where a major source of early raw copper was located, there were no cemeteries. In the Gumelnita-Kodza Dermen group the burials were made in a contracted position within the settlement itself, or in groups in a protracted position, e.g. in Ruse and Kubrat-Balbunar (Garasanin 1982).

The richest and well-known necropolis is at Varna. Previously, for typological and stylistic reasons, the cemetery was dated to the third and last phase of the Varna culture during the second half of the 5th millennium BC (Ivanov 2000:9, 12). According to new carbon dates, Varna I was placed into the 46th century BC and Varna II-III around 4450/4400 (Reingruber and Thissen, 2009). The cultural context is clearly fixed by the graphite-painted pottery and other artifacts in the later Chalcolithic of Bulgaria's Gumelnitsa phase, equivalent to the Karanova VI phase (Renfrew 1979: 200). It is at Varna that we find "the earliest major assemblage of gold artifacts anywhere in the world" (Renfrew 1979: 199). The fact that only a select few graves are adorned with any gold suggests to many that this society had clear ranking with social elites. In several of the graves the deceased was buried in a contracted position, in others fully extended, a convention restricted in Bulgaria during the Chalcolithic period to the northeast of the country. There were 35 graves where no skeleton was found; these are designated 'cenotaphs' or 'symbolic graves' and three contain a mask embellished with gold. Interestingly enough, the settlement associated with the cemetery has not been discovered yet if indeed there is a single such settlement, but it is more likely on the basis of the grave goods that the cemetery holds the elite of a larger region than just the few square kilometers that constitute the territory surrounding Chalcolithic tells. A full report on the necropolis has yet to be published.

Preliminary reports have focused on the most spectacular graves. Only about 30% of the burials have been excavated.

Cernavoda is one of the largest cemeteries of the Eneolithic in the lower Danube with over four hundred burials separated into two zones based on differences in grave-good associations (Bailey 2000). It is contemporary with the Hamangia phase cemetery at Durankulak, and very similar in character. The Hamangia culture (5200-4500 BC) was located around the mouth of the Danube. At Cernavoda, like other contemporary burials in the region, people placed Spodlyus bracelets, marble pendants and copper and Dentalium beads in burials. Burials in Hamangia cemeteries, like Cernavoda, often contained anthropomorphic figurines and in this respect are distinct from all other contemporary patterns of mortuary activities. In a large majority of Cernavoda burials, people deposited parts, especially the skulls of domesticated animals. People used Cernavoda over a very long time from the Hamangia phase to the Cernavoda culture of the late Eneolithic (4000-3200 BC) The later phases of use appear to have disturbed earlier episodes of inhumation (Hañotti 1997: 29). This will become relevant again later in our discussion.

A better look at the overall character and dynamism of the fifth millennium BC mortuary pattern of the lower Danube is to look at the smaller inland cemeteries associated with tell settlements. Bailey (2000), examines four published cemeteries: Colymo Delchevo, Vinita, Devniya and Turgovishte. There are clear patterns among the grave assemblages. Although men, women and children are included in each cemetery, they are not present in equal numbers: overall male burials are the most frequent with 43 percent of all graves. The rest are divided up relatively evenly between women, children, and cenotaph (burials without skeletons) (22, 19, and 16 per cent respectively). The mean number of grave goods per burial is also disproportionate.

Cenotaphs surprisingly held the most (4.38), followed by: men (3.92) women (3.22), and children (2.06). With the inclusion of metal objects, cenotaph and male burials dominate. Females had very few and children even fewer. Grave-goods included ceramic vessels, bone and metal utensils and bone, shell and metal ornaments and tools. Children had a high percentage of jewelry offerings, as much as the men. Pottery represented 66 percent of all grave-goods and appearing in 82 per cent of graves. So burials appear to be context in which intra-group differences were expressed.

There are two separate patterns of body positioning, one for the cemeteries located near settlement tells, such as Golyamo Delchevo, Vinitsa and Turgovishte, and one for the Devniya cemetery, which was not associated with a tell. Most (69%) of the tell burials were placed on the left sides in a crouched position; all but one of the rest were placed in a crouched position on their backs. Almost all bodies were placed so that they faced east and since most cemeteries were located west of their respective settlements, almost all bodies face the nearest settlement. At Devniya, on the other hand, most of the bodies (75%) were placed extended on their backs (Todorovo 1986: 184-5). Two patterns in body arrangement emerge: bodies in coastal environments (Varna and Devniya) were laid out extended on their backs; bodies in inland cemeteries were crouched on their right sides. Bailey thus concludes that while there are inter-individual differences in burials, the trends in body position suggest the function of these cemeteries as expressions of community unity. Nevertheless, it is the differences between individual burials, especially at Varna, that have attracted the most interest. And while most interpretations have read cenotaphs as symbolic burials made to mark the deaths of important community leaders who died while far away from home (Chapman 1990; Todorova 1986).

Sherratt (1981: 194) has noted an interesting phenomenon that developed in the Late Chalcolithic. In Hungary, the previously rich areas of the Lower Tisza and the Körös depression no longer supported the earlier wealth they displayed in symbolic mortuary expression. The emerging areas were nearer to the mountain sources of wealth along the northern edge of the plain – stone and metal – and better placed for long distance trade in more exotic items. Ukrainian items appear: fine blades, and even the first horses. The same is true of Varna, on the periphery of the Southeast European cultural sphere on the Balkan littoral as a coastal location with a commanding position in relation to these developing external trade routes. Both in Bulgaria and Hungary, the areas which rose to prominence in the later Eneolithic, were facing outwards, rather than inwards, and especially in relation to the north Pontic area.

METALLURGY

A key feature of Copper Age societies was, of course, copper. Cold working of native copper had been used since at least the early Neolithic in the Middle East (8700 BC) with evidence of a pendant found in northern Iraq (Hesse 2007). Renfrew (1969) sees the Copper Age in Southeast Europe as an autonomous and independent development, independent from the Near East and Aegean, unlike the Neolithic revolution. “The Balkans, not the Aegean, had the initiative in metallurgical matters in Europe” (Renfrew 1979: 201). The scale and level of sophistication of the Balkan copper industry has been revealed by the excavation of copper mines of the Vinca period at Rudna Glava in Serbia (Iovanović and Ottoway, 1976) and by those of Aibunar near Stara Zogara in Bulgaria. The mining at Aibunar has the appearance of narrow fissures in the rock two or three meters wide and four to five meters deep. There are numerous finds of pottery of the Karanovo VI period, as well as two shaft-hole tools of copper (Renfrew

1979). These mines are the earliest known in the Europe and show that metallurgy had developed into an industry by the fifth millennium BC. Bulgaria's territory was the richest in copper ore deposits, which explains the remarkable advance made by the Eneolithic cultures there (Todorova 1978).

The earliest copper objects were simple, cold-hammered trinkets which appeared in the late sixth millennium BC; malachite and azurite beads from a Starčevo IIIa context at Lepenski Vir (Srejovic 1969: 173). Evidence of crucibles and slag from sites in the Middle Danube Basin show that people were experimenting with smelting by the beginning of the 5th millennium (Glumac and Todd, 1991). Todorova (1981) suggests that the first phase of Balkan metallurgy was for the ornamental use of copper when the majority of copper was made into small objects such as awls, beads, rings, pins, and armbands. They also made good use of it for fish hooks (Bailey 2000: 209). In Todorova's second phase, large copper tools appeared. "The urgent necessity of further raising productivity made it imperative to look for new raw materials" (Todorova 1978: 8). The first flat copper axes come from middle of the fifth millennium BC contexts and the earliest shaft-hole hammer-axes appeared slightly later (Bailey 2000: 211). There were also other heavy copper objects like adzes, hammer-axes, and large chisels. As noted above, copper was added in significant amounts in the cemeteries of the lower Danube and Black Sea Coast. According to Todorova (1978), copper metallurgy appeared because there was no longer any room for improving upon Neolithic tools and implements, their efficiency had been maxed-out. "The use of the more efficient and highly-productive metal tools was instrumental in intensifying the Eneolithic economy. Material wealth was most rapidly accumulated in the settlements along the Black Sea coast, owing to its geographical location." (Todorova 1978: 13).

The frequency of heavy tools and weapons increased at the end of the 5th and beginning of the 4th millennium with more efficient uses of copper but starting in the first half of the 4th millennium copper-working and copper-consumption which had dominated Thrace and Eastern Bulgaria tailed-off and the centers of extraction and production appear to have shifted to the northwest (Bailey 2000: 212). At the same time, the variety in the forms of objects made of copper diminished. The emergence of objects made with arsenic and eventually tin (and lead and zinc) accompanies the beginning of very different cultural and social patterns that mark the beginning of the early Bronze Age.

FIGURINE ART

Another important element of Southeast European Copper Age culture that is important for noticing differences later is its rich and distinctive figurine art. Anthropomorphic figurines appeared in Balkan prehistory in the seventh and sixth millennia BC. (Bailey 2000). Throughout the seventh and sixth millennia figurine art was clearly dominated by abstract forms. They were made perhaps earlier but any evidence of clay figurines would have been lost until the invention of fired ceramics. In the Chalcolithic era figurines gradually became more naturalistic. “The Vinca figurines, modeled less schematically and displaying a greater variety of forms than their East Balkan, Middle Danubian, or Aegean counterparts, are the key to interpretations of Balkan Neolithic-Chalcolithic sculptures.” (Gimbutas 1976: 57).

“The most frequently occurring type in the whole of southeast Europe is the three-edged oval head pinched in front to form the nose and ears. The ears are pierced for earrings. The upper part of the body is given a flat modeling, a small bosom and an outgrowth on each side instead of arms with holes in them so that they may be suspended in an attitude of worship. The lower part of the body is carefully shaped, the proportions are slightly exaggerated, and the hips are, as a rule, strongly exaggerated, and the hips are, as a rule, strongly emphasized.” (Todorova 1978: 85)

Figurines from the fifth and fourth millennia are frequently made showing elaborate dress, costume, and decorative motifs. “Late Vinca figurines tell us most about costume design since they are less abstract than earlier Neolithic figurines and less conventionalized than those of the East Balkan and Cucuteni civilizations. The usual decorative motif was deep incision, often encrusted with a white paste made of crushed shells, or filled with red ochre, or black, white or red paint. Hip belts are commonly portrayed with small discs representing buttons. Female figurines wearing hip-belts appear to otherwise be naked, except for the usual face-masks. Face-masks may be the most common theme in figurine art of this context. Again, the Vinca attach the most importance. They are often triangular or pentagonal with large, raised semicircular or almond shaped eyes. Masks are often incised with detailed designs. Gimbutas (1976), assumed these odd shaped faces to be masks, but it is perhaps just as much probable that they were just stylized faces.

Gimbutas (1976) sees a marked resemblance between European and Anatolian ceramic products, including figurine art and its associated costume fashions during the seventh and sixth millennia B.C. She sees the later Chalcolithic art as a continuation and elaboration on this tradition. Her argument is that these figurines represent an ancient cult throughout much of Europe and Anatolia before the arrival of the Indo-Europeans that worships the “Mother Goddess”. Indeed a relief from a shrine at Catal Hüyük and statuette from Hacilar in central Anatolia closely resemble a relief from a pottery fragment found at Sarvas in Yugoslavia from the early 6th millennium. A large portion of figurines throughout Southeast Europe in the Neolithic and Chalcolithic do appear to be female forms. Gimbutas sees this goddess cult as being part of the cultures of ‘Old Europe’ that was replaced by the more male dominated deities

brought by the Indo-European cultures who displaced but also incorporated elements of the old culture. The bird and snake goddess was also a common image throughout the region during this era.

“Shrine” models are abundant. A cult scene, which was uncovered in a burnt house at the Ovcharovo settlement mound (Todorova 1974), and which may be interpreted as an Eneolithic shrine, provides evidence for the nature of the sun, moon and the natural elements which played an important role in the farming and cattle-breeding organization of Eneolithic people. The find consists of three flat clay altars, four clay altars shaped with their arms raised in worship, three small low tables with three stools each, three oblong drums, three miniature vessels with lids and two larger dishes. All objects were decorated with red mineral dye, applied over a kaolin ground. The signs of the sun (concentric circles with rays), the moon (concentric circles without rays), or plants (triangles), spirals and lightning flash or snake were picked out on the alters with the same dye (Todorova 1978: 84). Interpretations are inevitably difficult, but it does at least seem clear that Chalcolithic ideology was rooted in the natural world of birth and death, seasonal agricultural cycles, and so on.

TRANSITIONS AND TRANSFORMATIONS

Finally we may begin to discuss the cultural transformations that led to the end of the Copper Age in Southeast Europe. Starting from 4200 BC fundamental changes in Balkan life are evident. Almost everything just described was replaced by something different. Settlement, burial and material culture are very different from the preceding two millennia. Todorova (1995) sees this as a long “transitional phase” lasting half a millennia where the Eneolithic transitioned into the Bronze Age society. She also sees the Eastern and Western Balkans as developing

differently during this phase. Major changes are evident in the way people marked out the landscape for settlement, the forms and decorations of ceramics, and the tasks for which they were employed (Bailey 2000: 240). There were also changes in body ornamentation and burial customs. There was, however, some continuity from the previous period in lithics and subsistence, and some areas held on to the old traditions longer than others, but eventually were completely replaced.

From about 4200 to 3500 BC most tells were abandoned, many for good, some would be re-occupied later, marked by significant stratigraphic hiatus. This is most evident in the lower Danube and is marked by the end of the Gumelnitsa A2 phase (c. 4000) and followed by the Cernavoda I phase. Almost all of the key sites in north-central and north-eastern Bulgaria and southern Romania have no evidence of use after the fifth millennium BC. In many cases the final periods of occupation were destroyed by fire (Bailey 2000, Todorova 1995). In Thrace there is not a single archaeological site belonging to the Transitional Period. In other regions the settlement exodus was less complete. In south-central Bulgaria early Bronze Age horizons overlay the fifth millennia phases. Gumelnitsa B phase continues south of the Balkan Mountains. At Ezero there was continued occupation and other sites like Karanovo were reoccupied later after a long hiatus. Level V at Karanovo, above a 50 cm layer absent of cultural materials was markedly different from the preceding four periods in architecture (apsidal ends), in ceramic technology (shell temper) with cord patterns, and the appearance of horse remains. Also, no idols were found (Mikov, 1959). In northern Greece, there is greater continuity at many of the well established tells, although there are fewer sites over all in use (Bailey 2000; Whittle 1996). Settlement throughout the islands of the Aegean became much more prominent (Whittle

1996). Around 3100 or 3000 BC, most large settlements disappeared in central Europe (Milisaukas, Kruk 2011).

Settlements became smaller and more dispersed throughout the regions. There are high hilltop and mountain sites such as Bubanj and Hum, Krivodol, Lesura and Mezdra. These hilltop settlements in Southeast Europe resemble more the villages of the Thracian and Dacian tribes than the lowland river-valley settlements of the Chalcolithic. There are even cave occupations. The Yagodina culture developed in the caves of the Rhodopes during the final Eneolithic. There are many small, semi-permanent settlements in northern Bulgaria located on foothills near streams. These sites are small collections of less than a dozen pit-huts. Other small pit-hut villages such as Ovcharaovo-plateau II in northeast Bulgaria were constructed on platforms above marshy and frequently flooded terrain (Todorova et al. 1983). The site of Ezerovo, by the Varna Lakes was another platform village. New sites of the Cernavoda complex have thick occupational layers representing several successive phases but do not accumulate into tells (Bailey 2000: 240). Other sites were located on low river terraces. In western Bulgaria, collections of smaller settlements were arranged around one larger village (Alexandrov 1995: 256). Overall in the Balkans, settlements were fewer, and those settlements that remained occupied were smaller. There was more variety of site types. There were more mountain sites and cave sites in the West possibly suggesting a refugee population from the east.

Architecture and village layout within the reoccupied old tells also changed. The principal excavated sites from this period in Bulgaria such as Telish-Redutite, Krivodol, Reburkovo and Galatin all have solid mudbrick architecture as opposed to the earlier wattle and daub method (Bailey 2000, 242). The settlements are situated at higher altitudes with commanding views (Todorova 1995). Bailey notes (2000, 243) that at a number of sites in

northern Bulgaria, such as Ovcharovo, the architecture is very similar to the much earlier 7th and 6th millennium architecture. At Ezero at the last quarter of the fourth millennium, new buildings had stone foundations, a technique not previously used in the region, and floorplans reveal rounded, apsidal ends. A stone wall surrounded the village, although within the site buildings were spaced farther apart. Apsidal houses clearly replace the traditional rectangular architecture seen in the Balkan Chalcolithic and Neolithic cultures. Apsidal houses are the norm in the so-called Balkan-Danubian complex of the early Bronze Age. Apsidal houses are known in Bulgaria (Karanovo VII and Nova Zagora), in Macedonia, northeastern Greece (Sitagroi V), the Baden and Ezero cultures where they are exclusively found in leading hill forts, and in Turkey (Troy Ib and Karatas in Lycia) (Gimbutas 1976). Overall there was a more open arrangement within settlements of this time. In the Tripolye culture the large settlements and large houses along with female figurines and painted pottery begins to disappear by 3500 BC (Milisaukas & Kruk 2011).

The rich tradition of painted pottery was replaced with plainer vessels. In both Bulgaria and Romania we see a culture with unpainted pottery, the Cernavoda-Ezero culture, replace the rich Chalcolithic pots with their often elaborate painted decoration. The use of graphite and gold to decorate vessel surfaces was almost completely abandoned and replaced by channeled ornamentation on lustrous gray surfaces (Bailey 2000: 252). The finding of cord-ornamented pottery at Cernavoda, Ezero, and Ezerovo on Lake Varna perhaps links the Cernavoda-Ezero culture with the Usatovo-Gorodsk culture, which succeeds the Tripolye in the Ukraine (Renfrew 1979: 143). In the Ezero assemblage are simple jugs and askoi as well as hole-mouthed and broad-neck jars, some of which has analogies in shape (but not decoration) with Kurgan III and IV pottery illustrated by the late Marija Gimbutas (1965: 487). New shapes include vessels with

large one or two-handled vessels that mark the appearance of sets of vessels used for serving and drinking. These large, two-handled vessels appear in many parts of southeast Europe.

Metal objects are rarely found at this Early Bronze Age transitional phase (Renfrew 1979). What is found indicated that new metallurgy based on the alloying of copper with arsenic was gradually introduced (Whittle 1995). The Balkans was no longer a center of a large metallurgic region in which copper metallurgy was limited to unalloyed copper ores. “By the late fourth millennium BC the Balkans had become a peripheral component in a larger group of communities that made up a circum-Pontic metallurgic zone covering a wide arc stretching from the Adriatic in the west to the southern Urals and the Volga in the east, and from the upper Volga in the north to the Aegean and Asia minor in the south” (Bailey 2000: 253). Unalloyed copper continued to be produced in the Carpathians and upper Volga, but arsenic bronzes began to become the norm. Tin-bronzes, however, did not appear in quantity until the third millennium BC. The processes and sale of metal-working changed; metal working was now of a more primitive nature, mining activities were greatly reduced and the number of copper objects produced decreased (Chernykh 1992: 51).

Burial practices changed as well. Some cemetery and domestic burials continued, but the cemeteries of the Black Sea coast and its hinterlands by and large lapsed, along with their adjacent tell settlements (Whittle 1995: 126). Burials marked by small mounds appeared in parts of the region as far as the Hungarian Plain, with greater concentrations in the lower Danube and the steppe zone of southern Ukraine and Hungarian Plain. In general there was more variety than before. From the middle of the fourth until the end of the third millennium BC, there were three methods of burials (Nikolova 1995): Intra-village inhumation was the common practice in southern Bulgaria, where burials were placed beneath house floors, between houses, and on the

periphery of settlements. This was also practiced some in northern Bulgaria, south-western Romania and mainland Greece. The second type were the extramural inhumations; flat necropolises and single flat graves beyond the settlements. These were typical still in northern Bulgaria and in the upper Thracian Valley. The bodies were usually either crouched or cremated. Ochre was often sprinkled on the head of the deceased. (Bailey 2000)

The third form of post 4000 BC burial was new: inhumation in a pit, which was then covered with an earth and stone mound. These are strikingly similar to the kurgan burials of the Eurasian steppes, which lends some evidence to the invasion theory as I will explain. Mound cemeteries appear in northern and south-central Bulgaria, eastern Hungary and western Romania (Ecsedy 1979; Panaytov 1989). Also found in settlements of the Chalcolithic Tiszapolgar and Bodrogkeresztur are large flint knives nearly identical to those from the steppes of the Sredny Stog (Garasanin 1982). In some cemeteries such as at Plachidol and Kavarna, the smaller tumuli surrounded a larger one, and were probably built after and in relation to the central one. Bodies were placed in pits covered by timber beams and then with a large mound of earth and stones. Again, ochre was often sprinkled on the deceased. Mound cemeteries varied in size and mounds varied in size. At Plachidol and Tsarevbord some are almost 8 m high. Ten other mounds are smaller, 3-5 m in height, more are between 1.5 and 3.0 and many more are between 0.5 and 1.0 m. There are also variations in the arrangement of mounds within cemeteries (Bailey 2000).

Another change in mortuary practices was the inclusion of animals, usually cattle, with the deceased. At a cemetery called Alsónémedi, southeast of modern Budapest dated to around 3500 BC, some forty people were buried in various positions in separate graves. It belonged to the Baden or Pecel culture. No corresponding settlement has been found nearby. The cemetery was in a regional tradition of such burial sites, established in the Tiszapolgar phase. However,

they exhibit changed customs from the Eneolithic. One couple was buried together facing along with two cattle in the same large grave. The two animals were laid on their sides facing each other. Another grave also contained a double animal burial. These burials signal new changes in formality of burials. Stock animals had been buried with people in Southeast Europe before, but very rarely as a whole, only parts would be offered as tokens. The animals here may have had new economic importance. They seem now to have been used in new important ways, offering what has been called 'secondary products' and uses, such as milk (ritual cups buried next to the males head) and traction power (Whittle, 1995: 123).

Considering post Chalcolithic burials on the whole, the changes in funerary architecture, types of grave goods and the inclusion of entire animal bodies, are all strikingly different than the previous millennia. The most dramatic are the appearance of the monumental tumuli. They appear as new markers on the landscape instead of the tells. Bailey says perhaps it is not a coincidence that the kurgans appeared most frequently in those regions where tells were most completely abandoned (2000: 249). The greatest concentrations of burial mounds were in the lower Danube valley and in the Black Sea littoral region of Southern Ukraine.

The changes evident in burial and settlement after 4000 BC are also seen in material culture. The Chalcolithic traditions of striking decorations and reflective surfaces largely disappear and the forms change. There was some continuity in some regions of graphite-pottery such as northwest Bulgaria. A wide repertoire of broadly similar shapes can be found from the Carpathian basin down into Bulgaria, northern Greece and the Aegean from about 3,500 BC. On the whole, the number and range of objects made of gold and copper were much smaller. With the exception of anthropomorphic grave stele, human representation as well as animal disappeared (Bailey 2000, Whittle 1995, Todorova 1995). The rich figurine tradition seems to

die out. More strongly than any other evidence of change such as the settlement patterns, the change in material culture perhaps presents the strongest evidence of changes in the population that brought new people and ideologies, not merely a diffusion of ideas from other parts.

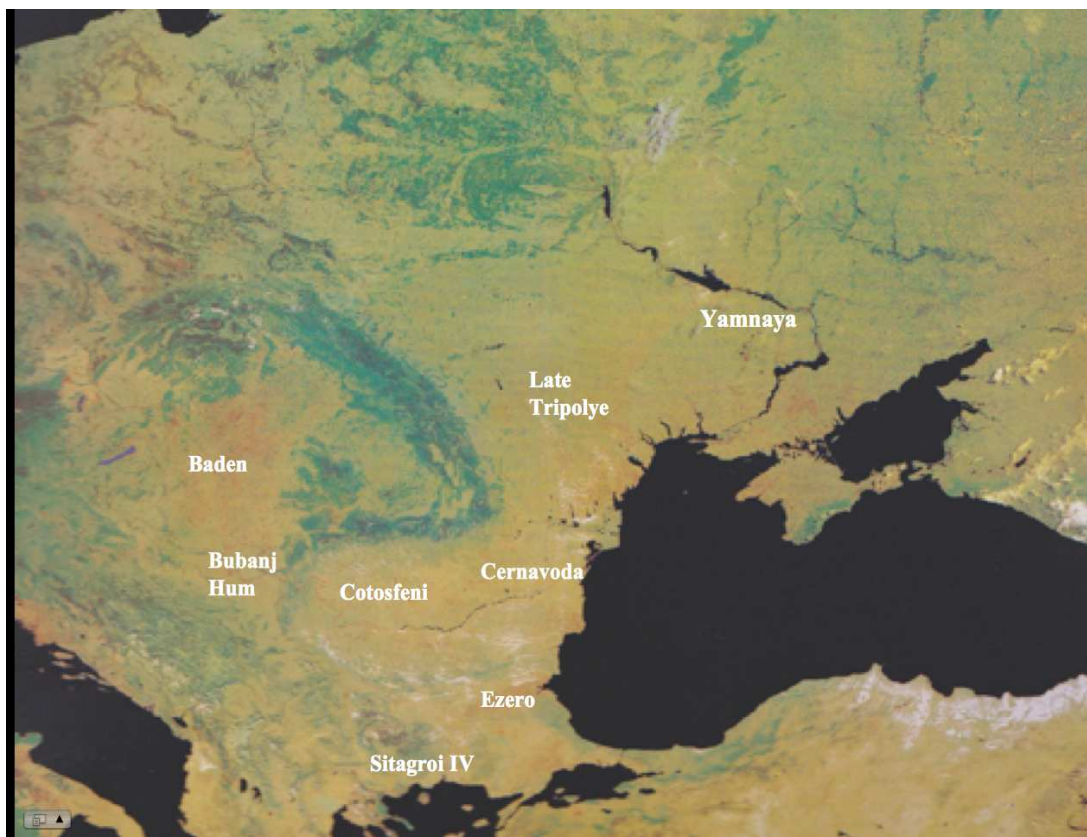


Figure 5: Map showing major Early Bronze Age cultures c. 3500 BC

	<u>INVASION/MIGRATION</u>	<u>CLIMATE</u>	<u>IN SITU</u>
			Parsons- Windler
2000's		Voinea	Müller
	Anthony	Nikolova	Chapman
	Mallory	Todorova	Nikolova
			Bailey
			Whittle
			Sheratt
			Bankoff & Winter
	Todorova		Renfrew
			Chapman
1980's	Anthony	Barker	Barker
	Garasanin	Garasanin	Sheratt
	Gimbutas		
	Ecsedy		
			Dennell
	Gimbutas		
1970's			
	Morintz		
	Roman		
	Gimbutas		
1960's			Berciu
			Rosetti
1950's			
	Childe		
1940's			
1930's	Childe		
1920's			

Figure 6: Chart showing the theoretical trend over time with increasingly more publications supporting internal changes leading to collapse of Balkan Eneolithic culture.

THEORIES OF CHANGE

Perhaps the first theories to emerge in the archaeological community to explain these changes after 4000 BC were those of invasion or influx of people from the outside. Childe early on in *The Danube in Prehistory* (1929) had envisioned invaders sweeping into the more civilized region of the Lower Danube at the end of the Neolithic. He attributed the changes to the Corded Ware culture. They buried their dead in barrows. “The barrows with corded ware reveal to us a wandering race of hunters and pastoralists... These conquering battle-axe wielders exerted a profound influence wherever they went.” (Childe 1929: 158) He proposed that this culture originally derived from the steppes of Southern Russia and spread out to Northern Europe. “The cultural community between the barrow builders in Jutland, Thuringia, and South Russia is undoubted. Recent discoveries have demonstrated the spread of elements from South Russia westward in a manner that does not permit a reversal.” (Childe 1929: 159). The Aegean plan of the chamber-tomb, he said, was derived from the ‘catacomb graves’ of the Don basin. The Battle Axe culture would also be derived from them. At the time, the norm was to place the homeland of the speakers of the Indo-European languages as being the Corded Ware culture, which was thought to ultimately derive from Northern Europe. However, Childe was the first to propose that these original Indo-Europeans may have come from the steppes. His model would have them first migrating up the Danube and from there into Central and ultimately Northern European.

In his chapter on Copper Age Hungary Childe also sees intrusive elements on the Hungarian Plain with barrows that are strikingly similar to the Copper Age ochre-graves of the South Russian steppes. “If we regard the barrows in question as monuments of nomad invaders from the east who introduced the copper battle-axe (axe adze), we should have to assume that the

use of large quantities of red ochre noted in some graves of Danubian II type east of the Tisza was due to invaders. But of course the process is reversible. Nevertheless the barrows in question do indubitably attest relations between the Hungarian plain and South Russia across the Carpathians one way or another.” (Childe 1929: 207). Childe does not reach the conclusion that this intrusive element could be related to the collapse of the Copper Age civilizations mostly because the evidence that there was a collapse had not been discovered yet.

THE ‘KURGAN’ AND INVASION THEORY

It was understood by many since the 19th century that large-scale migrations must have been the origin of such a widespread linguistic group such as Indo-European which, by the Iron-Age, spread from Ireland to India, only held at bay in the south in the Near East by the spread of the nomadic Semitic tribes. Linguists had wanted to favor the Pontic Steppes as the probable homeland as early as Schrader (1890) and it was V.G Childe, as we saw, was the first to accrue archaeological evidence for such a diffusion and gave the credit to the Pit-Grave (Yamnaya) culture in the Ukraine (Childe, 1929). He saw the connections between the appearance of the “ochre graves” burials in Eastern and Central Europe with the western migration of the “most ancient equestrian nomadic fold of Pontus” (1929: 138). Childe later (1950:41) admitted that the concept of a unified Corded-Ware-Battle-Axe-Tumulus Burial complex with a single culture origin was hard to prove without a shadow of a doubt. Nevertheless, Central and Eastern European archaeologists continued to turn up evidence for steppe influences and migrations at the dawn of the Bronze Age (Anthony 1986: 291). It was Marija Gimbutas who constructed the picture of the “Kurgan Culture” that has become the standard theory of Indo-European origins upon which most archaeologists and linguists accept even though the true credit should perhaps

go to Childe. But it was this theory and Gimbutas' models for expansion that begin to explain the great changes that fell upon much of Eastern and Central Europe at the terminus of the Chalcolithic that we see now and are of concern here.

In 1956 Gimbutas introduced the name "Kurgan culture" to supplant six or more other labels used for the same culture or its branches such as: the "Pit-grave culture" (Yamnaya), "Ochre-grave culture", "Battle-axe culture", "Corded-ware culture", "Single-grave culture", etc. She equates this culture as the "Proto-Indo-European" culture. Gimbutas later recognized that the "Kurgan culture" is perhaps not what most archaeologists would call an archaeological 'culture' and she began to use the term "Kurgan tradition" (1977: 278). Its material remains are scanty apart from the kurgans themselves (kurgan being the Slavic and Turkic word for barrow). They left scarce evidence from their homeland in the Pontic steppes of any settlements due to their pastoral economy. However, the important site of Derievka on the lower Dnieper occupied an area of 2000 sq. meters and contains some of the earliest evidence of domesticated horses from around 4400 BC. This culture is the Sredny-Stog culture from a period Gimbutas (1966: 484) labels as Kurgan I. The Sredny Stog were the direct antecedent of the Yamnaya. The discovery of horse bones in the habitation sites of Cucuteni A, Gumelnita and Tiszapolgar cultures indicates that in the second half of the fifth millennium domesticated horse was known to the people of east central Europe and the Balkans down to Macedonia (Bokonyi, 1978). This suggests that cultural contacts between the steppes and our Chalcolithic cultures were strong and that the practice of horse keeping spread quickly and sooner than the migrations. At about the same time horse head figurines carved out of hard stone, presumably scepter heads appear in the Lower Danube probably as part of an elite exchange system. Kurgan hill-fort sites were placed on steep river banks, usually on promontories. They were heavily fortified with stone walls.

Gimbutas (1966) says these were prototypes of Baden hill-fort types and of Bronze Age Mycenaean Greek, Monteoru, Vatia, Uneticean, Urnfield, and other fortified European sites. She says that hill-forts with royal houses and living quarters for the ruling class are an Indo-European characteristic (Gimbutas 1966: 484).

Gimbutas enthusiastically labeled these Kurgan people as a destructive warlike people who came into Europe upon the largely peaceful “Old European” Chalcolithic and Neolithic cultures in Europe. They were also a patriarchal and male-dominated society with its strong warrior caste and predominance of male deities that wielded weapons. The Kurgans represented a burial cult that emphasized the role of the warrior chieftain, his horse and livestock, drinking cups (possibly milk or beer) and weapons. Successive waves of horse and chariot riding warriors over the ensuing Bronze and Iron ages would carry branches of this cultural complex over enormous distances nearly over every corner of Europe, into Anatolia, Syria, Central Asia, Iran, and northern India. However, evidence of any sort of cultural unity between such disparate groups is mostly linguistic. Also seen as evidence by Gimbutas and Mallory are the similarities in religion and deities between many Indo-European cultures. Some similarities in material culture between adjacent groups exist, such as grey ware ceramics common at early Indo-Aryan and Indo-Iranian contexts in northern India, Afghanistan, Turkestan, and northern Iran suggesting homology. Historical records from the Near East and the Vedas of India attest to the intrusive nature of the Indo-European groups such as the Hittites, Luwians, Mitanni, Iranians, Armenians, and Indo-Aryans (Mallory, 1989).

In 1963, in her article entitled “Indo-Europeans- archaeological problems”, Gimbutas places the Kurgan culture farther east, stretching from the Volga River to the Altai Mountains and south of the Aral Sea – not in the Pontic steppe north of the Black Sea where she said an

entirely different culture lived. This North Pontic or Mariupol Culture had collective graves in long trenches. Wheeled vehicles and the horse had not been evidenced she says, then, but we now know they were. It was in the east beyond the Volga and in central Asia that “horse-breeding must have first occurred.” (Gimbutas 1963: 820). And it was in this large area that we find the single grave kurgans that must be evidence of the Indo-European homeland. Soon after the middle of the third millennium Kurgan sites appeared north of the Black Sea and so this must be when the Kurgan people began to move and the “local North Pontic culture disintegrated; the Kurgan culture became dominant, although many elements were taken over from the local North Pontic (Mariupol) culture... The long-lasting North Pontic culture was the first victim of the invasion of the eastern steppe people.” (821). This first incursion occurred ca. 2400-2300 B.C. on the basis of typological comparisons with eastern central Europe (Gimbutas 1961).

Then around 2400-2200 B.C. Kurgan elements (barrows, pit-graves with skeletons lying on back with legs contracted upwards, ochre deposits, stone maceheads, horse-head figurines made of precious stone, battle-axes, unpainted incised and stamped or cord-impressed pottery, ect.) appeared in Transylvania, northern Yugoslavia, and northeastern Hungary, and along the western coasts of the Black Sea, in the western Ukraine, Romania, and Bulgaria. (1963: 823). “The earliest finds of Kurgan appearance have proved to be contemporaneous with the Bodrogkeresztur culture in Hungary and western Romania, with the Tripolye culture in eastern Romania (Moldavia) and western Ukraine, and with the last phase of the Gumelnita and Salcuta cultural groups in central and southern Romania and Bulgaria. This wave of southward expansion, she says, is probably connected with the layers of destruction in Greece at the end of the Early Heladic II period, ca. 2300-2200 BC. She also sees simultaneous changes in western Anatolia such as at Troy, where new elements appeared in the middle of Troy II period such as

wood beam construction in place of traditional mud-brick. She says the invaders would also have traveled by sea, such as colonizing the Aegean. “Only in the western half of the peninsula can the persistence of the local cultures be traced” (Gimbutas 1963: 825). At the end of the 15th century BC, the “Tumulus” culture had expanded all over the Middle Danube area. Gimbutas’ dates from these articles in the early 1960’s were uncalibrated and far too late.

In 1977 Gimbutas published an article entitled “The first wave of Eurasian steppe pastoralists into Copper Age Europe” in which she pushes the date of the first incursion wave back two millennia from her previous (1963) dates. She identifies three such “waves” of the “Kurgan people”. The radiocarbon dates she has relied on were calibrated to dendrochronology. (She notes that her old chronology was revised in 1966). According to her the first wave occurred at 4400-4300 B.C. yet most researchers had been focusing on the third wave which occurred at 3000-2800. She identifies the Kurgan I culture as the early Sredni-Stog, which was east of the Dnieper but west of the Volga. Her motive and means she gives for their emergence from the steppes was their mastering of the horse in the 5th millennium (Gimbutas 1977: 281). The domestication of the horse, she says, seems to have prompted a dis-equilibrium between the supply of grazing land in the south Russian steppes and the dietary demand of rapidly increasing herds. The zones west of the Black sea already under cultivation would have appealed to the Kurgans as ideal pasturage.

The problem with identifying the Sredni-Stog with “Kurgan I-II” is that Sredni Stog burials are usually placed with few or no grave goods and were flat. To explain this Gimbutas has said that most Sredni Stog graves originally had mounds that have since been plowed down. But as Anthony (1986) mentions, most former Soviet archaeologists do not support this interpretation. “The Sredni Stog culture, does, however, exhibit the early stages in the evolution

of permanent surface markers over exceptional graves. Small cairns made of stone cobbles, with a standing stone set into them, occur over some graves even in the earliest period.” (Anthony 1986: 296). Anthony also thinks that the development of permanent mortuary rites with highly visible surface markers over the graves of prominent community leaders or of members of their families could have been related to increased territorial competition and boundary maintenance in the region.

For Gimbutas, the first repercussions of the initial wave were felt in the area north of the Sea of Azov and the Dnieper rapids region. The Kurgan people must have been coming from the east. There in the Dnieper area, the Kurgans partially assimilated the Dnieper-Donets population of herders and fishers where they formed the hybrid “Sredni-Stog” culture. (Few Soviet archaeologists supported this position of the Sredni Stog as evolving out of a migration from further east but rather evolved from the Dnieper-Donets Neolithic population). While some pastoralists settled in the lower Dnieper area, others pushed on into Romania, Bulgaria, and eastern Hungary. This Kurgan penetration of Europe is dated to c. 4400-4300 B.C., on the basis of Kurgan graves and pottery that are synchronous to Cucuteni A2-A3 and Karanovo VI (Gumelnitsa) phases. (284). “Whereas the ratio of male/female burials are fairly equal in Old Europe, early Kurgan graves are almost exclusively male. A warrior consciousness previously unknown in Old Europe is evidenced in equipment recovered from Kurgan graves: bows and arrows, spears, cutting and thrusting knives, antler-axes, and horse bones.” (Gimbutas 1977: 284) Horse-headed stone scepters become common items found in tombs in the West Balkans such as Casimcea and Suvorovo, in the Danube Delta. The first wave theoretically had a much broader region than that covered later by the second.

Gimbutas says that the Cucutenian civilization survived the Kurgan penetrations longer than the Old European cultures to the south and west. There was more coexistence. Kurgan type potsherds ranged from 1-10 percent of the total from Cucuteni A and AB phases. "It is presumed the large Cucutenian communities – sometimes containing more than 1000 houses within 300-400 acres- could not be easily overtaken." (287). But the development of defensive mechanisms at the time shows an increasing anxiety of intruders (Florescu 1969). Anthony (1986) suggests that the mushrooming in size of some of the Cucuteni settlements of the late Chalcolithic was for defensive purposes. The situation was quite different for the Karanovo farmers who lived in much smaller, denser populations in unfortified settlements. They were pushed or fled from their homelands in southern Moldavia, Dobruja, the lower Danube region, and the Marica valley in Bulgaria to the west (Morintz and Roman 1968; Roman 1971). The Salcuta branch in western Romania settled in caves. The dislocation of the Karanovo was the first link in a chain reaction of population shifts throughout the Balkans though Gimbutas doesn't provide solid evidence of this, only a schematic diagram (Gimbutas 1977: 326).

The Cernavoda I complex that emerged in the lower Danube signals a rather abrupt termination of the rich, complex Gumelnita culture. It was a mixture of northwestern steppe elements and the Karanovo (Gumelnitsa) substratum. "It has been determined that Karanovo and Cernavoda are not generically related because none of the tells previously occupied by Karanovo people show traces of cultural continuity with the Cernavoda I culture." (Gimbutas 1977: 291). Cernavoda sites were usually strategically located on high Danube terraces or on spurs of the river (Morintz and Roman 1968). Houses were semi-subterranean with hearths and timber posts that supported roofs. Pottery decoration was by cord impressions, stabbing and dragging, nail and shell impressions, and rows of knobs (beaded decoration") forming a solar design around the

mouth. Painted pottery is non-existent. The pottery was untempered, occasionally brown slipped, and burnished in the Karanovo tradition. Old European symbolic designs and representations of deities or worshipers seem to have vanished with the exception of three schematic figurines from the settlement of Cernavoda I (1977: 291). Its characteristic defensive hilltop settlements, pottery, and burials bear a clear resemblance to those found further east on the southern Russian steppes.

The second Kurgan wave “definitively shaped ethnic configurations in Europe.” (1977: 292) The 2nd Wave of Kurgan invaders headed south from the North Pontic region across Dobruja towards the lower Danube area, apparently not without resistance from the populace of Cernavoda I (the Kurganized complex in the wake of Wave 1). This resulted in the Cernavoda III culture. This culture, she assumes, was essentially the same as the Boleraz in western Slovakia, and the Baden in the middle Danube; they came from the same cultural substrate, (Kurgan wave II), and probably spoke a similar dialects. Radiocarbon dates from the second phase of the hill give the same age as at Usatovo, c. 3400-3200 B.C. By that time, a chain of acropolises and tumuli along the Danube, in the Marica (Bulgaria) plain, and in the north of the Aegean (Sitagroi), reflect the spread of Kurgan domination of Old Europe (Gimbutas 1980: 282). Western Anatolia was also infiltrated at this time. In the lower Danube, Marica, and Macedonian plains, many Karanovo tells were surmounted by hillforts (such as Ezero, Sitagroi, Karanovo VII, Nova Zagora, Veselinovo, and Bikovo). In other areas, steep riverbanks and promontories were selected as seats of the ruling class. “The new lords seem to have successfully eliminated or changed whatever remained of the old social system after the first patriarchal (wave #1) incursion. Hill-forts were the foci of power and cultural life. The surrounding area supported either pastoral or agricultural populations (depending on the substratum). Their villages were

small, the houses usually semi-subterranean, a pattern unknown to Old Europe. But in economy and religion, amalgamation of the Old European and the Kurgan culture is clearly evident” (Gimbutas 1980: 282).

This second wave would have been the product of the North Pontic early Yamnaya & Maiykop Culture situated around the lower Volga. This was the solidified “Kurgan” and therefore, proto-Indo-European cultural complex. It is here we find the first true kurgan tumuli. The Yamnaya succeeded the Sredni-Stog culture. It had close ties with the Maiykop culture in the northern Caucasus region and southern Ural cultures, who themselves became “kurganized”. Anthony (1986) does not refer to the Yamnaya as a specific culture but a “horizon” that represents the diffusion of an economy, not of a unified cultural complex. It shared a broad ceramic tradition, represented by many regional ceramic types, and a broadly shared mortuary tradition with various forms of tumulus burial. The members of this horizon would likely have spoken similar, related languages, if not the same one. It is the Yamnaya, and their contacts with the trans-Caucasus cultures that first brought the wheel to the steppes around 3100 BC (Telegin 1977: 11). It was likely this development that was the catalyst for this “second wave” of Kurgan peoples to both the west and east (according to the theory). However, more recently, the earliest evidence for four-wheeled vehicles in Europe occurs at Flintbek in northern Germany and at Bronocice in southern Poland and dates to about 3500-3400 BC (Zich 1993, Milisaukas and Kruk 1982). Anthony (1986) says that much of the apparent diffusion of the horizon might well represent only the adoption of a new way of life by a diverse array of local populations, much as the American Plains “horse complex” was adopted across the North American Plains after the introduction of the horse.

There would have been a mixed population. Some evidence for this Gimbutas presents from Baden contexts near Budapest in which a people of the “Proto-European C” (steppe) type (almost identical to the west Siberian “Andronovo” type) coexisted with a “mixed Mediterranean” type with brachymorphic components (Gimbutas 1977: 293). Yet the cultural uniformity, Gimbutas says, was “without precedent.” This evidence is based on analysis of skeletal materials from two cemeteries: Alsonemedi and Budakalasz, famous for its small clay effigy of a four-wheeled vehicle (Nemeskéri in Banner 1956). Graves continue to show close links with those from the steppes.

The construction of large heavily fortified acropoleis in the Danubian basin such as at Ezero established the Kurgan domination of Old Europe. The widespread settlement hiatus and abandonment seen during the mid-fourth millennium, Gimbutas believes, would have been due to this dispersion caused by the even more powerful 2nd wave. The Ezero culture was part of a large cultural complex called the “Balkan-Danubian complex” that stretched up the entire length of the Danube and included the Ezero, Cenavoda, Baden, Globular Amphora, Cotoferni, Foltesti, and even Troy cultures that were characterized by similar pottery and the hill-forts. It now seems that the Trojans most likely spoke Luwian, an Indo-European language (Watkins, 1994). These cultures were an amalgamation in progress of two cultural systems with contrasting economies, ideologies, ethnicities – the recently arrived Kurgan conquerors and an Old European people. Farming carried on intact but the settlements became more dispersed and seasonal although some permanent settlements did survive. These acropoli were protected by massive stone walls with corridor shaped gates, as at Ezero. Houses line parallel streets. In contrast to preceding Chalcolithic cultures such as Karanovo and Gumelnitsa, with no evidence of palatial structures, the hill-forts had large structures presumably for the chief, which contained enormous

amounts of grain stored in pithoi (293). Subsequently, in the first half of the third millennium B.C., these “royal houses” as Gimbutas calls them, were large 13-15 m in length with apsidal ends (at Sitagroi: Renfrew 1970c; at Ezero: Merpert and Georgiev 1973; at Vučedol: Schmidt 1945).

Pastoralism in the economy increased. In faunal remains of Cernavoda III settlements we find a much higher amount of domesticated animal remains than before. Gimbutas envisions them becoming the focus of cults, which reflects their economic importance. This accounts for the dispersed settlement pattern we see at the beginning of the Bronze Age as mobility and transhumance became more important. Throughout the Balkan-Danubian complex we see evidence of animal and human sacrifice together in the same pit. Gimbutas sees a “complete congruence between the burial rites of the Globular Amphora people and those of the Kurgans of Mikhajlovka I stage of the Maykop culture in the North Pontic region: mortuary houses built of stone slabs, cromlechs, and stone stelae, engravings on stone slabs, ritual burial of horses, cattle, and dogs; also human sacrifice in connection with funeral rites honoring high-ranking males” (Gimbutas 1980: 292). Human sacrifice is evidenced in Cernavoda III graves containing several skulls of children and pits yielding dozens of skeletons showing signs of mass immolation. “These particular forms of human sacrifice are unknown in Old Europe, but are typical of Kurgan I-II graves in the Pontic and Volga steppe.” (Gimbutas 1977: 293).

The 2nd wave would have been responsible for introducing arsenical and tin bronze into the Old European pure copper metallurgy (Gimbutas 1980: 275). The metallurgic techniques as well as the shapes of tools and weapons were most probably acquired in Transcaucasia when the Kurgan people settled in the Kura and Araxes Valley c. the middle of the fourth millennium BC (Gimbutas 1973). The Kurgans seen here, such as at Maykop, were probably not built by

ethnically steppe people but a people who spoke an early Caucasian people who adopted this burial practice. She says (1980: 275) that by this stage the complex of the North Pontic region had diverged from its Kurgan cousin of the Volga-Urals, for the Kurgan elements that appear west of the Black Sea are clearly connected with the North Pontic, not with the Volga steppe and beyond. This 2nd wave she dates to c. 3400-3200 B.C. The Yamnaya and Maykop people maintained close links. They both used kurgan burials, with their dead in a supine position with raised knees and oriented in a north-east/south-west axis. Graves were sparkled with red ochre on the floor, and sacrificed domestic animals buried alongside humans. They also both had in common horse riding, wagons, a cattle-and sheep based economy, the use of copper-bronze axes (both hammer axes and sleeved axes) and tanged daggers. In fact, the oldest wagons and bronze artifacts are found in the North Caucasus. The world's oldest sword was found at a late Maykop grave in Klady kurgan 31.

A Third Wave (3000-2800) is thought to come from the late Yamnaya phase on the steppes moving north and coincides the appearance of the Corded Ware culture of the North European Plain. Around 2900-2800 BC the earliest Corded Ware pottery and burials appeared in the Carpathian foothills in southeastern Poland (Milisaukas and Kruk 2011). This cultural horizon extended from the Rhine to the Upper Volga River, from Finland to the Alps and the Carpathians. Since mounds, cord-ornamented pottery, battle axes, red ocher in burials occur in the Corded Ware culture and the Pit-Grave (Yamnaya) culture of the southern Ukraine and Russian steppes, it is believed the former is descended from the latter. However, this hypothesis has some problems because some Corded Ware traits are found in the earlier Neolithic cultures of central and Eastern Europe.

Gimbutas' "waves" do not mean a transplantation of the Eurasian steppe culture west of the Black Sea in toto; the process was more complex, involving the coexistence of different cultural traditions, dislocations of population, subjugations by a warrior nobility, and cultural amalgamations (1977: 280). She does believe that ideologically the egalitarian and matriarchal societies of "Old Europe" were transplanted by warlike, patriarchal, and caste based society. Actually the evidence from the Chalcolithic societies such as the Gumelnitsa and Varna cultures especially suggest that they were not egalitarian and that there was indeed a beginning of social elites and there is no strong evidence that they were matriarchal per se. As shown above, the most grave goods, especially precious metals, were unevenly found with men. She bases this assumption largely on the figurine assemblage from these Balkan cultures that do show large ratio of female forms (Gimbutas, 1974). Gimbutas bases her assumption that they were peaceful on the lack of evidence of weapons, or weapon/warrior imagery. The shaft hole copper axes so common in the Chalcolithic could have doubled as weapons but were more likely produced for clearing forests for agriculture as opposed to the clearly aggressive nature of the Kurgan battle-axes and daggers.

The facts are these. Around 4200 BCE herders who probably came from the Dnieper valley appeared on the northern edge of the Danube Delta in the area occupied at the time by the farming Bolgrad culture of 'Old Europe'. These migrants built kurgan graves and carried maces with stone heads shaped like horse heads. These objects then began appearing in the towns of Old Europe. They acquired copper either by trade or loot from the Lower Danube towns, most of which made its way back to the steppes of the Lower Dnieper but some were buried with the wealthy elites in the kurgans. The steppe culture involved in this migration has been labeled the

Suvorovo culture named after cluster of graves near the Danube delta is the Suvorovo group. These are identical to those of the Novodanilovka group back along the Dnieper and so the complex is named the Suvorovo-Novodanilovka (Figure 7). They probably just represent the chiefly elites of the Srendi Stog culture since their burials and lithics are identical. There are about thirty-five to forty cemeteries assigned to the complex, most containing fewer than ten graves. Anthony (2007: 251) says that the Suvorovo-Novodanilovka elite were involved in raiding and trading with the lower Danube valley during the Tripolye B1 period, just before the collapse of Old Europe.

These Suvorovo graves of the Danube delta were always marked by a mound, or kurgan, as markers on this new frontier land or possible as an imitation of the mounded tells. Suvorovo kurgans were some of the first erected in the steppes. Those of the Novodanilovka were usually marked by a pile of stones above the burial or single large stone surrounded by a stone lined ring, or cromlech. The grave pit was usually rectangular but sometimes oval with the Srendi Stog posture, on the back with the knees raised. The copper from these graves helps to date them. The trace elements in the copper from Ciurgiulești and Suvorovo in the lower Danube indicate that they were from the mines in Bulgaria that were still in production before the collapse, and so before 4000 BCE.

Gimbutas did not believe that the Kurgan people exterminated the endemic populations of Europe, but the archaeology shows a coexistence of different cultural elements, a hybridization, a gradual disappearance of local elements (Gimbutas 1963: 827). Her model of dispersal into Southeast Europe by following the Danube Valley into Central Europe is the most likely considering the mobile steppe people would have used the already de-forested lands used by the agriculturalists as the easiest path. Also at this time they were a more sedentary people as

evidenced by the remains of pigs, which does not suggest a people on the move a lot. Nor did they bury their dead under mounds but rather simple pits. The succeeding Yamnaya people do seem to fit the truly pastoral description with mound burials and are a more likely candidate for an invasion. Anthony (2007) stated that it was likely the introduction or invention of the wheel in the North Pontic region that allowed the people to move out of their riverine environments into the open steppe. Even if the migrations didn't take place in 3 distinct waves but more a gradual succession of movements, the evidence for the introduction of new people into the area is strong.

In studying pit-graves in Eastern Hungary, Ecsedy (1979) concludes that the burials such as Csongrad, "have preserved the heritage of a community of undoubtedly steppe origin that arrived at the Tisza region most probably at the very end of the Tiszapolgár culture or immediately after it." (1979: 12). Its appearance is directly connected to the spread of "scepters" dated from the end of the Cucuteni A period and Srednii-Stog II or roughly 4100 BC. He also mentions that, from an anthropological point of view the Csongrad grave is related to the Srednii-Stog II – early Yamnaya physical type and shows no affinity with either the Bodrogkeresztur, native to Hungary at the time, or the Early Bronze Age Baden culture. The males have a "Cro-Magnon, Nordic-A appearance, or Proto-Europid. He goes on to state that while this is true of the male burials, often the female burials are markedly different, resembling more the local population, with a more Mediterranean component (1979: 46). Ecsedy did not believe that the early migrations should be considered invasions. This first penetration of the steppe population groups to Moldavia, the Lower Danube region, Transylvania and the Tisza region took place at the time of prosperity of the Copper Age cultures there. These movements and minor migrations were based on interrelations and exchange of goods between the two

economically different regions. “This early movement from the steppe could not be so strong as to cause a break in local development.” (1979: 13). And so concerning the eventual collapse of the Copper Age cultures, Ecsedy leaves the question open and does not take any stance – “We have no right to assume that the relationships, apparently existing at the time of the emergence of the Yamnaya culture, i.e. in the Tiszapolgar-Bodrogkeresztúr period, did not continue until the final phase of the Baden culture, nor do we have the right to assume a flood-like, enormous penetration overwhelming the local Copper Age population.” (1979: 47). He also says that it is difficult to ascribe the social differences of the Early Bronze Age and the emergence of “citadels” to the influence of the steppeans (1979: 58).

Pató and Barczy (2011) link the start of the “migration of the nomad stock breeders from the eastern steppe” as beginning around 4200-4100 with an effect of the climatic deterioration called the Piora-oscillation, “presumably” (2011: 80). This climatic event will be mentioned again later in this essay. The paleo-ecological samples from the Alpine glaciers reveal that the winters became more and more cold. This is also seen in the decline of oak forests in Germany around 3700 BC, they say. And so, they have suggested, like Gimbutas, that climate change may have spurred the migrations from the drier steppe region.

Numerous other archaeologists and scholars such as J.P Malory have accepted the Kurgan theory or tried to tackle the “Indo-European problem” and modify it (Anthony 1986, 2007; Malory 1976, 1989; Renfrew 1987; A. & S. Sheratt, 1988; Telegin 1986). A modified form of this theory by JP Mallory (1989) maintains the date of the migrations to around 3500 BC but puts less insistence on their violent, quasi-military nature. However, this date appears to be too late to account for the first signs of change in the Balkans. It remains the most widely held view of the Proto-Indo-European homeland and migrations. Indeed, an entire journal, The

Journal of Indo-European Studies is still published every three months to study the archaeology, ideology, and linguistics of this immense geographic and temporal phenomenon.

Anthony (2007: 239) sees possible increasing conflicts coinciding with the use of the horse in livestock raiding. Reasons for these raids were tied with what he sees as Proto-Indo-European initiation rituals that required boys to go out and raid their enemies “like a pack of dogs”. This he assumes based on this ubiquitous ritual among the historical Indo-European cultures. Cattle, sheep, and horses were also valuable as proper gifts to the gods at funerals. When bride-prices increased due to the elites adopting the same symbols of status (maces with polished stone heads, boar’s tusk plaques, copper rings and pendants) across large regions also made cross-border raiding almost inevitable. If these raiders were mounted they could have covered hundreds of kilometers across the steppes to prey on the sedentary populations in the Lower Danube and flee with little risk of being caught. “A cycle of warfare evolving from thieving to revenge raids probably contributed to the collapse of the tell towns of the Danube valley.” (Anthony 2007: 239)

The invasion from the steppe theory remains a widely accepted explanation for late Eneolithic/Early Bronze Age culture change in the Black Sea region (Anthony et. al, 1986: 292). Gimbutas maintains (1980: 310) that the archaeological evidence of the sudden transformations of the “Old European culture” cannot be explained as a product of continuous socio-economic and religious development. Still, over the past 30 years or so, the topic has largely gone out of style. Many refuse to accept a purely migration or invasion cause of cultural change in favor of more processual theories and attempts to perhaps combine the two.

INTERNAL CHANGES

Morintz & D. Rosetti (1959) expressed that the decline of the Gumelnita culture was mainly caused by intensification of a pastoral economy as a response to worsening fertility of the soil. Berciu's excavations at Cernavoda allowed him to single out a separate culture and call it by the same name as the site. The culture he divided into three successive stages (Cernavoda I, II, and III) as part of the same complex. According to Berciu the culture of the first stage, Cernavoda I, was formed locally in Dobrudja on the basis of local Gumelnita traditions transformed by strong southern and eastern impacts. This conclusion has suggested rather a transition from the Gumelnita to Cernavoda culture instead of full replacement one culture by another. So it was a product of local development but significantly influenced by external contacts. These conclusions, ahead of their time, were quickly forgotten however.

While acknowledging the evidence of steppe cultural elements in the Late Eneolithic societies of Southeast Europe, Dmitry Telehin offered a relatively early explanation for these patterns (1973). He saw an elite exchange system taking place between the steppe cultures such as the Sredny Stog and with the Balkans cultures beginning in the late 5th millennium. It was based on the exchange of a number of items between the emerging elite clans and chiefs in the Balkans and those of the steppe tribes. It was primarily based on the exchange of copper from the west to east. This was reciprocated by flint exchange in the opposite direction, in addition to steppe funerary gifts such as Tripolye pottery and horse-head scepters on the periphery. (Curiously, these anthropomorphic scepters are not found in the core area of the steppe region between the Dnieper and Don where one would imagine their source.) Horses also may have been part of this exchange as well. While this theory provides a possible explanation of

exchange networks and contacts between these two cultural spheres, it falls short of explaining the cultural collapse seen in the West. Why were the villages abandoned en masse and why were the ceramic and burial traditions replaced? JP Mallory later (2011) elaborated on this elite change system in order to explain how the different groups living in the different river valley in the Pontic Steppe could have come to speak the same language we know as Proto-Indo-European across the region due to the elite interaction sphere which manifested later into the Yamanya horizon. However, this returns us back to the discussions in the previous section.

To explain changes seen in the Aegean beginning in the 4th millennium, Renfrew (1972) stresses the development of grape and olive production for commercial purposes. This sparked the beginning of widespread sea trade throughout the eastern Mediterranean. He posits this led to the system of elite trade seen in the Bronze Age in this region and this led to social stratification. This all caused a movement from the mainland to the islands and corresponds with the beginnings of the Helladic culture. However, this does not have relevance to the lower Danube Valley where neither grape nor olive production is known from this time.

Actually, Renfrew proposed later that the first speakers of the Indo-European were Early Neolithic farmers from central or Western Anatolia who spread the Indo-European languages with the expansion of agriculture into Europe beginning in the 7th millennium B.C. This would work with a theory of gradual internal change in the Balkans or with a later migration of Indo-European speaking folk again out of Anatolia into the Balkans or even later from steppe people who had become “Indo-Europeanized” before with the spread of the agriculturalists. Reacting to criticism, Renfrew (2004) revised his proposal to the effect of taking a pronounced Indo-Hittite position. Renfrew’s revised views place only Pre-Proto-Indo-European in 7th millennium BC Anatolia, proposing as the homeland of Proto-Indo-European

proper the Balkans around 5000 BC, which Gimbutas identified as the “Old European culture”. He says that reconstructions of Bronze Age PIE society based on vocabulary items like “wheel” do not necessarily hold for the Anatolian branch, which appears to have separated from PIE at an early stage, prior to the invention of wheeled vehicles.

There are a number of problems that I, and others (Mallory 1989) see with this Anatolian Indo-European homeland in the Early Neolithic. For one, if the Proto-Indo-Europeans were the first farmers, who spread out to Europe, North Africa, and Southern Asia, then they would not have come from Central Anatolia, but rather, the fertile crescent region. Furthermore if agriculture subsequently spread to the Nile as it did in Europe by demic diffusion, why did the ancient Egyptians not speak an Indo European language? The same goes for the Elamites and Indus Valley culture. There is a way around this problem by seeing the homeland in the Anatolian plateau but they were not the first farmers but were the carriers of agriculture into Europe and then, millennia later in the steppes, speakers of an Indo-European dialect migrated across the steppes and deserts of Central Asia into the Iranian Plateau and India which there is evidence for. But the problem is that the cultures in the Ukrainian steppes preceding the Sredni Stog (the first possible Proto-Indo-Europeans according to the Kurgan model) seem to show continuous descent from the Mesolithic population in both physical type and material culture.

Then there is the Sumerian problem. Why are there so few loanwords and other signs of lexical or grammatical exchanges between Sumerian and Proto-Indo-European? Why are there so much more signs of language exchange between PIE and the Uralic languages? Why also can we not read Linear A from Crete if they were Indo-Europeans, there by 6000 BC. It appears to have a syllabic structure radically different from the structure of Indo-European words. Why also does it appear from the early written sources that the Indo-Europeans were intrusive and a

minority among non-Indo European peoples already in Anatolia such as the Hatti, Hurrians, and Kaskians. Mallory (1989: 180) says that an Anatolian homeland is at variance with the time-depth for the fragmentation of the Indo-European dialects, based on linguistic criteria. The debate rages to this day especially now in light of some conclusions based on a computerized phylogeographic study recently published in *Science*, using methods drawn from the modeling of the spatial diffusion of infectious diseases which supports an Anatolian homeland (Pringle, 2012). I shall not linger on this debate more, but it is of concern to the theme of this report and from the evidence I do not find it a viable hypothesis although an attractive one.

Bankoff and Winters (1990) explain changes in material culture, settlement pattern and perhaps subsistence in the Morava Valley (Serbia) as the product of gradual internal changes. They note the new ceramic inventory and the disappearance of the earlier Neolithic tradition of painted wares. The large nucleated settlements also disappear. At the site of Bubanj in the Morava River valley there is a clear gap in the Bubanj ceramic assemblage between Bubanj Ib and Bubanj II which occurs at the time when Cernavoda III/Boleraz pottery appears in the north, during the initial phases of the Baden pottery period: in other words; at the earliest phases of the Early Bronze Age in Southeast Europe. We see this gap at contemporaneous horizons throughout the region, which suggests large scale abandonment of the settlements and later re-occupation at some of them. Bankoff and Winters do not make note of this curiously contemporaneous horizon of abandonment and emergence of new cultures.

“In fact, the period from about 3200 to 2300 B.C., no matter what it may be called, saw changes in the European economy and society that, if not as striking as the beginnings of agriculture that marked the start of the preceding Neolithic, were equally fundamental in determining the trajectory of cultural change in Europe for at least the next 1500 to 2000 years” (Bankoff and Winter 1990: 175)

Bankoff and Winter are reluctant to go with an invasion hypothesis. They recognize the major changes that occurred at the end of the Eneolithic/Chalcolithic but would suggest that these sociocultural, economic, and material transformations may have been the result of gradual changes over the considerable period of time, nearly 1500-2000 years; that is the Balkan Chalcolithic. The result of this process was a uniquely European temperate farmstead pattern with concomitant changes in society and substance. They suggest that these changes were the result of continued agricultural expansion, combined with the probable effects of increased animal husbandry and grazing and local factors affecting the soil. They also suggest that these changes could have been the result of changes in agricultural technology such as the introduction though diffusion of the horse from the Pontic steppe, animal traction, plows, and wheeled carts. (Bankoff and Winter 1990, 190) The changes did occur, but they occurred over a considerable amount of time. It wasn't as if the Bronze Age arrived and everything changed at once from a massive invasion. Bankoff and Winter fail to mention the appearance of the steppe-like kurgan burials and make little discussion of the sudden change in pottery styles that resemble that of the steppe. They share with us that one of the shortcomings of the archaeology of southeastern Europe is the scarcity of data from intensive, systematic, field survey (177). This time frame they give, 3200 to 2300 BC did see increasing changes in economy but was after our collapse happened which doesn't fit.

Whittle (1996) shares similar views. He says that a series of important changes, but less dramatic than large-scale migrations took place in the fourth millennium. "Change was neither synchronous nor identical from region to region." (126). Although he admits there were influences from outside, much change can be attributed to internal 'structural reordering'. "Indo-

European language may have spread after these changes were underway, not as their primary cause. Language shift need not only be associated with large-scale (or small-scale) population movement.” (126). He says that Indo-European may have come to be the prime language of these changed societies which emphasized mobility and interregional connections and that this reorientation would have been possible from the beginning of the Neolithic. “Proto-Indo-European of the fifth to fourth millennia BC was probably only one strand in a shifting continuum of language change. It seems most likely that it existed in unaltered form several millennia earlier. To posit an ancestral Pre-Proto-Indo-European is to enshrine the unsatisfactory analogy of tree of descent.” (139). This does not have to be an “unsatisfactory analogy”. Every language has a source, but it is probably true that there wasn’t one single proto language that gave birth to all the other Indo-European languages but an area of similar languages and dialects giving rise to different branches. Mallory (1989: 159) also said earlier that Proto-Indo-European is the slice of one particular strand of the linguistic continuum, falling about 4500-2500 BC.

Whittle points out the weakness of the Kurgan model that it does not fit the chronology of change seen in the Balkans. Were the chronology to be more convincing, one should see the earliest signs of radical transformation on and west of the Dnieper, with subsequent shock waves radiating out to the west. But, the reverse seems to be the case, changes working eastwards (138). The alterations of the late Vinca, Tiszapolgar, and Gumelnitza horizons were contemporary with the late part of the main Cucuteni-Tripolye sequence from Moldova and western Ukraine. He sees the changes as actually beginning in the west, with the Vinca and Tiszapolgar cultures and spreading west. He also does not see the early appearance of horses in Tiszapolgar and especially in Baden contexts in Hungary as being necessarily as an influx of domesticated stock from the steppes but rather could have been a wild variety. Whittle claims

that it is in Serbia and Hungary that we see the first signs of change. “Processes of internal change should be visible in the sequences of individual sites like Selevac in Serbia or Gorzsa or ÓcsödüKováshalom and BerettzójfaluuHerpálz on the Hungarian Plain, in the first part of the fifth millennium BC.” (140).

The Neolithic and Chalcolithic lifestyle was probably always partly mobile but innovations from the outside such as wheeled transport and horse-riding, coming in from the outside helped to “reinforce tendencies to fragmentation and mobility which were already strong” (140). Also possible were attitudes to place and residence. People may have preferred a lifestyle which allowed them to combine both independence and integration. He says that the Indo-European language may have spread not as the result of substantial population movement, but as a common language of communication and long-distance interaction in a world in which mobility and exchange became more important. Some movement of steppe people into Ukraine, Moldavia, and the lower Danube may have taken place, but this is likely to have been “opportunistic infill as primary cause of change in that area.”(140).

Whittle gives a region by region analysis of the time span from about 4000 – 3500 BC that concerns us. He correctly asserts that there is a lack of documented and published material to get a complete picture of the degree of settlement abandonment or continuation from the Late Chalcolithic to Early Bronze Age phases in the Balkans. It is mentioned that some well-established sites like Ovcarovo in Bulgaria were already abandoned well before the “transition period“ at around 4500 BC. And although we lack radiocarbon dates in support, it is possible that some of the lower Danube tells, such as Gumelnitsa and Cascioarele were occupied into the transition period. Published detail on site layout and use is still largely restricted to Ezero. “There is therefore considerable danger in mistaking gradual process for event.” (129). In all

Whittle gives a good analysis of the “Accents of change“ in the transitional period and it’s possible explanations and gives a convincing case for internal processes with some outside influences. At the same time he highlights the lack of sufficient available data and the need for further research. His assertion (1996: 140) that there may have been some movement of steppe people into Moldova and the lower Danube, but this is as likely to have been “opportunistic infill as primary cause of change in that area is certainly noteworthy.

Nikolay Sirokov and Tsoni Tsonev (1995), upon analysis of the flint assemblage from Hotnitsa-Vodopada came up with the conclusion that there is no “discontinuity in the evolution of the Eneolithic tradition into the Early Bronze Age.” (264). Therefore they emphasize an internal evolution of the Late Eneolithic/Early Bronze Age communities. However, as the authors note, such conclusions only account for this particular site and further regional analysis is needed in this region pertaining to lithic tools. Their sample size was small and from “two closely-packed settlement horizons, developed for a relatively short time and thus belonging to the same culture phase”, not a very reliable way of determining temporal change in material culture. It is also de facto knowledge in archaeology that stone technology and forms are very conservative to change relative to pottery, of which there is strong evidence of change for this time and place. Still, the authors make some important points in the end by stating some of the convictions held by supporters of invasions and their rebuttal remarks. One is that the well-marked stratigraphic hiatuses between Eneolithic horizons and the Early Bronze Age ones in the Balkan sequences interpreted as a collapse of the Eneolithic communities are relatively short or even shorter than the hiatuses within the various Eneolithic horizons (Nikolay & Tsonev 1995: 254). Also, the assertion for almost instantaneous collapse of the Eneolithic cultures in the

Balkans and that the transition period to the Early Bronze Age is almost uniform in time and place is not entirely accurate, “But there are more or less pronounced aspects of the autochthonous cultural tradition which occur between the Late Eneolithic and EBA that, in turn, underlay the fact that the upper limit of the Eneolithic is not a uniform one.” (Nikolay & Tsonev 1995: 255).

Bailey (2000) in his conclusions about the post-4000 BC changes in Balkans society is also leaning towards a local development over considerable time. He says that the invasion explanation finds increasingly little support. “The many separate phases of fire destructions of fifth millennium houses and villages occurred over a long period and had more to do with severing local relationships of people and households identities than they had to do with thundering troops of testosterone-exuding arsonists.” (260).

The main fallacy, he says, is the mistaken assumption that dramatic changes in material culture, settlement and burial that are evident in the Balkans from 4000 to 3000 BC demands an explanation in terms of population replacement. “Considering the time span over which these changes took place, the regional diversity, especially in settlement and burial, and the threads of continuity, it seems a much wiser approach to look for local patterns and rates of change.” (260). He assures that when it comes, the DNA comparisons taken from pre- and post-4000 burials will provide some more refined evidence about whether there were such population changes. But as I had mentioned with Gimbutas, she said that there was evidence of a mixed population in the Baden culture with earlier Mediterranean type Vinca people and the steppe type, based on skeletal and cranial morphology. But perhaps this is pseudo science and based on out-dated

modes of racially classifications among Europeans based on cranial and facial morphology. Bailey says that even when the DNA evidence comes, it will only tell us about local populations.

He posits the possibilities that these lifestyles developed independently of any potentially causal events occurring outside of the region; or that perhaps people in the Balkans took advantage of outside technological developments that changed their societies. Perhaps their perception shifted with respect to what was an appropriate or desirable level of settlement permanence or visibility with respect to the ways in which communities established and maintained links to particular parts of landscapes.” (261).

Lolita Nikolova, in her article “The Balkan Proto-Indo-Europeans in the fourth millennium” (2000), finds a complex of internal reasons as the primary factors of the decline of the Late Copper Age in the Eastern Balkans. She says there is no reason to believe that pastoralism was imported into the north Balkans from elsewhere. However, she does see an economic shift toward nomadic and semi-nomadic structures in the entire Balkans in contrast to the stable mixed farming economies of the Early and Late Copper ages. The gradual rise of importance of stockbreeding throughout the Chalcolithic could have consequently caused a population decline due to decreased fertility during the transformation of agricultural-stockbreeding into a pastoral economy, which explains the demographic collapse of the Balkan Final Copper Age (203).

She says “there is no homeland for the Cernavoda I culture pottery in the North Pontic from whence it could have dispersed westwards.” This she says because the emergence of the plain Cernavoda I pottery was gradual, as well as the decrease of the Gumelnita pottery. Also, the emergence of the Cernavoda I culture predated the Usatovo stage of the Tripolye-Cucuteni

population that produced similar pottery. She also stresses that the appearance of scepter graves in the western Circum-Pontic area is not evidence enough of a mass intrusion of population from the northwest Pontic mobile pastoralists. “These changes in the Balkans were the product of internal innovations that involved the adoption of some neighboring elements not only from the north Pontic but also from central Europe.” (204). Yet still she includes that in ethnic terms we find a “transformation and stagnations” of the tribes of Gimbutas’ ‘Old Europe’ and an integration of the intrusive groups from the North Pontic.

Nikolova sees archaeological evidence for a migration of population from north-western Anatolia into the northern Aegean and Bulgarian Thrace based on the popularity of channel pottery at Poliochni I, Sitagroi IV, Dikili Tash IIIA, ect. She also sees the similarities with Baden I as connecting the eastern central Balkans with the southern middle Danube as evidence of a migration from central Europe to the south/southeast. She does acknowledge Yamnaya culture of mobile pastoral groups integrating into the mixed farming systems at the end of the Early Bronze Age I and in the EBA II. They defined the cultural development only in some micro-regions like northeastern Bulgaria (208).

To conclude she says there are “reasons to believe that the cultural changes in the earlier 4th Millennium BC were due to a complex of factors including a series of economic and social crises in the context of climatic deterioration.” (216). The only problem is she does not discuss much of this climatic deterioration or elaborate on how this is linked to the “economic and social” crises at all. But she does touch on the previous observations of Gimbutas regarding elements of the steppe culture in the Balkans at this time without accepting an ideological war between the different ethnic groups. She says that we find the decline of the fertility cult within Old European society itself. The decline in the fertility cult was the result of social change

towards a more mobile pastoral way of life, not ethnic change. So, while she seems to believe that it was the gradual transition to an economy that was based on more mobile pastoralism, she does not seem to accept the invasion theory. "But there is no archaeological evidence for any mass migration resulting in the emergence of the Bronze Age cultures in the Balkans. That fact suggests that the social explanation model is the only correct one, so that the earliest Bronze Age communities were descendants of the Final Copper Age mobile pastoral population in the Balkans" (216-217).

She says that the archaeological record demonstrates strong, well-organized societies, which could not be destroyed by external factors. But this is in reference to the early Bronze Age, not for the Late Copper Age, so the societies she is referring to were already after the archaeological transition from Copper Age to Bronze Age where all the changes occur. And her acceptance that the Yamnaya culture from the North-east Pontic steppes was penetrating into some micro-regions of the Balkans in the late 4th millennium seems to contradict what she said about there being no evidence for mass migrations. Yet still, she maintains that the Proto-Europeans were in the Balkans long before the 4th millennium BC and the Early Bronze Age population was genetically connected with the Early Neolithic population. The transformations were the result of internal processes. So it appears Nikolova is suggesting that the Indo-European homeland was in the Balkans, which would mean they were descendants of the earlier Danubian Neolithic cultures.

Recent studies have begun to look at the traditional Chalcolithic burial culture for clues to explain the eventual changes. According to Chapman et. al (2006) "Once upon a time, not so very long ago, it was widely accepted that steppe nomads from the North Pontic zone invaded

the Balkans, putting an end to the Climax Copper Age society that produced the apogee of tell living, autonomous copper metallurgy and, as the grandest climax, the Varna cemetery with its stunning early goldwork. Now the boot is very much on the other foot and it is the Varna complex and its associated communities that are held responsible for stimulating the onset of prestige goods-dominated steppe mortuary practice following the expansion of farming."

Following in their footsteps, Windler et al. (2012) and Müller (2012) see a steep increase in social inequality as possibly being one of the main reasons for the collapse of Chalcolithic societies around 4100 cal BC in Durankulak and other South East European regions. This rise in inequality was associated with the rise of access to metals like copper and gold. The authors provide good data and methods for measuring the amount of social stratification and material wealth based on ascribed values for artifact categories in the burial goods. "Growing inequality accompanies less economic growth" (208). The elites of the society at Durankulak and Varna needed a surplus to maintain the structure of society but with more inequality they could not offer the necessary growth of goods. This inequality in access to resources, in which only a minor section of the population with access to prestige items, they believe, could have led to conflicts. They lack a thorough explanation of why this imbalance in access to prestige items would have led to a re-structuring or collapse of society. Why would restricted access to prestige items like copper and gold have led to a society unable to support itself by providing the basic necessity of a healthy society, being able to feed itself and maintain a growing population and labor force? Although the possibility that internal conflict between the elites and the majority could have led to the commoners to pack up and leave town. There is still speculation, as the authors have noted, as to whether the Durankulak cemetery displays general tendencies within regional Chalcolithic societies. Further studies on other sites should be done to prove that rising

inequality within Durankulak communities at the end of the early Chalcolithic is not only a local phenomenon.

This raises an intriguing extension of this hypothesis that uses an ethnographic example described by Frederick Barth (1959) in eastern Afghanistan. This looked at two tribes on the Kandahar plateau, the Pathans (today known as the Pashtun) and the Baluch. The Pashtun lived primarily in the low river-bottom fields where status depended on agricultural surpluses. In the local council's Parthan landowners competed for power but no man admitted to being subservient and all appeals were phrased as requests among equals. The Baluch, a neighboring ethnic group, lived in the arid mountains as pastoral herders. They had a more open hierarchical political system. Status was linked to herds, which could grow rapidly and to political alliances whereas Pathan status was tied to land ownership and some who lost their land in feuds or in debt were doomed to peripheral lives. All Baluchi chiefs were the clients of more powerful chiefs all the way up to the khan. However there was no shame in being the client of a more powerful chief and the possibilities for rapid economic and political improvement were great. And so, refugees tended to go to the pastoral Baluch, and the Baluchi language thus gained new speakers (Anthony 2007.)

Likewise in the Chalcolithic Balkans, as wealth increased among a few, perhaps a single family living within the communities such as those that buried their dead at Durankulak and Varna, they acquired higher status. The commoners could have chosen to abandon their more sedentary agricultural village life for a pastoral nomadic way of life on this frontier region that began having increased contacts with herders from the steppe passing along the Black Sea littoral zone to trade with the Balkans. This is purely speculative but it has some analogy to the cited study. However the opposite seems to be true rather than instead of migrating to the more

marginal steppe regions it appears the steppe herders migrated into the Lower Danube valley and likely assimilated with the locals, eventually having their language(s) adopted.

A study of ceramic petrography from the Körös region of Hungary has some good evidence of cultural continuity in the region into the Early Bronze Age (Parsons, 2012). Ceramic petrography is based on the principle that ceramic manufacturing technology is resistant to change over time, while form and decoration can change quickly even in times of demographic continuity. Parsons looked at the measure of paste characteristics of 114 Middle Copper Age, Late Copper Age, Early Bronze Age, and Middle Bronze Age sherds from different sites in the region. He focused on the Late Copper Age Baden period sherds (ca. cal. 3500 B.C.), to determine if changes in manufacturing techniques accompanied changes in ceramic form and decoration. The results showed that there was little manufacturing and technology change occurring at this time and therefore migration of new people into the region was not supported. The Baden culture would be a continuation of previous traditions. This study does not take into account however, the other cultural traditions such as burial practices and settlement organization that are discontinuous from the preceding Tizsapolgar phase. This conclusion is also at odds with the study done by Sterud of the ceramic assemblage at Obre II, as discussed above.

ECONOMIC AND TECHNOLOGICAL CHANGES

Dennell (1975) saw interesting geomorphological changes occurring in the Nova Zagora region of Southern Bulgaria at the end of the Eneolithic and Early Bronze Age. At this horizon there is apparently a spike in the formation of smolnitza soils. “The formation of smolnitzas in

the Early Bronze Age appears to have been accompanied by other geomorphological changes, some of which could have had profound effects upon the agricultural economies of the area studied.” (1975: 101)

There also appears to have been severe erosion at Early Bronze Age sites and horizons such as at Djadevo, where pottery-laden gravels adjacent to the site indicated that erosion had been severe during the Early Bronze Age. Also at Brjastovo, an Early Bronze Age settlement on the edge of the Srendna Gora had been severely eroded, but a nearby Late Bronze Age and Iron Age site had not been so affected. It is possible that these erosion events were from the same event, perhaps a flood in a particularly wet year in this region and not indicative of more ubiquitous swing in the climate across the larger region.

He says it also seems likely that the deposition of the large sheet of riverine clay along the upper reaches of the River Azmak is connected with the erosional phase and was of Early Bronze Age date or slightly later. In the vicinity of Ezero and further downstream near Lubenova Mahla, Early Bronze Age pottery was found overlying a leached form of the Cinnomonic Forest Soil and was sealed by riverine clay. A similar situation was found at Brezevo, where an Early Bronze Age horizon was covered by a smolnitza formation. “At Ezero there is a sharp difference between the late Neolithic and Early Bronze Age layers. Whereas the former are light-colored and similar to the eroded form of the Cinnomonic Forest Soil, the Early Bronze Age levels are like the darker and heavier riverine clays.” (101). This increasing erosion and deposition he suggests, was possibly caused by the over-use of the riverine soils for intensive agriculture over 2 millennia along with soil runoff from the slopes of the surrounding mountains due to deforestation for fuel for copper smelting. Dennell suggests that these erosion events were rapid and occurred over two or three centuries (Dennell 1978: 141).

One response to the change in soil potential would have been to increase community reliance on animal products and to decrease reliance on cereals. If a significant part of the function of tell settlements was to serve as a focus for agricultural activities, then these changes may have been a factor in their abandonment. “If similar erosion events occurred in other regions at this time, then the shift to animal grazing and dislocation of field-based agriculture may have been a widespread phenomenon across the Balkans.” (Bailey 2000: 257). The dispersal of communities consequently would have disrupted the mining and copper industry for a while and disrupted trade. Still, I find this hypothesis difficult to explain the abandonment of tells in the Lower Danube Plain where rich agricultural soils are more plentiful and there are no mountain slopes from which soils would have been washed down.

“Thus it would appear that the sites in the Nova Zagora are situated so as to take the best advantage of the available arable land, the best land for plowing and growing crops. This is particularly noticeable in the case of the Neolithic settlement pattern, in which almost every site is located on potentially arable soil. By Eneolithic and Bronze Age times the amount of good arable land had decreased and the number of sites increased, thus forcing settlement of the more marginal areas.” (103) These new sites would have been smaller in terms of population.

Dennell and Webley (1978) envision a pattern of increasing year-round pastoralism over time in order to maximize the efficiency of land use. In the Neolithic the quantity of year-round grazing would have been very limited. There was a simple seasonal cycle, however, where herds of cattle and goats were used interchangeably. Barker (1985: 106) also sees a landscape more suited to ovicaprid pastoralism and less to agricultural production which he associates with the colder climate accompanying the Piora oscillation around 3500 BC, something I will discuss more of in the following section.

Sherratt (1981, 1983) offers a theory, which he labeled the “Secondary Products Revolution”. He cites evidence for this second agricultural revolution as occurring over an extended period of time of around a thousand years, from c. 3500 to 2500 BC, in which three important innovations reached Europe, in the order: plough, horse, wool (94). He sees these technologies as diffusing to the heart of Europe from outside; the plough and wool from the Near East, and the horse from the Pontic Steppe. Also arriving from the Near East would have been metallurgical technologies such as arsenical alloying and the two piece mold appearing in the fourth millennium in Greece, Eastern Europe and the Pontic area, at about the same time as the traction complex, equids and wool-sheep (1983: 99)

During the Late Chalcolithic (fifth millennium BC), at the same time as major agricultural expansion was taking place in the alluvial plain in the Ubaid period, there was a further development of animal technologies on the fringes of Mesopotamia. Cattle and Wool-bearing sheep probably spread from the Zagros to the lowland steppe and semi-desert margins where significant changes were also taking place in the fifth millennium. Regions were becoming more linked by trade routes. In southern Palestine and Sinai the colonization of new areas filled the area between Palestine and Egypt, linking the Nile Valley with developments in western Asia. With the expanding populations in the Nile and Mesopotamia came attempts to secure direct supplies of metal, stone and wood. Trading colonies were established in peripheral areas such as Palestine, Syria and Iran. The invention of the wheel allowed more goods to be transported. The increased use of pack animals such as the horse, donkey and camel also facilitated this.

The appearance of wheeled vehicles in Europe between 3500 and 3000 BC was a major socioeconomic development. It seems that wheeled vehicles appeared more or less simultaneously in the Near East and Europe (Milisauskas, 1978). Some archaeologists (i.e. Childe 1951, Piggot 1983, Sherratt 1997) have argued for the diffusion of wheeled vehicles from the Near East to Europe, while others such as Häusler (1992) and Vosteen (1999) have stressed their local development.

Sherratt also overviews the emergence of the domestic horse in Europe (1983: 92). The first identifiable culture to domesticate the horse were the Sredny Stog with evidence found at sites such as Derievka near Kiev (Bibikova, 1986). The osteological evidence from this collection indicates that they were most similar to domesticated horses than their wild ancestors. These date to the second half of the 5th Millennium. There is also evidence for small numbers of horses found in graves of the Tiszapolgar culture in eastern Hungary (Bökönzi 1978: 25). This occurrence here coincides with other evidence for trans-Carpathian links such as imported types of flint and status items. As Bökönzi notes, these early horses here were probably used as novelties or status symbols and were not kept for breeding. They don't reappear in Hungary until the Baden period. In the later 4th and early third millennia, horses seem to have spread among elite groups in the North European Plain through contacts between Funnelbeaker and Baden cultures. Horse bones are known from the Funnelbeaker and related contexts in central Germany (Müller 1978: 204), Czechoslovakia (Peske 1982) and Bavaria (Driehaus 1960: 88-9) "This evidence suggests that by 3000 BC small numbers of horses were being kept for riding by certain elements of the TRB population in northern and central Europe, shortly after the time in which the plough first came into use in these areas." (92). By 2000 BC horses were common on Bronze Age sites in Central, Northern, and Eastern Europe.

With that said, Sherratt picks out the various diffusive elements of secondary animal exploitation that had appeared in different parts of the Near East and routes of trade that dispersed them. The hinterland around Mesopotamia opened up, from Anatolia through the Caucasus to Iran, in which new communities – Troy, Maikop, Altyn tepe – were developed through new contacts. “The opening up of this mountain arc made possible connections into Europe. As Eastern Europe lay open to contacts from both the Aegean and around the northern margin of the Black Sea, Sherratt sees it logical that both routes were used in appearance of these new technologies: traction complex, equids and wool-sheep. It appears that the plough made it first, along with the wheeled cart. Like Thissen (1993), Sherratt sees this innovation reaching central Europe from Anatolia as evident in the connection of pottery types between Baden, Ezero, and Western Anatolia. However, he says, a steppe route is also possible, and this is most likely for wool-sheep, and certain for the horse. Metallurgy technology (bronze and the two-piece mold) most likely arrived through Anatolia at about the same time as these other innovations.

In the Pontic region, agriculture had spread from the Danube valley farmers to the people along the Black Sea littoral zone and in the riverine gallery forests of such rivers as the Dniester and Dnieper (Mantu, Corneilia-Magda; 2000). This archaeological culture is the Cucuteni-Trypillian culture which flourished between ca. 5500 BC to 2500 BC. However, the true steppes had been avoided by early farmers, whose native population consisted of riverine groups who fished and kept domestic livestock, mainly cattle (Bibikova 1975). These were the Sredny-Stog people. During the later fourth millennium these populations were becoming increasingly pastoral, promoted by the use of the horse, which was locally domesticated, and the wheeled cart which was adopted from neighboring Caucasian groups (Sherratt 1983: 100). Proof that horse-

riding was contemporaneous with horse domestication comes from antler bits dated to the Early Copper Age (Telegin 1973). “These populations expanded both eastwards, towards the steppes of central Asia, and westwards to intrude upon sedentary agricultural groups in Eastern Europe.” (1983: 100). This passage appears to show Sherratt accepting the Kurgan Model for an invasion. But it seems more likely he accepts it as merely a model for diffusion of the horse rather than bringing about a grand demographic change.

For Sherratt, “their exotic features were not imposed on south east Europe: they were eagerly sought as fresh novelties welcomed by emerging elites whose power was built on control of such exotic valuables. But once in circulation, these exotic novelties like the horse and wheeled vehicles were to cause fundamental changes in economy and society.” (1981, 194) He also says that the growing steppe populations, were not “content to be passive trading partners”, and “some steppe groups seem to have penetrated both into the lower Danube and even into eastern Hungary, where the characteristic ochre-grave tumuli are still a prominent feature of the landscape” (1981: 195). The emphasis I put on “some” because I do not believe Sherratt was saying it was a mass migration as Gimbutas had envisaged.

The introduction of secondary animal products had clear economic implications. Milking allowed humans to harvest animal protein without slaughtering the animal and wool production provided the raw material for new forms of textiles. The use of large draught animals for pulling the new technologies of ploughs and wagons enabled the intensification of agriculture (higher yields per labor unit), expansion of environmental range of agriculture in heavier marginal soils; and facilitation in transporting people and goods. An extensive strategy replaced small-scale horticultural systems. The larger areas of fallow and abandoned land created by this more

extensive form of agriculture made possible an expansion in the use of livestock, including both dairy cattle and wool-sheep.

The secondary product revolution also would have had significant social effects. It enabled the population of Europe to spread out more easily across the landscape, whether seasonally or permanently. The post-Neolithic of Europe is characterized by a reduction in settlement size. “This appears to be the result of the fissioning of the large Neolithic communities into many and smaller settlements composed of household holdings (i.e. homesteads) since the technology of food production required fewer community members (how vs. plow) (Greenfield 2010: 30). However, Todorova (1973) saw the transition from hoeing to plowing as occurring in the early Eneolithic, not the later. Elements of the SPR were criticized almost immediately (Chapman 1983), but modified versions of his economic model, pared down to the diffusion of wagons, wool sheep, and beer/mead feasting quickly replaced migrations by Indo-European horse-riders as a leading explanation for the far reaching changes that appeared across Europe between 3500-2500 BC

Years later, focusing on the Hungarian Plain, Sherratt (1997) emphasized a “considerable measure of continuity” on the Hungarian Plain between the Neolithic and the Early Bronze Age. He argued for a depopulation event around 4000 B.C. based on his analysis of site distribution on the eastern Hungarian Plain. This was due to a shifting emphasis on the importance of goods and raw materials from outside of the Plain. As Parsons comments (2012: 460), “This may have opened a niche for the pastoral kurgan builders to move into the now less densely occupied region. However, it was the Plain’s incorporation into a broader economic sphere that ushered in the appearance of Baden in the region, and not the influence of a migratory population.”

John Chapman, in his 1981 volume entitled *The Vinca Culture of Southeast Europe*, devotes a single yet dense paragraph to explain the possible decline of the Vinca culture. He sees a gradual decline occurring from about 3600 BC. He suggests that in the case of the Vinca, intensive over-cultivation of the most fertile soils for two millennia would have “increased the tendency towards differential soil exhaustion” (138). This would have also happened and been more advanced on the more marginal soils. Lower agricultural yields would have affected two sensitive areas – the degree of settlement nucleation and the availability of ‘ritual surplus’. Chapman believes that the whole social fabric of the Vinca was steeped in ritual cult behavior (77). So when the soil became less fertile the cult of fertility perhaps was abandoned and the ritual-ascribed social ranking broke down, leading to a re-structuring of society. We are not and will never be sure what role the astounding amount of figurines and other ‘ritual’ material meant to the Vinca or what their beliefs were. But what Chapman means by “availability of ‘ritual surplus’ is not clear. The lower perceived ritual success rate would have weakened the centripetal social bonds and led to a tendency to disperse settlement (138). Ultimately this precipitated a decline in information interchange, which we see in the lack of exchange routes in the final Vinca phase. Again, the author mentions how there is little evidence for this process of cultural decline, but he does offer a similar situation as Dennell did for central Bulgaria but possibly involving social factors tied in to that. Chapman states that the environmental evidence suggests that no major climatic changes occurred during the fifth and fourth millennia BC in the Balkans (89). At the site type cite of Vinca, the population declined after 3500 but it continued to be occupied until the Romans entered the Danube region (Tasic et. al, 1990)

To explain the appearance of the kurgan burials, Chapman has an alternative processual explanation (1994, 1997). It says that most of the elements defining the kurgan phenomenon

have already occurred 'singly or jointly', in the earlier Copper Age. The kurgan 'package' was an arrangement of local forms of burial practice. One point he makes is that fact that kurgan burials represent only a fraction of the burials at the time. This alternative hypothesis seems untenable to me. The facts that the kurgans, pit graves and posture of the bodies are so similar throughout the Balkans, and with those from the Pontic-Steppe cast doubts that it was developed locally throughout the region.

These changes aren't limited to just Southeast Europe. Shennan (1993) discusses changes occurring in Central Europe such as a Kruk in southern Poland. The fourth millennium BC Trichterbecher (TRB/Funnelbeaker) culture groups settlement pattern was very extensive with a pattern of very large settlements such as Bronocice, with smaller surrounding satellites. It was this pattern, which ended with the Corded Ware phase, ca. 2900 BC, when evidence of settlements disappears but the distribution of burial mounds points to occupation of the same extensively cleared landscape and suggests an extremely dispersed pattern of small settlements (Shennan 1993: 126). "Patterns in Central Germany and western Czechoslovakia are similar respects. A distribution of nucleated settlement of varying sizes, often in hilltop locations, gives way with the Corded Ware to a situation where virtually all the evidence comes from cemeteries and burial mounds." (Shennan 1993: 126). The Corded Ware culture, on the basis of its burial archaeology, appears to some archaeologists be a strong candidate of direct descent from the Kurgan culture from the steppes. "To many archaeologists, the paucity of settlement and domestic architectural data for this culture suggests that they were nomads." (Milisaukas, 1978: 305). Milisaukas and Kruk (1989) suggest, on the contrary, that the TRB phase was followed by a period of major population decline ca. 3100, which they suggest was the result of

environmental degradation arising from the extensive nature of Funnelbeaker agricultural practices. In the subsequent Baden and then Corded Ware phases, lasting until the later third millennium, population remained low but was extremely dispersed. One line of evidence for this comes from a study of the number of sub-fossil oak deposition found in river deposits in the Danube valley in southern Germany (Becker et al., 1995). On the assumption that larger numbers correspond to more extensive clearance it can be seen that the Danube valley has low levels of clearance from before 3000 to after 2500 BC, before rising sharply at a time corresponding to the beginning of the Early Bronze Age (relatively later than in the Balkans). This may be evidence for declining forest clearance. Schmotz's (1992) survey work in the Danube valley in Bavaria suggests that settlement density was already in decline by the mid fourth millennium. Shennen says there are signs of renewed settlement in some places in the succeeding Bell Beaker phase. Could this phenomenon be related to what happened in the Balkans? The dispersals do appear to be around the same time. Again the question of why remains? It could be related to Dennell's hypothesis of environmental degradation as a result of intensification in Bulgaria (1978), or to Sherratt's 'Secondary Products Revolution', or Gumbutas's Kurgan Invasion. Or it could be climatic.

Also in a Central European context, Milisaukas and Kruk (2011) have stated that major changes in subsistence patterns are visible beginning in the Late Middle Neolithic and continue into the Late Neolithic. Beginning around 4000 BC there was intensive exploitation of uplands, where many Late Neolithic settlements are located. The majority of Funnel-Beaker-Baden sites in the Bronocice region were upland settlements. After large areas of forest were cleared for agriculture throughout the Neolithic, there was a marked increase in silt deposition from

resulting soil erosion. They say that by the onset of the Late Neolithic the Bronocice region of Poland had become a forest-steppe environment. “These anthropogenic changes may have been caused by and may well have encouraged the more widespread herding of domestic animals. Thus Late Neolithic subsistence patterns should be seen as a modification of earlier practice and not as innovation marking a complete break with the past.” (2011: 304). The Central European societies at this point seem to have been more committed to the herding of domestic animals. They do not assume that pastoralism replaced sedentary agriculture but that the economy became more mixed.

Interestingly enough, the “Bronocice pot” a ceramic vase recovered from a large Neolithic site near Krakow is incised with the earliest known image of what may be a wheeled vehicle. It suggests the existence of wagons in Central Europe as early as the 4th millennium. If the wheel was first developed in Sumerian Uruk, its diffusion must have been extremely rapid. They were presumably drawn by aurochs, whose remains were found in the pot. Their horns were worn out as if tied with a rope, possibly a result of using a kind of yoke (Anthony, 2007). Even though this is not exactly the region that the paper focuses on, the process would have theoretically been similar in the Balkans. This early evidence of wheeled carts in Poland possibly throws a dent in the theory that solid-wheeled carts diffused first from the Yamnaya culture around 3100-3000 (Anthony 1995:561). This is also likely due to the poor preservation of wood and we have yet to find the earliest evidence from the steppe.

Milisaukas and Kruk’s (2011) analysis of cattle burials in Central Europe suggest that religious beliefs were changing between 3500 and 2200 BC. This is part of the same phenomenon as seen in Southeast Europe. Burials of numerous animals together as well as within human graves have been found. “They may reflect cattle’s importance in

economy, the high status of their owners, or they may symbolize sacred animals.” (312).

They comment how Late Neolithic pastoralism could have brought increased cattle raiding as herd animals are mobile and easy to steal. Few people are needed merely to look after a herd, but more would be necessary to protect it from an attack. “Cattle raiding may have caused a warlike value system to develop, in which the military exploits of successful warriors were rewarded with higher social status, prestige, or at least more cows.” (309)

To conclude, they comment how the traditional invocation of migration to explain Late Neolithic changes in some parts of Europe is not currently popular. “However, materialistic invocations of internal developments, population increase, and/or agricultural intensification also seem inadequate to us. Warfare may well have been a process of cultural change, and an important one.” (319). The domesticated horse could have been an instrument in rapid long-distance plundering.

CLIMATE CHANGE

It is now widely accepted that from 9000-5500 BP there was a long period of favorable climate called the Holocene climatic optimum. This was large-scale rapid climate change that pulled many regions out of the extreme aridity, which characterized the Younger Dryas from 11,000 BP to 10,000 BP. In general it was warmer and wetter in the Northern Hemisphere. It was at this time the Neolithic populations flourished even though the first domesticates, wheat and barley, were possibly selected for their ‘tough rachis’ mutation favorable to the extreme aridity of the preceding Younger Dryas (Rossignol-Strick 1999). As the Younger Dryas abruptly ended, the pollen records of land sites around the eastern Mediterranean show that the climate

very rapidly evolved from its most arid to its mildest and wettest, with no-frost winters and mild summers. Conditions were also favorable in Europe being warm and wet. Some scholars have attributed the end of the prosperous and stable societies of the Neolithic and Eneolithic to the end of this climatic optimum and greater fluctuations in the natural environment. This sudden cooling and drying event is known as the Piora Oscillation. According to changes in the annual growth rings in oaks preserved in bogs in Germany and in annual ice layers in ice cores from Greenland, the cold period peaked between 4100 and 3800 BC, with temperatures colder than at any time in the previous two thousand years (Anthony 2009).

The most prominent supporter of the climatic catastrophe theory has perhaps been Bulgarian archaeologist Henrieta Todorova. Todorova (1995) strongly claimed that the cultural development of the late Eneolithic cultural block was terminated at the end of the fifth and beginning of the fourth millennium B.C. was a “colossal, global and multi-causal environmental catastrophe: the final stage of the climatic optimum, when the mean annual temperatures reached their post-glacial maximum of 3° Celsius above their present temperatures.” (89). She is one to ascribe to the idea of a Transitional Period, dividing the Eneolithic from the Bronze Age and spanning more than half a millennium (i.e., the first half of the fourth millennium B.C.). The collapse was the caused by the end of the optimum period.

One consequence of this rise in global temperatures was a rise in sea levels. The rising sea levels caused the water table to rise resulting in the swamping of the plains (i.e., in Thrace, Wallachia, south Muntenia, and Thessaly). These plains were precisely the places where Eneolithic farming had flourished. “The final blow to the Eneolithic economy was delivered by prolonged droughts which deprived the people of their means of existence and forest fires and erosion put out any chance of survival.” (Todorova 1995: 89). Todorova says that sea waters

continued to rise during the first half of the fourth millennium B.C., bringing them above their present level. It reached its peak ingress around 3,500. She refers to this as “the so-called Flood”.

She divides this Transitional Period into two chronological stages: the final Eneolithic (or-post Eneolithic) and the proto-Bronze Age. She states that as early as the mid-fifth millennium B.C., the rising environmental catastrophe put an end to the Dhimini cultures in Thessaly, the Maliq Ia in southern Albania and Dikilitash-Slatino in Aegean Thrace. Next affected were the cultures of northern Thrace, Muntenia, the Black Sea coast and Eastern Bulgaria. The Varna and KGK VI complex perished during their phase III (i.e. as early as the end of the fifth millennium B.C.). “The catastrophe was of colossal scope as seen from changes in the settlement density which in the late Eneolithic included more than 600 settlements. By the start of the Transitional Period not a single site is known. It was a complete cultural caesura.” (90). Life went on in western Bulgaria and the central Balkans situated at higher altitude, where the settlements were fewer in number and better protected from the environmental “cataclysm.”

The collapse of the Balkan-Carpathian metallurgy is explained by the ecological catastrophe, which led to the demise of both the Eneolithic settlement system and the population carrying out the metallurgy. Nevertheless, after a while, she says metalworking went on as new mines were opened and the old mine at Aibunar was abandoned. The mining and metalworking centers in eastern Serbia at Bor and Majdanpek and northern Transylvania were producing new weaponry such as the first metal cutting tools (Bodrogkeresztur knives), spearheads, and the Yasladani cruciform axe/mattocks. This was at the end of the Krivodol-Salcuta-Bubanji phase III and the beginning of phase IV in the final phase of the Copper Age. This increase in weaponry was possibly due to the increase in resource scarcity from the catastrophe. Todorova states that

arsenical bronze in the Proto-Bronze stage was infiltrated into the Balkan Peninsula from the territory of the late Tripolye culture (e.g. southern Ukraine and Moldavia). This Circum-Pontic metallurgic phenomenon of early arsenical bronze followed a period in which metalworking had “disintegrated” (91).

The proto-Bronze stage spans the period around the middle of the fourth millennium B.C. during which time both the eastern and western parts of the Balkan Peninsula continued their different developments, although some common elements are evident (91). “In Thrace there is not a single archaeological site belonging to the Transitional Period and this cannot be due entirely to a gap in research.” This presents a problem to explaining the origins of the early Bronze Age Ezero culture, which appears in Thrace without any links to local antecedents.

The transitional phase is better represented in northeast Bulgaria with the Pevets culture, a southern descendant of the Cernavoda I culture. “Their settlements are small, situated on shielded foothills near streams and consist of five to ten dug-outs with ovens and hearths for baking small loaves of bread. Goat and sheep dominated the domestic animal population with a limited agricultural regime and augmented by gathering.” (91) Todorova sees Pevet’s pottery as showing infiltrations from the Cucuteni B-Tripolye C cultural complex from the east with its watery whitish paint and ornamentation. Pottery from the site of Ovcharovo, Pevets sites, together with the Cernavoda I culture, shows connections with the Usatovo culture in the northern Pontic steppes with its disk-like handles. At no point does Todorova entertain the idea of invasion. This is all strange considering her earlier apparent strong position in favor of a “main assault of the steppe invasion” (Todorova 1986). She saw the burnt down upper building horizons of the Eneolithic sequences in Bulgaria as strong evidence for this. Oddly, in this paper Todorova does not even mention the mound and pit-grave burials.

Valentina Voinea (2006) also attempts to explain the collapse at the end of the Eneolithic in the area of the west Black Sea Coast due to rising sea levels. She looks at the last habitation level of the Gumelnita settlement of the island of “La Ostrov”. She sees the rise in the level of the Black Sea as causing a sort of deluge on the rich communities along this coast such as the communities tied to the Varna cemetery. “Only a rapid rise in the seawater’s level could have led to the simultaneous flooding of the Eneolithic settlements clustered in this (the Procadyska) valley: Ezero I, Ezero II, Strachimirovo I (east), Poveljanovo, Morflotte (Varna 1) and Arsenalna.” (12). This is based on evidence of flooding from these sites. Ivanov (1989) was also inclined to accept the idea of a large scale deluge, which would have ended of the existence of the Eneolithic settlements of the Varna area, and he gave the following evidence for his argument: the layer of rocks that directly overlaps the late Eneolithic piece and the presence of the pollen in the flooded level, covered by the rock layer (1989: 56). This rise in sea level she says was the result of the strong climatic warming trend from 7000 – 5000 BC, the optimum climatic. The annual average was 3 degrees higher than the current one.

She says that the stratigraphic situation from Harsova rules out the possibility of violent invasions; between the Cernavoda Ia and Gumelnita A2 levels, there is no stratigraphic pause, as the first dwellings from Cernavoda were built over a layer of leveling with ceramics from Gumelnita. This shows a peaceful cohabitation of the two communities. But, recall, the invasion theory proposed by Gimbutas puts the more incursive 2nd wave occurring between Cernavoda I and III, not these two layers. Cernavoda I was Kurgan influenced but not dominated. Nevertheless, Voinea says there is nothing to suggest a violent penetration of eastern tribes into the area of the west-Pontic coast.

Then later she seems to contradict herself and says, “Consequently, the eastern penetrations must be regarded in the context of the climatic changes from the end of the Eneolithic. The newcomers have preferred, at first, the Dobrudjan steppe, because they moved south on the Danubian line, at the end of the Gumelnita A2 phase, as is proven by discoveries from Harsova. The Cernavoda penetrations have taken place after or at most during the moment of the flooding of the west-Pontic coast’s settlements.” (17).

So it appears she is acknowledging that there were population movements occurring at this time, but only in the context of climatic and environmental changes coming first. “The natural catastrophes sped the end of the Dimini, Dikili Tash-Slatino, Gumelnita – Karanovo VI cultures. To this we add the foreign population penetrations, migrating in several successive waves, and coming from the east.” (17). The population shifts towards higher ground and towards the west which leads to the Krivodol – Salcuta – Bubanj cultural complex to become the center of cultural ‘dissemination’. The choices of higher ground and hilltop settlements were perhaps because the settlers feared further deluge and flooding. The old traditions are reborn in the Salcuta environment, but the traditional forms are metamorphosed; instead of the multitude of shapes and decorations emphasizing the skill of the ‘artist’, the utilitarian forms and the rigid imitations are what followed. It is an intriguing theory that may have some weight concerning the communities that lived on its shores such as the Varna and Hamangia cultures. The level of the Black Sea has risen and fallen numerous times throughout the Holocene and inundation at some point could have dislocated many communities, creating refugees who displaced other communities to the west, though I find it a stretch to link it to the widespread abandonment seen especially in the Danube Valley. Underwater archaeology may turn up some surprising finds in the future.

Bailey et. al (2002) see the shift to tells from more temporary settlements in the mid 5th-millenium as being the result of a more stable river-system, at least in the Teleorman valley floor where before and after this brief optimal period, the river system was less stable and there was more flooding. However, at the end of the 5th millennium BC tell sites such as Vitanesti and Laceni were abandoned. Comparison of macro-flora from Teleor 008 and Vitanesti suggests that conditions deteriorated, becoming unfavorable to cultivation (Bogard 2001). The appearance of rye at Vitanesti and its importance as a cultigen at contemporary tells (Carciumaru 1996) suggest that the growing conditions at the end of the 5th millennium BC were poorer. This deterioration led to the tell abandonment at this site. They also see evidence of significant episodes of enhanced fluvial activity in the Teleroman river-sediments that suggests that after the abandonment of Vitanesti (i.e. the mid 4th millennium BC) the frequency of large floods increased, making the landscape less suited to settled agriculture (354). Erosion then would have degraded the riverine floodplains where crops were grown. Again, we must wonder if this was a pattern throughout the Lower Danube and the Balkan region. If it is, then there is definitely some climatic change throughout the region and beyond.

DISCUSSION

One theory that I could not find in the literature for this period and region was of a plague or possible series of plagues. This theory has been proposed for other cultural collapses such as the Bronze Age collapse (Robbins 2001). The increasing populations held within nucleated tell settlements along with the increasing trade links of the Late Chalcolithic would have facilitated some sort of plague, perhaps small pox. This would have depopulated the settlements and led to population dispersal and left the land open to incursions of people from the steppe. But until

mass graves of those showing osteological evidence of such a plague, this hypothesis remains most speculative.

This “Transitional Phase” is quite long, about 500 years when there is no permanent settlements that can be dated between 3800 and 3300 BCE. In this transitional phase after the collapse there is much less evidence of metallurgy occurring in the Balkans. “Metallurgy, mining, and ceramic technology declined sharply in both volume and technical skill and ceramics and metal objects changed markedly in style” (Anthony 2007: 228). The copper mines in the Balkans suddenly ceased production. Oddly, this is when metallurgy really took off in western Hungary and central Europe. Arsenical Bronze began to be worked with in these new cultural complexes in the “Circum-Pontic interaction sphere”. The Bronze Age is thought to begin about 3300 BC in Europe (Renfrew, 1979).

The crisis did not immediately affect all of southeastern Europe. The most widespread settlement abandonments occurred in the lower Danube valley (Gumelnita), in eastern Bulgaria (Varna and related cultures), and in the fertile mountain valleys south of the Balkan Mountains (Karanovo VI). This was where tell settlements and their stable field systems were most common and intensive. The traditions of Old Europe survived longer to the west in western Bulgaria and western Romania (Krivodol-Sălcușia IV-Bubanj hum Ib). Here the settlements system had been more flexible. The Old European traditions of the Cucuteni-Tripolye culture also survived and actually seemed to be reinvigorated. After 4000 it began expanding eastward towards the Dnieper valley and created ever more and larger agricultural towns.

However, the Vinca culture appears to have declined around the same time as those of the Lower Danube and southern Bulgaria around 4200 BC. John Chapman (1981) suggested that this was at least partly a consequence of two millennia of intensive farming in these river valleys

which caused economic stresses due to decreasing fertility which led to an abandonment of the traditional ritual system characterized by figurines possibly associated with the fertility of the Earth. This model of anthropogenic induced environmental decline became a popular explanation for the transitions of the Late Chalcolithic in southeastern Europe, gradually replacing theories destruction caused by mass migrations from the steppes. But this migration theory does still hold weight.

There is good evidence that a migration from the steppe did begin around the same time as the collapse, but whether it caused the collapse is debatable. It is also debatable whether the evidence from a number of graves is enough to signify a mass migration or perhaps just rogue nomads part or as part of a trading party. This thesis is not the place to argue or search for an Indo-European homeland solution. But in our attempt to find a solution to the end of the Eneolithic cultures in the Balkans it is necessary to connect the dots from what others have noted. With the apparent sudden appearance of steppe influences we begin to find in Southeast Europe burial mounds and mortuary customs involving animals entombed with the dead, plain grey corded ware pottery, and the increased appearance of horse remains. Red ochre does not have any real significance because it had been used in the Chalcolithic in burials. In recent years, mechanisms of change from within seem to be trending. Nevertheless, the hypothesis for migrations from the Pontic-Caspian Steppe is still very much viable.

Gimbutas' model provides a simple solution to our problem of cultural collapse in the fourth millennium and also gives us a solution to how Indo-European languages spread and became established in Europe. Zvelebil and Zvelebil (1988: 578) noted how "migrations are notoriously difficult to identify in archaeological contexts, but most people would not rule out the possibility of immigration occurring where there is a radical break in settlement pattern,

material culture, and ideology compared to the previous culture of an area.” As I have shown, this is precisely what we find in the Balkans in the Late Chalcolithic.” Gimbutas has provided a good model and some strong circumstantial evidence for such migrations, even if they may not have been the violent hordes she makes them out to be. While it is possible that steppe pastoralists of the Sredny-Stog or Suvorovo-Novodanilovka cultures had learned to ride with primitive rope or leather bridles and bits. Any fighting would have been small groups of a clan seeking to raid a village’s harvest or livestock and could have frightened a village enough to abandon it. There was probably more dynamic interaction and exchange between the two worlds with mutually beneficial trade and exchange. Among historically known pastoralists in close contact with farming populations there has been a tendency for wealthy herd owners to form alliances with farmers to acquire land as insurance against the loss of their herd (Anthony 2007). Even though we see a diversification of arsenical cupric forms of weaponry after the 5th millennium B.C., as well as more defensive settlements, the evidence of increased violence is lacking. The burnt layers from the tells, as we have seen, were likely an old tradition of intentional inhumation as a ritual and does not necessarily signify destruction by invading armies. It is still a viable solution, but must be considered in context with other factors. Still, mutualism alone cannot explain the abrupt collapse seen in the Gumelnita-Karanovo complex.

The evidence of ceramics and scepter heads closely resembling those found in the Dnieper region during the Sredny Stog and Novodanilovka periods is perhaps not sufficient evidence of an intrusive population. These kinds of cultural exchanges are expected in contacts between adjacent regions. Some would say the scepters are nothing more than a widely distributed status item circulating among various local elites of the Chalcolithic. However, the sudden appearance of an alien burial rite at this time in Southeastern Europe also markedly

similar to that of the steppes does suggest an intrusive population. Yet, some East European archaeologists like Istvan Ecsedy have regarded it as only a limited Pontic presence in Southeastern Europe which was conservative in retaining certain cultural traits from the steppes.

The horse does appear to have been domesticated first in the Western Eurasian steppe based on both archaeological (Anthony et al 1991) and genetic (Warmuth et al 2012) evidence. New evidence from Pietrele (Ludwig et al. 2009) shows that there may have been domestic horses there c. 4300 B.C. based on genetic evidence that shows there were alleles of 2 colors, Bay and black, that hints at selective breeding but this does not necessarily mean domestication, it could be random mutation. But if it was domesticated, they could have been from the Pontic steppes. Horses do not really begin to show up regularly in the lower Danube until after 3500 in the Cernavoda III culture. We also see evidence that they were being ridden by bit-wear analysis (Anthony 2007). This gives the possibility that they were used as transport by the steppe pastoralists' early incursions into the Eastern Europe but large waves of warriors seems unlikely. For Gimbutas, the domestic horse was the primary cause for their emergence from the steppes. The horse very well may have been domesticated by 4200 B.C. but did not enter southeast Europe before 3500 BC. It is perhaps safer to envision them as rather peaceful pastoralists simply moving with their herds and flocks gradually on foot in the early stage of their migrations, looking for greener pastures and coming into contact with the more settled agriculturalists exchanging goods and ideas and inter-mixing.

The crisis in the lower Danube valley coincides to the late Cucuteni A3/Tripolye B1, around 4300-4000. (Even though this is the same culture, it has different names in the two different countries its remains are found in, Cucuteni is the name in Romania and Moldova, Tripolye in Ukraine). This phase was marked by a dramatic increase in the construction of

fortification, ditches and earthen banks around the settlements. There was also a dramatic increase in the number of settlements from Tripolye A to Tripolye B, nearly 10 fold! There was not, however a significant expansion of the area settled, although some migration to the east occurred. Anthony (2007: 231) thinks that this might be the result of refugees fleeing from the towns of the Gumelnita culture. There is also evidence for at least one Tripolye B1 settlement being attacked, Drusty 1. Here more than 100 flint arrowheads were found around the walls of three excavated houses as if they were attacked.

There is also evidence of increased contacts and coexistence with steppe cultures. Cucuteni C ware was shell-tempered like steppe pottery. It appeared in Tripolye B1 settlements on the southern Bug valley. It might have become common as a coarse kitchenware along with traditional grog tempered wares (ground up ceramic sherds). Many have the steppe type manufacture and decoration but with traditional forms. It may have been adopted from the steppe people because of its increased resistance to heat shock and hardening at lower temperatures, saving fuel (Anthony 2007: 233). They obviously had contacts with the steppe Sredny-Stog culture as they were neighbors and whether this appearance of Sredny-Stog-like pottery was by imitation or the actual presence of steppe people is not known. The presence of polished stone mace-heads as possible symbols of power also is strongly suggestive of close steppe contacts but by and large the old traditions were maintained and they bypassed the collapse in the Lower Danube by almost 1000 years

Bankoff and Winter (1990), Bailey (2000), Whittle (1996) and a number of Eastern European archaeologists such as Tsonev and Sirikov (1995) don't necessarily see these changes as being the result of mass migrations but rather a long process of internal developments and re-

structuring perhaps with influences occurring due to the increased external contacts with other regions such as Anatolia and the Pontic Steppes and Caucasus. But mainly the changes were due to the increased trade and contacts within Balkans. The increased intra-regional contacts established in the Balkans in the Chalcolithic would have facilitated any changes to spread throughout the region, exchanging new ideas and materials to give the impression of trans-regional homogeneity as seen in the Balkan-Danubian complex of the EBA. The chronology does seem to lend support to this view due to the longevity of the Transitional Phase throughout the 4th millennium. Still, the question remains as to what triggered such dramatic changes in the first place. Why were so many settlements abandoned in the late 5th millennium and new burial rites emerging?

Dennell (1978) demonstrated how tell settlement and abandonment may have solely been based on anthropomorphic changes to the ecology. He showed that there was a relationship between the duration of tell village existence (as measured by tell height) and the amount of fertile arable land within 2 km of the village. The larger sites (both in area and in continuity of occupation and re-occupation) such as Karanovo, developed in areas with larger amounts of potentially arable land; smaller sites were associated with areas dominated by land better suited to grazing. Thus he showed that at least in south-central Bulgaria, the fertility of the soil was a major factor in the location of villages and their long-term existence. Dennell presents a pattern that is appealing to explain the abandonment of the tells due to over use of the arable land in some areas with limited arable soil. This explanation does not account for the other social changes seen later nor why in northern Bulgaria where the fertile alluvial soils are most abundant in the Danube Valley that we find the highest rate of settlement abandonment and almost no

resettlement or new settlements in the area. I think this is a good model that can be empirically tested in other areas. It is a usable theory.

Andrew Sherratt's model to explain the social changes seen in the Early Bronze Age in Southeast and Central Europe based on "The Secondary Products Revolution" is worth considering. Its stronger points are that the diffusion (from the Near East or Caucasus) or local development of technology such as the wheel and plow in the 4th millennium was revolutionary for agriculture and allowed for new areas to be exploited, leading to settlement changes.

Whether the wheel was introduced to Europe via Anatolia, the North Pontic steppes, or of local invention, its appearance would have had important changes in transportation, trade, and the local economies of the mid fourth millennium. The introduction of the horse around this same time from the steppes was also revolutionary. However, the weakness of the model comes from new evidence that suggests that secondary animal products such as dairy and wool were used much earlier at the time those animals were first domesticated in the Neolithic revolution in the Near East as early as the 9th millennium B.C. not later in the 4th millennium (Helmer, D. and Vigne J.: 2007). Recent findings, based on the analysis of lipid residue in prehistoric pottery from two agricultural sites in central and eastern Europe dating to the Early Neolithic (5900-5500 cal BC) are best explained by the presence of milk residues (Craig et al. 2005). It shows that dairying featured in early European farming economies. The authors suggest that dairying, perhaps of sheep or goats, was initially practiced on a small scale and was part of a broad mixed economy. However, that woolly-sheep were introduced into Europe from the Near East in the early part of the 4th millennium BC has been maintained, along with the wheel. But these appear too late to have begun the decline of Gumelnita-Karanovo cultures c. 4200. Perhaps during the 4th millennium dairying, and wool did become much more utilized in a more pastoral economy,

thus qualifying as a “revolution” but this would have occurred later. Though it hardly seems that an increase in sheep herding for wool would have caused, on its own, a major shift in settlement.

Bréhard and Bălăşescu (2012) demonstrated that the rise of tell sites, specifically in the Gumelnita culture was associated with an increase in animal exploitation in the late Eneolithic, in particular, sheep pastoralism. According to observations at three Romanian tells, sheep exploitation became more homogenized and specialized. “We can presume that pastoral systems functioned on a local or regional scale.” (3180). They propose that the appearance of homogenous and specialized practices for sheep is linked to the development of the tell site. This contrasts with the usual view that these nucleated settlements were the result of more sedentary agricultural planting practices. The mature, optimum weight sheep were brought to the tell to be slaughtered and lambing took place off – site. These practices were part of a larger pastoral system on a regional scale they say. They do not jump to this conclusion, but it is possible that this increasing emphasis on pastoralism could have eventually caused settlements to disperse

These pastoral practices along with the technological developments and the horse could very well have caused economic changes and increased mobility that led to the abandonment of tells. In the new, smaller communities, craft specialization in making decorated pottery would subsequently have lost its importance as social identity shifted. Increased mobility and transhumance from increased pastoralism brought about by a “Secondary Products Revolution” or otherwise, would have likely led to the widespread adopted use of more simple, crude, undecorated, utilitarian pottery traditions. A stronger emphasis on pastoralism could likely have led to increased male-dominance in society. Likewise, the large cemeteries would have been abandoned. Yet, still, it is hard to deny the apparent influence of steppe burial mound customs

and human and animal sacrifices that were not known before, but perhaps these can be explained as a product of local development as Chapman (1997) suggested, though the outside influence is hard to deny.

The kurgans could be a borrowed tradition from contacts with the steppe peoples used to honor elites, continuing perhaps a tradition gradually developing in Eneolithic societies of increasing hierarchy and social elites. Burials with horses were part of this process that elites controlled early access to horse breeding and power and so chose to be buried with their valuables just as they did at burials like at Varna. Wealth became more centered on ownership of horses and cattle. The structure of society shifted. Or the value of pure copper fell as it became more common to mix it with other metals to make alloys. With the advent of the Bronze Age and its unfolding, metallurgy became increasingly more complicated and geared towards warfare, especially in the Near East. The Kurgans could have been territorial markers of individual tribal and clan chiefs in an increasingly warlike society. Whether this is due to waves of warriors from the steppes subjugating the native population and bringing a more warlike, patriarchal society with them is still debatable, but it seems that increasing trade and inter-regional contacts developed in the Chalcolithic brought in outside innovations and changes that brought on a restructuring of society. And climate change could have been a factor in it as well.

Paleo-climatic studies do indicate that there was an optimal period that was warm and wet throughout the Neolithic and Eneolithic that ended in the fourth millennium when we really begin to see the large scale abandonment of the tells in the Balkans. This process may have begun in the 6th millennium (Steig, 1999). This is an interesting coincidence. There are strong correlations in paleoclimatic studies that indicate that the climate became colder and dryer beginning at the end of the 5th millennium. For example, the 5.9 kiloyear event was one of the

most intense aridization events during the Holocene. It occurred around 3900 BCE, ending the Neolithic Subpluvial and probably initiated the most recent desertification of the Sahara region (Claussen et. al 1999). One chronological inconsistency with the collapse date range comes from paleoclimatic analyses of soils buried under Eneolithic and Bronze Age kurgans from the Caspian steppe (Shishlina et. al, 2009). These data show that the climate was favorable up until the mid 3rd millennium cal B.C. Before this in the favorable years annual precipitation was high and the climate was humid and warm. At about 2600, there was abrupt aridization and extremes between winter and summer temperatures, precipitation decreased and the steppe became almost semi-desert. This date for the climate change comes too late to be of relevance to the Chalcolithic cultural collapse. This evidence, unfortunately is damaging to that hypothesis.

Drier conditions could very well have affected the subsistence practices which supported the dense network of tell sites in Southeast Europe and encouraged a more dispersed and pastoral economy mixed with some agriculture. The occurrence of many sites being found at higher elevations and hilltops could have been useful for exploiting the marginal zones that were more suitable to grazing sheep, goats, and cattle as Dennell (1975) suggested. It may also have been, as Dennell also suggested, that the most productive and arable land was over-exploited and its settlers were forced to use more marginal areas which were best supplemented with grazing livestock. Todorova claimed that rising sea levels throughout the climatic optimum could have been the cause for the abandonment of the Varna necropolis and others along with their corresponding populations along the Black Sea coast the second half of the 5th millennium.

Climatic change and catastrophe to explain the downfall of powerful civilizations has become popular in recent years, perhaps due to the evidence of global warming in the present. Average global temperatures do appear to go through regular cycles of ups and downs every

1500 years or so which are themselves part of even larger patterns of ups and downs over much longer intervals. Even changes of a few degrees can have serious consequences on agricultural yields. One example of climate catastrophe that was widely popularized was Harvey Weiss' theory that aridization and sandstorms brought about the end of the Akkadian Empire (Weiss 1993). This comes from evidence of a sterile layer of wind blown dust from one site in Syria and Weiss hypothesis remains controversial.

These theories of ecological degradation, overexploitation, and internal changes have their own weaknesses. As David Anthony noted: "The evidence for ecological degradation is slight, and the proposed massive shift in economy seems an extreme solution to a problem of localized ecological degradation near settlements. Hundreds of sites were abandoned, and many long-standing traditions were terminated, in crafts, domestic rituals, decorative customs, body ornaments, housing styles, living arrangements, mortuary customs, mining, and metallurgy. The conjunctions of so many terminations suggests a catastrophic event, not a gradual evolution." (Anthony 2009: 51)

It is worth noting that many current models in archaeology attempt to explain the spread a new cultural manifestation in every possible way other than migrations. "Exchange systems, prestige chains, peer-polity interactions, similar cultural evolution or internal structural reordering independent of external stimuli are frequently advanced against former models of culture changes that instinctively sought to introduce a new people with every new pot or burial." (Mallory 1989: 166). This is norm for the prehistorians because any archaeologist working within historical periods finds so much evidence in written records and archaeology that large scale folk migrations took place that to deny that they took place in prehistory is ridiculous. Even if we find meager evidence in the archaeological record of migration does not rule it out.

This is an issue which cannot be ignored. Accepting a hypothesis of migration and invasion is not taking the easy way out of a problem of prehistory. It is a logical explanation based on empirical evidence along with historical analogy. It is also a normal process of human culture. Nevertheless, we are left to wonder even if such migrations took place creating hybrid and even Indo-European speaking cultures; was this the cause of the cultural change and settlement abandonment or just a result of it?

Many see Cernavoda I as one of the first cultures of the Balkans to exhibit features of the “Transitional Phase” marking the end of the Chalcolithic cultures in the Balkans. It shows obvious signs of early influences from the steppes to the East, whether by diffusion or migration. Its location in the lower Danube valley would have been a very probable route for such exchanges. In some ways with its stone and bone tools and in ceramic forms and burnishing it shows signs of some cultural continuity with the previous Gumelnita culture, and so led Gimbutas to label it as a “hybrid” culture, part of the earliest wave of migration of people from the steppes. On the other hand, not everyone is in agreement that Cernavoda pottery shows any connections with steppe cultures like the Sredny Stog. Manzura (1999: 100) says the only parallels are restricted to the corded ornamentation and “mostly concerned with the earlier Cernavoda I materials and those from Derievka, one of the latest sites in the steppe Copper Age. That is why even chronologically such connections look totally unacceptable.” He does point out that there is a stronger resemblance between Cernavoda I and Ceceti C pottery. Nevertheless, its pottery is still very different from the previous highly decorated pottery of the Gumelnita people. The use of shell temper into mostly plain gray ware with some rope or cord-style additions is diagnostic and similar in manufacture to Late Sredny-Stog and Early Yamnaya. It likely was part of a progressive migratory movement coming from the east. Its habitations

were situated on mountainsides or in the highlands on hilltops, sometimes reoccupying the Gumelnita culture settlements and often surrounded by ditches. Stone scepters exhibiting a horse head are common and replace the diverse anthropomorphic and zoomorphic figurines from previous cultures of the Chalcolithic and Neolithic in the region. Funeral rites also show incursions of people from the Pontic and Caspian steppes. Burials and graves are under funeral mounds or flattened pits, both isolated and grouped into a Necropolis. Weapons became an important component of grave goods in Europe in this phase, something that Gimbutas attributes to the warlike nature of the first Indo-European people from the steppe. It wasn't until 1968 that the three "phases" of the Cernavoda culture became identified separate cultures, each individualized typologically at different sites. It also became apparent that Cernavoda III was older than Cernavoda II (Morintz, Roman 1968, 92-97). Cernavoda III clearly no longer showed signs of any continuity from the Chalcolithic cultures and became part of the so-called Balkan-Danubian complex, relatively homogenous group of cultures characterized by ceramics with twisted decorations, the use of ochre, scepters in zoomorphic forms, and burial under grave mounds. Many asked, how can the spread of an archaeological phenomenon over such a large area be explained?

FURTHER RESEARCH SUGGESTIONS

I propose that new research be done in re-examining the cultural sequence from the local Chalcolithic cultures and through to the transitional phase hybrid and Early Bronze age successor cultures. Of particular interest is the Cernavoda sequence: Cernavoda I – Cernavoda III – Cernavoda II. The situation is confusing since the various hilltop occupations of Cernavoda are not fully published. This area is important because of its proximity to the steppe zone, and it seems to show continuity of occupation through at least part of the 'transition period' (Whittle

1995, 129). Questions to be asked are: what is the rate of site abandonment between each phase? Is the settlement pattern different? Site cluster analysis may be useful. Is there a hierarchical relation between sites in the Early Bronze Age cultures with sites of greater importance? What is the degree of continuity or discontinuity between the material remains from phase to phase at different sites? More C-14 samples from a larger sample of Late Chalcolithic sites from the region need to be taken to give us a more solid chronological base. There should be more research on possible differences in behavior in the sites where a possible cultural mix was occurring. More C-14 dates from the many kurgan burials in Southeast Europe would more clearly tie them in with indigenous cultural phases and accurately describe their spread.

Could examination of isotopes in the skeletal remains from Balkan kurgan burial mounds yield clues as to possible migrations? What is the nature of faunal remains from the Late Chalcolithic, Early Bronze Age sites and does it yield information as to possible shifts in economy to increased pastoralism as has been theorized? I have mentioned the Gumelnita to Cernavoda cultures of the lower Danube as a starting point for examination because of the high degree of settlement abandonment at the end of Gumelnita, which seems most puzzling. But perhaps equally curious is why some sites like Karanovo were re-occupied and Ezero continually occupied (perhaps due to the constricted nature of its river valley in the Balkan mountains for farmland). These research questions can be applied across the entire region of cultures from the transitional period. Re-examine old museum collections and survey new and old sites. We must also look closer at the sites of Chalcolithic cultures themselves for possible clues of internal economic stresses just before they were abandoned.

Dennell's model is good in that it is testable in almost any other micro-region. More offsite soil cores in the fields surrounding the tells should be done to look at the qualities of the

soils and if there is widespread evidence in the Lower Danube valley, and also in the Morava valley of Serbia of soil degradation as seen in the Moritsa valley of southern Bulgaria. Pollen cores could also be used to look for clues of a changing local climate and rates of deforestation. Bailey's geomorphological studies of the hydrology in the Teolorman river valley in southern Romania is also a good research model to use in other river valleys to look at increased rates of river instability. Many of these questions have not been looked at enough.

CONCLUSIONS

There is irrefutable evidence that there were incursions of people from the Pontic-steppe into Old Europe in the late 5th millennium- 4300-4000 BCE. They likely could have been riding on horseback. They began to implant their culture on this frontier and foreign landscape with monumental tumuli, or early forms of kurgans with a low mound of earth or stone cairns over single or double burials with identical features of the steppe including body position, the use of ochre, shell tempered pottery, copper spiral bracelets, boar tusk pendants and long flint blades likely used in javelins. They also contained pottery from the local cultures, the Gumelnita and Tripolye B1 and used fine copper and gold ornamentation like at Varna. They seemed to have skirted the coast of the Black Sea and chased the locals away, but interacted with the Cucuteni-Tripolye people.

However, it is difficult to tell whether these people moved to this region permanently since no clear settlements of their culture exist. They likely were highly mobile and maintained interactions with their home populations along the Dnieper. It is also difficult to say whether these people were violent and were the cause of so many people abandoning their long-established settlements in the lower Danube valley. It appears that the settlements of the Bolgrad

culture north of the Danube delta were abandoned and burned soon after these Suvorovo immigrants arrived. Most of the abandonments apparently were planned, since almost everything was picked up. But at Vulvanesti, radiocarbon dated 4200-4100 BCE, abandonment was quick, with many whole pots left to burn (Anthony 2007). A second and seemingly smaller migration seems to have branched off from the first and moved into Transylvania and eastern Hungary and left cemeteries at Deccea Muresti in the Mures valley and at Csongrad at the end of the Tiszapolgar and the beginning of the Bodrogkeresztur periods, about 4000-3900 BCE, but seemed not to disrupt the local cultural traditions.

The causes of such migrations are not clear but it could be related to climate change seen in the late 5th millennium related to the Piora Oscillation. Winters began to get colder after about 4200 BCE. The marshlands of the Danube delta would have been attractive to mobile pastoralists for winter refuge as seen by steppe pastoralists in historic times because they offered good winter forage and cover for cattle. The Danube delta was the richest area for this in the entire Black Sea. The first Suvorovo herders who appeared here about 4200-4100 might have been seeking forage for their cattle during a period of particularly cold winters. These steppe tribes also may have been seeking the highly prized manufactured copper of the Danubian cultures. It is possible aggressive raiding from year to year frightened the people of the lower Danube into fleeing to the west or possibly to the northeast. There they might have sought refuge in the Tripolye cultural area and thus account for a massive increase in settlements of the Tripolye B1 period as well in an increase in fortifications. However, it is not possible for me to say for certain whether this was the primary cause of the collapse. Evidence of a massive migration is not there and leads many to discount an invasion hypothesis as the cause. However, the few dozen graves that have been found in Southeast Europe likely represent the chiefs of the

nomadic tribes over generations and offer a possibility of repeated incursions over time or permanently settling.

The Suvorovo migrants brought with them new symbols of power and prestige embedded in the horse-head mace heads and also probably in horses themselves. They were almost certainly larger than the pony-like native marsh and mountain horses of central and Western Europe (Anthony 2007: 341). Considering these steppe horses being ridden, it would have been an impressive sight. Their mobility and lack of reliance on a failing cereal field system appealed to the struggling farmers of Old Europe and gave the appearance of strength, vitality, resilience, and new economic opportunities. This likely led to the first shifts in language as these Balkan “Old Europeans” speaking perhaps an Afro-Asiatic language began to adopt the early Proto-Indo-European dialect of these Pontic-steppe Srendy Stog folk. The old language, associated with the tightly closed village farmers, might have become stigmatized in favor of the language of stockbreeding and mobility in a model considering these invaders were the carriers of a proto-Indo-European language. The Gumelnitsa were likely already switching to an economy more reliant on animal stockbreeding and as these newcomers arrived with their herds they knew how to manage in new ways, the Gumelnita people may have looked to them for help. Anthony (2007) suggests the steppe migrants may have become patrons in a patron-client system with the natives.

Tribal warfare and raiding was likely a part of this pastoral society on the steppe. Boundaries for grazing needed to be held and enforced through strength. As the climate became colder and dryer on the steppe, competition for good grazing land led groups to migrate to the southwest, into the Lower Danube, river valleys of the Karanovo culture, and along the Black Sea coast. Pedestrians without access to horses were easy targets for these Suvorovo people.

Copper and cattle were likely their main targets, along with what grain supplies the tells might have had. The fact that many of these sites in the lower Danube, such as Telish-Liga, burned suddenly with much of the pottery and other artifacts were left in place suggests they were fleeing. The sites of Hotnitsa and Yunasite in Bulgaria show numerous human skeletons in the final burnt layer, which suggests a massacre took place. But it may just be that these examples were from any number of causes such as fire spreading from a lightning strike, a prairie or forest fire facilitated by drought, or an accidental fire from within the village in which some just didn't make it out.

Why the Tripolye culture avoided the calamity their Gumelnita neighbors suffered, is worth pondering. Perhaps it was because their immediate neighbors were the Srendy Stog along a long established frontier between agricultural Old Europe and the pastoral steppes. Centuries of direct peaceful trade, exchange, and alliances often sealed by marriage between the two societies had left some sort of bond that the Suvorovo groups did not want to break with the Tripolye. If these Eneolithic steppe cattle herders were mounted, they could pick a distant target that did not threaten these valued gift partnerships. As Anthony mentioned (2007: 239) cattle raiding was encouraged by Indo-European beliefs and rituals. They likely needed more animals for their herds and copper to pay for bride-prices in a society that had seen an expanding population in the Eneolithic but which the changing environment was straining. Whatever the exact cause raids over several generations could have eventually caused the people living in the tells to pack up and finally move. The result would have been dispersed and difficult targets for such raids. Although these tells were often fortified by walls and palisades, this could have done little to stop even small bands of mounted raiders firing flaming arrows. This likely would have led to a cycle of thieving raids and revenge killings. The dispersed clans would have practiced

more transhumant pastoralism and built small, single phase settlements like the Gumelnita B1 hamlet of Jilava. Southwest of Bucharest, with just five to six houses and a single-level cultural deposit, it was burned and abandoned seemingly suddenly leaving behind whole pots and many other artifacts. Eventually they began to settle back down alongside these Suvorovo groups to form the Cernavoda I culture, after about 4000 BC.

In addition to evidence of migrations and raiding emanating from the steppes, I believe that climate change played a significant role in the crisis. It likely precipitated the initial decline in agricultural productivity and economy of the tell communities and affected the migrations from the steppes. Crop failures exacerbated by warfare would have led to a more mobile economy. Climate change, especially to colder and or dryer conditions is a powerful force that can easily disrupt the balance of agriculture dependent communities. This left them weaker and more vulnerable to raiding. Soil degradation caused by centuries of overuse also could have been a factor, as Dennell showed. This could very well have led to agricultural decline in the most heavily occupied areas of the Balkans around the same time. This probably would have led to an economy less dependent on agriculture and the soil and more on pastoral exploitation of more marginal environments. Vinca began to decline around 4200 BC. Yet there is almost no evidence of kurgans or any other steppe elements there from this time suggests it was something else. The mines of the Balkans were abandoned after 4000 BC. It appears that the Bodroghkeresztur culture in Hungary beginning around 4000 BC began to expand south into this territory. This is right around the same time that the copper-using cultures in central Europe and the Carpathians switched to Transylvanian and Hungarian ores (Anthony 2007: 228). The likely collapse of these mines probably as a result of the decline of the core cultures of Old Europe. Vinca and many other related sites were still occupied into the Bronze Age but were smaller.

This is a theory that can also be tested by soil and pollen analysis from landscapes of this period. The introduction of wheeled carts and wagons in the mid 4th millennium along with heavier ploughs and traction with the widespread use of the horse likely facilitated a more mobile existence and exploitation of less ideal soils. This process accelerated along with further migrations from the steppe.

It is also just as likely that the collapse of Chalcolithic southeastern Europe was directly caused by the climate change that ended the Atlantic Period, the mid-Holocene optimum. A long period of harsh winters and or droughts, or even a couple of severe years could have caused catastrophic crop failures which led to starvation and abandonment of the tells in favor of an economy dependent on animal herding and mobility. This seems likely due to the apparent catastrophic nature of the crisis, as Todorovo noted, in which nearly every tell of the lower Danube Gumeltnita culture was abandoned after about 4000 BCE. This also affected the culturally related Karanovo IV settlements of southern Bulgaria as many were abandoned, but likely it wasn't as severe as the climate here is noticeably more mild. Nevertheless, Karanovo seems to have been abandoned for nearly 500 years, while Ezero was continuously inhabited. This catastrophe might have opened the door to migrating pastoral nomads from the steppes to move in and mingle with the displaced Danubian people to form hybrid cultures such as the Cernavoda and Ezero cultures. The end of the Vinca culture seems to have happened at this same time, 4200 BCE, suggesting something widespread and catastrophic that cannot be explained by small migrating bands of steppe herders.

Likely causes of a massive restructuring of the Late Chalcolithic of southeast Europe may very well have been a combination three factors; migrations, climate change, and soil depletion. In identifying the different systemic variables that led to periods of decline in Ancient Egypt,

Karl Butzer (1980) gives us a model for cultural decline that can be used in other instances, including our Balkan Chalcolithic chiefdoms. It gives us a model with different causes often in combination. The first variable is a social pathology that leads to overexploitation of the masses by a growing unproductive elite, with resulting social disequilibrium and eventual politicoeconomic collapse. This is similar to what Chapman (2006) and Windler et al. (2012) have recently hypothesized for what happened at Varna and Durankulak based on evidence of growing inequality in access to prestige items and luxury goods in graves. This elite likely resulted from the copper trade. The second variable, the strength of leadership is hard to attest in the Chalcolithic. There is no evidence of any central authority in the Gumelnita-Karanovo VI or Vinca cultures. There is no site size hierarchy or evidence of monumental architecture and palatial structures or elite houses at all, only elite burials. Each tell village probably had a chief who had some sort of authority among the different clans in the community but there is no evidence their power reached beyond their own village so a loose grip on power over a large kingdom and territory such as the cultural area doesn't seem to be a factor in the decline. The third critical variable, foreign intervention, is relevant here as I have discussed. His fourth variable, ecological stress is also a serious factor we have considered, in either climate stress or declining soil potential.

Other variables to consider that may be more appropriate for this situation are agricultural production, access to resources, technology, settlement aggregation, exchange networks for food, raw materials, and finished goods, and demography (Butzer 1980: 522). Several processes with varying periodicities of magnitude may occasionally coincide, reinforcing one another and creating an overall tendency that is strongly unfavorable at the low point of trends. I believe that is what happened in this case. It was a likely coincidence of nearly simultaneous negative inputs

to the system. The changing climate, declining soil productivity, and foreign incursions triggered a catastrophic process of mutually reinforcing events. The common result is that of rural depopulation and decreasing productivity. A similar situation appears to have happened to the Akkadian Empire as climate change brought drought to the northern Mesopotamian plains and weakened the empire it was finally put down by the invasion of the Guti. It seems, according to Butzer, foreign intervention and invasions are a regular part of cultural process.

Whatever the cause(s), the consequences indeed appear to have been very dramatic, even catastrophic as Todorova (1995) noted. Almost all the tells of the lower Danube were abandoned within the span of about 2 centuries. As is common perhaps in archaeology, too much interpretation can be applied based on theory. However, everyone is entitled to one. Cultural collapse and change and their causes are age old debates in archaeology and history. They are often complex events with different factors working in tandem and cannot be reduced to just one cause. The point I try to make is that migrations are still a factor worth considering in this debate even though the overall trend in the last decades has been to find other explanations.

Sherratt (1983: 188) said, "The Early Bronze Age does indeed have the character of a fresh start, a restructuring of society on entirely new lines." Each theory presented is worth considering. Even though I have not amassed any new data from this context, I have attempted to gather and present as much prior works dealing with the theory of cultural change at this time. It seems that published detail specifically examining this 'transitional period' and the cultural changes is lacking. There needs to be more intensive study on sites of this period. Interpretations of cultural change and collapse are notoriously difficult, especially in prehistoric societies. We can only assume that the same forces and pressures that contributed to the collapse of more understood and or documented states and chiefdoms were at work here in the Chalcolithic

Balkans. As intriguing as the Chalcolithic cultures were by themselves, much more needs to be discovered, interpreted or reinterpreted. In focusing on this cultural collapse, I hope to keep the debate alive and suggest further research.

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